Critical Path Analysis with Imprecise Activities Times

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Abstract

The aim of the paper is to present the conceptual framework related to critical path analysis with imprecise activity duration times. This article is motivated by the fact that most approaches to project planning are deterministic. In reality, the problem is accompanied by uncertainty and risk associated with dealing with imprecise data. Taking this uncertainty into account when performing analyses and calculations not only helps to better project planning, but also to expand the applicability of project scheduling methods under real-life or uncertain conditions. The major contribution of this paper is the development of a novel approach to critical path analysis in the presence of uncertainty. Extended Critical Path Method has been developed as a new method with approach based on ordered fuzzy numbers, preserving its basic concept. An example was solved by the algorithm considering imprecise activity times. Our results indicate that ordered fuzzy numbers may be used to represent imprecise information about projects. OFNs offer a clear, simultaneous representation of several pieces of information. Interpretation of OFNs can be compatible with the general idea of standard fuzzy numbers but by using OFNs we can additionally describe a trend of imprecise value of the real-life processes. Additionally, well-defined arithmetic operations on ordered fuzzy numbers make it easy to perform even complex calculations connected.

Keywords: Critical Path Method, CPM, PERT, fuzzy logic, fuzzy sets, ordered fuzzy numbers, scheduling.

Introduction

There are many methods used in project management. Most of the traditional tools for project scheduling are crisp, deterministic, and precise in character. Critical Path Method (CPM), Program Evaluation and Review Technique (PERT) are most popular project scheduling methods. They are usually used to determine the critical path. CPM and PERT play an important role in the project completion time.

Critical Path Method (CPM) is one of the simplest method dedicated to modelling the execution of a given project. It has been demonstrated to be a useful tool in the planning and control of complicated projects. This method has been applied to planning organization projects, software projects, logistics project, engineering projects, construction projects, innovative projects, etc.. What is essential in the CPM method is that activity duration times in projects are deterministic and well known. However, it is known these hypotheses are seldom satisfied. Precise information about the duration of the activities is seldom available in real world [Yakhchali, Ghodsypour 2010]. In project practice, activity duration times are often imprecise and have to be estimated subjectively. Additionally, Schonberger [Schonberger 1981] demonstrated that the likely project duration was understated by the deterministic project scheduling mechanisms of the Critical Path Method. His conclusions were based on the interdependency of network paths:

- the project will always be late, relative to the deterministic critical path,
- this is exacerbated by time-variability of activity, leads to proportional levels of late completion,

- the level of late completion is further directly proportional to the number of tasks in the network (as it multiplies the number of possible interdependence, which drives this phenomenon),
- simulating the network (e.g. Monte Carlo Analysis) provides additional information, but there is "no good way to compensate for the discrepancy between the critical path duration and the 'true' (simulated) duration, because Parkinson's law tends to counter one's best efforts",
- the project manager should rather subjectively evaluate the duration and determine a suitable commitment for project completion.

This paper is organized as follows. The second section provides a brief review of the relevant support literatures. In Section 3 the new approach to critical path problem based on the idea of the ordered fuzzy numbers is described. The next section provides an example to illustrate the validity of the proposed method. The last section includes conclusions and recommendations.

Research Literature

Classical methods of project scheduling, like CPM, are deterministic and do not take into account the uncertainty related to the unavailability of reliable, precise information [Chen, Hsueh 2008]. The assumption of crisp durations of activities is unfeasible in real projects and this method includes considerable errors to calculations and results. Methods based on statistics and probabilities such as PERT have been created to solve CPM problems and consider the effect of uncertainty on results. In the PERT, the durations of activities are assumed to be stochastic and they have a mean and standard deviation that covers the uncertainty [Habibi et al. 2018]. Another method named Monte Carlo simulation is based on the probability theory have been developed. In the literature we can find many papers that have used these stochastic approaches and search on this area is still carried out [Łapuńka et al. 2016].

Fuzzy Set Theory, proposed by professor Lotfi Zadeh (1965), is interested in uncertain and fuzzy data, fuzzy environment including project environment. The uncertainty took significant place in the decision-making processes [Mazlum, Güneri 2015]. In almost every field of management, the widespread use of fuzzy set theory with the new perspectives is used in decision-making process for example in production, logistics, industry, services. The fuzzy set theory is widely used in game theory and network problems in operations research, linear programming, nonlinear programming, goal programming, dynamic programming, transportation models, inventory management [Kahraman et al. 2006].

Several authors, motivated by management practice in project environment and inspired by results of fuzzy set theory applied in science, such as: [Chanas, et al. (2002), Chanas, Zieliński (2001, 2002, 2003), Kuchta (2001), Slyeptsov and Tyshchuk (1997, 2003) employed the concept of fuzziness in project management. In general, researches used fuzzy numbers instead of crisp numbers in established formulas. The deterministic activity duration times were replaced with the fuzzy activity times. Fuzzy CPM (FCPM) and fuzzy PERT (FPERT) are used in the fuzzy project management, and can be used to improve decision-making process and to plan the complicated, innovative project.

However, several authors reported problems connected with using fuzzy numbers. The papers [Gani, Assarudeen 2012; Kosiński 2002, 2003, 2009; Prokopowicz et al. 2017] discuss the drawbacks of convex fuzzy numbers. To overcome these issues Kosiński et al. developed the concept of ordered fuzzy numbers (OFNs). An ordered fuzzy number A (OFN) is an ordered pair $A = (f, g)$ of continuous functions $f, g: [0,1] \to R$. There is a great variety of ordered fuzzy numbers, wherein only a small part of them correspond to standard fuzzy numbers. The set of pairs of continuous functions, where one function is increasing and the other is decreasing and, simultaneously, the increasing function always assumes values lower or equal than the decreasing function, is a subset of the set of OFNs, which represents the class of all convex fuzzy numbers with continuous membership functions. We called them proper OFNs. So, the new interpretations offered by the ordered fuzzy numbers approach can be viewed

as an extension of classical proposals. The concept of ordered fuzzy numbers has been described in papers [Kosiński et al. 2002a,b 2003a,b,c Chwastyk, Kosiński2013].

The key aspect of ordered fuzzy numbers is related to the notion of direction (in some papers it also called orientation). This additional kind of information is not represented by standard fuzzy numbers. Only the OFN model offers looking at imprecision from a new perspective. Using ordered fuzzy numbers, it becomes possible to describe a trend of imprecise value of the real-life processes [Kosiński et al. 2002a,b 2003a,b,c 2013; Prokopowicz et al. 2017]. The direction is a new kind of information and it is marked graphically with an arrow.

According to activity time the direction of an OFN can be related to the expert's opinion about the time characteristics in the analyzed project. Figure 1a presents a standard fuzzy number which constitutes the interpretation of the expert's opinion about activity duration time of a project activity – "ca. 9 days". Using ordered fuzzy numbers, it becomes possible to consider the expert's opinion about the dynamics of change in this value: "ca. 9 days with a decreasing trend" – negative direction (Figure 1b) or "ca. 9 days with non-decreasing tendency" – positive direction (Figure1c). This is an advantage over expressing the expert's opinion using standard fuzzy numbers.

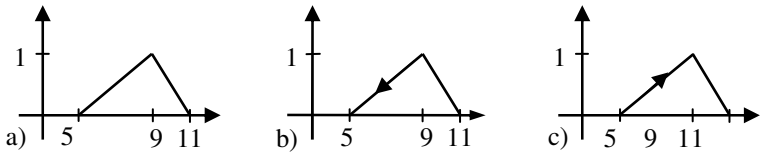

Fig 1: a) Classical fuzzy number "ca. 9 days", b) The membership function corresponding to the OFN "ca. 9 days with decreasing tendency" c) The membership function corresponding to the OFN "ca. 9 days with non-decreasing tendency".

Source: own elaboration

The direction of OFNs turned out to be useful in many real-world scenarios, such as expressing diversity of opinions in social networks, modeling dynamics of financial data, simulating brain functions, and patient diagnostics [Prokopowicz et al. 2017]. This aspect can be widely applicable to modeling reality under uncertainty, which makes them particularly suitable for the project environment.

The Proposed Critical Path Analysis with Imprecise Data

We continue the research began in the work [Pisz, Chwastyk 2017], which concerned the use of ordered fuzzy numbers to estimate activity duration times in a project. We converted the above problem from AOA (Activity On Arc) into AON (Activity On Node) network. The approach is based on idea of the classical Critical Path Method and extended critical path presented by [Chanas, Zieliński, 2001]. We have developed the theoretical foundations of a new critical path analysis which can be an alternative to the conventional CPM method.

A linear ordered fuzzy number (f, g) is a pair of linear functions and it is uniquely determined by a 4-D vector $[\mathrm{f}(0), \mathrm{f}(1), \mathrm{g}(1), \mathrm{g}(0)]$ composed of the real numbers. A proper linear ordered fuzzy number (f, g) is called a trapezoidal ordered fuzzy number. If we additionally assume that $\mathrm{f}(1) = \mathrm{g}(1)$ we get the notion of a triangular ordered fuzzy number. Let $A = [a_1, a_2, a_2, a_3]$, $B = [b_1, b_2, b_2, b_3]$ be triangular ordered fuzzy numbers $(a_i, b_i \in R;\ i = 1,2,3)$. We distinguish two types of

triangular OFNs: with negative direction $(a_1 > a_2 > a_3)$ and with non-negative direction $(a_1 < a_2 < a_3)$. The operations of addition and subtraction are defined as follows:

$$A + B = [a_1 + b_1, a_2 + b_2, a_2 + b_2, a_3 + b_3] \quad (1)$$

$$A - B = [a_1 - b_1, a_2 - b_2, a_2 - b_2, a_3 - b_3]. \quad (2)$$

Consider a project model $S = (V, Ar, T)$ which is a directed and connected network, where $V = \{1,2, \dots, n\}$ is a set of n nodes – activities, $Ar \subset N \times N$ is the set of arcs – relations, T_i denotes the activity time of *i*-th activity. The activity times are represented by triangular ordered fuzzy numbers and crisp numbers $a \in R$ represented by OFNs of the form $[a, a, a, a]$.

To draw the network diagram of the project, the precedence relationship of the activities are to be determined. The activities are represented by nodes. Nodes are numbered that for every arc (i, j) the relation is $i < j$. Let us denote by:

$P(i) = \{k \in V | (k, i) \in Ar\}$ – the set of predecessors,
$S(i) = \{k \in V | (i, k) \in Ar\}$ – the set of successors for the activity $i \in V$.

The steps of the algorithm are as follows:

1. Specify the individual activities.
2. Determine the sequence of the activities.
3. Estimate the activity time using ordered fuzzy numbers.
4. Perform calculation of earliest start time of activities (denoted by T_i^e) for each activity $i \in V$ $(i = 2,3, \dots, n)$ according to the formula:

$$T_i^e = max_{k \in P(i)}\{T_k^e + T_k\}, \quad (3)$$

where addition operation is calculated according to the formula (1). Max denotes the choice of the activity time, where the crisp number $\phi_t(T_k^e + T_k)$ of a given activity is calculated according to the defuzzification formula:

$$\phi_t([a_1, a_2, a_2, a_3]) = \frac{a_1 + a_2 + 2a_3}{4} \quad (4)$$

and the value is the biggest one. For the first activity it is equal $T_1^e = [0,0,0,0]$.

5. Use improved backward pass method to calculate the latest start times of activities T_i^l $(i = n - 1, n - 2, \dots, 1)$ using the formula:

$$T_i^l = min_{k \in S(i)}\{T_k^l\} - T_i, \quad (5)$$

where subtraction operation is calculated according to the formula (2). Min in this case denotes the choice of activity duration, where $\phi_t(T_k^l)$ is the smallest one. It is assumed that $T_n^l = T_n^e$.

6. Estimate the slack time according to the formula:

$$Z(i) = T_i^l - T_i^e \quad (6)$$

7. Identify the critical path. The activity, where $Z(i) = [0,0,0,0]$ is called critical activity. Let P denote the set of all paths in the network S from the node 1 to n. The path $p \in P$ is called critical

when the all activities belonging to this path are critical. The critical path is the longest sequence of activities carried out in a given project. It determines the total duration of the project $T_n^e + T_n$.

Numerical Example

In this section, we provide a numerical example in order to better understand the proposed algorithm. The problem is to find the critical path on the project network with crisp and ordered fuzzy activity times. For numerical study a house construction project has been considered and the corresponding data produced in Table 1. The sequences of activities involved in the considered project are listed out to draw the network diagram The project in practice involves the unpredictable behavior of the market in the project execution timeframe, including weather conditions, prices and costs, availability of resources. The numerical example is provided with ordered fuzzy activity. We consider 29 activities $V = \{1,2,3,\dots,29\}$. The relations are defined as follows:

$$Ar = \{(1,2),(2,3),(3,4),(4,5),(4,6),(5,7),(6,7),(7,8),(8,9),(9,10),(10,11),(11,12),(12,13),(13,14),(14,15),(14,16),(14,17),(15,18),(16,18),(17,18,),(18,19),(19,20),(19,21),(19,22),(20,23),(21,23),(22,24),(22,25),(23,26),(24,29),(25,28),(26,27),(27,29),(28,29)\}.$$

Table 1 presents project activities and their time characteristics. The activity duration time were estimated by experts and expresses using ordered fuzzy numbers in Arbitrary Time Units [ATU].

Table 1: The data of the considered project

No.	Name of the activity	Activity duration time [ATU]
1	Site cleaning	[2,2,2,2]
2	Performing measurement works	[1,1,1,1]
3	Removal of topsoil	[1,2,2,4]
4	Excavation	[3,4,4,5]
5	Power connection	[3,4,4,5]
6	Plumbing connection	[4,5,5,6]
7	Foundation	[4,6,6,7]
8	Pouring the foundation slab	[9,10,10,13]
9	Putting the structural walls	[6,7,7,8]
10	Execution of the ceiling above the ground floor	[6,7,7,8]
11	Execution of knee wall	[3,3,3,3]
12	Execution of the roof structure	[6,7,7,10]
13	Roofing	[11,12,12,14]
14	Execution of partition walls	[14,13,13,11]
15	Electrical installation	[17,16,16,14]
16	Execution of water and sewage installation	[13,12,12,11]
17	Execution of the heating installation	[19,18,18,17]
18	Interior wall plastering	[8,7,7,6]
19	Inserting windows and external doors	[4,5,5,7]
20	Glaze location	[8,9,9,11]
21	Execution of stairs	[4,4,4,4]
22	Thermal insulation of external walls	[16,17,17,19]

23	Painting the walls	[14,13,13,11]
24	Plastering of external walls	[8,9,9,10]
25	Execution of the fence	[10,11,11,13]
26	Flooring	[7,7,7,7]
27	Inserting internal doors	[5,5,5,5]
28	Landscaping	[13,15,15,17]
29	Making the investor reception	[1,1,1,1]

Source: own elaboration

Using the precedence relationship the network diagram of the project has been prepared and is presented in Figure 2.

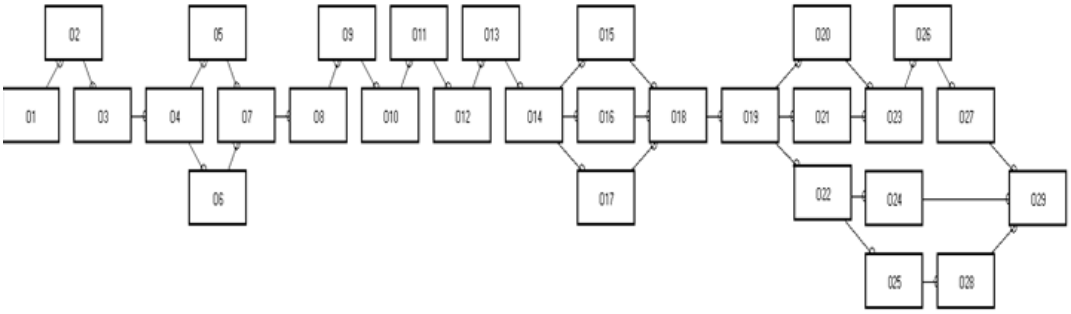

Fig. 2: The network diagram of the analyzed project

Source: own elaboration

The activity duration time can be described by ordered fuzzy numbers. We can use the direction of OFNs to represent complex information about the expected activity duration times of the considered project. In the considered project some of activity duration times are presented in the form of crisp values. We assume that some of activities are well known and their activity times can be treated as crisp values – activity 1, activity 2, activity 11, activity 21, activity 26, activity 27 and activity 29. For example activity duration time of the first activity is equal 2 ATU. In this case, the expert believes that the duration time cannot be lower and bigger than 2 ATU.

On the other hand some of activities are more complex and unpredictable. The duration times of these are imprecise. We can mention the following activities: 3-10,12,13,19,20,22,24,25,28. In these cases the expert describes the values as fuzzy. Using ordered fuzzy numbers, it becomes possible to consider the expert's opinion about the dynamics of the duration time. These activities are executed outside the building and the date of their implementation can be extended due to unfavorable weather condition or weather can be good and has no influence on the duration time. For example activity duration time of activity 5 (power connection) is „ca. 4 ATU with a non-decreasing tendency'' described as [3,4,4,5] ATU. It means that activity duration time lower than 3 ATU and bigger than 5 ATU is impossible. In this case the activity duration time equal 4 ATU is the most possible, and the remaining values are likely to varying degrees, but the more the closer they are to 4 ATU. Furthermore, more likely is 5 than 3 ATU.

Other activities in a given project are characterized by durations with a decreasing tendency. In practice, this means that the duration of a given activity may be shortened to no more than the lower value of the ordered fuzzy number which is an interpretation of the activity time.

According to the proposed approach, the earliest start time for particular activity should be determined first by performing operations on ordered fuzzy numbers representing uncertain durations of activities in the project. Below we present some initial calculations for network activities of the proposed method. According to the assumption of the fourth stage of the proposed method the earliest start time of the first activity is equal $T_1^e = [0,0,0,0]$. From the project network, it follows that activities 2,3,4 and 5 have exactly one predecessor. Therefore:

$T_2^e = max_{k\in P(2)}\{T_k^e + T_k\} = T_1^e + T_1 = [0,0,0,0] + [2,2,2,2] = [2,2,2,2]$,
$T_3^e = T_2^e + T_2 = [2,2,2,2] + [1,1,1,1] = [3,3,3,3]$,
$T_4^e = T_3^e + T_3 = [3,3,3,3] + [1,2,2,4] = [4,5,5,7]$,
$T_5^e = T_6^e = T_4^e + T_4 = [4,5,5,7] + [3,4,4,5] = [7,9,9,12]$.

Activity number 7 coincides with the implementation of two parallel activities, i.e. activities 5 and 6. Hence:

$T_7^e = max_{k\in P(7)}\{T_k^e + T_k\} = max\{T_5^e + T_5, T_6^e + T_6\} = max\{[7,9,9,12] + [3,4,4,5], [7,9,9,12] + [4,5,5,6]\} = max\{[10,13,13,17], [11,14,14,18]\}$.

In this case we should choose the time for which defuzzification value receives the greatest value:
$\phi_t([10,13,13,17]) = \frac{10+13+2\cdot 17}{4} = 14{,}25,\ \phi_t([11,14,14,18]) = \frac{11+14+2\cdot 18}{4} = 15{,}25.$
Thus, the earliest start time activity 7 is equal $T_7^e = [11,14,14,18]$. In a similar way we should calculate the values for other activities in the considered project structure.

Step 5 of the proposed approach allows to determinate the latest start times of activity. The calculations at this stage are carried out in the opposite direction (backward pass), according to the formula (5). The value of T_n^l is assumed to be the earliest tart time of the last activity, i.e. $T_n^l = T_n^e$. In the present case it means that $T_{29}^e = [140,152,152,171]$.

The time characteristics for individual activities in the considered project were subsequently calculated. Activities numbers up 23 to 28 have one successor, so we calculate them like:

$T_{28}^l = min_{k\in S(28)}\{T_k^l\} - T_{28} = T_{29}^l - T_{28} = [140,152,152,171] - [13,15,15,17] = [127,137,137,154]$.

Activity number 22 precedes the implementation of two parallel activities. In order to obtain the latest start date we should select the time for which the defuzification value is the smallest one:

$T_{22}^l = min_{k\in S(22)}\{T_k^l\} - T_{22} = min\{T_{25}^l, T_{24}^l\} - T_{22} =$
$min\{[117,126,126,141], [132,143,143,161]\} - [16,17,17,19]$.
$\phi_t([117,126,126,141]) = 131{,}25;\ \ \phi_t([132,143,143,161]) = 149{,}25.$

Then $T_{22}^l = [117,126,126,141] - [16,17,17,19] = [101,109,109,122]$.

After determining the latest start times of activities, the slack time should be calculated for individual project activities (step 6). The earliest and the latest start times of the considered activities and their slack times are presented in the Table 2.

Table 2: Time estimates and slack times using extended CPM method

Activity	The earliest start times of activities T_i^e [ATU]	The latest start times of activities T_i^l [ATU]	Slack time $Z(i)$ [ATU]	$\phi(Z(i)$ [ATU]
1	[0,0,0,0]	[0,0,0,0]	[0,0,0,0]	0
2	[2,2,2,2]	[2,2,2,2]	[0,0,0,0]	0
3	[3,3,3,3]	[3,3,3,3]	[0,0,0,0]	0
4	[4,5,5,7]	[4,5,5,7]	[0,0,0,0]	0
5	[7,9,9,12]	[8,10,10,13]	[1,1,1,1]	1
6	[7,9,9,12]	[7,9,9,12]	[0,0,0,0]	0
7	[11,14,14,18]	[11,14,14,18]	[0,0,0,0]	0
8	[15,20,20,25]	[15,20,20,25]	[0,0,0,0]	0
9	[24,30,30,38]	[24,30,30,38]	[0,0,0,0]	0
10	[30,37,37,46]	[30,37,37,46]	[0,0,0,0]	0
11	[36,44,44,54]	[36,44,44,54]	[0,0,0,0]	0
12	[39,47,47,57]	[39,47,47,57]	[0,0,0,0]	0
13	[45,54,54,67]	[45,54,54,67]	[0,0,0,0]	0
14	[56,66,66,81]	(56,66,66,81)	[0,0,0,0]	0
15	[70,79,79,92]	[72,81,81,95]	[2,2,2,3]	2,5
16	[70,79,79,92]	[76,85,85,98]	[6,6,6,6]	6
17	[70,79,79,92]	[70,79,79,92]	[0,0,0,0]	0
18	[89,97,97,109]	[89,97,97,109]	[0,0,0,0]	0
19	[97,104,104,115]	[97,104,104,115]	[0,0,0,0]	0
20	[101,109,109,122]	[106,118,118,137]	[5,9,9,15]	11
21	[101,109,109,122]	[110,123,123,144]	[9,14,14,22]	16,75
22	[101,109,109,122]	[101,109,109,122]	[0,0,0,0]	0
23	[109,118,118,133]	[114,127,127,148]	[5,9,9,15]	11
24	[117,126,126,141]	[132,143,143,161]	[15,17,17,20]	18
25	[117,126,126,141]	[117,126,126,141]	[0,0,0,0]	0
26	[123,131,131,144]	[128,140,140,159]	[5,9,9,15]	11
27	[130,138,138,151]	[135,147,147,166]	[5,9,9,15]	11
28	[127,137,137,154]	[127,137,137,154]	[0,0,0,0]	0
29	[140,152,152,171]	[140,152,152,171]	[0,0,0,0]	0

Source: own elaboration

The critical path is 1-2-3-4-6-7-8-9-10-11-12-13-14-17-18-19-22-25-29-28.
The total completion time of the considered project is equal: $[140,152,152,171] + [1,1,1,1] = [141,153,153,172]$ ATU. It means that the total completion time of the considered project lower than 141 ATU and bigger than 172 ATU is impossible. In this case the total completion time equal 153 ATU is the most possible, and the remaining values are likely to varying degrees, but the more the closer they are to 153 ATU.

The defuzzufication value is equal:

$$\phi_t([141,153,153,172]) = 159{,}5 \text{ ATU}.$$

It means that the total completion time is equal 159,5 ATU.

Conclusions

Successful projects should be completed before project due dates. Classical methods for estimating time do not lead to satisfactory results due to the weaknesses in their performance and lack of efficiency in facing with uncertainties.

In the paper theoretical foundations of new method as well as results of calculations derived from a simple example of construction are included. This paper develops a new approach to critical path analysis. This approach is based on CPM method with duration activity times being ordered fuzzy numbers. In the presented approach data are not precisely known, ordered fuzzy numbers are shown to be relevant to the exact nature of the problem rather than deterministic CPM or probabilistic PERT.

Our results indicate that ordered fuzzy numbers may be used to represent imprecise information about projects. OFNs offer a clear, simultaneous representation of several pieces of information. Interpretation of OFNs can be compatible with the general idea of standard fuzzy numbers but by using OFNs we can additionally describe a trend of imprecise value of the real-life processes. Additionally, well-defined arithmetic operations on ordered fuzzy numbers make it easy to perform even complex calculations connected.

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Characterization of soil conditions in an organic testing field for vegetable crops, Buzau county, Romania

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Abstract

Despite the expansion of soilless crop technologies, developed in highly efficient vegetable "industrial" farms, the soil-based agriculture still remains the main production environment. The soil characteristics have a decisive influence on crop health, yields, inputs, farm efficiency and food quality but also shape the natural environment around the farms, affecting deeply the life and activity of the human communities. The production of high-quality food, mainly vegetables, in the context of actual food safety and food security issues cannot be achieved without a throughout knowledge of soil characteristics, including its natural fertility, soil microbial community and ecosystem services. The Buzău area has a historic tradition both in vegetable production for consumption and creation of new varieties/hybrids. In 2018, at the Vegetable Research and Development Station Buzău we performed a throughout pedological and agrochemical analysis of soil from the organic testing field. The soil is a calcaric alluvial soil, with high mobile phosphorus content, medium mobile potassium content and medium organic matter content, with moderately alkaline reaction. Considering the physicochemical properties, this alluvial soil is very favorable for the vegetable production, due to the natural factors and the way of exploitation from the last decades. According to the quality indicators, the soil is in the 2nd quality class (74 points). The current study will be the basis for all future recommendations for organic and chemical fertilization, plant protection measures, irrigations and economic efficiency calculations, including the novel soil amelioration using microbial inoculants.

Keywords: soil characterisation, calcaric alluvial soil, Buzau river basin, SCDL Buzau

Introduction

The vegetable production is one of the main agriculture sectors in Romania, that may provide high quality, safe and sufficient products both for Romanian market and exportation, all year round, as both open field and covered production systems are in practice (Scurtu et al., 2016). In Romania, in 2017, from the entire vegetal production, the value of the vegetable production was ranked the second, with 17.9%, just after the cereals production, which represent a percentage of 34.8% (INS,

2018b). The recent (2017) legislative regulations enforcing the trade of at least 51% Romanian products on the internal market raise the pressure of using higher inputs quantities, mainly fertilizers and plant protection products, in order to obtain higher yields. Still, after 2017, statistics show a historic maximum for vegetable exports in 2017, with a value of 42.175 thousand euros (statista, 2018). According to the National Institute of Statistics, in 2017, the vegetable production increased by 8.1% due to the increase of yield per hectare, although the cultivated area decreased with about -1.8%, as compared to the 2016 (INS, 2018a). In order to support the farmers, deep knowledge of soil characteristics become a necessity and soil analysis are more and more requested.

According to Motsara and Roy, 2008, the "integrated nutrient management (INM) is a well-accepted approach for the sustainable management of soil productivity and increased crop production". Accurate and regular soil analysis helps farmers to establish the necessary amount of plant nutrients required by their crop, so they can apply some corrective measures. The same Motsara and Roy, 2008, in their FAO guide for plant nutrients analysis state that the nutrients for crops, of various sources, should be applyed knowing the requirments of different crops, the characteristics of different type of soils, the availability of various resources, the expected level of production and the costs of inputs and outputs.

The Vegetable Research and Development Station Buzău (VRDS Buzău) is one of the most famous research stations in Romania, in the field of vegetable growing, especially tomatoes, for which they have developed a high number of new cultivars. According to a pedological study done at the beginning of `80, the soils are dominated by the young, developing alluvial soils, on 49.3% of the station surface, followed by mollisols, 46% of the surface and halomorphic soils on 4.2% of the surface and the area of this research station is characterized by an average annual temperature of 10.5°C and the multiannual rainfall average of 512 mm/m2 (Serban, 2010). According to previous reports, the soil at the Vegetable Research and Development Station Buzău belonged to the alluvial soil category, with organic matter content (humus) of 2,58%, total N content of 0.11%, PEA of 150 ppm and KEA of 275 ppm. No other indications about soil type and characteristic were found in the existing available literature.

The current research paper presents the soil analysis of the organic research field, one of the testing fields of the Vegetable Research and Development Station Buzău, offering valuable insights to the farmers located in this famous vegetable basin but also to the researchers working in this filed.

Material and Methods

Our study was carried out in the Vegetable Research and Development Station Buzău, România (lat.:45.16108714 N and long: 26.82423914 E, alt: 92 m) in 2018, in the organic farming research plot, having an area of 1.8 ha (figure 1). The studied area is situated inside Buzău city, in Buzău county, located on the eastern part of the Curvature Charpatians, on Buzău river proximity, at around 1 km distance of the river. Buzău county occupies most of the river basin with the same name and harmoniously embraces all forms of relief; mountains, hills, plains including large meadows, the place were our testing field is situated.

On this area, three soil surveys were taken up to a depth of 125 cm, with soil samples colected in plastic bags, than dried in the laboratory, milled (figure 2) and analysed, according to the ICPA methodology, 1987 volume I, which is our national standard. The identified soil type has been characterized morphologically and physicochemically according to the guidance for field description of soil profiles and specific environmental conditions presented in the Romanian System for Soil Taxonomy, 2014. The complete characterisation of the soil was possible by analysing the results based on the A.S.R.O. standards, which are in line with international standards.

Figure 1: The position of organic farming research plot belonging to theVegetable Research and Development Station Buzau, including the distance to the river band.

The following analytical methods were used to determine the chemical properties:

- Organic matter (humus): volumetric determination, basedon Walkley-Black humidification method, modified by Donut - STAS 7184 / 21-82;
- $CaCO_3$ (carbonates): gasometric method using the Scheibler calcimeter, according to SR ISO 10693: 1998, (%);
- the nitrogen content was determined indirectly (by calculation) based on the humus content and the degree of saturation with bases. (IN = humus x V / 100);
- mobile phosphorus content (mobile P): Egner-Riehm-Domingo method and colorimetric molybdenum blue, Murphy-Riley method (ascorbic acid reduction);
- mobile potassium content (K mobile): Egner-Riehm-Domingo extraction and flame photometry.
- pH: potentiometrically determined, with combined glass electrode and calomel, in aqueous suspension at soil / water ratio of 1/2, 5 - SR 7184 / 13-2001;
- Hydrolytic acidity - extraction with sodium acetate at pH 8,2;
- degree of bases saturation V% - Kappen Schoffield method Charge by extraction with 0.05 normal hydrochloric acid.

The following analytical methods were used to determine the physical characteristics:

- determination of granulometric fractions:
- pipette method, for fractions ≤ 0.002 mm;
- wet grinding method for fractions of 0,002 - 0,2 mm and dry gringing method for fractions> 0,2 mm. The results are expressed as a percentage of the material remaining after pretreatment.
- bulk density (BD): The known volume of metal cylinders (100 cm^3) at the instant soil moisture (g / cm^3) - total porosity (PT): by calculation (% by volume -% v / v)
- aeration porosity (PA): by calculation (% volume -% v / v)
- compaction rate (GT): by calculation GT = [(PM - PT) / PMN] x 100 (% by volume -% v / v), where: PMN - minimum required porosity, clay of the sample is calculated with the formula PMN = 45 + 0.163 A (% by volume -% v / v); PT = total porosity (% v / v); A - clay content (% w / w)
- hygroscopicity coefficient (CH): drying at 105 °C of a pre-moistened soil sample at equilibrium with a saturated atmosphere with water vapor (in the presence of 10% H_2SO_4 solution) - % by weight (% w / g)

- permanent wilting point (CO): by calculation by multiplying by 1.5 the hygroscopicity factor determined by the modified Mitscherlich method (% vacuum),% by weight (% w / w).

Figure 2: Aspects from the organic farming research plot (VRDS Buzau). A. depth of soil profile; B. soil profile and soil sampling tool; C. dring samples in the lab; D. sample milling.

For the complete soil unit characterization, in terms of both the physico-chemical properties of the soil and physico-geographic conditions in which the soil was formed, soil properties are represented as symbols grouped in ecopedological indicators, according to the methodology in force (ICPA, 1987, vol. III). Thus, a field mapping unit, which includes both soil and land characteristics, is defined as a formula.

$$AS_{ka} = \frac{d5-Fm-SM-AT4}{LO-P01-Q3\ I1}$$

Few characteristics of the soil formation context are presented below:
Geology and lithology. In the Buzău county, all kinds of relief are found, so, in mountain regions predominates the conglomerates, sand stones, shale. The hilly area is composed by clays, marl, limestone, sands, etc. The field was formed in the quaternary era and consists of pebbles, sands covered with loess on the surface. Our studied area, being in the Buzău river meadow is formed by fluvial deposits with different granulometry, predominantly fine sands and banks, recently formed.

The relief. Geographically, the studied area belongs to the Buzău plain, with altitudes ranging from 40 to 100 m, our location having 92 m (sea level). This floodplain, having the same name as the river, is a continuously young subunit fed by Buzău river. Different sand fragments and organic matter was depposed during floods. It is a complete flat area (figure 3).

Figure 3: The flat area of the analysed organic research field

Hydrology and hydrography. Besides relief, climatic conditions, geological and lithological structure, anthropogenic influence is noted, changing the hydrographical regime both surface and underground. The studied territory belongs to the Buzau basin, being drained by the river of the same name, but which almost always influences the ground level because it is 1.5 km from the river bed. Underground waters are largely in harmony with the relief units. So the plain area has large amounts of underground water, thicker to the Subcarpathian contact area. As regards their mineralization, they are in the bicarbonate hydrocarbon type with a total mineralization of 0.650 g / kg.

Climatic conditions. Buzău County has a temperate continental climate, characteristic of our country, but due to the varied relief, represented by mountains, hills and plains, respectively meadows, there are many microclimate areas. For the studied area, the average annual temperature is between 10-12°C. During the summer the maximum temperatures reaches 38°C in July and in winter at -21°C. The precipitation level is low, around 450-500 mm. The predominant wind is called Crivăț, a wind that blows from the territory of Moldova, Dobrogea and the south-eastern part of Muntenia, which brings snow in the winter, snow storms and frost, a strong wind that can reach speeds of 30-35 m/s. Another wind is called Austrul, a wind from the territory of Western Transylvania. Being a warm and dry wind (20-30 km/h) that brings drought, it is nicknamed "The Starveling".

Vegetation. As with the other elements presented above, the vegetation differs depending on the relief and the climate, so in the meadows we can find mostly grassy plants and shrubs. Among the most important grasses are: *Festuca* sp., *Agropyron crestatum*, *Stipa* sp., *Crocus* sp., *Trifolium* sp., Vicia sp. The bushy plants are represented by different species of *Prunus*, especially *Prunus spinosa* and *Prunus tenella*. Specifically in the meadow areas there are poplar, willow, elm, sea buckthorn forestrs and grasses, mainly *Agropyron* and *Calamagrostis*.

Soil. At the level of Buzău County, due to the very different environmental conditions presented above, a wide range of soils was formed, but for the studied area the characteristic soil is the alluvial soil, whose morphological and physico-chemical description is presented in the following.

The land quality (soil bonitation) was also determined. The natural bonitation is based on a synthetic biophysical parameters converted to ecological soil characterization indicators or ecopedological indicators. All these ecopedological indicators used for land qualification are specified in the work "The methodology of pedological studies", vol. I and III, of I.C.P.A. (1987). These factors are: average annual temperature; annual average rainfall; gleyzation; stagnogleyzation; salinisation or alkalization; texture in A_p or in the first 20 cm; pollution; slope; landslides; groundwater depth; flooding; total porosity in the restrictive horizon; the total $CaCO_3$ content in the 0-50 cm layer; reaction in A_p or in the first 20 cm; the degree of saturation in bases of A_p or in the first 20 cm; the edafic volume; humus reserve in the 0-50 cm layer; excess surface moisture. Each crop and each use, depending on the mentioned factors, receives coefficients varying between 0-1, depending if that factor is appropriate/optimal or totally unfavorable for the considered crop. For the arable land use

category, the natural scoring note is the arithmetic average of the ratings for 8 crops with the highest spreading in area: wheat, barley, maize, sunflower, sugar beet, potato, soybean and peas / beans.

Results and Discussions

The analysed soil profile belongs to the soil class of calcaric alluvial soils, founded on fluvial deposits, on a meadow region, with the ground water lower than 3 m. According to Spaargaren, 2001, the alluvial soils are characterized by the process of sedimentation, which results in a stratified parental material. As stratification is the major characteristic used to distinguish these soils, the layers may be easily detected by the different particle-size distribution and organic matter content (figure 4). The soil was used for long time for vegetable growing.

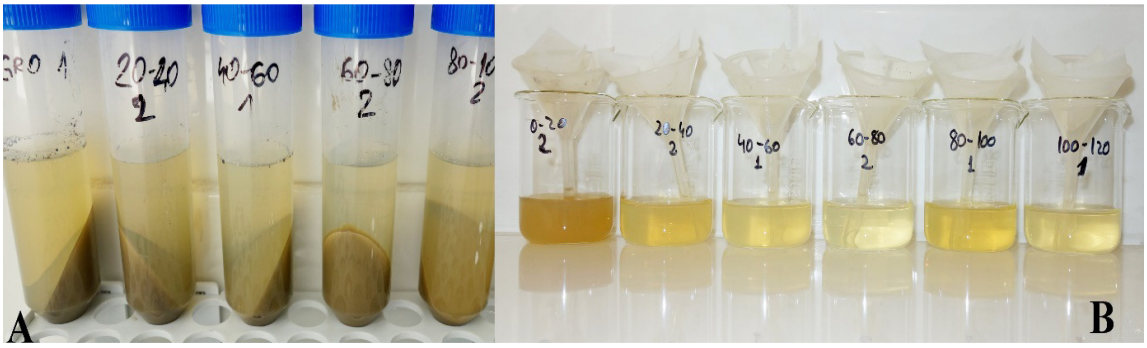

Figure 4: Aqueous soil extracts, 1:2.5, for layers of 20 cm. A. The presence of the organic matter in the first three soil layers. B. Different colloration of soil layers.

Morphological characterization of the soil profile (according to Munteanu et Florea, 2009)
A_m (0-37 cm); middle sandstone, dark olive, 5Y3/2 shades in wet and light yellow (yellowish), with shades of 5Y5/3 when the soil is dry, gravel, poorly developed grain structure, moderate biologic activity, very low plasticity, non-adhesive, frequent fines pores, weak to moderate effervescence, very frequent thin roots from cultivated vegetation, clear curving;

C_1 (37-96 cm); fine sandy clay, olive shade 5 Y4/2 in wet soil and yellowish olives 5 Y5/4 when the soil is dry, friable, unstructured, very low plasticity, non-adhesive, frequent thick pores, frequent fine roots, moderate-strong effervescence on all thickness horizons, clear straight crossing;

C_2 (96-124 cm); thick coarse sand, pale yellow with shades of 5 Y 4/3 in wet soil and 5 Y 6/4 in dry soil, unstructured, moist, very friable, grain thick minerals visible to the material at the base of the survey, frequent $CaCO_3$ pseudomics, strong effervescence, clear straight crossing.

The analytical data for the VGRD Buzau calcaric alluvial soil are presented in Table 1.

Table 1: Main physical, chemical and biological properties of the calcaric alluvial soil from VGRD Buzau

Characteristics	Depth (cm)	Values
Coarse sand (2-0,2 mm)	A_m (0-37) cm	9.8
	C_1 (37-96 cm)	14.1
	C_2 (96-124 cm)	14.5
Fine sand (0,2-0,02 mm)	A_m (0-37) cm	40.9
	C_1 (37-96 cm)	45.9
	C_2 (96-124 cm)	50.3
Dust (0,02-0,002 mm)	A_m (0-37) cm	30.8
	C_1 (37-96 cm)	28.4
	C_2 (96-124 cm)	24.9
Clay	A_m (0-37) cm	18.5
(< 0,002 mm)	C_1 (37-96 cm)	11.6
	C_2 (96-124 cm)	10.3
Texture	A_m (0-37) cm	SM
	C_1 (37-96 cm)	UF
	C_2 (96-124 cm)	UG
Soil reaction (pH)	A_m (0-37) cm	7.96
	C_1 (37-96 cm)	7.92
	C_2 (96-124 cm)	7.97
Electrical conductivity	A_m (0-37) cm	246.1
	C_1 (37-96 cm)	266.7

(µs/cm)	C_2 (96-124 cm)	244.3
Humus content (%)	A_m (0-37) cm	3.6
	C_1 (37-96 cm)	2.0
	C_2 (96-124 cm)	1.4
Apparent density (g/cm^3)	A_m (0-37) cm	1.22
	C_1 (37-96 cm)	1.21
	C_2 (96-124 cm)	1.13
Total porosity (%)	A_m (0-37) cm	52
	C_1 (37-96 cm)	54
	C_2 (96-124 cm)	56
Degree of compression GT (%)	A_m (0-37) cm	poorly compressed
	C_1 (37-96 cm)	uncompressed profile
	C_2 (96-124 cm)	uncompressed profile
Degree of saturation with bases (V%)	A_m (0-37) cm	96
	C_1 (37-96 cm)	100
	C_2 (96-124 cm)	100
Total content of nitrogen (IN)	A_m (0-37) cm	3.5
	C_1 (37-96 cm)	2.0
	C_2 (96-124 cm)	1.4
Mobile phosphorus content (ppm)	A_m (0-37) cm	46
	C_1 (37-96 cm)	27
	C_2 (96-124 cm)	13
Mobil	A_m (0-37) cm	162

potassium Content (ppm)	C_1 (37-96 cm)	123
	C_2 (96-124 cm)	67
Hygroscopicity coefficient (%)	A_m (0-37) cm	2.6
	C_1 (37-96 cm)	3.1
	C_2 (96-124 cm)	3.0
Permanent willting point (%)	A_m (0-37) cm	3.9
	C_1 (37-96 cm)	4.6
	C_2 (96-124 cm)	4.5
Field capacity (%)	A_m (0-37) cm	7.1
	C_1 (37-96 cm)	8.5
	C_2 (96-124 cm)	8.2
Useful water capacity (%)	A_m (0-37) cm	3.2
	C_1 (37-96 cm)	3.9
	C_2 (96-124 cm)	3.7
Total water capacity (%)	A_m (0-37) cm	42
	C_1 (37-96 cm)	45
	C_2 (96-124 cm)	49
Humus reserve (t/ha)	A_m (0-37) cm	162.5
	C_1 (37-96 cm)	142.7
	C_2 (96-124 cm)	44

To interpret the data above, we could conclude that the soil reaction is moderately alkaline, humus content is medium, the total content of nitrogen is medium, the mobile phosphorus content (ppm) is high, mobile potassium content (ppm) is medium, the texture is sandy loam, it contains carbonates, the soil is non-saline/ non-alkalized, eubazic (saturated in bases) >91 %, humus reserve (t/ha) is medium.

For the complete soil unit characterization, the symbols that are to be used are presented in table 2.

Table 2: The symbols used in soil type description of the VGRD Buzau soil

Nr.	Symbols significance	Symbol
1.	Alluvial soil	AS
2.	Calcaric	ka
3.	Non-gleyic	G_0
4.	Nestagnogleizat	W_0
5.	Desalted	S_0
6.	Non-alkalized	A_0
7.	Carbonate	K_1
8.	Powerfully deep	d_5
9.	Uneroded	E_{00}
10.	Fluvial deposits	F
11.	Medium materials	m
12.	Middle sandstone - no skeleton	SM – Q_0
13.	Arable (vegetables)	A
14.	Poorly compresed	T_4

15.	Pollution type	unpoluted
16.	Pollution degree	-
17.	Meadow	L
18.	Horizontality	O
19.	-	-
20.	Degree of horizontality	P_{01}
21.	Sunny position	E
22.	Fluvial deposits	F
23.	Sands	N
24.	-	-
25.	-	-
26.	There is no deep erosion	r_{00}
27.	Absent	f_{00}
28.	Very limited	Q_3
29	Rarely flooded	I_1

The land suitability class for arable land was established based on the 17 most important indicators, according to the ICPA methodology, 1987, vol. III. (table 3). The general formula of suitability, $IV_{AS} = Q_3 I_1$, gives indication about soil suitability. The soil from the organic plot of VRDS Buzău is included in the IVth suitability class, due to the high groundwater level and risks of floods.
There are recommendation on improvement measures, mainly regarding drainage works, to lower the groundwater level and dump.

Table 3: The suitability classes for a calcaric alluvial soil

Indicators	The meaning	Suitability class
Texture, ind. 23	SM	I
Precipitation, ind. 4	< 600	I
Edafic volume, ind. 133	High – V_5	I
Salinization, ind. 16	unsalted, S_0	I
Alkalization, ind. 17	Non-alkalic, A_0	I
Soil reaction, ind. 63	pH = 7,2 – A_{06}	I
Compression degree, ind. 44	Un compressed – t_3	I
Anthropic degradation, ind. 29	Unpolluted	I
Degree of coverage with boulders , ind. 35	Absent	I
Air medium temperature	>4^o C	I
Land slope, ind. 33	Horizontal – P_{01}	I
Surface erosion, ind. 20	E_{00} – non-erodated	I
Deep erosion, ind. 37	R_{oo} – non-erodated	I
Landslides, ind. 38	F_{00} - absent	I
Degree of non-uniformity , ind. 8	U_o - uniform	I
Groundwater level , ind. 39	Q_3 – very high	IV
Gleization degree, ind. 14	G_0 – ungleizated	I
Stagnogleization degree, ind 15	W_0 - Unstagnogleizated	I
Flooding risk, ind. 40	I_1 - rarely flooded	IV

The land quality

The main factor in the qualitative assessment of land is its fertility and this is determined by 'bonitation'. The 'bonitation' integrates the land quality with the productivity of different crops. Bonitation involves an analysis of the natural soil properties correlated with the human interventions which were already done for the agricultural activities (FAO, 2003).

The studied soil integrates in the Quality Class II, with 74 points, due to high groundwater and floods.

Conclusion

The soil cover is in accordance with the physico-geographic conditions of the area, with only one type of soil being identified: calcaric alluvial soil.

The parental material consists of fluvial deposits of different granulations, with the formation of alluviosols, specific to the meadow area.

The studied territory is drained by the Buzău River and the network of drainage channels consists of the water bodies located at varying depths depending on the local specific landforms (1-3 m).

The main limiting factors of the production potential (for arable crops) are the climatic conditions and the high groundwater level for the meadow, especially in the rainy years. The soil is very suitable for vegetable growing due to sandy-loamy texture, high groundwater level, with favorable conditions for irrigation and reduced distance to consumers. For an alluviosol, physicochemical properties are very favorable due to the natural factors and the way of exploitation from the last decades. According to the quality indicators, the soil is in the 2nd quality class with 74 points.

The fertilization with phosphorus and potassium is necessary depending on the crop, but in limited amounts, due to the high natural suply. The nitrogen fertilization should be dome mostly with foliar products, in low dosage and more often.

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Changing the Paradigm of Public Governance in the Context of The Challenges of Sustainable Development

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Abstract

Sustainable development is considered as a global program for the preservation and development of modern civilization that embodies the complex of global meanings that must be taken into account in strategic and operational management, since the idea of preserving biodiversity concerns not only the nature but also the society and the person. The basis of the research methodology is the analysis and synthesis of experience, scientific approaches and fundamental principles of modern state governance in their direct connection with the status of human rights and the value priorities of sustainable development. It is argued that in the dynamics of social changes affected by extraordinary external or internal factors an institutional resilience of public administration becomes an important imperative of sustainable development. It allows maintaining structural integrity, functional value, interoperability, regrouping, updating and efficiency. Human rights, along with the imperatives of sustainable development, create the basis of humanistic potential, which causes changes in the paradigm of modern state administration in favor of increasing the level of democracy of power and self-organization of society through the implementation of democratic reforms in key areas of the functioning of society and governance. There is an organic connection between the status of implementation of human rights and the possibility of implementing strategies for sustainable development: without entrenching in human consciousness of human rights as fundamental principles of functioning of the society (including administration), sustainable development risks to become a loud slogan for a long time, especially in countries of democratic transition. Thus, changing the paradigm of public administration on the basis of ecological government, social justice and non-discrimination is a prerequisite for the implementation of sustainable development strategies.

Keywords: governance, sustainable development, human rights, institutional resilience of public administration, democratic reforms

Introduction

Scientific comprehension of prospects for balanced development of civilization in the theory of sustainable development during the second half of the twentieth century was the result of a long and intensive discussion in the scientific circles in the interdisciplinary discourse, in particular among the theorists and practitioners of public administration. The balance between satisfying current needs and protecting the interests of future generations was recognized as the global fundamental resource of human development on the basis of consistency as a foundation for modern approaches to public administration.

Economically developed democratic countries, in particular the European Union, as well as the United States, Japan, and others, consistently, albeit not without problems, embody sustainable development approaches and strategies, while having appropriate socio-economic and institutional conditions and being guided by value-based moral incentives. At the same time, in the countries of democratic transition, which are only on the way to building a developed society in difficult crisis conditions, like Ukraine, the strategies of sustainable development are widely perceived as strategies for ensuring sustainable growth of mainly economic indicators of the country, its regions, cities, villages and separate branches of the economy.

The aspiration for economic growth is extremely important, but effective sustainable development has virtually no chances without implanting fundamental principles of humanity in the state and society, in particular, equality before the law, non-discrimination, deep respect for human dignity, etc., without their understanding and acceptance at the personal level. So, the study of the positive experience of implementation of sustainable development strategies is relevant, has a significant scientific-theoretical and practical potential, especially for countries of democratic transition.

The most important aspects of the problematics were developed by well-known theorists and practitioners in public administration, human rights and sustainable development, in particular J. R. Bartle (2006), D. J. Fiorino (2010), R. A. Lanham (2010), D .Z. Leuenberger (2005), J. H. Spangenberg (2000), L. Winner (1986), V. Zahorskyi (2018), S. A. Zhukov (2016).

The purpose of the article is to substantiate the necessity for changing the paradigm of modern state administration in favor of increasing the level of government democracy and self-organization of the society by ensuring the institutional stability of administrative and self-governing structures amid global and regional challenges and threats of different origin.

Analysis and Results

Sustainable Development as a Global Program for The Preservation and Development of Modern Civilization

Formation of the modern paradigm of society development and governance during the second half of the twentieth century occurred amid global processes. The latest strategies of world production and distribution at the end of the twentieth century have led to globalization, in particular in the social sciences and the humanities, for example, through anthropology and cultural studies. Institutional processes in the field of human rights also had a determinative influence on interconnections and interactions in the coordinate plane "man - society - power". During the second half of the twentieth century there was a transformation of social priorities in favor of human rights, economic efficiency, social harmony and ecological thinking. The latter marked the next civilization impulse that prompted the mankind, according to D. Fiorino (2010), to move from protecting the environment to recognizing and searching for complementarity and synergy between society and nature - towards environmental resilience as the basis for sustainable development.

The large-scale democratic reforms taking place in Ukraine in recent years have covered virtually all areas of functioning of Ukrainian society and are aimed at ensuring effective governance in the state at all levels by involving the general public in the processes of formation and implementation of state policies. The change in the paradigm of public administration towards implementation of democratic governance practices is related to the increased involvement and responsibility of local authorities and communities for the status and prospects of local development. Public administration in Ukraine in this context is experiencing a critical moment of change, in particular an institutional one, that causes conceptual changes in the legal field, structural and functional characteristics, reformation of property relations and the whole administrative hierarchy in favor of democratization of society and governance, decentralization and deconcentration of power, strengthening of institutional capacity of local self-government bodies and self-organization of the population. In a difficult financial and

economic situation in Ukraine, the problems of introducing new instruments of the rule of law, democracy and market regulation of economic processes are being solved, which confirms the interest of society in building up an economic, social and spiritual potential enough to ensure sustainable development.

New approaches to constructing the interaction of society and governance on the principles of sustainable development and institutional stability of administrative structures, as well as narrowing the investigated phenomenon to professional reflections based on deep philosophical arguments in interdisciplinary discourse, became characteristic of modern studies of theoretical concept and its realization practice. According to J. S. Dryzek (1997), the ideas of sustainable development were formulated as early as the 1960s, but for a long time there was no empirical evidence: sustainable development was widely used as an idea, concept and proposals of norms and rules; only since the late 1980s the set of evidence that offers an empirical basis for the concept of sustainable development and institutional sustainability has become a reality. Organic connection between the principles of sustainable development and public administration was determined and argued by D. Levenberger (2005). Criteria for institutional resilience of administrative institutions, developed by D. Levenberger and M.Vekin (2007), can be used to define a set of indicators that need to be taken into account in developing the structural and functional loads for the employees of public administration bodies, including the governing ones, and the policy at the regional and local levels.

Exploring biological, economic and social systems in the context of sustainable social development, J. R. Bartle and D. Leunenberger (2006) noted that the goals of the economic system include efficiency, equity in the expansion and improvement of the social safety net; and the goals of the social system are citizens' participation and social justice. According to the scientist, the systematic approach to sustainable development allowed to define the concept of "the ecology of public administration", because it covers the idea of interdependence of human life, balance, organic system and its stabilization.

The system of the modern world studies makes it possible to understand the global meanings that need to be taken into account in operational governance: the idea of preserving biodiversity concerns not only nature but also society; human rights should be considered together with the rights of nature, the rights of ancestors and descendants. The globality of problems in this context is transposed into global approaches and changes.

The idea of the ecology of public administration, justified at the beginning of this century in the “Solving ecological problems is now linked to the goals of economic efficiency, social justice, political stability, citizens safety, public health and quality of life” research of biological, economic and social systems, conditioned the interdependence of human life, natural balance, organic system and their stabilization (D. Fiorino (2010). Accordingly, the tasks of public administration, and therefore of the society and administration, were to support each of them while maintaining balance in accordance with the specificities of interrelations and interdependencies between these three systems. In this context, the transition from the practice of environmental protection to the approach of ecological resilience has become very important. The latter is characterized by complementarity and synergy; reflected in the current debate on "green" economies, jobs, smart growth, local and urban resilience (Smit B., Wandel J., 2006). As a result, at the turn of the XX– XXI centuries, decentralization and democratization of society and governance have also become essential factors of civilization change. The result is a change in the understanding of the mission of power, the social purpose of administration activity, and the role that civil society and a particular person must play in it.

Institutional Resilience of Public Administration as an Imperative to Sustainable Development of the Society and Governance

Complex structure and the extent of responsibility, of course, affect the ability of administration systems to respond adequately to the challenges and threats of different origin but, despite all, they develop. It is this ability that largely determines the prospects for the society to progress and prosper.

It is about the sustainability and institutional inertia of the political system, on the one hand, and its ability to be alert, while maintaining the flexibility, functional value and constructiveness of the administrative institutions in their interaction as well as highest possible efficiency in the new conditions - on the other. Institutional inertia in such a situation that prevents the system from becoming unbalanced and institutional resilience enables its steady development and progress. S.Zhukov (2016) pay attention also to economic inertia and ambivalence in assessing its role in innovation processes. Institutional resilience can have a positive impact on local and regional power structures and can be a key prerequisite for their mobility and flexibility.

The institutional structure of public administration in general includes the supranational (integrational) and intergovernmental organizations, government and local self-government bodies, political parties, bodies of self-organization of the population, public organizations, movements, trade union organizations, private sector organizations, etc. Such a configuration may be further branched with the development of democratic foundations in the society, self-government and the activeness of civil society, as well as the status quo of social legitimation of power. In this context, the institutional resilience of government structures, both state and self-governing, is understood as such a state that allows them to maintain structural integrity, functional value, interoperability, to reinforce and update in the dynamics of social changes in accordance with new conditions, in a situation under extraordinary external or internal influences of a temporary or permanent nature. The criteria for institutional resilience can be, for example: the ability to return the productivity and effectiveness of the administration bodies to the pre-crisis state; restoration of the people's trust in authorities which was lost or weakened during a political crisis by a government body or self-governing structure; or raising the level of public legitimacy of the government or local governing bodies as a result of personnel changes, etc.

For the countries experiencing periods of permanent political instability, threatening fluctuations in the financial and economic situation, the pressure of the consequences of military aggression or natural disasters, the issues of readiness of power structures to adapt to stressful situations and to act in an effective way, to withstand and exit from them without losing immanent qualities of organizing and managing influence as well as effective control, are actualized. Therefore, the institutional resilience of public administration as a system seeking self-preservation is achieved as a result of the required polyvariety in organization, coordination, control implementation, and policies development.

An increase in the intensity of dangerous natural, social and economic phenomena in the globalized world has brought up the issue of resilience as the ability of the system to adapt to changes in conditions, threats, risks or opportunities. Adaptation is understood as the process by which the system - the state, region, municipality, institute, etc. - adapts to changes. In particular, adaptation can be reactionary - manifested as a result of a crisis that has already arisen (for example, an economic shock) or an expected one, which conditions the ability to adapt to long-term trends (G.Bristow (2010). The argumentation by J. H. Spangenberg (2002) is formed around the idea that resilient socioeconomic systems are able to continuously reorganize their economic and institutional structures. Resilience in interpretation of J. Simmie, and R. Martin, (2010) is understood as a constant evolutionary process, not just the recovery or achievement of a new stable equilibrium state. Thus, the institutional resilience of the administration system allows it to flexibly rebuild its internal structures in the new conditions. Modern resilience research focuses on finding an appropriate economic model that provides sustained growth and development over a long period of time. Such development should be aimed at preserving the economic, social and ecological balance.

The resilience criteria should also include strategic planning (quality, including the current status, the role of strategic documents and the adequacy of activities, that is, their relevance to local issues), cooperation, for example, with local companies, residents, NGOs and public institutions, as well as the functioning of local self-governance authorities on the basis of quality monitoring, sufficient qualification of officials and knowledgable management. The study of local and regional systems focuses on the identification of sectors of economic growth, stagnation zones, metropolitan areas, the impact of EU funds on development, including their social, economic and spatial cohesion, adaptation of local systems to the changes taking place in the economies of many countries due to globalization, migration, demographic trends and economic upheavals. In this context, it is important

to pay special attention not only to the development of local systems, including income measurement, development of infrastructure and the labor market, but also to their ability to change, be flexible and therefore enduring under difficult conditions. Adaptability studies focus on the ability of systems to anticipate future events, respond quickly to them, and their capacity to continually evolve. The concept of resilience is another idea of solving the problems of sustainable development, since the emphasis is placed on the strength of systems and their ability to constantly change.

Human Rights as the Basis of the Humanistic Potential of Modern Governance

Human rights developed as a social institution of dual nature, which was conditioned by the development by Western scientific thought of natural law and positivism theories, the first of which was determined by social morality and criteria of justice, and the second one – by the positive nature of human rights as the rights established and guaranteed by the state through consolidating ideological and moral perceptions about human rights in the legislation. The legal essence of human rights - law about the human rights - is exclusively within the legal discourse, which is being studied by a complex of legal sciences. Philosophical and ideological development of human rights is viewed on an interdisciplinary basis as the evolution of Western political and legal doctrines that have naturally resulted in contemporary ideas about the social institute of human rights, which is formed and functions in the interaction of a person with the state in the processes of public administration. It was at the intersection of these two embodiments of human rights that the concept of human rights arose as a manifestation of the interaction of morality and justice with the state and the right of an individual engaged in it.

The basis of the human rights concept is the idea of an extremely important role of a person in their interaction with the state, society or a group based on freedom, the degree of which is determined by the person who voluntarily recognizes the restriction of his rights with regard to the other members of the society. The concept of human rights in the whole variety of its interpretations by representatives of various philosophical, political and cultural trends of scientific and social thought is a determining vector for the development of the European legal system at the national and international levels. As a political tool, it is actively used in international relations.

The methodology of studying the problems of modern public administration in the context of implementing the concept of human rights is grounded in the fact that it is expedient to study the legal principles, forms and methods of public administration in connection with problems of the legal status of a person and organization of political power. Recognition in the administration theory and practice of the priority of universal values is a prerequisite for the methodology of formation and implementation of the state policy of observance and protection of human rights and fundamental freedoms in a democratic society. Democratic tools used with the introduction of the latest information technologies provide the people with the opportunity to form and demonstrate their positions in the process of reforming the governance system and thus influence it.

At the same time, the question of how successful is the implementation of the concept of human rights in European countries at the state and personal level, especially among people who do not currently share its basic principles due to cultural, religious or other differences, remains open. Whether these discrepancies are situationally temporary, or this is a manifestation of a civilizational gap, the overcoming of which will affect the deep layers of the formation of social and personal priorities - this is an urgent issue that deserves attention of the scientific community and the active position of the society concerned about the problems of choosing public and state priorities. The gap line passes along the boundary of conditional division into those who accept and are guided by the concept of human rights in assessing political reality and the prospects of their countries to build a democratic future and those who do not perceive human rights as the basis for their values and don't link the future with the implementation of the concept in their own lives and the socio-political reality of their country. Accordingly, there is a need for understanding the problem and developing a strategy for its solution, i.e. overcoming the civilizational gap. There can be no place for the slightest imposition, violence or ideological pressure in the ways to overcome it.

The point at issue is that traditions and social priorities, the practice of cohabitation have been formed for years or even centuries, and the public response clearly derives from individual beliefs and assumptions that become organic. They are understood as something self-evident, as happened with the concept of human rights, for example, for the vast majority of citizens of the European Union.

At the same time, for the population of those European countries that have freed themselves from the power of authoritarian regimes only in the last quarter of the twentieth century, it's not cut and dried. They are not ready to believe that respect for the person can be the basis of state policy, or that the freedom of the individual and the possibility of self-actualization of the latter may be a criterion for self-control, true democracy and effectiveness of the government. Their priorities predominantly were social aspects, while issues of freedom of speech, non-discrimination, equality before the law were perceived as irrelevant, and democracy - as a convention and a trade-off.

Thus, the problem will be solved in the life of several generations through the consistent disclosure of the humanistic potential of human rights. Democracy crisis under the influence of an increasing level of self-government of society against the background of information and technological changes, the expansion of the populism of new "non-systemic" political forces, the disappointment in the "old parties" forced in crisis conditions to resort to political mimicry in seeking a panacea from collapse, ensuring political longevity, - all this stimulates the search for natural ways of implementing human rights in everyday life of people, in the activities of governments and local authorities. Perhaps such an adaptation is capable of not only preconditioning humanism and the effectiveness of the latter, but also elevating the very nature of power, as well as significantly affecting the nature of the human person whose universal rights have a chance to become the most important value of the modern world. The words that human life is invaluable acquire then a significant practical perspective, in particular amid the spread of violence, wars and inequalities.

Discussion

Conceptual Foundations and Humanistic Meanings of the Modern Paradigm of Public Administration

At the core there should be the fundamental principles, the implementation of which allows consistent implementation of the "sustainable development" concept as a global program for the preservation and development of modern civilization. The essence of the prominent factors of the modern development stage of the vast majority of state governance concepts in European countries, are defined, in particular, by integration, information and technological influences as well as the universalization of approaches on the basis of the priority of human rights. Information and technological changes in this context have also become a common factor, since they proposed new, common to all socio-political forces, algorithms for the interaction of the individuals with the environment, with the authorities and with each other. The combination of external influences determines the general tendencies towards universalization and convergence of the conceptual foundations of state systems in the conditions of preservation of traditional national structures, although this thesis is not devoid of polemical potential.

Implementation of modern approaches to public administration based on the latest concepts of "good governance" requires the equalization of the conditions of their application. According to J. Kooiman (1993), two simple principles are related to modern management practice. Firstly, the principle of strategic planning, where each department and each structural element within the state control apparatus, or financed by the state, must have a strategic plan - the definition of the goal, its decoding into the goal and a set of basic actions to achieve them. Secondly, the principle of responsibility, when every institution, both state and non-state, should be responsible for its goals and efficiency of using resources for their achievement. Given the decentralized nature of horizontal governance, public administration loses most of its competencies and direct leadership and moves from audit of the procedure to the audit of results.

In reality, accountability of decentralized administration structures is conditioned by the following principles: result-oriented administration, managed competition in the provision of services, social mechanisms of accountability of the authorities to citizens and civil society, the essential part of which are public organizations. One of the disadvantages of this approach to public administration is that maximizing profits and resource efficiency is necessary but not sufficient to promote and protect public goods such as the environment, since the administration cannot be universal in its efficiency, operational responsiveness, quality or behavior of its employees (P.Pierson, 1994). So, the definition of the principles of modern state governance depends on the context. The prevailing tendency is to increase the quality characteristics of administration, which determines the variability of the composition and compilation of all these principles. In general, the principles of governance are based on the principles of effective leadership.

Human rights can be a solid foundation of "good governance," which governments and peoples can use to bridge the gap between theory and practice of governance, between individual countries in terms of their role in their implementation. On this basis, governments are able to reach a broad consensus that will provide a comprehensive safe approach, in order to avoid a situation where human rights are the victim of disagreement in political positions. The protection and promotion of human rights and fundamental freedoms is an absolute priority in the work of national governments and supranational integration structures of different profiles that can achieve mutual understanding and seek effective cooperation on the basis of human rights.

The purpose of the law-governed state is to ensure the limits of human freedom, the inadmissibility of violation of the space of freedom, outlined by law, the prohibition of the use of non-legal violent measures. Human rights maintain a certain distance between the state and an individual, guaranteeing their privacy. However, the state is distancing itself not only from a person, but also from the struggle of political forces to maintain group interests in the field of law in those cases where the struggle of political forces goes beyond the legal limits. In this context, the law-governed state is designed to prevent social cataclysms and coups, providing a reasonable compromise in society.

Modern states of law, in particular Austria, Spain, Germany, France, etc., like Ukraine, largely depend in their actions on the state of the economy and the alignment of political forces, the level of society's culture and the degree of solidarity of the public interest, the external factors and relations between the members of the world community, the national specifics and features of the historical paths of each country, its geopolitical orientation and internal political traditions of the organization of power. This peculiarity, according to I. Shapovalova (1918), also manifests itself in the specifics of legal institutions and procedures for the protection of human rights, which undoubtedly influence the formation of a national algorithm for the protection of human rights and freedoms, the status and capabilities of a person in relations with the state. Consequently, the formation of a modern human rights ideology in a democratic, rule-of-law state is not a one-time action, but a phased process that, in its orientation at national traditions, is constantly aimed at improving in the global context. Unconditional compliance with human rights and freedoms and the inevitability of responsibility for their violation at all, without exception, levels of the power hierarchy is an ideal to which all democratic societies seek. The achievement of this ideal is conditioned, in general, by the development of the legal system, the level of organizational culture and moral principles of society, which form the basis of ideology accepted by the society.

Conclusion

Public administration bodies are able to perform their functions on the basis of human rights and freedoms, by stipulating the level of social justice in society and ensuring public order and security. Successful implementation of democratic reforms requires the settlement of property problems on the basis of the rule of law, providing opportunities for informed choice, access and participation of the population in the formation of policies and their implementation at the local level. To ensure such improvement, the following is needed: the real distribution of powers, designed to balance them; rule of law; restriction of individualism based on such a law that prevents the abuse of rights and freedoms by citizens themselves, as well as unlawful actions of officials in all branches of the power structures. A prerequisite for the implementation of sustainable development strategies must be a

change of the paradigm of public administration for a new one, built on the interconnected and interdependent principles of ecological governance, social justice and non-discrimination. In the early twenty-first century it is a logical, universal, consistent process, driven by the demands of society for effective, professional and democratic power. Institutional stability of the authorities and self-governing structures in this context plays a decisive role in overcoming crisis conditions and geopolitical threats on the basis of democracy and law. At the heart of the paradigm of modern governance are the priorities of human rights and humanistic values of sustainable development, reflecting the general principles of European identity.

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Practical Potential of Theory and Methodology of Public Administration on ahe Basis of Human Rights

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Abstract

The article deals with some aspects of the development of the theory and methodology of public administration and human rights on a multidisciplinary basis, modern perceptions about human rights in their interaction with the state, in particular, in the processes of public administration. It consistently emphasizes that transformation of human rights principles into the priorities of public administration results in satisfaction of social needs and harmonization of economic, political and ideological approaches to the realization of power, which confirms the organic, logical, expedient nature of human rights and their feasible implementation as a theoretical and methodological basis for public administration. The reform of management systems in accordance with the specifics of social development is considered as a process that can ensure the alertness and adequacy of public administration in solving current problems and identifying strategic perspectives, in particular, of local communities. It is consistently emphasized that decentralization of power is an integral part of a wide range of democratic reforms that embrace key areas for functioning of society and administration. Their successful implementation requires the settlement of property problems on the basis of the rule of law, guaranteeing opportunities for informed choices, access and participation of the population in the formation of policies and their implementation at the local level. It is argued that the process of decentralization of power and implementation of democratic management practices in Ukraine is consistent with the European trends and demonstrates restrained positive dynamics.

Keywords: theory and methodology of public administration, methodology of human rights, efficiency of public administration, decentralization of power, democratization.

Introduction

A trend typical for nowadays is the convergence of the theory and practice of administration, according to which theoretical generalizations are carried out on the basis of practical steps, and not vice versa. At the same time, neglect of theoretical developments of pressing issues of public administration leads to the unpreparedness of administration systems to respond adequately to changes in the environment, to crisis phenomena of different nature and changes in social priorities against the backdrop of global threats. The involvement of new combinations of social, economic and political interaction that may differ from civil society, the market and the state, causes tension in contemporary society within the framework of interactive administration, in particular on the basis of advisory or discursive policy analysis. The new communication policy helps people in the society to voice their concerns and demand an adequate response, in particular, for example, users of the Internet or mobile communications. Instead, theoretical studies of public administration as a social institution allow us to determine the regularities of its functioning and the nature of stability, to

propose a scientific substantiation of state policy as a system-forming element of governance. The analysis of the authorities' activities as a political and legal institution of management of the society as well as political-legal and social relations, which are formed in the process of administrative activity, allows us to reveal the essence of the target objectives and the principles on which the state implements them.

In modern conditions, the specific characteristic of public administration is its functioning on the principles of the concept of human rights, which has become a universal standard of government, formed and institutionalized in the dynamics of the European state-building of the late XX - early XXI centuries. Theoretical research in the field of human rights reveals the essential managerial and determining humanistic potential of the concept of human rights, which is realized in the practice of public administration. The common conceptual foundations of the theory and methodology of public administration and human rights give managerial practices a profound humanistic meaning. In this context, the topic of the article is relevant and has considerable practical potential. Important aspects of the theory and methodology of public administration in the multidisciplinary discourse have been developed by such researchers as D. Easton (1997), J. Feinberg (1980), J. Jaskiernia (2017), A. T.Parsons (1951), J. Raadschelders (2008).

The general strategy of scientific research is based on the methodology of public administration, which defines both its main principles and mechanisms of their implementation in governance practice. The methodology of scientific research is based on the recognition of the concept of human rights as the fundamental theoretical and methodological basis of public administration. The purpose of the article is to argue the need to intensify complex theoretical studies in the field of public administration on the basis of human rights using corresponding methodology in the interdisciplinary discourse.

Analysis and Results

Universality Of The Theory And Methodology Of Public Administration In The Context Of An Interdisciplinary Approach

The theory of state administration seeks to discover objective patterns in the field of administrative activity, in order to rationalize, on this basis, the organizational principles of the realization of power in the context of general human values in general, and human rights, in particular. The extent of the use of power and the control of power by the governing bodies is not unambiguous and largely depends on the legal traditions of the state. Theoretically, according to the "social agreement" on the basis of the theory of natural law and social contract, the society gives the state structures part of their rights (force) with a view to carry out administration activities. Interpreting the rule of Roman law "Nemo plus juris ad alienum transferre potest, quam ipse habet" as "No one can transfer to another any greater right than he himself has", hence the government cannot have more rights than those that are passed on to it by the people. Accordingly, the administrative and controlling structures of the state should convincingly offer the society the direction of their policy serving the interests of the latter and constantly report on how it is implemented.

Reflecting on the virtues of a liberal state, J. Bentham, with all the contradictions in his attitude to the state and administration, the rule of law and human rights, hoped that the happiness and well-being of society and individuals would largely depend on the work done by this state.

One of the scientific areas developed in the writings of the founders of liberalism was the search for socio-ethical criteria that could guarantee the greatest possible benefits to the citizens and society from the activities carried out by the state. According to John S. Mill, in a liberal state and a free society, priority is given to universal values. This doctrine has not lost its relevance nowadays. The fundamental ideas on which the theory of John S. Mill was based have become not only the norm of world outlook in a civilized society, but also a necessary requirement, the basic principle of international standards of human rights and freedoms.

The methodological principles of the theory of public administration are determined by the set of methods of cognition, philosophical, sociological, politological and other general scientific principles and theories that rationalize them and create a system of methods and techniques of scientific cognition and explanation of the public administration process. The humanistic content of public administration conditions the use in the theory of public administration of the methods of adjacent or related branches of humanitarian knowledge, in particular, philosophy, political science, sociology, cultural studies, etc., which are defined as social and humanitarian. These are, in particular, methods of historical comparative and synchronous-comparative research, analysis of documents and sources, as well as methods specific to particular sciences, in particular, psychology - tests and scaling, sociology - surveying public opinion, cultural studies - the study of stereotypes and traditions, linguistics and semantics - analysis of signs and symbols. Methods developed in political science - the modification or combination of other methods into a special toolkit used in the analysis of political objects can be used to simulate political situations involving, for example, the elements of the theory of games, or in rating expert evaluations of political leaders and government officials, in a comparative analysis of data on the activities of states and parties done with the use of computer technology. In this case, qualitative methods are based on studying and defining qualitative features and properties of political objects and processes, and quantitative - on the measurement of various parameters using symbolic and mathematical formalization and quantification. However, in modern studies, it is sometimes rather difficult to identify the boundary between qualitative and quantitative methods.

At the theoretical level, in particular, for the structural-functional method, a methodologically important principle is the one defined by T.Parsons (1951), which is the basic functions of the social system, namely: adaptation, guaranteed by the economic subsystem of the society; achievement of the goals, realized by the political subsystem; integration through the legal subsystem; reproduction of the system, which is realized through religion, morality, generally accepted norms and values. The synergetic approach on the basis of the structural-functional method arranges and interconnects parts of a complex object and creates its structure, determines the role played by each part in favor of the whole object and the functions performed by the object in a more complex surrounding system. In this context, the interconnection and interdependence of the components of the society and public administration seek to universalize the motives, which is satisfied by the definition of the global goal: the welfare and security of society and the rights of the individual.

The analysis of the state as a social system is carried out on the basis of a systematic approach, which in the theory of state administration is based on the features of internal interconnections that create an integral whole. Systems theory, considering objects as a system, focuses on the study of the discovery of the integrity of the object, identification of multiple connections within the object, as well as between the object and its environment, and bringing them into a single theoretical picture. L.von Bertalanffy (1969) proposed a program for constructing a general theory of systems as a system metatheory, designed to formulate ways of constructing all possible system theories, but this program has not been implemented.

The organization theory is characterized by a smaller degree of generalization and explores the issue of the effective functioning and administration of social systems. Since one of the branches of this activity is the work of administration personnel, the organization theory pays particular attention to the work of the staff of public administration. A. Rachynskyi (2013) believes that the essence of the effectiveness of the organizational structure is determined by the impact of quantitative and qualitative factors of technical, organizational, political, socio-psychological, moral and ideological content, which in its turn determines the need for a multifactorial and integrated model for the improvement of organizational efficiency.

Theoretical substantiation of the methodology of system analysis in the theory of public administration was done by D.Easton (1997). Considering any political system in terms of functioning, the author uses the cybernetic principle of measuring the indicators of the functioning at the "input" and "output" of the system: the "input" is the demands and needs of the citizens, and "output" - the decisions and actions of the authorities.

The multidisciplinary nature of the theory of public administration, according to J. Raadschelders (2008), demonstrates the diversity and richness of techniques and practices. The methodological pluralism of the science of state administration, in the scholar's opinion, is not limited to the use of different methods, theories and approaches of other intellectual traditions. Comprehensive study of the issues of public administration in view of an unprecedented level of its organizational complexity and penetration into society is possible only within the framework of the science of public administration, based on an approach that "works with scientific knowledge, practical experience, practical wisdom and relativistic perspectives". The complex nature of the theory of public administration and its methodological basis determines the corresponding set of objective and subjective theoretical and empirical general scientific, sociological or politological methods of studying the theory of public administration as a political, social and legal reality.

Consequently, modern theory and methodology of public administration disclose its essence, content and specificity, generalized by the centuries long experience. Social universality of the theory of public administration is determined by its social and value principles. Being an integral part of general scientific theory, it covers the process of formation and implementation of public administration in its most consistent and historically determined characteristics, and a political process dominated by changing party and personal preferences and goals in their permanent metamorphoses amid changing those social ideals that become priorities at each individual stage of society's development.

Methodology Of Human Rights In The Theory And Practice Of Public Administration

The desire of governments to rationalize the national system of governance, to raise its level of efficiency is characteristic of the modern developmental stage of both European developed democratic countries and countries of democratic transition. The level of efficiency, according to A. Rachynskyi (2013), in the broadest sense is defined as the relationship of various aspects of activity: result and costs, result and goals, result and needs, result and values. One of the most effective and efficient ways to achieve this goal is to democratize administration practices on the basis of human rights, in particular by involving the public in governance processes. Such approach can positively influence the level of public legitimacy of the government, which guarantees the support of the population in the implementation of state policies. Considering human rights as a basic component of public administration stimulates a free public debate on freedom of thought within a democratic tendency aimed at the development of political rights of a person as a citizen. Even though the conclusion that democracy is a prerequisite for human rights is debatable.

System analysis as a methodology is characteristic of both social institutions - public administration and human rights. Human rights in a democracy are characterized by a systemic interdependence of what is, according to D.Easton (1997), at the "input" and "output", because a certain human right can not be subject to the categorical requirement at the "input", if its observance obstructs or unintentionally endangers the right at the "output", in particular, when it comes to achieving the goals necessary for people, implementation of appropriate decisions, coexistence of people on the principles of rights and freedoms. The opportunity to participate in political decision-making through universal, equal and free electoral law and democratic processes based on it, will not be subject to a categorical and universal requirement, without taking into account further results, simply referring to human dignity and human rights. An important aspect of the theory and methodology of human rights, as well as public administration, is their universality. According to J.Feinberg (1980), the state, as a mechanism for the implementation of public authority as far as human rights are concerned, receives from the society, along with legitimacy, the task to promote their implementation, that is to guarantee them. Rights and related responsibilities are defined within a certain (moral or legal) system of rules.

D. Bieńkowska (2018), considering the situation with lawmaking in highly developed democratic societies, emphasizes that the legal system always depends on the pluralism of worldviews, dialogue and compromise that imply deep respect for the rights of both society as a whole and each individual.

Despite the different axiological orientations, moral and ethical norms that are formed outside the legal system, human rights always interact with it and reflect its state. Consequently, the right always has a philosophical basis, acting as its instrument, conditioning the essence of the concepts that the legal system operates. In the early twenty-first century, in accordance with the changes taking place in the development of society and governance, the need for rethinking three generations of human rights, in particular in the context of human dignity, becomes apparent.

The theoretical and methodological foundations of human rights and public administration are correlated. Human rights transpose the basic principles, in particular the principle of respect for the personal dignity of the human, the principles of equality before the law and a non-discriminatory approach in administrative actions, etc., into the priorities of public administration, which determines the satisfaction of social needs and harmonization of economic, political and ideological approaches to the realization of power. This confirms the organic and logic nature of the implementation of human rights as a theoretical and methodological basis of public administration, that is, its necessity, opportunity and expediency.

Discussion

Reform Of The Public Administration System: The Ukrainian Context

The search for ways to improve the administrative-territorial system in Ukraine takes place in the context of sharp political-legal discussions around the problems of the development of Ukrainian statehood. Inherited from the Soviet Union, the model of the administrative-territorial system for independent Ukraine proved to be one of the deterrent factors on the way of constructive state transformations in this period. The development of state institutions was carried out in the direction of "adjusting" them to the public administration system, which continued to exist in Ukraine as a rudiment of the Soviet era. During this period, a significant number of subordinate acts on the reform of the organization of power and territorial administration were adopted (from 1994 to 1999, the President of Ukraine issued over 100 decrees, which, though indirectly, however, regulated issues of competencies and power of the authorities in the center and at the local level), indicating two peculiarities of the domestic reform process. Firstly, at that time, the Ukrainian political elite proved to be unable to solve the pressing problems of the organization of state power and local self-government at the legislative level. Secondly, the development of the conceptual framework of reform has grappled with a lack of consensus among administration actors, scientists and society as a whole.

At the current stage of reforming the Ukrainian state, the decentralization of the system of government is a necessary condition for the democratization of society as a whole, and the effectiveness of power on the basis of human rights in particular. Conceptually, decentralization processes are considered through the prism of three alternative processes, which mainly come down to formation of a new paradigm of power, expansion of regional administrative capacity and construction of local identity in the conditions of powerful globalization influences. Decentralization, as a rule, is part of a much broader program of state reforms, an integral part of processes aimed at ensuring the democratic foundations for functioning of both vertical (hierarchical) components of power configurations, as well as horizontal (non-hierarchical) components at the local level. The measure of the success of such a reform is the ability of decentralized power both in the center and at the regional and local levels to meet the needs of the society in a skilled, efficient government without increasing the expenditures.

J. Jaskiernia (2017) explains the foundations of human rights for good administration and European standards for control over public administration. Within a much wider process of reforms, these processes are aimed at strengthening local and regional potential and allow interpreting decentralization as a response to fundamentally new forms of regional policy for preserving local identity, or as its upgraded combination. Despite the fact that the interim results of the decentralization process may be unconvincing and questionable as for the stated aspirations for a

longer period, the process of gradual changes can be adjusted with a view of increasing their effectiveness.

According to A. Kuczabski A. (2010), decentralization is best viewed in terms of liberating entrepreneurial energy and political potential of local and regional authorities and public institutions. The tasks of decentralization lie in the plane of compensation of the state's inability to be effective at the local level, when without deep understanding of local circumstances and effective support of local communities the implementation of policies is substantially slowing down. Decentralization becomes especially important in terms of new forms of implementation of local and regional potential of viable public institutions, interinstitutional relations, regional political leadership, entrepreneurship policies, asymmetry in the development of regional policies for the development of regional governance. Decentralization offers the local political leadership and administration elite new strong positions in implementing regional identity politics through territorial mobilization. The revival of ethno-territorial identities is a challenge to the centralized model of a unitary state.

There are currently no clear benchmarks in Ukraine regarding the extent and depth of decentralization processes that are relevant to the current and future state of Ukrainian society. At the same time, this issue is fundamentally important in terms of building an effective system of territorial organization of power in Ukraine and ensuring the national security of the state. The most expedient, in our opinion, in the context of the decentralization of power in Ukraine, is the appeal to make constructive proposals in order to determine the extent and priorities of reform. The fact that a weak state, an inadequate level of its influence and an inability to maintain a leading role at its level of authority, will lead to the collapse of the state. At the same time the insufficient degree of community participation in the formation and implementation of state policies, the lack of the ability of regional and local self-government bodies to manage local inquiries at the level of society and to be responsible for this will slow down the democratic process and dramatically reduce the effectiveness of the administration process. Thus, the introduction of democratic practices based on an appropriate balance of the role and influence of the state and the community at all levels of administration is the optimal approach, the realization of which can bring real success.

There have been serious reservations about the threats to decentralization of governance in Ukraine. Highly developed European countries have been introducing the elements of decentralization of governance in the unitary states in order to increase its efficiency. Those states have long-standing traditions of democracy, a stable system of state-political structure, an effective system of legislative and normative regulation in all spheres of the society's life. It is impossible to say this about Ukraine at this stage. Increasing the role of local self-government in the administration of the state implies the presence of its real carrier in the form of conscious, independent, wealthy citizens. In Ukraine, with its totalitarian past, which humbled human dignity for many decades, and a very low standard of living, it is too early to speak of the presence of such a vehicle of local democracy. Modern Ukraine is characterized by a complex internal political and socio-economic situation. So, solving extremely harsh socio-economic problems, strengthening the institutional and legal support of all spheres of life, consolidating Ukrainian society, raising the level of integration of the national economy of the government and the public is quite difficult.

Nevertheless, according to the results of the All-Ukrainian poll “Implementation of the decentralization reform in Ukraine” conducted by the Council of Europe during 2015, 2016 and 2017 in three waves, with the participation of more than 2,000 respondents throughout Ukraine, except for the Crimea and the temporarily occupied territories of Donetsk and Luhansk areas, some success has been achieved. Summary of the results by the end of 2017 gives grounds for the conclusions. According to G.Zubko (2018), from 2015 the number of those who consider the reform necessary, increased from 60% to 64%. In general, in Ukraine, 58% of the population consider decentralization to be necessary. The share of those who do not consider the reform to be necessary is only 20%. The share of the population, which marks changes for the better in their settlements during 2015-2016, has increased from 19% to 46%. There has been a 40% increase in the number of people who felt the improved quality of admin services.

M.Karpa (2018) believes that the system of recruitment for public service has been considerably changed and is now based on an open competition, the procedure of which is constantly updated according to the best European models. High competition combined with a decent salary and a promise of interesting work attracts decent people. In fact, these people should become "agents of change" in the state. The Cabinet of Ministers regulation introduces new approaches to assessing the effectiveness of the government work, in particular as far as the impact of government decisions is concerned, including on the basis of analyzing the key performance indicators of the previous ones. Innovative changes are introduced in the system of training civil service personnel, in particular on the basis of a competency-based approach. At the same time, much of the required regulatory framework has not yet been adopted. J. Makovey (2018) is looking at the financing of new civil servants without increasing the overall budget expenditures, expressing restrained optimism.

Among the tasks that Ukraine still needs to accomplish are: introduction of market gas prices, creation of a civilized land market, further deoligarchization of the economy, business deregulation and further integration into the EU's common spaces, in particular the EU's Customs union, the EU Energy union, Aviation and digital spaces, the entry of Europeans in Naftogaz, etc. An argument for the decentralization of governance is the improvement of the quality of public services and their accessibility to the consumers, using the example of developed decentralized states. The world-wide experience of regional governance, in fact, proves in favor of a decentralized model of territorial development, in which the maximum authority in this area is transferred to local authorities, and in particular, to local self-government bodies.

Conclusion

Modern theory and methodology of public administration disclose the essence, content and specificity generalized by centurieslong experience of the latter as a phenomenon and as a process. The social universality of the theory of public administration determines its social and value principles, covering the administrative process of formation and implementation of public administration in its most consistent and historically determined characteristics. It also regards the political process, dominated by varying parties and personal preferences and goals, in its permanent metamorphoses against the background of changing those social ideals that become priorities at every single stage in the development of the society. The theoretical and methodological foundations of human rights and public administration are correlated. Human rights transpose the basic principles, in particular the principle of respecting the personal dignity of the person, the principles of equality before the law and a non-discriminatory approach to administrative actions, etc., into the priorities of public administration, which determines the satisfaction of social needs and the harmonization of economic, political and ideological approaches to the realization of power, which confirms the organic and the logic nature of the implementation of human rights as a theoretical and methodological basis of public administration. Democratic political institutions of public administration and local self-government, which implement state policies on the basis of the rule of law and human rights, ensure the stability, efficiency and legitimacy of the government, the quality of state policy, especially its regional socio-economic component, in accordance with the adopted strategic goals.Therefore, the progress of the society depends directly on the quality of managerial actions at all levels of governance involved in the development and implementation of policies, which can be effective in responding to a society's demand for a qualified and responsible authority.

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Career Support of Personnel Managers During Their Professional Training

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Abstract

The modern educational environment of the university is expected to contribute to the goals and aims of the professional activity, however, limitations often do not allow students to make an informed decision on the career path of professional development. The results of the study of the concordance between personal qualities of students and the future profession requirements should be taken into account while implementing a career support system for young people at the stage of vocational training. The survey made it possible to identify the main personal qualities of a specialist in human resource management. The conducted study of the concordance between personal qualities of students and the requirements to the personnel manager showed inconsistencies in a number of basic characteristics. The choice of diagnostic tools is justified by efficiency requirements from the university in professional development and career support of students. The research methodology is based on a survey and computer analysis using a multivariate personality questionnaire. The research concept is based on the theory of career self-efficacy and the theory of leading trends. The identified empirical data of personal qualities of students allowed to determine a set of activities for career support for university students, taking into account the level of their psychological and professional development. In the course of the research, the hypothesis was confirmed that the choice of priority tracks of career support for university students should be based on the consistent identification of the leading personality traits of students in accordance with the future profession.

Keywords: career support, professional development, psychological and professional development, personal qualities

Introduction

The modern educational environment of the university is expected to contribute to the goals and aims of the professional activity, to finding one's own place in the system of professional relations, to effectively manage the career of future specialists.

The relevance of the research topic is caused by a number of objective discrepancies: 1) the discrepancy between the overestimated self-esteem of young people and the real professional and personal potential; 2) the discrepancy between the desire of graduates to get high salaries (the desire to occupy a leading position in a company) and the existing level of unemployment among young people (according to the Federal Service of State Statistics of the Russian Federation as of January 2017, the share of unemployed youth under 25 is 19.8%); 3) the discrepancy between the number of graduates of higher education institutions and the number of people employed by profession. Hence, the management of the young people's careers at the stage of professional training becomes particularly important.

The today's understanding of a career is connected not only with the success in a specific professional sphere, but also the success of the person in all spheres of life. The management of the youth career can be based on various theoretical and methodological grounds (Renn, 2014, Schein, Maanen, 2013, Zikic, Saks, 2009, Khanaeva, Lysenko, 2016). As early as the beginning of the 20th century, the German psychologist W. Stern (1911) justified the necessity of drawing up a generalized psychological portrait of a specific person, which could help compile partial psychograms that would not reflect all aspects of the personality, but only those which are a key to a labour or practical task. Thus, a "psychogram of the personality of a successful person" evolved, reflecting the exceptional and important qualities of a productive and "low-cost" worker. If the employee has some qualities that do not correspond to the composition or level of development of a particular labour function, then the employer has to heavily invest more physical and financial resources in his/her adaptation, motivation, and training. A psychogram is not only a thorough study of the profession, it is the determination of particular personal qualities of the employee, without which performing job functions at this professional level are impossible. In this case, each characteristic must meet the requirements of necessity and sufficiency, be easily diagnosed in a short time and with minimal financial and labour costs, for example, using computer-based standardized techniques. When drawing up a "successful employee profile" and selecting applicants for a position on its basis, it should be remembered that if there are deviations from the values of the psychogram, the employer is unlikely to significantly adjust the professionally important personal qualities of the employee, since these characteristics have relative stability, can hardly be trained and corrected externally. Thus, the development of professional psychograms and their inclusion in educational programmes along with the development of competencies will improve the quality of training of future specialists, that is, educational institutions will train prospective employees who, in the process of training, have been prepared for the "profile of a successful worker" in accordance with their future profession.

In our research, we relied on the concept of career self-efficacy, as well as on the theory of leading trends by Sobchik (2008). The concept of self-efficacy was introduced by Bandura (1977), revealing the importance of personality correction. He proved that people with high self-efficacy put more effort into solving professional and personal problems. They cope with failures more easily and work better than people with low self-efficacy. Professional diagnostics are important from the point of view of developing perceived self-efficacy, the concept of which is interpreted as a person's self-assessment of his abilities to perform any actions under certain conditions (Cervone, 2000). Studies have shown that self-efficacy positively relates to career growth, positively influences career development and career self-management of a specialist (Bandura et al, 1996). The following components of career self-efficacy are considered: career goal-setting, career planning, opportunities to solve career problems, especially those of employment. An important condition for career self-efficacy is the individual's awareness of his/her strengths and weaknesses regarding future professional activity, the concordance between individual professionally important qualities (PIQ) and the profile of the chosen professional specialization. Thus, we can talk about the need for career support for graduate students. At the stage of professional training, future specialists are taught to build flexible strategies of professional socialization, to plan careers and set goals (Betz, 2007).

Methods

The authors carried out a comprehensive analysis of the compliance of students, studying in the field of "Personnel Management", to the professiogramme of a specialist in personnel management. It was hypothesized that the choice of the career support for university students should be based on the identified leading personal qualities of students in accordance with the future profession.

The study was administered in three stages. At the first stage of the analysis, a survey was conducted to identify important personal qualities that contribute to the successful fulfillment of a personnel manager's

job. The experts were 15 professionals with deep knowledge in the field of human resources management who have worked in this field for at least 10 years.

At the second stage of the study, students were tested. The study involved 210 senior students of an economic university aged 20-23. As a tool for diagnosing the concordance between the personality characteristics and the requirements of the profession, we used the standardized multivariate method of personality research (SMPR), developed by L.N. Sobchik. SMPR is a modern Russian adaptation of the famous personality questionnaire (Minnesota Multiphasic Personality Inventory, MMPI), a technique designed in 1940 by S. Hathaway and J. McKinley.

The theoretical basis and interpretation of SMPR have been significantly changed and expanded in the framework of the developed by L.N. Sobchik theory of leading trends. The leading trend includes a personal quality, a condition for its formation, an inclination to certain behaviour, including professional behaviour. Unlike the original version, SMPR has no clinical focus. The methodology allows determining the main type of personality, professional inclinations, the degree of socio-psychological adaptation, business qualities, competencies, communication style and many other personal qualities of the subject. SMPR is actively used in Russia in various fields, including the field of career counselling and personnel selection. The authors used the computer-based version of the method, the testing time is 45 minutes.

At the third stage, a comprehensive career support programme for students was designed.

Results

The survey allowed us to identify important personal qualities that contribute to the successful competencies in personnel management. Summarizing the results of the survey, it is possible to define the main qualities of the personality which are necessary for the HR specialist:

1. Pro-active attitude (including such qualities as being strong-willed, goal-oriented, decisive, persistent, effective).

2. Character traits, including leadership qualities, adequacy of self-esteem and self-confidence.

3. Interpersonal behaviour, including communication skills (focus on cooperation and compromise, an ability to smooth conflicts, tact, sociability, teamwork skills).

4. Thinking (high level of conception thinking, ability to abstract, erudition, analytical thinking).

5. Reaction to stress, stress resistance.

6. Leading needs, including the desire for self-development and self-realization.

7. The motivation for success and communication.

8. Adaptability, including self-regulation, the ability to personal reflection.

Interpretation of the basic SMPR scales allows us to consider such important personal qualities as pro-active attitude and adaptability, as well as individual reaction to stress, features of interpersonal communication, character traits, type of thinking, motivations and needs of the individual. These criteria,

in our opinion, are the most essential for making a psychogram of specialists in the field of personnel management, as well as developing an individual path of career development for future specialists.

The criterion of "pro-active attitude". Active behaviour is prevalent in the overwhelming majority of respondents, passive behaviour is expressed in 4.7% of respondents. Students are active in decision-making and self-affirmation, as a rule, it increases due to the optimism and expressed confidence in success. It should be noted and the existing negative trend, manifested in 28.5% of respondents is often the result of an irrational activity.

The criterion of "character traits". For respondents, a great variety of character traits is characteristic. Certain character traits correspond to the psychogram of the profession, their manifestations are desirable for the future specialist. These are the desire to realize their aspirations, ambitiousness, optimism, the proneness to change and the desire to control other people. However, there are traits that contradict the psychogram, their manifestations are not desirable: reluctance to obey, carelessness and ignoring of danger, sensitivity, the unpredictability of actions, the spontaneity of behaviour. The distribution of character traits among the respondents is presented in Table 1. It should be noted that certain features are manifested in pairs, for example, the desire to realize their aspirations entails manifestations of ambition and vice versa. We have identified, also character traits, that are neutral to future professional activities and, therefore, they are not taken into account in our analysis.

Table 1: The concordance between of the character traits of the respondents and the psychogram of the profession "specialist in personnel management"

Character traits, in agreement with the psychogram	%	Character traits, in disagreement with the psychogram	%
desire to realize their aspirations	48.2	reluctance to obey	48.4
ambitiousness	48.2	carelessness and ignoring of danger	43.6
optimism	38.5	sensitivity	38.8
proneness to change	67.2	unpredictability of actions	38.8
desire to control other people	48.4	spontaneity of behaviour	48.2

The criterion of "interpersonal behaviour." The general tendency of the sphere of interpersonal communication of the respondents is connected with the authoritative style of communication, strengthening of leadership features, self-will and inability to obey. The leading trend is connected with the selectivity of communication and its dependence on subjective predilections. Compliance and conformational behaviour of the majority manifest themselves only in unfavourable situations. Most respondents lack the flexibility to deal with others, as evidenced by the following data presented in Table 2.

Table 2: The concordance between the interpersonal behaviour of the respondents and the psychogram of the profession "specialist in personnel management"

Interpersonal behaviour, in agreement with the psychogram	%	Interpersonal behaviour, in agreement with the psychogram	%
Strive for independence and leadership	48.4	Communication is selective and depends on subjective attitude	57.4
Flexibility in communication with people, ability to compromise	29.3	Lack of flexibility in communication with others	48.2
Ability to defuse conflicts	10.5	Stubbornness and inability to obey	38.6

The criterion of "type of thinking." The distribution of respondents in accordance with the type of thinking is shown in Fig.1. The predominant share of respondents is dominated by the analytic thinking and the manifestation of inclinations in the sphere of fundamental sciences, which is typical of personnel management. However, the intuitive decision-making process was also revealed in a significant number of respondents which is alarming. The tendency to superficial judgments, as well as the tendency to imagining things and separation from reality revealed by some students, is a cause for concern.

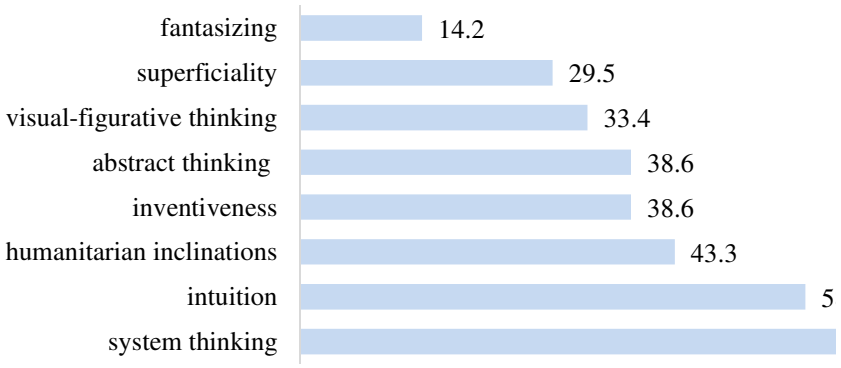

Fig.1: Distribution of respondents by the criterion "type of thinking"

The criterion of "reaction to stress." The modern world around us is full of information, every day, every employee, processes gigabytes of information, and, in the absence of a proper mechanism of protection from such harmful factors, immediately experiences stress. Stress reduces the viability of a person, and, consequently, diminishes work efficiency. The distribution of respondents in accordance with the individual reaction to stress is shown in Figure 2. The majority of the interviewed respondents showed difficulties in managing stress and low-stress resistance accompanied by irrational reactions and psychosomatic manifestations.

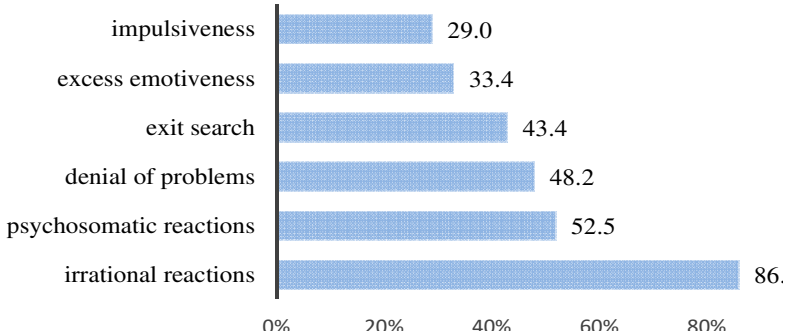

Fig.2: The distribution of respondents by the "reaction to stress"

At the same time, the respondents' answers are encouraging, showing a spontaneous desire for self-realization and an intuitive search for a way out of stressful situations.

Criterion "leading needs". Needs are the main source of personal activity and contribute to achieving goals. Knowledge of workers' needs simplifies the implementation of incentive and management systems in the organization. The distribution of respondents' answers in accordance with the leading needs is shown in Figure 3. Most respondents have a pronounced subjectivity in the sphere of significant needs. The crucial characteristic for professionals in the field of human resource management is the need for self-realization, expressed in 43.4% of respondents.

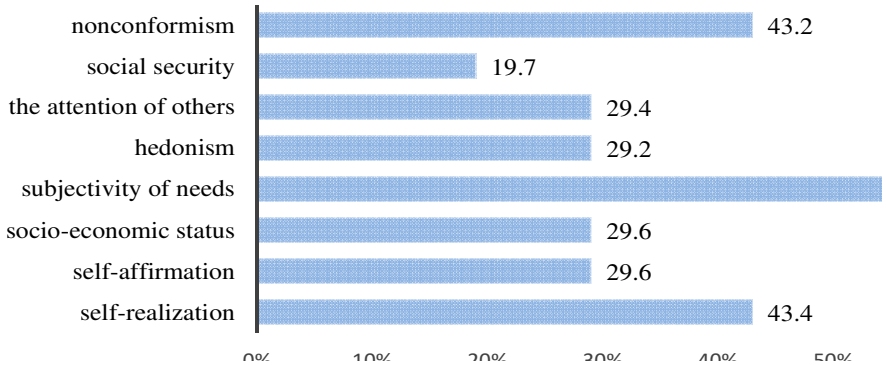

Fig.3: The distribution of respondents by the "reaction to stress"

The criterion of "motivation". The motivation for accomplishing the tasks and achieving the goals is based on self-motivation. It is the most effective type of motivation as opposed to the employer's pressure through tangible and intangible incentive tools. The test results in Fig. 4 showed that 71% of respondents have a sustainable motivation for success. However, in stressful situations, in most respondents motivation is "blocked" and potential workers will cognitively support the motivation to avoid failures. It will impede performing professional activities in the field of personnel management, lead to instability of the motivation, create unrealistic ideas and motives. The behaviour of such employees will be greatly influenced by the circumstances and opinions of others rather than the existing incentive system in the organization.

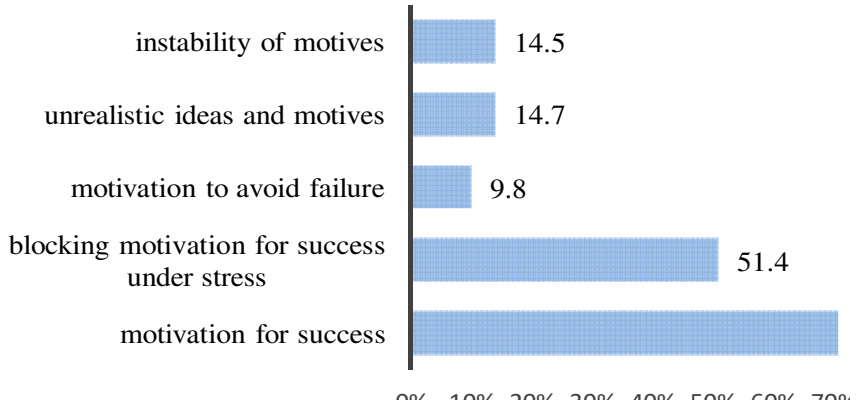

Fig.4: Distribution of respondents by the criterion "motivation"

Criterion "adaptability" is a quality of key importance in modern competitive and constantly changing working conditions. The authors tend to argue that organizational socialization cannot be limited to weeks and months, a successful worker is constantly in the process of adapting to conditions, technologies, the surrounding world, and colleagues. According to the results of the study, 62.5% of the students surveyed have problems with social adaptation. Possible causes of adaptation issues may be related to the following factors: lack of compliance and flexibility in behaviour, excessive individualism, increased impulsiveness, lack of harmonious relations with the environment.

Conclusion

Based on the obtained results, it can be concluded that the personal qualities of the majority of respondents are in concordance with professional qualification requirements on the following criteria: pro-active attitude, character traits, thinking, leading needs, and motivation. At the same time, there is a discrepancy in the proper level of personality characteristics in the criteria: interpersonal behaviour, reaction to stress, adaptability. The study conducted by the authors showed the need for psychological assistance to future specialists in planning their career path, developing personal reflection skills of professionally important qualities and personal characteristics. The development of perceived self-efficacy in relation to the profession will be facilitated by carrying out steps and activities during the period of study at the university, in accordance with the basic stages of managing the students' career: research, resource, training, and tutoring.

1) The research is to explore the external socio-cultural and economic environment and self-diagnosis of career opportunities and personal potential. The following are the ways to implement this idea of career orientation in the university: monitoring labour market, a reflection of personal experience, professional diagnostics (psychodiagnostics of personality traits, motivation and interests, general and special abilities, professionally important qualities, knowledge, skills, career orientations).

2) The resource includes career resources, which allow choosing the ways of job search (professional sphere, specialization, company, position, working conditions), strategy and tactics of professional behaviour in the labour market. To implement this direction, a university needs to create a centre for cooperation with employers, it is also necessary to have specialized websites and publications on employment, cooperation with leading recruitment agencies.

3) Training is an effective form of active learning, they contribute to the development of the necessary career skills, and also develop the potential of the individual, regarding personal and professional self-determination. It is necessary to conduct the training of professional self-determination, the training aimed at developing personal and professional competencies with students in the framework of training courses or disciplines of their choice.

4) Tutoring as a process, which includes support, career counselling and coaching, is carried out by a person who has the necessary experience in the professional sphere. The most effective programs are the programs that combine aspects of mentoring in the workplace with academic tutoring as supportive coaching, especially for modelling, appropriate professional behaviour and self-efficacy. A prerequisite for the implementation of mentoring is the creation of a trusting atmosphere between partners. Thus, teachers (academic tutoring), successful students of senior courses (partner mentoring), as well as representatives of the professional environment (business mentoring) should consistently act as mentors/tutors in a higher educational institution.

The problems, identified in the course of the empirical study, determined the choice of a set of measures for managing the career of students studying in the direction of "personnel management." To correct interpersonal behaviour, along with a diagnostic direction that allows you to see problem areas in this sphere, it is justified to conduct the training of communicative competence and development of emotional intelligence. The work with individual reactions to stress involves stress management training, psychological support for students. The criterion of "adaptability" is best adjusted through partner mentoring, academic tutoring with elements of coaching; the construction of an individual trajectory of education in a university. The “resource” will also contribute to better adaptation to the process of vocational training, to arouse interest in the chosen profession, to give a more complete picture of it. Summarizing the results of the study, we note that the management of students' career should be aimed at raising the level of educational motivation, adjusting career plans, increasing personal and professional awareness and self-denial. The choice of priority directions for managing students' career should be based

on the diagnosis of the concordance between personal qualities and the requirements of the speciality psychogram, which requires detailed development and further research.

Acknowledgment

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Adaptation of Individual Taxonomy in Financial Statements Prepared in line with IFRS to XBRL Format

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Abstract

This article describes the details of the research carried out on the taxonomy in financial statements prepared in line with Russian Accounting and International Financial Reporting Standards. Financial statements are usually prepared in a PDF format for external users. Financial statements prepared by thirty selected Russian companies have been analysed. It has been defined that the format of the financial statements prepared in line with Russian Accounting Standards does not have any individualisation. This can be explained by unification of its taxonomy. Though, statements prepared in line with the IFRS by the same companies are characterised by the individuality of their taxonomy. Visual focus on text and digital information presentation of statements is made for external users. One of the conclusions of this research has revealed that reports prepared in line with IFRS in XBRL format can be characterised by a high degree of the taxonomy standardisation. Hence, it leads to decrease in reporting individualisation. Transition to XBRL format changes approach of how financial information is being perceived. It transforms the static text of the formatted statements into interactive information. For the companies that work under the jurisdictions where the transition to XBRL format has already started, there are additional requirements in order to convert the statements into electronic format and keep the individuality of the taxonomy in financial statements prepared in line with IFRS. It has been concluded that XBRL format can lead to global standardisation of taxonomy on the international arena in future. Meaning that an automatic translation into any language can easily be done and all the stakeholders can access the information. Transition to XBRL format affects all the user groups within a company as well as externally, between the companies, controlling institutions and regulators. Unified data preparation will provide all the users of the statements prepared in line with IFRS with operational, reliable and high quality data.

Keywords: International Financial Reporting Standards (IFRS), XBRL, taxonomy in financial statements.

Introduction

Business information exchange between companies, controlling institutions and regulators on the international arena has entered a transition period to XBRL format. Perfection of internal and externals regulations of the companies that are preparing financial statements and the formatting of the reporting is under question. Process of collection and registration of information, definition of financial reporting indicators, conceptual framework and its practical application can vary significantly from country to country. Such a difference affects the taxonomy of financial statements. Taxonomy undermines method of presentation and systematization of information that allows a high number of interdependent indicators to be considered. Evolution of taxonomy development in financial statements has been influenced by informational requirements of external users. It is important to mention that it is not only the regulation in the area of accounting and reporting but also

business ethics, behaviorism and psychology of the relationships between those who prepare financial statements and external users, should be taken into account. Different users groups have different requirements to information. It means that there is a psychological component in financial reporting because its visual perception can be influenced. In this case it is necessary to analyze the way taxonomy in financial statements is formed. The influence of XBRL format on taxonomy is significant and cannot be ignored. This format covers a global scale and becomes inevitable in the area of a business information exchange.

Literary Review

From the date of its creation, accounting being an information system has greatly developed. Its final goal, which is financial reporting, has also been changed significantly because information requirements of external users have become different as per Kovalev (2003). P.Taylor (1985) in his "B.Underdown" work has stated that development of accounting goes in line with constantly changing social and economic conditions. Different interest groups are involved. These are groups of those who prepare financial statements and those who use them for their decision-making. Every economical decision is made based on certain criteria, has a subjective approach and psychological constituent as per Tarde (1902). Caplan E. (1971) has made a great contribution in the area of research of psychological aspects in financial and management accounting. He stated that accountants use their professional judgment in order to select, process and present data. Behavioral aspect in accounting can be analyzed when data is prepared and used from a consumer's point of view as mentioned by Driver (1987). Hence, taxonomy and contents of financial statements have been formed considering a number of factors. There is a balance between various concepts (including regulatory requirements), professional judgment of people who prepare financial statements and perception of the information users that have to be taken into consideration. There is no common opinion among researchers. For instance, R.Fox (1957) has insisted on financial information being brief and being presented on a space of a business card. Beaver W. (1987) had an opposite opinion and thought financial information could not be brief. Current formation of taxonomy in financial statements sometimes depends on regulation under some jurisdictions and sometimes it depends on conceptual framework, professional bodies' recommendations, professional judgment and common practice. Technology development has absolutely changed the way of preparation, disclosure and consumption of information. Accounting information is not an exception according to V.Pyatov (2018). Current practical and scientific researchers focus on questions related to presentation of financial statements in XBRL format. These questions are specifically related to XBRL potential as per Miklos (2012), XBRL taxonomy as per Hoytash (2018), typical error identification and its correction as per Bartley (2010), etc. Though, generally speaking there were not enough researches carried out in the area of practical application of taxonomy in financial statements prepared in line with IFRS in order to be able to understand the priorities of the reporting companies and further adaptation of individual taxonomy at the stage of transition to XBRL format.

Research Question

1. Development of Taxonomy in Financial Statements in Russia

Financial reporting is the main informational base for economic decision-making. In various countries financial statements have the same meaning but can be prepared differently. In certain countries only laws can regulate a concept of preparation of financial statements and making it public. On the contrary, in other countries the initiative fully belongs to those who prepare this information. Therefore, financial statements prepared by entities in different countries can vary in its format as well as its contents. Accounting system in the Soviet Union had some characteristics that were typical of a South American accounting model. On the other hand, Soviet model of accounting had its specifics that would make it distinctive from other accounting models. In Soviet times there was no private property and all the entities and institutions belonged to state. All entities had their accounting and were preparing statements in line with the state regulations. There were deadlines for

reports submission defined by the state and specific forms dictated by the legislation. In this particular case, specificity of accounting taxonomy was its full standardisation. All the names of reports, chart of accounts, ways of submission were common for all entities. Taxonomy in financial statements was only corrected in line with requirements of the state, which was the main and only user of these statements. Statements have been completed with industry specific accounts, for instance, for oil and gas companies as per Kosov (2017). These accounts related to valuation and depreciation of non-current assets. Akhmadeev (2016) stated that data received from financial statements prepared in line with planned social economy was primarily used to plan market development, financial politics, state budget, for controlling and evaluation of how taxation can affect investment. There was a main significant difference of an accounting concept working in conditions of planned social economy. And that is the absence of main elements in financial statements even though they existed in the statement of comprehensive income and the statement of financial position. Reporting reflected the closing balances of the accounts. Debit balances were shown in assets and credit balances were shown in equity and liabilities. As a result of the above the loss of a company with a debit balance was shown in assets up until 2000 and, hence, was increasing the sum of total assets at the end of the period.

Professional judgment about the taxonomy in financial statements has not been applied because the information on the accounts was reflected strictly according to legislation, various statutory instructions and methodological recommendations. After disintegration of the Soviet Union there have been a number of changes in the countries that were part of the Union before. These changes were primarily made in civil rights and types of ownership in business. Entities have got a chance to do business in wide geographical areas. The accounting system that was inherited from the Soviet Union and that was oriented on providing information to controlling institutions did not satisfy current needs anymore. First of all, financial statements started to be prepared considering the fact that they should be used not only by controlling institutions but also by other stakeholders. Therefore, it was inevitable that financial statements had to be changed because various user groups had various information requirements.

Currently taxonomy in financial statements is as close as it can be to International Financial Reporting Standards. Though, the flexibility in providing information within the frames of reporting is still quiet low. Nowadays, statements have their specific names and specific section names. Chart of accounts and a number of clear deadlines for submission have been defined. Reporting companies have a right not to include the accounts into reporting if there is lack of information about these accounts. And on the contrary, they can include additional accounts into financial statements providing the regulators have approved these accounts, their presentation and sequence. Moreover, every single account that is being reported has to have a statistical code. This is needed to enable regulators and statistical institutions collect and process information. People who prepare financial statements can use their professional judgment while forming individual taxonomy in financial statements.

Currently a following problem persists. Accountants are identifying information based on legislation and not based on criteria and professional judgment. This legislation strictly defines what kind of information has to be reflected and what account should be used to do that. A clear definition of the financial statements' elements that would correspond to IFRS is still missing in Russian accounting legislation. As a consequence, such a practice leads to absence of individualization in a reporting format and to complete standardization in taxonomy. As of 2015 a number of Russian entities are obliged to prepare consolidated financial statements in line with IFRS. These are credit and insurance companies, non-state pension organizations, unit investment funds, clearing and other public companies whose shares are quoted on a stock exchange. Moreover, federal state unitary entities and public companies whose shares are in federal ownership according to the list approved by Russian Government also have to prepare consolidated financial statements in line with IFRS now. Another interesting fact is that companies that are obliged to prepare consolidated financial statements in line with IFRS are also obliged to prepare their financial statements in line with Russian accounting standards. There are differences between financial statements prepared in line with IFRS and Russian

accounting standards and these are: conceptual framework, methods of recognition, classification and measurement of accounting elements and their taxonomy.

2. Practical Application of Taxonomy of International Financial Reporting Standards in PDF Format by Russian Companies.

Financial statements prepared in line with IFRS have a high degree of variability of taxonomy to compare to statements prepared in line with Russian accounting standards. IFRS do not define the names of financial statements, their sections, names of accounts and their presentation structure. For instance, assets can be presented in order of increase or decrease in their liquidity in the statement of financial position (with or without division between long and short term assets). Liabilities can be presented in order of increase or decrease of a term of their settlement (with or without division between long and short term liabilities). Statement of comprehensive income can show expenses that can be analyzed by their function or character. Cash flow statements can be prepared using direct or indirect method. Also, Morozova (2018) has mentioned that statements prepared in line with IFRS can include other criteria of individualization. Financial statements prepared in line with IFRS by thirty selected Russian companies have been chosen in order to understand the priorities made by these companies. These statements were prepared as at 31st December 2016 and are available on companies' official websites and servers of corporate information access. Nine parameters have been applied to make an analysis of individual specifics of these companies. Presentation of the financial statements to external users has also been analyzed. (Table 1):

1) Non-current assets follow current assets or else assets are shown in order of decrease in their liquidity in the statement of financial position. Long term liabilities follow short term liabilities or else liabilities are shown in order of increase of the term of their settlement;
2) Current assets follow non-current assets or else assets are shown in order of increase in their liquidity in the statement of financial position. Short term liabilities follow long term liabilities or else liabilities are shown in order of increase of the term of their settlement;
3) Expenses are shown according to their function in the statement of comprehensive income;
4) Expenses are shown according to their character in the statement of comprehensive income;
5) Cash flow statement is prepared using direct method;
6) Cash flow statement is prepared using indirect method;
7) Financial statements include accounts that would be typical for the companies engaged in certain business activities;
8) Financial statements have colour formatting including brand logo;
9) Financial statements have text formatting and digital information formatting;
10) Financial statements are made available to external users on companies' websites and servers of corporate information access in Portable Document Format (PDF).

Table 1: Individual characteristics of financial statements prepared in line with IFRS by reporting companies

Group of companies	1	2	3	4	5	6	7	8	9	10
«Abrau-Durso» PJSC»	-	+	+	-	+	-	-	-	+	+
«Aeroflot» PJSC	+	-	+	-	-	+	+	+	+	+
«ALROS» PJSC	-	+	+	-	+	-	-	-	+	+
«Cherkizovo Group» PJSC	-	+	+	-	-	+	+	-	+	+
«DIXY Group» PJSC	-	+	+	-	-	+	+	-	+	+
«Hals-Development» PJSC	-	+	+	-	-	+	+	-	+	+
«Human Stem Cells Institute» PJSC	-	+	+	-	-	+	-	-	+	+
«MCC EuroChem» JSC	-	+	+	-	-	+	+	+	+	+
«Mechel» PJSC	+	-	+	-	-	+	+	-	+	+

«MegaFon» PJSC	-	+	+	-	-	+	+	+	+	+
«MMC «Norilsk Nickel» PJSC	-	+	+	-	-	+	+	-	+	+
«Nizhnekamskneftekhim» PJSC	-	+	+	-	-	+	-	+	+	+
«OPIN» PJSC	-	+	+	-	-	+	+	-	+	+
«PhosAgro» PJSC	-	+	+	-	-	+	-	+	+	+
«Power machines» PJSC	+	-	+	-	-	+	+	-	+	+
«RAO Energy Systems of the East»» PJSC	-	+	+	-	-	+	-	+	+	+
«Rosinter Restaurants Holding » PJSC	-	+	+	-	-	+	+	-	+	+
«RusHydro» PJSC	-	+	+	-	-	+	+	+	+	+
«Russian Helicopters» JSC	-	+	+	-	-	+	+	-	+	+
«RUSNANO» JSC	-	+	+	-	+	-	-	-	-	+
«Russian Railways» JSC	-	+	+	-	-	+	+	-	+	+
«Sheremetyevo International Airport» JSC	+	-	+	-	-	+	+	-	+	+
«Shipping Company» PJSC	-	+	+	-	-	+	+	-	+	+
«State Transport Leasing Company» PJSC	+	-	+	-	+	-	+	+	+	+
«Surgutneftegas» PJSC	+	-	+	-	-	+	+	-	+	+
«Tatneft» PJSC	+	-	+	-	-	+	+	-	+	+
«Transneft» PJSC	-	+	+	-	+	-	-	+	+	+
«TVEL» JSC	-	+	-	+	-	+	+	-	+	+
«United Aircraft Corporation» PJSC	-	+	+	-	-	+	-	+	+	+
«Uralkali» PJSC	-	+	+	-	-	+	-	-	+	+
Total %	23	77	97	3	17	83	67	33	96	100

By looking at Table 1 it can be stated that the format of financial statements presentation can vary significantly from company to company in Russia. (Columns 1-6, Table 1). Companies have a right to include specific accounts that would be typical for the business activities they are engaged in. Therefore, there will be a focus on these kinds of accounts in the financial statements. Such accounts can be as follows: Proceeds of sales of metals, Expenses related to the opening of new restaurants, Revenue from hotel rooms and other hotel services, Change in the net value of biological assets and agricultural products and Bad debt under construction contracts etc. It can be typical to include such accounts in financial statements for certain companies engaged in certain business activities and it can be considered as standard taxonomy. Moreover, reporting companies are obliged to reveal information about revenue and expenses from various business activities, information about terminated business activity, disposal of non-current assets and its category and other useful information.

Financial statements of the reporting companies prepared in line with IFRS have also included some specific accounts such as “Proceeds from the sale of shares in Synterra-Media”, “Proceeds from the sale of the dams at Branskaya HPP”, etc. It is also necessary to add that these accounts are not always shown in the financial statements as the contents of the statements can vary from one reporting period to another one. Some of the accounts included can have absolutely different names. These can be as follows: “Onerous contracts of operating leases”, “Initial rental costs”, etc. Such accounts cannot be considered as standard taxonomy (Column 7, Table 1).

It is common to include a colourful brand logo in the presentation of the financial statements prepared in line with IFRS of a reporting company. The cover page usually has colourful formatting.

Visual perception of information presented can be strengthened by the use of text formatting such as italics, bold type, the larger font size for headings, the use of lower and uppercase letters and a change in the leading (Columns 8-9, Table 1). Some companies while preparing financial statements

in line with IFRS use not only text formatting but also colour formatting to draw the attention of a user to texts and digits.

Companies that have been included in the research described above have presented their financial statements prepared in line with IFRS in PDF format for external users (Column 10, Table 1). External users can appreciate financial statements being presented in PDF format because it facilitates visual perception of text and digital information while keeping the original structure, text and color design of the statements.

Meanwhile, in current international practice there has been a tendency in the area of exchange of business information to replace PDF format by XBRL taxonomy format.

Discussion

The results of the research described above have revealed the fact that financial statements prepared in line with the Russian Accounting Standards are unified. At the same time the financial statements prepared by the same reporting companies in line with IFRS, can be characterised as multivariable, are structured according to individual taxonomy and usually have a high number of visual accents.

In our opinion, the process of reformatting financial statements prepared in line with Russian Accounting Standards into XBRL format is not complex and tags (descriptors) can be formed with no difficulties. Generally speaking, descriptors are already in financial statements by default. A potential bottleneck can be in the area of information disclosure that has a degree of flexibility in its preparation. Summing up, financial statements prepared in line with Russian Accounting Standards are initially oriented on standardisation and unification. XBRL format is mandatory in Russia as of 2018 only for supervisory and statistical reporting of non-credit financial entities. Though, financial statements prepared in line with IFRS do not have to be presented in XBRL format. A number of Russian companies prepare their financial statements in line with IFRS and in XBRL format. The only reason for that is because they have their shares quoted on Stock and Commodity Exchanges under different jurisdictions and for other practical reasons.

Financial statements prepared in line with IFRS are less oriented on standardisation and unification of taxonomy. Taking into account many years of experience in XBRL usage by various countries, there is a general trend on a global scale to change the format of text and digital information exchange to XBRL format. In this case we are speaking about business environment and regulators. There are a number of advantages in using XBRL format. Along with advantages a number of questions is being raised. One of the main advantages of XBRL format is that it allows processing high volume of digital and text information retrospectively and comparing the financial results between companies. Controlling institutions and regulators (Stock Exchanges, Tax Authorities, National Statistical agencies) have originally initiated the process of transition to XBRL format. The reason was that these institutions needed to store and analyse large volume of data. By allowing certain time for the learning curve, business entities can reduce their costs of preparing financial statements by using XBRL format. Although, at the very beginning there will be high costs involved to train staff, purchase software packages including those that will enable converting, processing and analysis of information.

When a business entity can actively implement new software that allows reducing the costs and improving business management it means this entity has strong and good indicators. Although, it has been mentioned on 17th Meeting of European Office XBRL International “XBRL Europe” that currently only 11% of filing of consolidated financial statements is made in XBRL format, the rest 89% is made in XML format. It means that if the company is obliged to prepare the financial statements in line with IFRS but is not obliged to prepare consolidated financial statements in XBRL format, it tends to chose XML format for reporting. The demand in XBRL format is relatively low at the moment and this fact has been confirmed by some researches in certain countries (Eni, 2015). In our opinion, there has to be clear advantages in order to make XBRL format highly demanded. It means the format needs to optimise business information exchange or else it has to be part of

legislation meaning it has to be obliging for entities. The following are some of advantages of using XBRL format: elimination of orthographical, stylistic and arithmetical errors. Based on a research carried out by J. Bartley and A.Y.S. Chen, E.Z, the following errors have been eliminated by the taxonomy of XBRL format: missing elements, incorrect data, sign errors and duplicates. Athough, the number of incorrect elements and display errors remains the same as mentioned by Bartley (2011). We can assume that this can be a consequence of specific works in taxonomy and a wish of reporting companies to keep their individuality in a way of presenting information to external users. In our opinion, in order to keep individual taxonomy in financial statements prepared in line with IFRS on the Russian market it would be necessary to invest in software package development.

Another solution can be a full rejection of individual taxonomy. XBRL format is officially recommended by the International Accounting Standards Board as a format for preparing financial statements in line with IFRS. Descriptors are being updated on an annual basis. Though, they will unlikely satisfy the interests and needs of all people involved in preparation of financial statements currently. Indeed, companies can update tags and that means extra funds have to be dedicated to rework the format. Despite the fact that XBRL format allows to prepare financial statements in a table format as a hard copy there is a fear that business entities will ignore individual taxonomy of text and digital conversion of reports. It is considered that business entities would prefer to work with high volume of data electronically and would use software packages to process and interpret this data. In light of above, it can be said that works on individual taxonomy of reporting oriented on visual perception by users will not be in a high demand. On the other side, transition to XBRL format changes an approach to financial information perception. It transforms static text on paper reports into interactive information.

Conclusion

Based on the results of the research carried out, it can be said that transition to XBRL format is inevitable in the area of business information exchange. Stock Exchange regulators, Tax Authorities and other controlling institutions have highly appreciated flexibility of this format in analytical processing of large volume of data. Geographical scale of XBRL format has been significantly increased. More and more countries have made this format obligatory for financial statements presentation. XBRL format has initially been oriented on taxonomy of statements prepared in line with IFRS. It can be said that currently taxonomy is at its adaptation stage. It has to adapt to new requirements. Financial statements prepared in line with IFRS and the way the information is presented in them, do not have a goal of pushing the users towards making certain economic decisions. Though, people who prepare financial statements implement their individual solutions into taxonomy. They are changing visual perception of users by making a focus on certain pieces of information in the statements. There will be high activity in the adaptation stage every time when IFRS are updated and amended. We are speaking about the changes in presentation and disclosure of information that affect taxonomy and connection files between tags. Transition from a “paper” version of PDF format to XBRL format will be accompanied by a wish of reporting companies to keep the individuality of taxonomy, by creation of missing tags. And this will be followed by the increase in number of errors at an early stage of the learning curve. At a later stage, a unique opportunity to work with interactive information and other advantages of XBRL format will be appreciated and fully understood. And only then taxonomy in financial statements will be geared towards standardisation.

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Main Trends in U.S. Inbound and Outbound Direct Investment in Insurance in 1986-2017

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Abstract

Being the largest insurance market of the world, the U.S. remains an attractive foreign direct investment (FDI) destination as well as continuously exports direct investment abroad. The purpose of this research is to study and discuss the mainstream in U.S. inbound and outbound flows of direct investment in insurance services in 1986-2017. The article surveys the solid economic fundamentals in the host countries which are determinants of increase in U.S. insurance capital outflow and looks into the reasons for attracting foreign capital to the local sector. Throughout the paper, the analysis pays particular attention to the forms and methods of penetrating foreign markets and reveals peculiarities of greenfield project and mergers and acquisitions. The article examines techniques applied by foreign insurance companies in the U.S. and changes in regional breakdown of most significant investor partner countries for the period covered. Strengthening of positions of developing countries and their rising economic activity result in enhancing their role as key peers. On the basis of the empirical results the study outlines that currently the prospects of insurance investment from and in the U.S. are shaped by geopolitical and economic factors as well as customer-focused environment.

Keywords: FDI in insurance, outbound direct investment, foreign insurance markets.

Introduction

Direct investment and the enterprises established or acquired as a consequence of such investment, increasingly shape global commerce (U.S. International Trade Commission, 2001).

The United States is both the leading source and destination of FDI in the world with finance and insurance comprising the largest shares of service sector investment (U.S. International Trade Commission, 2006).

Meanwhile the U.S. remains the biggest player of the global insurance market amounting to 28,15% by total premium volume in 2017 (Sigma, 2018).
U.S. insurers are represented in various countries and provide opportunities for many multinational companies to establish a commercial presence on the local market.

The only research papers directly examining FDI in insurance services in the US have been written by Moshirian (1997, 1999) and Li and Moshrian (2004).

The author has decided to tackle the problem of inbound and outbound direct investment in insurance in respect to the U.S. economy over time, viz. 1986-2017.

The first part of the study is devoted to the issues regarding the extent and nature of U.S. direct insurance investment abroad (USDIIA), while the second part of the research covers foreign direct insurance investment in the United States (FDIIUS).

The study reflects the changes in investment forms and methods as the time went on. The focus of the paper is also expanded on the role of new technologies and tightening competition in the insurance industry.

Data and Methodology

Time-series data are used in this study. Most of the insurance services trade data included in this paper are from Survey of Current Business, various issues, published by the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce (USDOC).

The period considered is 1986-2017. Due to the volume limits of the article the interval of 4-7 years is introduced in the tables.

Additional sources of insurance statistics and information on merges and acquisitions are surveys of the U.S. insurance supervision authorities and reputable think tanks such as Swiss Re Institute and Deloitte.

This problem-oriented study is the result of mixed method research (Johnson, R.B., Onwuegbuzie, A.J., 2004) with quantitative and qualitative research techniques and approaches combined.

Results and Discussion

U.S. direct investment in foreign insurance markets

In recent decades the U.S. corporations, though developing vigorous activity in the domestic market, which is the largest insurance market in the world, at the same time have been increasing the volume of foreign direct investment export investing the funds in diverse insurance services.

The large amounts of capital exported annually contributed to huge volumes of direct investments accumulated abroad that were invested into insurance services. As demonstrated in Table 1 in 2017 they amounted to USD 165,1 billion, having increased more than seventeen-fold for the previous 30 years.

Table 1: U.S. Direct Investment in Insurance Abroad, millions of dollars

	1986	1990	1996	2000	2005	2010	2017
Insurance carriers and related activities abroad, total	9,589	15,496	36,793	60,775	111,837	137,006	165,137
Insurance carriers, except life insurance carriers	792	1,353	2,925	5,975	55,334	59,731	69,996
Life insurance carriers	1,420	2,022	5,779	13,679	41,397	62,583	63,022
Agencies, brokerages,	7,377	12,120	28,089	41,121	15,105	14,692	32,119

and other insurance related activities							

Source: compiled by the author on the basis of issues of Survey of Current Business, 1990-2018.

Such policy of the multinationals resulted from oversaturation of the market and the increasing competition; the need to use capital effectively (related to the high revenues received by many of the insurance sectors, which can serve as sources of new income); the ambition to expand the geographic reach of business as the basis of the insurance portfolio, enhancement of the risks diversification and the way to penetrate the markets of new countries.

U.S. insurance companies use different forms and methods of penetrating foreign markets, with two of them prevailing in their practice. The first one, "the green field project", was popular in the 1970s-1980s and consisted in American companies creating foreign subsidiaries starting from scratch up to their launch. The second method that came into view in the 1990s consisted in mergers and acquisitions (M&A) of foreign companies by American corporations. M&A in insurance skyrocketed in the 1990s reaching a peak in 2000, amid booming stock markets and financial liberalization worldwide (Coeurdacier, De Santis, Aviat, 2009). The period 1993-2000 is considered to be the age of strategic cross-border megamergers (Bach, 2014). According to the U.S. Department of Commerce, at present the second method accounts for 80-85% of the foreign insurance subsidiaries newly formed by the U.S. party.

American corporations gained significant advantages from participation in this process, since along with the expansion of the cross-border insurance service trade, the acquisition of national insurance companies abroad lead to a prominent increase in insurance premium received by the American multinationals from the insured parties in different countries. According to the available data, this trend in the investment policy of the American insurers has been developing in the current decade as well.

However, it is worth noting that the process of cross-border mergers and acquisitions carried out by the U.S. insurance corporations has introduced changes into the geographical directions of this process. While in the 1980s the developed countries, Western Europe in particular, were leading regions in terms of the number of transactions carried out by the U.S. capital, in the 1990s and in the first decades of the 21st century the developing countries, especially the Latin American states, drew close attention of U.S. insurance corporations along with Europe. From 1994 to 1999, the U.S. insurers acquired 34 insurance companies abroad, 15 of them were purchased in Latin America, 11 – in Europe, 8 in Great Britain and another 8 in Southeast Asia (Sigma, 1999).

Within the countries of Southeast Asia the role of Singapore, India, Hong Kong and the Republic of Korea has become more prominent.

Among the main causes of cross-border mergers and acquisitions there are the globalization of the world market, deregulation and growth of international competition, need for further development and increase in insurance premium under conditions of decreasing potential and elasticity of demand for insurance services in developed countries, the aspiration to lower the administrative expenses etc.

Despite the strengthened positions in the field of foreign investment, the changing scene in both world and national economy altered the investment activity of the U.S. multinationals, including the geographical diversification of direct foreign investment of the American insurers.

The largest countries receiving U.S. investment are the UK, France, Germany, Ireland, the Netherlands, Luxembourg, Switzerland, Canada and Japan. Such concentration of the U.S. capital can be explained not only by the historical connections, favourable investment climate, specific features of the labour market or high living standards of the local population. The specific advantages

that these countries enjoy, like well-developed infrastructure, a wide marketing network, entrepreneurial ethics and dynamic innovation activities, are of great importance to the American investors.

The developing countries account for about 30% of the direct investments of the multinationals poured into the foreign insurance sector, and their share in the total volume of U.S. investment is growing. The main recipients of the U.S. investments are the new industrial countries of Southeast Asia and Latin America, such as Singapore, Brazil, Mexico and Hong Kong, as well as low-tax jurisdictions, particularly Bermuda and the Caribbean that belong to Great Britain (Survey of Current Business, 2018).

The main U.S. participants of the insurance market abroad are insurance organizations (companies), reinsurance companies and insurance intermediaries. In order to bolster their positions in foreign insurance markets the USA use their direct investments quite extensively for strengthening and increasing the number of professional participants of the insurance market.

In 2017 most of U.S. direct investments in the foreign insurance sector (42.4%) were focused on creating subsidiaries involved in non-life insurance. They were followed closely by the subsidiaries of the American corporations engaged in life insurance (38.2%). The third-highest volume of investment (19.4%) was received by the insurance intermediaries, mainly agencies and brokers (Survey of Current Business, 2018).

The USA also pays great attention to expanding the network of insurance intermediaries abroad as they play an important role in promoting insurance services from insurers to consumers as well as providing the consumers of insurance services with consultative support on conclusion, execution, modernization and termination of insurance contracts. The expansion of the overseas network of insurance intermediaries can be well explained by the fact that according to the U.S. insurance practice, as a rule, the presence of agents and brokers is a mandatory condition for carrying out insurance operations.

There are two types of the U.S. insurance intermediaries carrying out operations abroad: insurance agents and brokers. In terms of distinction between insurance agents and insurance brokers the U.S. market adheres to the international practice. Insurance agents are considered to be representatives of insurers and they act on their behalf within confines of authority they are vested with. Insurance brokers are representatives of the buyer and it is them who protect the client's interests when discussing the most beneficial conditions of accepting an insurance risk.

There is an institute of insurance agencies and brokerage firms. For instance, Prudential, one of the largest life insurance companies operating both in the USA and abroad, has dozens of thousands insurance agents. Among independent brokers Marsh McLennan, Aon P.L.C., Willis Towers Watson P.L.C. can be named.

Hence, U.S. insurance companies do not only carry out operations on the domestic market, but also embrace foreign markets by creating overseas subsidiaries of their corporations. Investment potential is becoming an important factor of international capital flow as well as pooling the assets of banking and insurance companies and the change in the role of insurance in risk management of the largest industrial and banking multinationals.

Along with the expansion of cross-border trade with insurance services the subsidiaries created in foreign countries yield great profits for the U.S. capital by way of increasing insurance premiums received from foreign insured parties.

Finally, the growing activity of U.S. abroad leads to escalating competition in the insurance markets of these countries which often ends with decrease in number of foreign insurers, which as a rule have small volumes of capital, and expands the business area for the larger U.S. insurance corporations.

Foreign direct investment in the U.S. insurance market

As the world's largest economy, the USA is not only a large-scale exporter of direct investment to foreign insurance sectors but has also become a big importer of capital invested in the national insurance sector.

However, Table 2 shows that this has not always been so. The direct investing activity of foreign companies started gaining momentum around the beginning of the 1980s when the economic power centers other than the USA, namely the EEC and Japan, appeared on the world stage; the annual inflow of FDI into the U.S. insurance services industry in 1986 made USD 2.7 billion, and in 1990 it reached USD 4.4 billion. The growth of FDI in the U.S. insurance sector peaked in 2015 when its inflow amounted to USD 39.3 billion.

In 2013 the Obama Administration launched a new initiative, known as 'Select USA', to attract more foreign direct investment to the country, though in 2014 the annual volume of FDI in the U.S. insurance industry decreased to USD 2.3 billion as a result of the global financial crisis.

Table 2: Foreign Direct Investment in the U.S., Financial Inflow Transactions Without Current-Cost Adjustment, millions of dollars

	1985	1990	1995	2000	2005	2008	2014	2015	2016	2017
Insurance carriers and related activities	986	4,358	3,807	36,951	211	27,365	2,282	39,296	34,772	4,869

Source: U.S. Bureau of Economic Analysis.

Within 30 years (1987-2017) the volume of accumulated direct foreign investment in the U.S. insurance industry increased by almost 14 times and made USD 247,4 billion in 2017 (see Table 3) making the USA one of the world's leaders in this respect.

Table 3: Foreign Direct Investment in the U.S. insurance sector, millions of dollars

	1987	1990	2000	2005	2010	2017
Insurance carriers and related activities, total	17,712	26,273	106,403	125,924	155,042	247,394
Insurance carriers, except life insurance carriers	(D)	1,257	6,142	58,936	69,296	(D)
Life insurance carriers	(D)	10,097	48,052	65,840	84,325	90,571
Agencies, brokerages, and other insurance related activities	9,774	14,918	52,209	1,148	1,421	(D)

(D) indicates that the data have been suppressed on the official web-site to avoid disclosure of data of individual companies.

Source: compiled by the author on the basis of issues of Survey of Current Business, 1990-2018.

The main factors making the insurance industry attractive for foreign capital are the huge capacity of the U.S. domestic market, high purchasing capacity of the population, the effectiveness of this way of penetrating foreign insurance sectors, the escalation of international competition as well as 'Invest in America', the programme launched by the U.S. Department of Commerce in 2007 aiming at increasing the attractiveness of the U.S. economy for foreign investors and reassuring a certain part of the U.S. population who were wary of the foreign companies' expansion.

In the U.S. insurance market there is capital from about 35 foreign countries, however the leading positions are occupied by investments from developed countries: as demonstrated by Figure 1 in 2017 they accounted for more than 85% of all foreign companies' investment poured into finance and insurance industry.

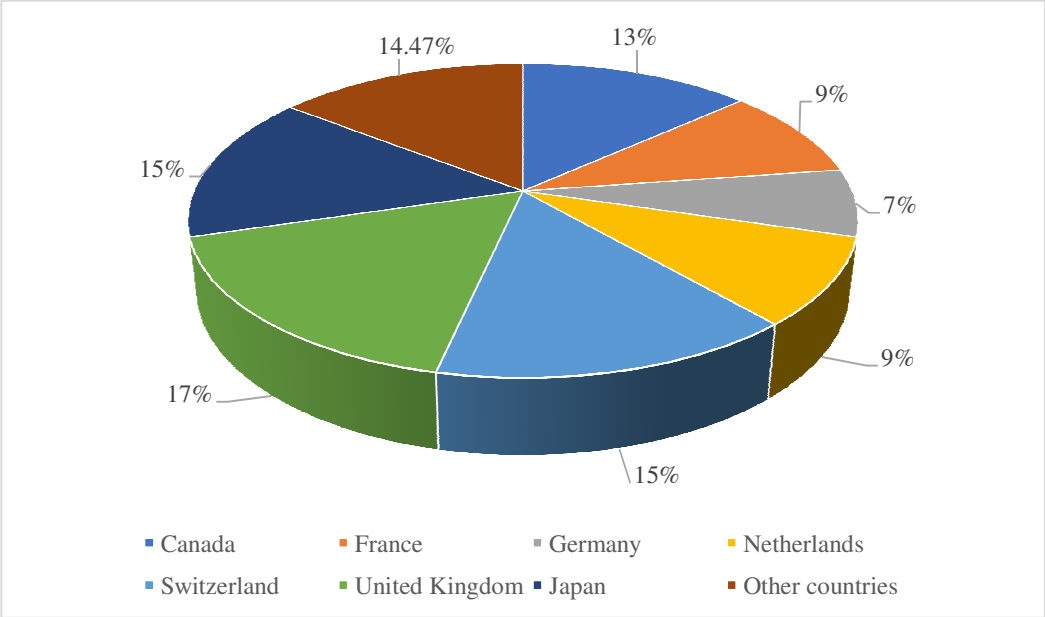

Fig. 1: FDI in the U.S. finance (except depository institutions) and insurance sector by country in 2017

Source: compiled by the author on the basis of Survey of Current Business, 2018.

In the current decade the increase in capital inflow from developing countries has been also noted as the sign of their growing economic activity in the global market. The highest volume of accumulated investment in insurance industry comes from the countries of Latin America, including the offshore centers of the Caribbean as well as the countries of Southeast Asia (more than 10% of all foreign investment in this sector of the U.S. economy). Hence, along with the increase in volume of foreign investments in the U.S. insurance industry during the previous two decades there is growth in number of countries exporting capital in this sector of the U.S. economy as well as changes in the balance of their powers in the U.S. market.

The range of forms and methods applied by the foreign companies in the U.S. is quite diverse. Greenfield FDI is less popular than M&A. Such policy of the foreign capital can be explained by the aspiration to expand the geographic reach as the basis of building the insurance portfolio, enhancing

the risks diversification and stabilizing the insurance portfolio. Among 44 acquisitions deals carried out by the European insurance companies from 1994 to 1999 there were 16 with U.S. insurers, 15 with Southeast Asian insurers, 12 with Latin American insurers and one with an insurance company from South Africa. In 1990-2006 the U.S. was a particularly fertile environment for M&A (Cummins, Klumpes, Weiss, 2015). As a result of acquiring foreign insurance companies, the U.S. insurers in particular, the European insurance companies changed the insurance business structure and the geographical breakdown of insurance premium income quite significantly. For instance, the geographical breakdown of insurance income of AXA, the largest French insurer, altered dramatically. At the end of the previous decade France accounted for 26% of revenues, the USA – 32%, Great Britain – 10%, Germany – 9%, Southeast Asia – 5%, other regions – 13% (Sigma, 1999). As at December 31, 2017 the shares of the USA and Great Britain decreased to 17% and 5% respectively, Germany accounted for 11% of revenues, Asia Pacific – 9% (Axa, 2018).

At the beginning of the previous decade the process of M&A slightly decreased, which had been caused by the slowdown in economic development of Japan, Canada and European countries. However, starting from 2004 the number deals in respect of the U.S. companies acquisition carried out by foreign capital increased significantly. Foreign investors took advantage of the low exchange rate of the U.S. dollar to penetrate the American market.

Investor uncertainty leading up to and following the 2016 US election along with improved insurer stock prices as well as a scarcity of acquisition targets restrained M&A through the first half of 2017. Nevertheless, comprehensive US tax reform legislation, the need for insurtech-oriented investments and decrease in the long-term profitability of reinsurers due to persistently soft rates for almost a decade may stimulate insurance M&A in 2018 and beyond by improving the attractiveness of the US market to foreign investors (Deloitte, 2018).

The growing activity of the foreign capital in the U.S. insurance market has led to the development of new trends in foreign subsidiaries' operations. Bankassurance, i.e. the formation of financial groups with participation of banks and insurance companies, became a frequent practice. Traditionally the insurance intermediaries were the main channel of distributing insurance products, but over recent years the distribution of insurance products through banks has become more popular. Finally, an important role in distribution of insurance products belongs to modern telecommunication technologies, the Internet in the first place. Its use provides the participants of the insurance market with prominent advantages. On the one hand, the insured and the insurer get the opportunity to conclude insurance contracts without intermediaries, thus the cost of the insurance product is lowered. On the other hand, due to the international character of network communications the Internet allows making insurance contracts in the framework of cross-border trade. With due account for soaring number of Internet users, further growth of insurance market in the USA and other countries where the amount of network users is growing, is likely to take place.

The changes have affected not only the insurance companies, but the intermediaries as well. While the number of small intermediaries decreased, mergers and acquisitions expanded and international megabrokers appeared. Such practice can be explained by the size of profits earned: large and medium-sized brokers provide annual growth of insurance premium by about 25% more than the small brokers.

Apart from the quantitative changes, there were changes concerning the content of services provided by the brokers to the insured parties. Along with traditional services in respect of risk placement, the functions of brokers include evaluation and analysis of the insurance market, risk management, asset management, loss evaluation etc. Nevertheless, despite the large number of foreign insurance companies carrying out operations in the U.S. insurance market tending to appeal less often to the help of intermediaries, about two thirds of all insurance services are provided with the help of brokers or agents.

The research confirms that the capacity of the U.S. insurance market is an important factor attracting the foreign insurance companies. Influenced by the escalating competition, both quantitative changes

in the activity of foreign insurance companies on the U.S. territory and significant changes in the content of insurance services provided by them, are taking place. However, eventually all these changes and new developments in the policy of foreign insurance companies are aimed at the consolidation of their positions in the large-capacity U.S. market and larger insurance premium income.

Conclusion

The conducted research is the first attempt to generate key trends in export and import of investment on the U.S. insurance market in 1986-2017. This scientific work confirms that within the studied period the U.S. has made an invaluable contribution to investment in insurance sector abroad, remaining a lucrative destination for FDI.

The paper outlines the evolution of forms and methods of both inbound and outbound insurance investment and shows that for more several decades M&A has been an efficient tool of penetrating foreign insurance markets and attracting FDI to the U.S.

The study reveals increasing with time sophistication in channels of distributing insurance services abroad and highlights the vital role of intermediaries for the U.S. companies to penetrate foreign and for foreign enterprises to expand in the U.S.

It would be desirable to apply or develop quantitative models to make statistical foundation more representative. Amid rapid development of disruptive technologies and digitalization, current uncertainty and geopolitical challenges on the global level it can be supposed that investment options and geographic breakdown of major partners will undergo a modification which may give ground to further research, entailing potential threats, opportunities and scenarios.

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On The Issue of Analysis of Investment Activity on the Basis of the Grapho-Analytical Model

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Abstract

This article is devoted to the research of grapho-analytical method of investment activity analysis of industrial enterprise in the capacity of a specific tool to achieve the strategic aim at various stages of life cycle (LCS). In the article, authors present the development of grapho-analytical pattern in the capacity of a tool forming investment policy of organisation within the stated development strategy. The comparative analysis of factors that are influencing the investment policy and the stage of organisation life cycle have been carried out. This article considers theoretical-methodological basis concepts of the development. All criteria for quantitative estimation of the stage of organisation life cycle and the performance of investment policy have been proved in the course of the research. The classic characteristics of criteria for estimation the life cycle stages and concepts of investment policy have been formalized. The choice of criteria and interval boundary and its characteristics have been made. The estimation method of the stage of the organisation life cycle has been introduced. The research, which has been carried out, proves the possibility to develop practical application of grapho-analytical method of analysis investment policy and estimating the stage of life cycle and type of the investment policy of an analysed organisation.

Keywords: strategic management, stage of business life cycle, investment policy, grapho-analytical model, performance of investment activity.

Introduction

Forming effective investment policy in the frame of the stated development strategy of an organisation is a crucial element involved into the process of strategic management. The concepts of the policy are defined due to subjective and objective factors, which influence the functioning and development of an undertaking.

Formulation of the Problem

Authors defined and classified the range of subjective and objective factors. One of these factors is the realization of the development strategy of the undertaking, which should correspond to its stage of the life cycle (LCS). The scholarly interest in problems of the organisation development at various stages of its life cycle has increased for the last years (Shirokova, 2007). The factors are tightly connected with the fact that each economic system is dependent on subjective assumptions to take some administrative measures. One of the lines of the research is to make an accurate choice of the stated development strategy in the frame of the investment policy. Therefore, a crucial issue of forming the investment policy is to account and control dynamic characteristics of the external environment and investment possibilities of the undertaking to correct its investment policy according to the stated development strategy.
The notion of the investment policy is debatable in scholarly literature. Table 1 presents the main definitions of the investment policy.

Table 1: characteristics of the investment policy

Authors	The concept of the notion
I.A. Blank	A component of the general financial strategy that consists of choosing and realizing of the most effective financial investments aimed at high rates of the development and permanent growth of the marketing cost of a company (Blank, 2012).
D.A Yendovitsky	Factual realization of investment policy (Yendovitsky, 1998)
M.V. Charayeva	A system of arrangements providing a beneficial investment and quick payback period to guarantee the financial stability, financial solvency, increased competitive ability, and providing conditions for the future development (Charayeva, 2010).

In the frame of the study the investment policy is considered to be a system of arrangements (business processes) providing a beneficial investment and quick payback period aimed at the realization of strategic objectives for the organisation development. Ultimately, the organisation development, standing on a particular type of the development strategy, may involve the following types of the investment policy (Table 2) (Blank, 2012).

Table 2: the main types of the investment policy

The type of the investment policy	The concept of the notion
Conservative	aimed at minimization of the investment risk as a priority objective
Moderate	aimed at choosing investment objects, which obtain mid-market level of the current profitability, rates of capital expansion and risk level
Aggressive	aimed at maximization of the current profit from the investing of capital the nearest period

The type of the investment policy is defined by the Coefficient of the investment activity (Cia).

The Impact of the Development Strategy on the Investment Policy

According to the theory and practice of organisation management, there are basic classifications and ways of the investment policy, which correspond to a particular type of strategies. In table 3 there are main types and ways of strategies of the investment policy.

In spite of the traditional point of view, new classifying characteristics are included in the Table 3: strategies of traditional and specific development. This classification criterion is defined by the correlation of the type of investment policy and the life cycle stage (LCS):

- strategies of "natural development" are considered as realization of eventual strategic changes in the organisation development using standard strategies and ways of investment policy in accordance with the life cycle stage (LCS) of the undertaking company;
- strategies of "specific development" reflect the formation of the business renovation. This process is based on the usage of strategies aimed at diversification of business activities.

Thus, investment policy is a tool for accomplishing strategic objectives at various life cycle stages (LCS) of the organization development, which is characterized by different intensity of the investment policy.

Table 3: the main strategies and ways of the investment policy of natural development at different stages of the life cycle

Stages	Types of strategies	Ways of the investment policy
Strategies of the "natural development"		
Birth	The strategy aimed at the exploration of new business types	assimilation, formation new business types, new types of products, technologies, materials and new markets; development of new manufacture; recruitment of investors for development of venture business and etc.
Growth	Concentrated growth strategy and/or integrative growth strategy	increase production volumes; capital-raising for acquisition of high-technology equipment and expansion of the circulating capital; improve the results of activity by means of application of new technological systems or new technology; development of economy management subject by means of expansion with the help of integrative processes within the industrial chain (amalgamation, takeover, consolidation) increase fixed assets based on the engaging of long-term financial sources; optimization of financial sources by means of bringing long-term liabilities, strengthening of financial stability; increase of creditworthiness and investment attraction of an economic entity;

Stabilization	Strategy of cost saving or integrative growth strategy	preservation of competitive position at the market; providing effective usage of resource organisation possibilities; insurance and acquisition of pertinent guarantees against non-commercial risks etc. development of the economic entity by means of expansion of integrative processes within industrial chain (amalgamation, takeover, consolidation);
Stagnation	Strategy of cost saving	reduction and restructuring of assets; providing effective usage of organisation resource possibilities; warning of bankruptcy based on winding up of unprofitable enterprises, downsizing, selling a part of the assets and etc.
Strategies of "specific development"		
Stabilization	Strategy of diversification	assimilation, formation of new business types, new types of products, technology, materials and new markets. development of new manufacture; long-term capital formation; repurposing, reconstruction, modernization and renovation of separate types of equipment; modernization and implementation of new equipment;
Stagnation	Strategy of diversification	anti-recessionary policy aimed at financial stabilization of the undertaking in the process of crisis recovery; warning of bankruptcy based on winding up of unprofitable enterprises, selling a part of the assets and etc.

(Source: compiled by the authors)

Impact of the Life Cycle Stage (LCS) On the Business Investment Policy

There is no a traditional method of estimating the LCS effects on business characteristics in the economic science (Ivashkovskaya and Yangel, 2007). In different surveys researchers (Glazl and Livekhud, 2000), (Kushelevich and Filonovich, 2004), (Morgunov, 2006), (Shirokova, 2007) mention several models/patterns describing organisation development and LCS.

Among the many scientific papers, it is possible to highlight the theoretical and empirical LCS models of the organization of the following authors: Greiner, 2002; Miller, 1984; Lester et al., 2003; Ivashkovskaya, 2007; Shirokova, 2006 etc. The authors define the life cycle of the organization is viewed from the perspective of goal setting through the analysis of economic and financial characteristics. However, there is no single understanding by scientists of the criteria for the transition of an enterprise from one stage to another and methods for quantitative assessments of the qualitative characteristics of LCS (Shirokova and Serov, 2006). Although the researchers agree upon the fact that each LCS stage obtains a set of unique qualitative characteristics; sequence of LCS stages; and every stage is the result of the previous one; models consider a broad range of organisational contextual characteristics (Shirokova, 2006).

In this work the Greiner's model has been adapted (Greiner, 2002) due to the result of empirical research devoted to the number of stages, choosing of LCS characteristics and transition mechanism from one stage to another. The 5-phased model is commonly used in the LCS theory, and it constitutes five stages of organisation development: birth, growth, stabilization, stagnation, and decay (bankruptcy). In this work, only the first four stages are considered: birth, growth, stabilization, and stagnation. The decay stage is out of the list because the organisation management is the subject to specific legal norms (Federal Law, NO 127 – FZ 17.09.09 On Insolvency (Bankruptcy)). The 5-th point estimation scale of LCS within the description of each point is used and presented in Table 4 (Pluzhnikov and Shikina, 2015).

Table 4: estimate scale LCS

№, Name of the stage	Scale meaning	Note
1 Birth	from 0 to 1	The company age is less than 10 years, has informal structure, owner is a head of management. The value of the parameter can be negative.
2 Growth	from 1 to 2	Growth: formalization of management solutions, economic indicators, formalization of organisational structure and investment policy
3 Stabilization	from 2 to 3	Sales gain reduces, deterioration of economic indicators, bureaucratization of the organisational structure and company policy
4 Stagnation	from 3 to 4	Production volume is limited, financial indicators are falling down
5 Decay	from 4 to 5	Production volumes are limited, financial indicators are falling down, deficit of financial resources

(Source: compiled by the authors)

The chosen model has shown results of the economic indicators in the process of organisation development. In the selected model, the actualization of the economic performance indicators of the organization's performance in the process of its development varies depending on the LCS was carried out in various aspects. These aspects are liquidity indicators; the ability to create positive cash flows (Ivashkovskaya and Yangel, 2007); both for the enterprise as a whole and for individual business processes (Pluzhnikov and Shikina, 2014); calculation of the aggregated indicator of business growth (Ivashkovskaya and Yangel, 2007); dependence of the level of investment activity of a production enterprise (Smagin and Shikina, 2012).

The solution of the problem of recognizing the period of passing through one or another stage of the enterprise development is relevant when developing an investment policy for the implementation of the corresponding development strategy. Thus, the process of formation of a specific investment policy of an enterprise should take into account the level of investment activity of an enterprise in accordance with the stage of its life cycle.

Estimation of the life cycle

Quantitative assessment of the life cycle stage is an ambiguous problem that requires the involvement of many theoretical approaches, reflecting various market participants' interactions and characteristics. The problem is the lack of traditional theories of forming markets and enterprises from the concept of the life cycle.

The existing theoretical models do not allow us to select reliably tested empirical data. So available characteristics of industrial enterprises are used in order to do research of illustrating variables: the age of the organization (A), the number of employees (N), total assets (TA), the amount of revenue (V), the rate increase in assets (I) (Pluzhnikov and Shikina, 2015), are shown in Table 5.

Table 5: criteria of integrated index LCS

#	Index name	Meaning	Shifts of index			
			Birth	Growth	Stabilization	Stagnation
1	The rate increase in assets	I	≥ 4.0	2.0 ÷4.0	1.0÷2.0	< 1.0
2	The number of employees (thousands of people)	N	≤ 0.1	0.1÷1.0	1.0÷10.0	reduce
3	Total Assets (RUB bln.)	TA	≤ 0.02	0.02÷1.5	1.5÷15.0	reduce
4	The amount of revenue (RUB bln.)	V	≤ 0.06	0.06÷1.5	1.5÷25.0	reduce
5	The age of the organization (years)	A	≤ 3.0	3.0÷10.0	10.0÷20.0	20.0÷50.0

(Source: compiled by the authors)

The next stage is the formalization of the interval frame for LCS identification according to the previous stated criteria (Table 5). One part of the changing interval frame of the characteristics of the Letter of Credit Framework (Table 5) corresponds to Federal Law No. 209 - FZ 24.07.2007 "On the development of small and medium-sized business in the Russian Federation", with amendments and supplements to Federal Law No 556 – FZ 22.07.2008 "On the limits of revenues from sales (works, services) for each category of small and medium-sized businesses". Other part of the changing internal frame is carried out with the help of expert conclusions.

The choice of a numerical expert evaluation of LCS criteria is based on expert conclusions on qualitative characteristics. We use the method of quantitative evaluation of qualitative characteristics - a numerical expert estimate of the Kharrington scale. Due to the chosen method, a quantitative evaluation of the LCS qualitative characteristics was obtained using formulas 1-5:

$$X_1 = \begin{cases} 0.20 & I \geq 4.0 \\ 0.37 & 2.0 \leq I < 4.0 \\ 0.64 & 1.0 \leq I < 2.0 \\ 0.80 & 0 \leq I < 1.0 \\ 1.00 & I < 0 \end{cases} \quad (1)$$

$$X_2 = \begin{cases} 0.20 & N \leq 0.1 \\ 0.37 & 0.1 < N < 1.0 \\ 0.64 & 1.0 \leq N < 10.0 \\ 0.80 & 10.0 \leq N < 20.0 \\ 1.00 & N_t < N_{t-1} \end{cases} \quad (2)$$

$$X_3 = \begin{cases} 0.20 & TA \leq 0.02 \\ 0.37 & 0.02 < TA < 1.5 \\ 0.64 & 1.5 \leq TA < 15.0 \\ 0.80 & 15.0 \leq TA < 50.0 \\ 1.00 & TA_t < TA_{t-1} \end{cases} \quad (3)$$

$$X_4 = \begin{cases} 0.20 & V \le 0.06 \\ 0.37 & 0.06 < V < 1.5 \\ 0.64 & 1.5 \le V < 25.0 \\ 0.80 & V \ge 25.0 \\ 1.00 & V_t < V_{t-1} \end{cases} \quad (4)$$

$$X_5 = \begin{cases} 0.20 & A \le 3.0 \\ 0.37 & 3.0 < A < 10.0 \\ 0.64 & 10.0 \le A < 20.0 \\ 0.80 & 20.0 \le A < 50.0 \\ 1.00 & A \ge 50.0 \end{cases} \quad (5)$$

In the next step, we consolidate the results x_i using formula 6 and determine the value (estimation) of the integrated LCS index.

$$C_{LC} = \sum_{i=1}^{5} X_i \quad (6)$$

where C_{LC} is the integrated criterion of LCS;

x_i - numerical expert score of qualitative criteria that have been gathered by formulas 1-5.

According to the concept of traditional organizational development, the investment policy is characterized by a definite level of investment activity and depends on the LCS (Pluzhnikov, Smagin and Shikina, 2015).

Criterion of Investment Activity (Cia)

Investment activity is considered as intensity of the company's investment work, characterizing the dynamics of capital growth aimed at the accomplishment of strategic goals (Damodaran, 2013), (Pluzhnikov, Smagin and Shikina, 2015), (Smagin and Shikina, 2012), (Tikhonov, 2003), (Walsh, 2000). Some authors argue that investment activity is connected with the amount of income to the rate of capital investments. Authors approve the positive line between the increase in revenue and the company's capital investments (Ashirov and Rzayev, 2000), (Gordon and Iyengar, 1996), (Isayenko and Yendovitsky, 2007), (Young, 1997). Therefore, the index of investment activity characterizes the dynamics of real capital growth as a specific vector-indicator of achieving strategic development goals.

To solve the issues raised, authors propose to use the indicator of the quantitative assessment of the intensity of investment activity (Cia). The indicator is determined through the ratio of the increase in the value of non-current and working capital of the enterprise for the reporting period (ΔNcA+ΔCA), as a result of total capital investments (real investments) (NP+Am) (Pluzhnikov, Smagin and Shikina, 2015):

$$C_{ia} = \frac{(\Delta NcA + \Delta CA)}{(NP + Am)} \quad (7)$$

where: Cia – the indicator of investment activity;
(ΔNcA+ΔCA) increase in the value of non-current and working capital of the enterprise;
NP – net profit for the financial reporting period;
Am – the amount of depreciation for the reporting period.

The indicator of investment activity (Cia) is constructed on an estimation of a parity of results of three kinds of activity (investment, operational, financial) where the gain of cost of cumulative actives characterizes results of investment activity. The value of internal sources characterizes the results of operations, and the financial activity of the enterprise performs the function of balancing the cash flows

(inflow / outflow) associated with the implementation of investment and operating activities (Pluzhnikov, Smagin and Shikina, 2015).

This indicator of the intensity of investment activity allows quantitative assessment of not only the vector of the dynamics of the investment activity of the organization, but also indirectly expresses the risks of investment activity when implementing the formulated development strategy. As the organization moves through the stages of the life cycle, different emphases and tasks at different stages presuppose the choice of various criteria for the formation of investment policy.

Grapho-Analytical Model of Estimation of Investment Policy

In economic theory, it is widely used as an instrument for analysing portfolio strategies to determine the reasonable diversification of the enterprise's operations. Among them, the most popular are the following matrices: BKG (Boston Advisory Group), GE / McKinsey, ADL / LC (Osel and Wright, 1980), Shell / DPM, SPACE, Hofer / Shendel, Thompson Strickland, BSC (Maisel, 1992), etc. Nevertheless, these models do not represent the possibility of developing an enterprise investment policy in accordance with its formulated development strategy.

As a tool for developing the investment policy of the enterprise, in accordance with its formulated development strategy, a grapho-analytical (diagnostic) model for the formation of the company's investment policy is proposed (Smagin and Shikina, 2012). The model with the dimension 4x4 is built on the quantitative parameters reflecting the investment activity of the enterprise Cia (Y-axis) and the integrated assessment of the life cycle phase of the CLC enterprise (X- axis) is shown in Figure 1.

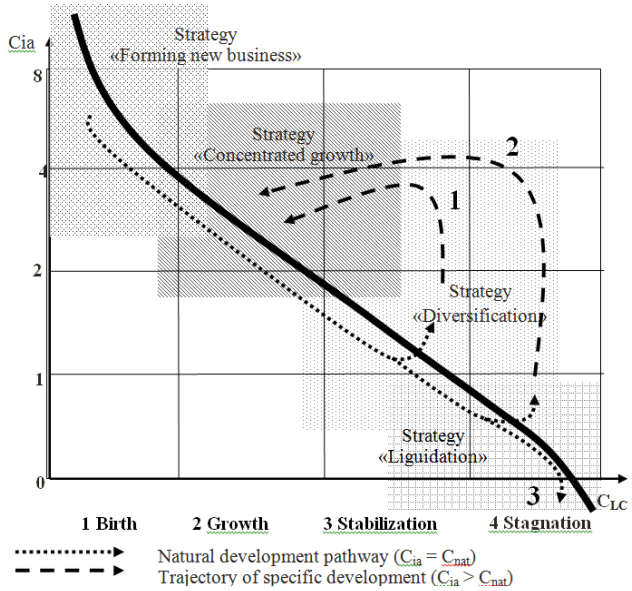

Fig. 1: Diagnostic matrix of strategies (natural, specific development)
(Source: compiled by the authors)

The possible trajectories of the movement of the indicator Cia in the diagnostic model (see Figure 1) in the process of enterprise development on different LCS can be consider:

1 - the trajectory of the natural level of investment activity (Cia = Cnat) is due to the gradual nature of the strategic changes in the process of consistent implementation of the reference strategies of "natural development" and the directions of investment policy from the position of the life cycle of the enterprise's business, represented by the trajectory 3 in Fig. 1;

2 - the trajectory of a specific level of investment activity (Cia> Cnat) is due to the intermittent nature of strategic changes in the process of radical business renewal. If the "diversification" strategies and the corresponding investment policies are implemented correctly, the trajectory of the Cia indicator is aimed at bringing it from the stage of "stabilization" or "stagnation" to the "growth" stage, represented by the trajectory 1, 2 in Fig 1.

Accordingly, investment policies directed to the realization of strategies that bring the value of the indicator of investment activity (Cia) to a value equal to the natural level of investment activity (Cnat), we mean as rational investment policies (Smagin and Shikina, 2012).
The diagnostic model based on the analysis and evaluation of the motion vector of the indicator Cia allows determining the type of investment policy, which is implemented in accordance with the formulated enterprise development strategy (Table 6). Determination of the type of implemented investment policy is based on the comparison of the indicator Cia with the value of the natural level of investment activity (Cnat) in the corresponding LCS.

Table 6: natural level of investment activity

The type of investment policy	**Criterion of intensity of investment activity (Cia)**
Conservative	Cia < Cnat , (passive)
Moderate	Cia = Cnat (moderate)
Aggressive	Cia > Cnat (active, high)

(Source: compiled by the authors)

Based on the results of the enterprise survey, according to Table 7 (Smagin and Shikina, 2012), LCS and Cia values, which correspond to its "natural level of investment activity" (Cnat), can be identified.

Table 7: value of Cnat index to LCS

№	**The type**	**Rate of Cnat**
1	The stage birth - area of strategies "forming new business"	Cia > 4.0
2	The stage growth - area of strategies "growth"	2.0 < Cia < 4.0
3	The stage stabilization - area of strategies "cost saving"	1.0 ≤ Cia ≤ 2.0
4	The stage stagnation - area of strategies "liquidation"	Cia ≤ 1.0

(Source: compiled by the authors)

The range of Cnat values for different industries in accordance with the industry specific activity may be different, but the functional dependence of Cnat on LCS is universal. This is proved and presented in Figure 2 and Table 7. The diagnostic matrix includes four zones, presented in Table 8.

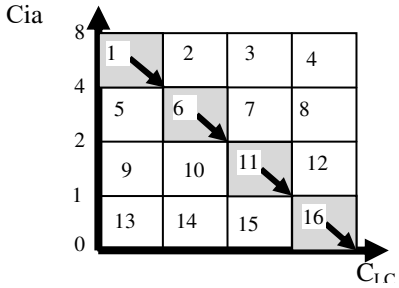

Fig. 2:Area of natural business development

Table 8: zones of choice of investment policies

The area	Concept
Mainstream business development (natural)	Corresponds to sequent life cycle stages of business development (matrix cells or positions 1; 6; 11; 16, fig 2). On the diagonal rates of investment activity (Cia = Cnat, table 7) for corresponding life cycle stage (fig 2);
Eventual development (higher risk)	The rate of coefficient of investment activity (Cia > Cnat) is presented in table 7. In result of realizing development strategy another capital raising leads to higher financing business and risk growth (matrix cells or positions 2; 3; 4; 7; 8; 12 fig 3). Investment policies should be aimed at putting Cia to its natural level (positions 1; 6; 11; 16, fig 3 a, b, c);
Eventual development (low risk)	In the process of natural development, the organisation needs to carry out more active policy and putting Cia = Cnat (fig 4, a, b, c). If an undertaking has no opportunities to raise necessary volume of investments to provide business development, it should liquidate its business;
Cash generation	The rate of Cia is lower 1.0 that is lower natural level Cia<Cnat (matrix cell or positions 15, fig 4 c).

(Source: compiled by the authors)

Each zone of investment policy formation corresponds to a certain rate of change in the value of assets and the amount of investment necessary for this. Corresponding directions of adjustment of the investment policy for each position of this zone of the matrix has its own economic meaning:

• Position 1. Forming new business (Fig 2) - at this stage internal investment sources (NP + Am) are very small due to inability to generate cash flow so that relative Cia rate of investment activity is large (Cia > 4.0).
• Position 6. Concentrated integrated growth (Fig 2) - characterized by sales growth. Therefore, that external development sources are not necessary. It is reflected in the relative reduction coefficient ($2.0 \leq Cnat < 4.0$).
• Position 11. Cost saving (Fig 2). Production volumes and increase of assets are slow and that leads to further reduction ($1.0 \leq Cnat \leq 2.0$). According to the further natural development, this position is unpromising because it leads to the position 16 (Fig 2). To renovate a business, a new type of development is necessary because of the realization of the "specific development" strategy. Investment policy is directed to put Cia at the growth stage (trajectory 1 Fig 1).
• Position 16. Liquidation (Fig 2). The assets growth decreases because the production volume falls. Business stagnates, the undertaking business results in "death" without radical changes of natural development strategies (trajectory 3, Fig 1; 2) (Cnat < 1.0). For a prolongation of life undertakings, it is necessary to have a radical change in the economy, and the development of a Cia at the growth stage (trajectory 2, Fig 1).

The positions of the diagnostic model located above the diagonal (positions 1, 6, 11, 16) indicate the zone of increased investment activity of the company (Fig 4). Corresponding directions of adjustment of the investment policy for each position of this zone of the matrix has its own economic meaning:

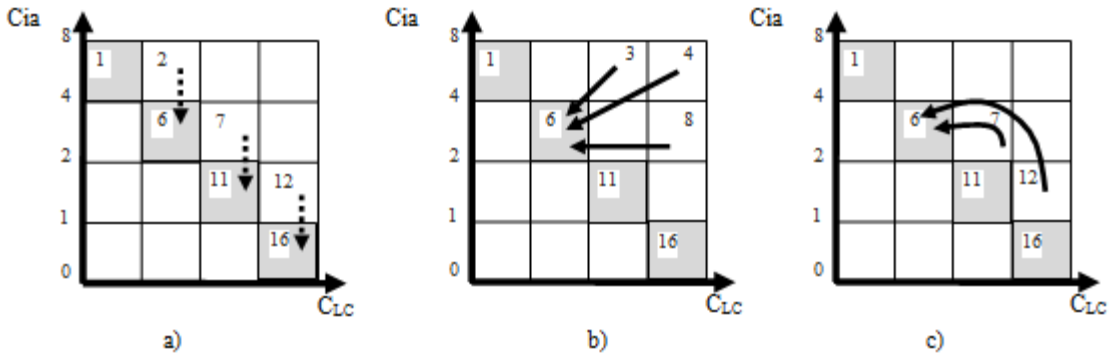

Fig. 3: The zone of excess attraction of financial sources of the company's business development

Corresponding directions of adjustment of the investment policy for each position of this zone of the matrix has its own economic meaning:

• Positions 2, 7, 12. The value of the coefficient of investment activity Cia> Cnat is higher than natural level. This situation can be explained by the simultaneous implementation of strategies for concentrated (integrated) growth and / or diversification. Assets are growing due to attraction of additional financial resources, which leads to excessive growth of risks. In this case, within the framework of the natural development of business (Figure 3a), in this zone the business has excessively high growth rates of assets and implementation of investment policy, corresponding to the strategy of saving costs, will lead to a coefficient of investment activity to its natural value Cia = Cnat. Either this situation can be explained by the implementation of the strategy of diversification. In this case, the value of the coefficient of investment activity Cia > Cnat, above the natural level and is aimed at the development of new types of business.

• Positions 3, 4, 8 should not be considered from the position of natural development of the existing business. They are usually an indicator of the implementation of the diversification strategy (Figure 3b).
Positions of the diagnostic model, located below the diagonal (natural level), indicate the zone of decline in the company's investment activity (Fig 4).

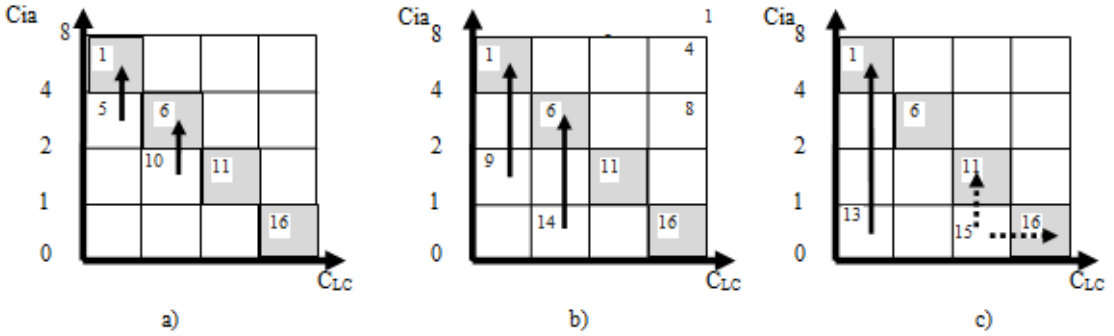

Fig. 4: Insufficient financing for business development

Corresponded ways of investment policy for each position of the matrix (fig. 4a, 4b, 4c) obtains the following economic meaning:

• The level of investment activity is not enough for the positions 5 and 10. In the process of natural development, the investment policy should be aimed at increasing the indicator Cia and bringing it to the natural level (Cnat), i.e. in the zone of natural development of the enterprise's business (positions 1, 6 in Figure 4a).
• Positions 9, 13, 14. The pace of investment activity is critical, the enterprise can be evaluated as a potential bankrupt (Fig. 4b, 4c).

• Position 15 of cash generation is that Cia < 1.0 (Business stagnation). The enterprise has two options for development. Within the framework of natural development, an investment policy corresponding to a cost saving strategy should be pursued. As a result, the indicator Cia moves from position 15 to position 16 (Figure 4c). Within the framework of specific development, the investment policy is aimed at diversifying activities and bringing the indicator Cia from position 15 to position 11 (Figure 4c).

Analysis of investment policy of enterprise

For approbation of the proposed method, the analysis of investment policy of two leading industrial enterprises of the Russian pipe industry was conducted. The research was conducted at several stages: at the first stage, authors analyse and evaluate the enterprise's life cycle.

The first enterprise is a public joint-stock company Sinarsky Pipe Manufacturer (PJSC SinPM) and the second one is Vyksa Steel Works (OJSC VMZ), which occupy a leading place in the industry. The main financial indicators characterize their steady state. The structure of real assets is relatively stable throughout the analysed period, which is typical for mature industries with static technology, when the business is satisfied with its position.
The life cycle imitates production life cycles and applied technologies life cycles, which are characteristic of the corresponding branches of production. Experience shows that the duration of the organization's life cycle for different types of economic, activity will be different, but the nature of the trajectory will be the same (Shirokova, 2006).

According to the data from the financial statements of PJSC SinPM and OJSC VMZ on 01.01.2017, we can calculate the quantitative evaluation of the CLC. The results of calculations are presented in Table 9.

Table 9: results of CLC evaluation of PJSC SinPM and OJSC VMZ on 01.01.2017

	The criterion	**The company PJSC SinPM**		**The company OJSC VMZ**	
		The virtual meaning	**Estimate on Kharrington scale**	**The virtual meaning**	**Estimate on Kharrington scale**
1	Index of increments of assets	1.03	0.64	1.11	0.64
2	Number of people (thousands of people)	6 000	0.64	12 000	0.80
3	Total Assets (RUB bln.)	33 000	0.80	147 000	0.80

4	Sales (RUB bln.)	37 000	0.80	115 000	0.80
5	Enterprise age (years)	more than 50	1.00	more than 50	1.00
	Total		**3.88**		**4.04**

(Source: compiled by the authors)

The integral indicator is a derivative that reflects the correlation of all LCS assessment criteria in general. Experts estimate LCS, and the result for PJSC SinPM was 3.88 and for OJSC VMZ – 4.04, which corresponded to LCS stagnation. At the stage of "stagnation," the main trend is the drop in demand and a decrease in the number of competitors, and narrowing of the range of products.
At the second stage, the formula 7 calculates the enterprise's investment activity index. The results of Cia calculations are given in Table 10. The graphical display of the Cia index of the industrial company PJSC SinPM and OJSC VMZ is shown in Fig 5.

Table 10: CIA dynamics of investment activity (Source: compiled by the authors)

The company	**Period**						**Average value Cia**
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	
PJSC SinPM	–0.11	–0.23	0.85	0.89	0.77	0.16	0.66
OJSC VMZ	0.14	0.79	0.14	1.44	–0.06	1.36	0.64

In the period from 2011 to 2016, the Cia vector of the PJSC SinPM and OJSC VMZ is placed in the area of the natural level of investment activity. This vector characterizes its stability and moderation in pursuing investment policy within the framework of the "natural development" strategy (see Figure 5).

At the third stage, authors of this paper analyse and evaluate the type of investment policy for the vector of movement of the indicator Cia. For the period from 2006 to 2014, the movement vector of the Cia index of the PJSC SinPM enterprise is below the "natural level" of the investment activity of Cnat, which corresponds to the implementation of a passive investment policy (see Figure 5 and Table 10).

As part of the implementation of the "cost saving" strategy, PJSC SinPM needs measures to reduce costs and restructure debts. These actions will balance the structure of real assets and their sources. The implementation of the investment policy will bring the value of the indicator Cia to its natural value Cnat and come over the position 16 "stagnation"(Figure 2).

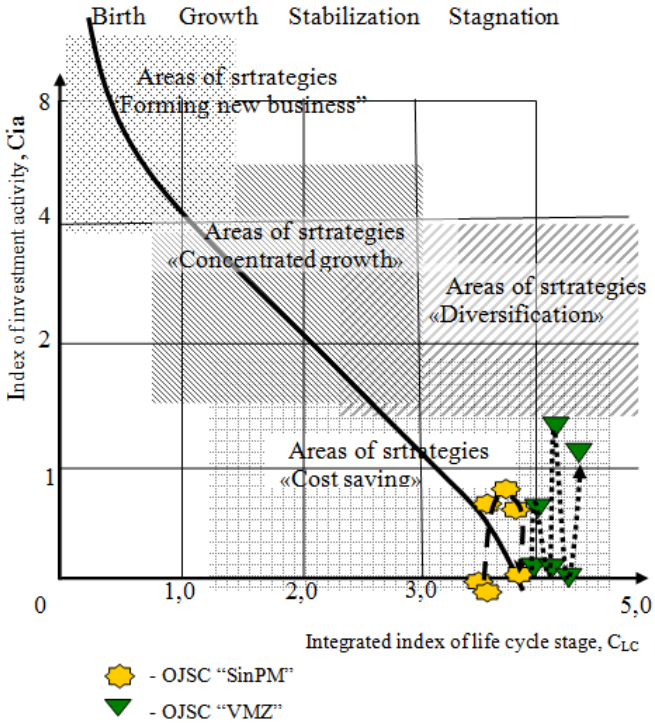

Fig. 5: The Cia vector of the companies PJSC SinPM and OJSC VMZ from 2011 to 2016
(Source: compiled by the authors)

In the period from 2011 to 2016, the Cia vector of the company OJSC VMZ is higher than the natural level of investment activity Cnat. According to the rate, it corresponds to a moderate investment policy (see Figure 5 and Table 10) as part of the implementation of the diversification strategy.

To protect the position at the stagnation stage in the frame of natural development, the implementation of the "cost saving" strategy will lead to the improvement of economic activity.

Discussion

Comparison of the results of estimation of the type of investment policy based on analysis of the vector of Cia dynamics (analytical model) of industrial companies is presented in Figure 5. The financial analysts' views are presented in Table 11. The presented results may prove that the proposed method is reliable.

Table 11: comparison of results on estimation of type of investment policy of companies

The company	**External estimate on financial analysts data**	**Estimate base on the analytical model ($Cia - C_{LC}$)**
PJSC SinPM	**passive** investment policy	**passive** investment policy
OJSC VMZ	**passive** investment policy	**passive** investment policy

(Source: compiled by the authors)

The findings are confirmed by a financial review of analysts of the enterprise represented on the financial Internet sites of OJSC VMZ (Omk.ru, 2018) and the opinion of financial analysts of PJSC SinPM (Omk.ru, 2018).

Conclusion

While the research and approbation of the grapho-analytical model to form investment policy in accordance with the stated strategy and its development it can be concluded that:

- grapho-analytical model may diagnose on the Cia vector the type of realizing investment policy and its correlation to the stated development strategy;
- grapho-analytical model of investment policy formation may realize control, adjustment and diagnostics of intensity of investment activity;
- quantitative estimation of the model position may forecast the results of realizing investment policy and predict business or financial risks.

The calculation of Cia and LCS is conducted in accordance with the financial statements. It complicates the study of the impact on Cia of the implementation of investment policy in individual business processes.

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Evaluation of the Implementation Effectiveness of the Company Strategic Initiatives on the Example of Product Portfolio Planning Optimization

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Abstract

In the era of the digital economy, the successful implementation of the company's strategic initiatives is increasingly influenced by a wise investment in the organization's own personnel, in the human capital that it has accumulated. The presence of this component, which is the main component of any business process, contributes to the implementation of the company's business ideas. The problem field in this case is the ability of the company's top management, on the one hand, to correctly evaluate the efficiency of the company's divisions, and competently motivate and stimulate its staff to implement the proposed mechanism for assessing the projected risks and market growth in sales by commodity groups, on the other. The purpose of the study is to develop a methodology for calculating the return on investment in human capital and assessing the effectiveness of its activities based on the created mathematical model for calculating the statistical indicators of profit accounting for the formation of the company's product portfolio. Using the company's value management concept based on the EVA indicator for making management decisions, we proposed to use the coefficients of Intellectual Return and Human Capacity, which allow us to estimate the return on investment in the company's human capital. In order to assess the effectiveness of the use of human capital and the adoption of management decisions in this area, we have developed a methodical approach to assessing the effectiveness of management decisions in the formation, use, and development of human capital. Analytical value of this technique is that it allows identifying the emergence of risks that can reduce all activities in the field of human capital management to naught.

Keywords: Human capital asset, human capital management, profit-taking statistics, product portfolio.

Introduction

The issues of business organization that can use the existing capabilities of business processes and information technologies for quick creating a new value in conditions of limited resources and risks are becoming increasingly important today. The main driver for the development of new technologies and systems is the digital economy, on the basis of which it is possible to ensure the high efficiency of the manager making strategically important decisions for the company. The use of the digital economy in business is primarily aimed at transforming such areas as the business model and the product portfolio. This transformation will fundamentally change not only the culture of business and customer relations, but also the company's human capital (Russ, 2017).

Offering a variety of empirical methods from different disciplines that expand the possibilities for building a holistic theory of human capital and assets in a new-networked society, Russ expands the practical scope of human capital and assets and indicates the need to find ways to reflect these assets in an enterprise's financial statements. However, today there is no generally acceptable way to account for these assets on the organizational balance sheets.

Russ is immersed in the valuation of human capital assets, arguing that non-compliance distorts the true financial view of the organization. The proposed Intellectual Ratio Model (VAICTM) fits perfectly into the theoretical framework of business valuation. The quantitative results show that «human capital efficiency» is a key variable in the VAICTM model, which is a significant result for HRD researchers because they do their job for strategic HRD.

Another quantitative study of intellectual capital using the VAICTM model strongly suggests the need to evaluate intellectual capital that belongs to organizations, such as databases, patents, as well as personnel resources related to employee knowledge. The results of this study were not straightforward, but the link between intellectual capital and the price of shares showed a positive result.

In the same context, our approach to human resource management, which proposes to define people as investment instruments, and not as resources, deserves our attention (Paleri, 2018). The author claims that it is time that HRM is replaced by human investment management (HIM), where the entire approach of employee management in an organization shifts gears to human investment in activities. In this approach no human is considered bad in relation to an organization, if selected appropriately, and trained well. Everyone is productive, though the returns may differ. Humans can be invested in areas where they are best or can be trained to be the best according to various factors. Unlike any other investment instruments, humans' value can be continuously upgraded for higher returns. Thus the core of HIM is to maximize the return from each employee as an individual or as a member of the group with minimum expenditure and effort in him or her. HIM can therefore reengineer and replace HRM slowly and steadily at the desired pace where maximum attention is paid to employee investment for improved results. This is unlike HRM, which primarily focuses on employee relations. Turning around HRM to HIM will be the first step in inclusively aligning strategic human resource management with the overall human management. As such, HIM should be seen as a process by which the asset or capital value of individual humans can be increased by turning them into capital humans, an entirely different outlook from the oft-used term human capital.

Within this article, we propose to use the coefficient method, which allows to evaluate investments in the formation of the company's product portfolio based on the calculation of the coefficient of return on investments in the human capital, as the main factor of modern production, providing an increase in the value of the organization and the implementation of its strategic initiatives. At the same time, adhering to the point of view (Green, 2018) that the use of alternative strategies for determining, measuring and increasing the efficiency of the human capital of an organization should be compatible with the mission, culture, organizational strategy, internal and external realities.

Alternative strategies for staffing an organization, developing its people, defining, measuring and rewarding performance are used to illustrate how what is done should be compatible with the mission, culture, organizational strategy, and internal and external realities.

Methodology

Evaluation of the return on investment in the formation of the company's human capital

In order to motivate and stimulate procurement planning service employees in large distribution companies, we propose to use the coefficient method that allows us to evaluate investments in the formation of the product portfolio based on the calculation of the return on investment in human capital as the main factor of modern production, providing an increase in the value of the organization and the implementation of its strategic initiatives.

Since in our methodology we consider the coefficient of intellectual return, that is, the evaluation of the human capital influence degree on the formation of final results, it is necessary to determine how the financial performance of the activity will be calculated.

As financial results of the operation, the following indicators are traditionally:

1) proceeds from the sale of products;
2) pure products;
3) net profit.

All of the above financial indicators are based on accounting and financial reporting data. In this regard, these figures lose their value for the company's management, since on the one hand they are retrospective, on the other hand, the situation often arises when the book value significantly differs from the market value. Therefore, at present, the concept of value management of the company is becoming increasingly important. The value concept advises to abandon inefficient accounting criteria for the success of the company's functioning and take into account only one criterion, the most simple and understandable for investors is the newly added value (Stewart, 1991).

The indicator of economic added value - EVA (Economic Value Added) allows to estimate efficiency of both the organization as a whole, and separate divisions (Alekseeva, 2006). The main idea that justifies the expediency of using EVA is that investors (in the person of which the owners can act) also need to obtain a return rate for the accepted risk. In other words, a company's capital must earn at least the same rate of return as similar investment risks in the capital markets. If this situation does not occur, then there is no real profit, and investors do not see the benefits from the company's investment activities (Stewart, 1991).

Thus, there may be three variants of the relationship between the value of the EVA indicator and the behavior of investors (Fernández, 2002):

1. EVA > 0 means an increase in the market value of the organization over the carrying value of net assets, which characterizes the effective use of capital and encourages owners to continue investing in the organization.
2. EVA = 0, that is, the market value of the organization is equal to the book value of net assets. In this case, the market gain of the investor when investing in this organization is zero, which is also a certain kind of achievement.
3. EVA < 0 leads to a decrease in the market value of the organization. In this case, the use of capital is inefficient; investors lose their capital invested in the organization at the expense of loss of alternative profitability.

The EVA concept is often used by Western companies as an improved tool for measuring unit performance, rather than net profit. EVA evaluates not only the final result, but also the price at which it was received (takes into account the costs of attracting both own and borrowed capital) (Fernández, 2002).

Thus, when solving the problem of what should be regarded as the final result of the enterprise's activity within our methodology, we will stop the choice on increasing the value of the enterprise, estimated using the EVA indicator. As already noted, the EVA indicator serves as an indicator of the quality of management decisions. If we take into account the fact that the human capital, being the most important factor of production, influences other factors of production by adopting various managerial decisions, the EVA index can be considered the most suitable indicator for assessing the contribution of the human capital to the formation of final results. Moreover, the growth of the company's value can be achieved at any level of management, and the EVA index can be used at various levels of managerial decision-making: at the corporate level, at the subdivision level, and at the level of product types and promotion channels (Figure 1). That is, the application of the EVA indicator allows the construction of a goal tree and the allocation of responsibility for achieving results between specific units, managers, employees.

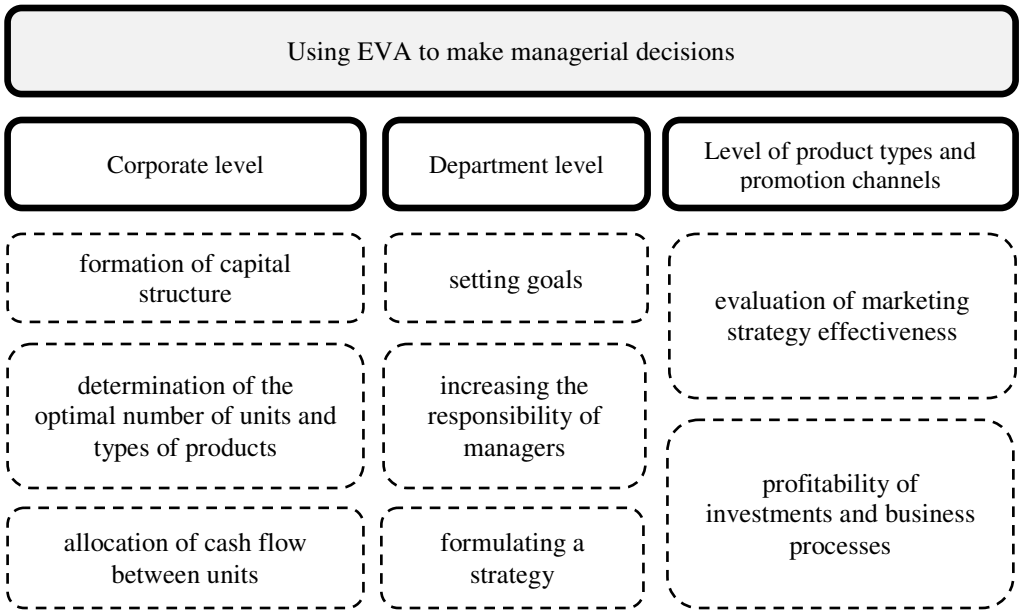

Fig. 1: Using the EVA-based management system to make management decisions
(Source: Schneider, 2018)

As a result, the proposed indicator of intellectual productivity for the evaluation of human capital, based on the evaluation of the effectiveness of investment in human capital, will look like this:

$$HCP = \frac{EVA}{HCI}, \quad (1)$$

where HCP - intellectual return, rubles / rubles;
EVA - economic added value, rubles;
HCI - volume of investments in human capital, rubles.
The index of human consumption, which is reciprocal of the index of intellectual output, will be calculated according to the following formula:

$$HCR = \frac{HCI}{EVA}, \quad (2)$$

where HCR - human consumption, rubles / rubles;
HCI - volume of investments in human capital, rubles;
EVA - economic added value, rubles.

Intellectual output characterizes the value of the economic added value created by human capital, per 1 ruble invested by the enterprise in human capital. Human consumption, in turn, reflects the amount of investment in human capital necessary to obtain 1 ruble economic added value.

With a negative EVA, the coefficients of intellectual productivity and human consumption are meaningless.

It is worth noting that these coefficients can be applied both to assess the human capital of the enterprise as a whole, and to assess the human capital of its individual units. This makes it possible not only to draw conclusions about the effectiveness of investing in the formation and development of the human capital of the entire enterprise, but also to compare the efficiency of individual departments and draw conclusions about the rationality and appropriateness of allocating investments in human capital between them. However, in this case, when calculating the EVA value, one can face the problem of allocating overheads to divisions within the cost calculation framework. To solve this problem, you can use the existing budgeting models for enterprises, in principle, whose work entails such logic. However, this is far from always possible, in connection with which there is a need to create new computational models.

Evaluation of the effectiveness of making managerial decisions about the use of company human capital

The intellectual return index proposed by us allows estimating the return on the use of human capital in the form of an increase in the cost of business, but it does not allow us to evaluate the effectiveness of using human capital and making managerial decisions in this area. In this regard, we are faced with the task of developing a methodological approach to assessing the effectiveness of management decisions in the formation, use and development of human capital.

The proposed indicators of human capital evaluation (HCP and HCR) consist of two indicators: economic value added (EVA) and investment in the formation and development of human capital (I). Thus, there are four possible developments:

1) the volume of investments I is reduced, and EVA is growing;
2) the volume of investments I and EVA are simultaneously increasing;
3) the volume of investment I increases, and EVA decreases;
4) the volume of investments I and EVA simultaneously decreases.

Let us consider each of the possible cases in more detail:
1. The volume of investment in human capital is declining, but EVA is increasing. At first glance, this state of affairs seems to be a positive factor: with lower costs for the formation and development of human capital, the return in the form of an increment in the value of business increases. However, with a deeper analysis, given that the return on investment in human capital has a deferred effect, this fact seems not so positive. Investments in human capital should be continuous, and the value over time should gradually increase, otherwise the enterprise will risk falling into a situation when EVA will begin to decline.

2. The volume of investments I and EVA are increasing. This situation should be regarded as an indicator of effective management of human capital. Investments in the formation and development of human capital bear fruit, increasing economic added value and, thereby, increasing the value of business.

3. EVA decreases with increasing investment I. The interpretation of this situation can be twofold and depends on the specific conditions for investment. Therefore, for example, the decline in EVA in conditions of constant stable investment is associated with ineffective management of human capital. The management of the enterprise should revise the model of human capital management, since investments in human capital, although they increase, do not give the proper effect from the use of human capital. Possible cause of this situation can be an inefficient allocation of investment. The second interpretation of the situation, when the EVA is reduced by increasing the volume of investments I serve prospects EVA growth rate in the changing strategy of the investment when the company, which was previously for some reason not to invest in human capital and investment in human capital which in the dynamics tended to decrease, decides to allocate a significant amount of funds to the formation and development of human capital. The expected increase in the EVA in this strategy is not immediate. In fact, EVA is declining, and the explanation for this is the fact that the return on investment in human capital has a deferred effect.

4. The volume of investments I and EVA are reduced. This case should be regarded as the result of sequencing of programs aimed at the development of human capital. As noted earlier, investments in human capital must be continuous and gradually increase in size. With a deliberate and forced reduction in the amount of investment in human capital, one should not expect the growth of EVA.

The cases considered above can be represented in the form of a matrix, depicted in Figure 2.

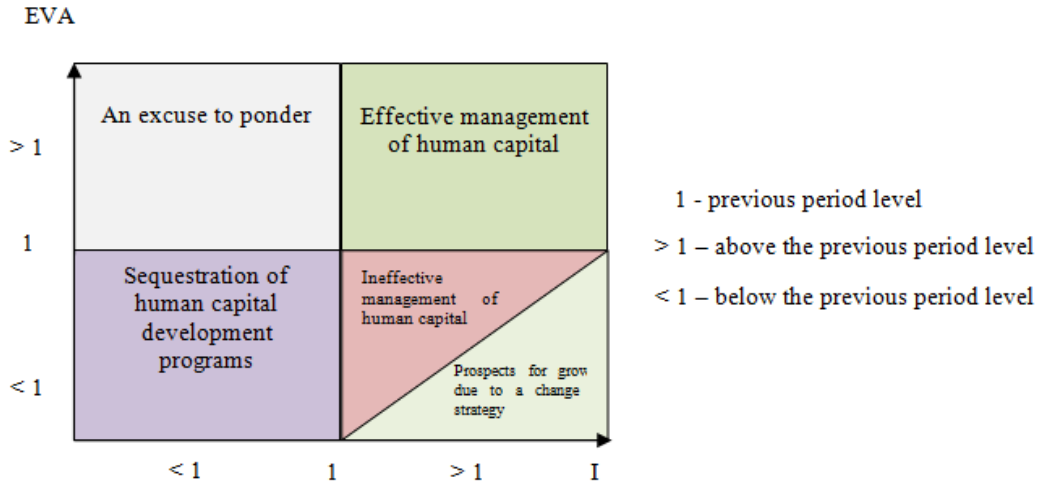

Fig. 2: The matrix of human capital management

Obviously, the recommended position of the enterprise on the matrix is in the quadrant "Effective management of human capital. » However, within the framework of this quadrant, taking into account the growth rate of the indicators under consideration, it is worthwhile to consider three possible variants of the development of events:

1) the growth rate of EVA is higher than the growth rate of investment I;
2) the growth rate of EVA is lower than the growth rate of investment I;
3) the growth rate of EVA and the volume of investments I are the same.

For the case when EVA increases faster than investments in human capital, it can be concluded that the accumulation of human capital is effective. For the opposite case, when the volume of investment grows

faster than economic added value, inefficient accumulation of human capital is characteristic. In this case, the management of human capital is effective in view of the fact that the growth in investment leads to an increase in the cost of business, but it is inefficient in terms of the fact that the return on the investment carried out by the enterprise is lower than it could be for a given amount of investment. In the case where the growth rates of economic added value and investment amount are the same, the return on the use of human capital does not change, showing results similar to the results of the previous period.

For greater clarity, we present the dependencies discussed above on the graph (Figure 3). A ray emerging from the beginning of the graph (bisector of angle) symbolizes the three situation when the EVA and investment I values change in the direction of growth by the same values.

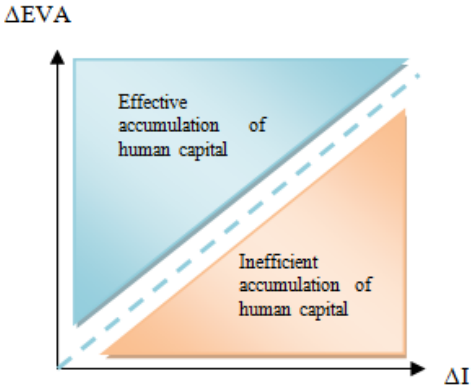

Fig. 3: Graph of EVA variation versus changes in investment in human capital

If the graph shown above (see Figure 3) is applied to the human capital management matrix, the matrix will look like in Figure 4.

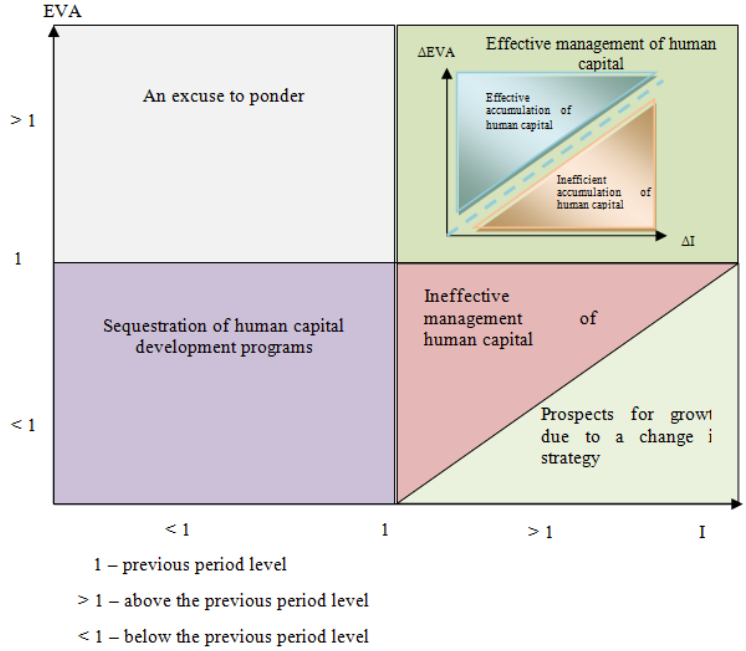

Fig. 4: Expanded matrix of human capital management

Analytical value of this matrix (see Figure 4) is that it allows identifying the emergence of risks that can reduce all activities in the field of human capital management to naught. This matrix, when using data from several periods, should be considered one of the methods for predicting and analysing these risks.
Let us return to the case when EVA decreases with increasing volume of investments I in conditions of their continuous implementation. In this case, the organization directs its efforts to the formation and development of human capital, but they are unjustified, since an increase in the amount of investments in human capital does not lead to an increase in the EVA index. Most likely, the reason for this situation lies in the inefficient allocation of investment. Firstly, few enterprises distinguish several elements that make up the aggregate human capital, and give due attention to each of them. Secondly, the wrong choice of ratios for each component leads to inefficient investment. In this regard, we have developed our own model for the distribution of investment in human capital, adaptable for any enterprise. The model is designed to involve all components of the human capital of the enterprise and to increase the efficiency of the use of human capital.

According to this model, the largest part of the investment (70%) should be directed to the capital of motivation, which is essentially a payroll. The capital of motivation is one of the most important components of human capital for our country. It is a motivating factor, especially in a crisis period, when it is important for enterprise workers not only not to lose their jobs, but also to receive the wages necessary for survival in crisis conditions. At the same time, the size of the payroll is set as a percentage of revenue. For capital-intensive industries (for example, machine building), the standard payroll is 5-10% of revenue, for other industries and trade and manufacturing companies - 10-15%. Companies engaged exclusively in trade can afford to pay up to 25% of their earnings on the payroll, while companies providing services - up to 40% (Pustynnikova, 2005). The remaining 30% should be distributed among other components of human capital.

Results

A special case of solving such a problem, which allows us quickly see the result of the proposed managerial efforts of the company's management, is the optimization of the activity of the trade and intermediary company.

Optimization of the trading and distribution company is necessary if the company diagnoses the following problems:

– low business manageability;
– frequent disruptions of customer orders, internal failures in the company;
– high (excess) costs;
– "excessive" staff;
– high dependence of the company on individual employees;
– problems with interchangeability;
– high staff turnover;
– low executive discipline;
– many plots in the company have a virtually opaque structure;
– ineffective internal communications;
– the task is to prepare the business for replication (the creation of a system of branches, a franchise network).

Despite the fact that business processes in such companies are formalized and, most importantly, they work, but all the same markets require the solution of the following tasks:

– reduction of costs;

– increase the speed and quality of customer service;
– expansion of the business scope (new services, products, regions, market segments);
– reduction of business dependence on personnel;
– increasing the capitalization of the business before selling.

The product portfolios of such companies include thousands of commodity items and the procurement planning service in them is the main service that determines the profitability of trade and intermediary operations. Monitoring and evaluation of the results of its work is one of the key tasks of the management of such companies.

First, let us consider the prospect of automation of the procurement planning process as an automatic formation of the product portfolio. Planning the development of the product portfolio is always an actual task of the product portfolio policy of any enterprise. There are many different approaches to determining strategies for such development. In this paper, it is proposed to consider the approach using a combination of statistical methods for calculating profits and two mathematical criteria for game theory.
The offered approach of a choice of development strategies of the product portfolio which initial element is the set of possible values of profit, synthesizes into itself elements of several stages of marketing management.

As marketing tasks (Ansoff, 2014), (Ansoff and McDonnell, 1988), (Assael, Patton and Reed, 1995), (Veselov, 2009), (Kotler and Armstrong, 2015), (Buzzell, Cox and Brown, 1969), (Pozhidaeva, 2015) within the limits of use of our approach, the following can be offered:
– increase of efficiency of company activity;
– increase of company stability (decrease of activity risks) in the conditions of uncertainty of market.
As the marketing purposes (Ansoff, 2014), (Ansoff and McDonnell, 1988), (Assael, Patton and Reed, 1995), (Kotler and Armstrong, 2015), (Veselov, 2009), (Buzzell, Cox and Brown, 1969), (Pozhidaeva, 2015) with reference to formation and development of a product portfolio can be following:
– diversification of company activity;
– statement of planning system and forecasting in the conditions of variability of market;
– statement of system of marketing audit (control of development efficiency of existing economic units).
Marketing research (Buzzell, Cox and Brown, 1969), (Kotler and Armstrong, 2015), (Putman, 1990), (Trout, 1997), (Hiam, 2014), (Churchill, 2005), (Schmidt and Wright, 2007) within the limits of our approach has double character:
– it is one of situation analysis methods (really, we define more exact distribution of possible market situations);
– one of controlling methods (we subject to control aprioristic estimations of possible conditions of market).
Marketing research (Buzzell, Cox and Brown, 1969), (Kotler and Armstrong, 2015), (Veselov, 2009), (Putman, 1990), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015), (Trout, 1997) executes two functions:
– Definition of possible conditions of market conditions (including, allocation of the data due to strategic segments), that is transition from a condition of full uncertainty to the partial condition; marketing research the situation analysis tool;
– Correction of already existing expert estimations toward a market situation; marketing research the tool of control of marketing.
This approach allows us to present the prospects of a product portfolio within the limits of the General Electric / McKinsey model (Ansoff, 2014), (Ansoff and McDonnell, 1988), (Kotler and Armstrong, 2015), (Veselov, 2009), (Assael, Patton and Reed, 1995), (Chernik, 2004). Indeed, we can obtain calculated data on the projected growth rates of strategic unit markets, and calculate the relative

forecasted risk of investing. For each of these indicators, we can break the markets, goods, CXE into three groups:

Within the projected growth rate:
– rapid growth (more than the specified upper limit of the stability criterion);
– relative stability (within the limits of the stability criterion);
– fall (less than the lower limit of the specified stability criterion);
Within the relative risk of investment:
– high risk;
– average risk;
– low risk.

The stability criterion is understood as such limits of growth rates that are estimated by the decision-maker as normal (average) for the market in question as a whole. Because of the partitioning, the following matrix will be obtained, for which we recommend the use of adaptive growth strategies (Ansoff, 2014), (Veselov, 2009), (Peters and Waterman, 2006), (Waterman, 1988), (Foster, 1986), (Atkinson, 2003). Let us call the obtained model a matrix of projected risks and market growth (Table 1).

Table 1: matrix of predicted risks and market growth

		Relative predicted growth		
		Fast growth	**Stability**	**Falling**
Relative predicted risk of investment	Low	Approach	Approach	Deduction
	Average	Approach	Deduction	Deviation
	High	Deduction	Deviation	Deviation

Use of criterion of Laplace (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015):

$$L = \max_i \left(\frac{1}{n} * \sum_{k=1}^{n} PF_{ik} \right) \quad (3)$$

where PF_{ik} is the amount of profit in the k period.

The criterion shows the maximum value of the mathematical expectation of earnings for different strategic units. The criterion is based on the premise that all the values of consumer demand are equally probable.

Within the framework of our model, the decision-maker will receive the final ranked number of strategic units according to the number of average expected earnings. This series will indicate the average profit expected by the firm (due to the average of the expected conjuncture) for each of the groups under consideration. In fact, at the top of the row (with the highest places), goods with the greatest average expected output potential will be located. We call this series Laplace series.

Finding Method

Initially, for each strategic unit, we find the size of the total profits for all possible market conditions. Next, choose the strategy that provides the entrepreneur the maximum possible revenue streams.
The use of the Bayes-Laplace criterion (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015) (to evaluate the effectiveness of marketing research):

$$BL = \max_i \left(\sum_{k=1}^{n} \left(PF_{ik} * p\left(DP_k \right) \right) \right) \tag{4}$$

where PF_{ik} is the amount of profit in the k period,
p(DPk) is the probability distribution of the consumer potential values.

This criterion shows the maximum value of the mathematical expectation of earnings for various firm strategies, taking into account the data on demand levels obtained on the basis of some (on the basis of marketing research) expert probability distribution of the consumer potential values - p (DPk).
Within the framework of our model, the decision-maker will receive the final ranked number of strategic units in accordance with the decrease in the weighted average of expected earnings. This series will indicate the values of profit-weighted taking into account the probabilities expected by the firm (due to the weighted probabilistic average among the expected conjuncture) for each of the groups under consideration. In fact, in the upper part of the series (with the least places), goods with the largest average probable output potential will be located. We call this series the Bayes-Laplace series.

The Method of Finding

At the first stage, the entrepreneur sets the probability of distribution of demand possible levels (for example, based on previous experience, or after carrying out a predictive analysis of market development). Further, taking into account the probabilistic states, the determinant of demand, for each strategic unit, we find the size of the total revenue receipts. Moreover, finally we choose the strategy that provides the entrepreneur with the maximum possible revenue streams. It will be optimal by this criterion.

For each product portfolio development strategy, a variety of profit values can be represented in the form of a ranked variation series. This allows us to calculate for each strategy the average profit, and taking into account the probability distribution of the market situation and the weighted average values, the standard deviation and the coefficient of variation. We note that the set of average and average weighted constants are Laplace and Bayes-Laplace series, respectively.

We denote the average value of the earnings of strategy I as AGRi (average gross receipt), and the median (weighted) return of profit as $APGR_i$ (average probable gross receipt). Profits from the strategic unit I with the conjuncture k are denoted as PF_{ik}.

The mean square deviation (RMS) will be calculated by the following formulas (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015), (Heddervik, 2006):
for the Laplace series

$$\sigma_i = \sqrt{\frac{\sum_{k=1}^{n} \left(PF_{ik} - AGR_i \right)^2}{n}} \tag{5}$$

where PF_{ik} is the amount of profit in the k period,
AGR_i is the average gross receipt.

for the Bayes-Laplace series

$$\sigma_{BL_i} = \sqrt{\sum_{k=1}^{n} \left(p(DP_k) * \left(PF_{ik} - APGR_i\right)^2 \right)} \tag{6}$$

where p(DPk) is the probability distribution of the consumer potential values,
PF_{ik} is the amount of profit in the k period,
$APGR_i$ is the average probable gross receipt.

The coefficient of variation will be calculated by the formulas (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015), (Heddervik, 2006):

for the Laplace series

$$\nu_i = \frac{\sigma_i}{AGR_i} \tag{7}$$

where σ_i is the mean square deviation,
AGR_i is the average gross receipt.

for the Bayes-Laplace series

$$\nu_{BL_i} = \frac{\sigma_{BL_i}}{APGR_i} \tag{8}$$

where σ_{BLi} is the mean square deviation,
$APGR_i$ is the average probable gross receipt.

In author's approach, the coefficient of variation is used to determine the relative risk of investing in the alternative matrix of projected risks and market growth. To build this matrix, it is necessary to divide all products, CXE, markets into three groups according to investment risk levels. For this, we propose to break up a number of coefficients of variation into three equal intervals. The length of the interval will be determined by the following formula (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015), (Heddervik, 2006):

for the Laplace series

$$\Delta\nu = \frac{\max\limits_i \nu_i - \min\limits_i \nu_i}{3} \tag{9}$$

where ν_i is the coefficient of variation.

for the Bayes-Laplace series

$$\Delta\nu_{BL} = \frac{\max\limits_i \nu_{BL_i} - \min\limits_i \nu_{BL_i}}{3} \tag{10}$$

where ν_{BLi} is the coefficient of variation.
Thus, the relative investment risk for each strategy I can fall into one of three groups (an example for the Laplace series):
high risk $\max\nu - \Delta\nu < \nu_i \leq \max\nu$;
average risk $\min\nu + \Delta\nu < \nu_i \leq \max\nu - \Delta\nu$;
low risk $\min\nu \leq \nu_i \leq \min\nu + \Delta\nu$.

The next indicator, which is necessary for constructing a matrix of projected risks and market growth, is the average forecasted growth rate. We will calculate it as follows (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015), (Heddervik, 2006):

for the Laplace series

$$T_i = \frac{AGR_i - PF_{i1}}{PF_{i1}} \tag{11}$$

where AGR_i is the average gross receipt,
PF_{i1} is the amount of profit in the initial period.

for the Bayes-Laplace series

$$T_{BL_i} = \frac{AGPR_i - PF_{i1}}{PF_{i1}} \tag{12}$$

where $APGR_i$ is the average probable gross receipt,
PF_{i1} is the amount of profit in the initial period.

Next, we need to divide the goods, CXE, the markets into three growth groups, for this we need to set a stability criterion. The stability criterion will characterize the upper and lower boundaries of the growth rates of the analysed markets, which the decision-maker considers expedient to determine. Based on the entered boundaries, each strategic unit I will fall into one of three groups (an example for the Laplace series):

Fast growth: Ti ≥ upper limit of the stability criterion;
Stability: Ti lies within the limits of the stability criterion;
Falling: Ti ≤ lower limit of the stability criterion.

The average growth rate will be determined as follows:

For the Laplace series

$$\overline{T} = \frac{1}{m} * \sum_{i=1}^{m} T_i \tag{13}$$

where T_i is the average forecasted growth rate.

for the Bayes-Laplace series

$$\overline{T}_{BL} = \frac{1}{m} * \sum_{i=1}^{m} T_{BL_i} \tag{14}$$

where T_{BLi} is the average forecasted growth rate.

For the General Electric / McKinsey matrix, we need to divide all the strategic units into three groups according to their potential, which is expressed in the average earnings of the Laplace series and the median income for the Bayes-Laplace series. To this end, we propose to divide a number of required averages into three equal intervals. The length of the interval will be determined by the following formula (Pozhidaeva, 2015), (Beshelev and Gurvich, 1995), (Konjuhovsky and Malov, 2015), (Heddervik, 2006):

for the Laplace series

$$\Delta AGR = \frac{\max_i AGR_i - \min_i AGR_i}{3} \tag{15}$$

where AGR_i is the average gross receipt.

for the Bayes-Laplace series

$$\Delta APGR = \frac{\max_i APGR_i - \min_i APGR_i}{3} \quad (16)$$

where $APGR_i$ is the average probable gross receipt.

Thus, the relative position of the strategic unit I within the GE matrix can be defined as follows (an example for the Laplace series):

Successful: maxAGR - ΔAGR <AGRi ≤ maxAGR;
Average: minAGR + ΔAGR <AGRi ≤ maxAGR - ΔAGR;
Unsuccessful: minAGR ≤ AGRi ≤ minAGR + ΔAGR.

Table 2: An example of a composite matrix of projected risks and market growth for product categories A, B, C

		Relative predicted growth		
		Fast growth	***Stability***	***Falling***
Relative risk of investment	Low	A	A	C
	Average	A	C	B
	High	C	B	B

The use of this approach makes it possible to form both a general strategy for the development of the product portfolio and to determine the potential and prospects of its individual units.

Discussion

The software product created on the basis of this model can implement the procurement planning process, taking into account both past sales history and sales forecast in the current period. This can automate the process of forming a portfolio of purchased goods from suppliers, using the company's internal reporting and marketing department forecasts. Comparison of the product portfolio obtained with the help of this model with the actual plan of the purchasing department can reveal a number of inconsistencies that can have various causes: from changing the current market situation to inefficient work of the personnel carrying out the planning process. Suppliers of goods that use the "pushing" strategy in their work with buyers can, quite possibly, influence the decision-making on the acquisition of specific goods. Ideally, it should be so: a commodity group that has entered the echelon of the "offensive" needs to increase the size of the purchase, the commodity group that has fallen into the "retreat" echelon, needs to reduce the size of the purchase, the "retention" train remains unchanged. This approach will help how to diagnose the effectiveness of the procurement plan, and become a necessary guide in the work of staff. If controlling reveals serious inconsistencies in the planning and development of the product portfolio of the proposed model with the decisions made by purchasing department managers, it becomes necessary to establish the reasons for these discrepancies. If such incompetence or disloyalty of the employee is the reason, it puts certain tasks of personnel management in front of the top management of the company. It is impossible to exclude the current change in the market situation, which was not taken into account by the software product during the calculation, which indicates the low competence of the marketing and sales department, which also implies certain managerial decisions.

Implementations

The model described in this article is an element of optimization of the procurement planning process with the use of specialized IT solutions in trading companies for the purpose of business development,

which is an indispensable condition for the qualitative formation of assortment policy and excludes errors of accounting and planning related to the human factor. This model, of course, reducing the impact of the human factor on the company's performance, cannot reduce its impact to zero. To date, only a company employee can adapt the proposed business model to the current environmental changes, for example, to change the terms of purchase and make decisions based on the analysis of similar proposals on the market. Such activity imposes on the purchasing manager certain obligations within the framework of the qualification requirements for the position held by him. However, without proper motivation system, employees will not be easy to show their best qualities, including the ability to work in a team, loyalty to the company and customers, the focus on results and innovation.

Thus, the ability of the company's top management on the one hand, competently evaluate the efficiency of procurement planning services, and competently motivate and stimulate its staff to implement the proposed mechanism for assessing the projected risks and market growth in sales by commodity groups on the other, is one of the main conditions for a successful implementation of the company's strategic initiatives.

Conclusion

In the digital economy, automation of management decision-making based on the inclusion of statistical databases, which accumulate knowledge of the external environment of the organization, the role of human capital is more and more increasing. On the one hand, a manager who takes strategic decisions becomes a key factor in ensuring the organization's breakthrough success, and this same human factor increases the risks associated with possible strategic mistakes in making crucial decisions by top management of the company.

The effectiveness of such decisions should be based on a combination of objective factual estimation of the situation (functional approach) and subjective potential of the company's key competencies (creative approach).

The model of product portfolio formation and the expanded matrix of human capital management not only allow us to determine the effectiveness of the use of the company's human capital, but also can identify the occurrence of risks that lead the company to collapse.

Thus, we proposed a matrix that allows to stimulate and evaluate the efficiency of procurement services in large distribution companies. Controlling the effectiveness of individual employees based on the developed model enables the company's management to stimulate employees who contribute to the growth of the EVA index. The advantages of this model are the simplicity and clarity of calculations, as well as the fact that it uses all components of human capital and takes into account legislative requirements.

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Coping Strategies of Military Students in the Army of The Czech Republic

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Abstract

The research study focuses on the use of coping strategies in the Army of the Czech Republic. The main objective was to identify preferences in the use of coping strategies of military students of the University of Defence in Brno - future commanders. The research sample consisted of 130 respondents, 122 of whom were men and 8 women. Key strategies were identified using the SVF 78 questionnaire. We applied descriptive statistics methods. By analysing the results it was found that military students mostly chose the coping strategy control of situation and the last strategy of resignation. Compared to the ordinary civilian population, the soldiers achieved significantly better results.

Keywords: leadership, coping strategies, military students

Introduction

There are many ways to study the leadership phenomenon. Some authors deal with the traits or personal qualities of leaders, some deal with the skill sets of leaders, and other approaches examine the situations that elicit leadership. Approaches that focus on personal traits tend also to engage the question of how leaders are selected. Approaches that focus on skills, on the other hand, tend to highlight the training of leaders and those that feature the situational determinants of leadership focus on the specific tasks that leaders must master in order to lead. One of the important prerequisites for future successful military leaders is the demand for stress management and the effective use of a variety of coping strategies. In the armies of NATO member countries the proceeding pursuant competencies are already implemented (Mikulka, Nekvapilová, & Pospíšil, 2017, p. 206). Pospíšil (2017, p. 485) states that "the competencies of the leader, notably in relation to the requirements for the performance of the military profession, are not adequately described in the Army of the Czech Republic (ACR), systematically investigated or systematically developed in the further course of the commander's career including the soft competencies, including the ability to withstand psychological stress". One of the important personal prerequisites for future successful military leaders is the ability

to effectively use a variety of coping strategies. In this article we focused on the coping strategies of military students - future commanders in the ACR.

It can be assumed that there is some intra-individual stability in the preference of coping activities but also an inter-individual difference in their preference and use (Baumgartner, 2001). It is also necessary to notice these relationships at a time when military students are preparing for their professional career. We focused on students, future commanders, who are systematically prepared and trained for their military career at the University of Defence in Brno (UD). The aim of the research activities is to gain enough empirical knowledge that can serve as a relevant basis for the selection of suitable candidates for military managerial positions, It can help optimize the demands of training in terms of burden management and are also applicable to psychological and professional counselling within the system of individual work with a student.

Coping is defined as the process that occurs in response to a perceived situation in which a person tries to change the relationship between the stressor and himself to make the situation less stressful (Lazarus & Folkman, 1984). People do not approach the stressful situation as a blank sheet of paper, but with their stable styles of coping and disposition (Carver, Scheier, & Weintraub, 1989). Every individual has a typical repertoire of ways to treat stress that can change during life and in different situations, but we can see their certain consistency and stability. If we admit this fact, we are thinking in the minds of personality that modifies the choice of coping strategies. Our "coping fund" can therefore expand or decrease over the course of life and also change in terms of quality. Researchers are interested in the extent of these modifications, respectively the intended intermediary proportion of personality variables (attributes, dimensions, features, etc.) to reduce stress. The various aspects of these relationships are emphasised, as in the review study, for example, Suls, David and Harvey (1996). Dynamic-functional approach understands coping with problematic situations as part of a personality. Kuhl and Kazen (2002) characterise personality in terms of individual differences. They will only become evident in a situation where an individual is forced to cope with environmental demands or a burden. The German psychologists W. Janke and G. Erdmann (2003) assume that the ways of coping with stress are "habitual" personality traits, i.e. that they are relatively stable over time and at the same time assume relative independence from the type of stress situation.

Individual coping strategies usually either increase (e.g. resignation, self-blaming) or reduce stress (e.g. underdevelopment). They can focus on a problem or emotion. The coping strategies of students in the academic environment we are dealing with are quite fundamental because they influence approaches to study during the exam preparation (Moneta, Spada, & Rost, 2007), adaptation to college (Aspinwall & Taylor, 1992) and school failure Mantzicopoulos, 1990). Many research studies have highlighted that coping strategies vary according to the degree of anxiety (Raffety, Smith, & Ptacek, 1997), extraversion and neuroticism (Gallagher, 1996), levels of self-esteem, optimism and psychological control (Aspinwall & Taylor 1992).

We have to realise that a military student may be different in many respects, in contrast to a civilian student. This difference lies primarily in the fact that he is not only in charge of his study affairs but also fulfils the tasks that arise from his service relationship, right from the beginning of his military career. Specifics include the limitation of some civil rights, strict subject to military orders, or strict adherence to discipline. Anyone who wants to become a military professional must first undergo tough military training in basic preparation. Managing psychological and physical stress is one of the main prerequisites for being able to survive in this environment. The person must be able to work under difficult climatic conditions, endangering his own life and health. The future commander should also have some other capabilities to be able to give a lead to his subordinates. An inability to work under pressure, or a tendency to impulsive behaviour, predict, as a rule, unsuccessful commanders.

University military students are a group where, on the one hand, there may be a tendency towards a preference for similar strategies as for civilian students, but it is not excluded that the differences due to the specificity of the military environment will also appear to a certain extent. According to research dealing with the coping strategies of Czech university students, problem-solving, cognitive

restructuring and social support were the most preferred, while the least cited were avoiding the problem and social isolation (Blatný & Osecká, 1998).

In one of the most recent researches conducted by Jeřábková (2016) at more than ten universities in a sample of 263 students with an average age of 23.85, the author found that positive strategies for stress management have been used (POZ variable) at the average RS (Raw score) level of 12.54. The control strategy (POZ variable 3) prevailed most of these positive strategies, reaching 14.69 average RS. By contrast, the negative strategy (NEG variable) reached the average RS at 11.57. The difference in the use of positive and negative stress management strategies was not as significant as we would expect.

In addition to the research findings in the civilian sphere, we also used research findings in the armed forces to determine the goals of our research. An interesting finding for us is also Honzek's (2017), who found, among other things, the use of POZ positive strategies at an average RS level of 13.9 in the 78 ACR members of combat units (average age 31). Similarly to the above-mentioned Jeřábková research (2016), the control strategy was the most dominant with the average RS 16.78. On the other hand, this high score strongly contrasted with the low use of negative strategies for military professionals, where the average RS was only 5.6 points.

Methods

A. Research Objective

Our research was conceived as quantitative study. The aim of the research was to identify preferences in the use of coping strategies for military students of the University of Defence - future commanders and perform benchmark test with a population norm.

B. Research Sample

The research sample consisted of 130 military university students - future commanders, studying at the University of Defence in Brno (122 men and 8 women in Military Management). The age of respondents ranged from 22 to 34 years (average age was 24.6 years). In all cases, they were students after the 2nd year of study. The main reason for choosing this research group was mainly the application potential, coupled with the possibility of future use of the results for enrolment of military students into specialised study modules for further study at the University of Defence in Brno.

C. Psychological Methods

In research, preference was given to the use of coping strategies, identified using the SVF 78 Stress Management Strategy. The items in this questionnaire relate to a total of 13 scales that identify individual stress management strategies. Each coping strategy corresponds to 6 items. The maximum gross score that can be achieved within one strategy is 24. These strategies divide into positive (POZ) and negative (NEG). Within the overall positive strategy of stress management, three types are distinguished: POZ 1 (including Underestimation and Rejection of Guilt), POZ 2 (includes Diversion, Satisfaction Replacement), POZ 3 (includes Situation Control, Reaction Control and Positive Self-Instruction). Negative strategies consist of the following types: Escape tendency, Perseveration, Resignation, Self-blaming. In addition to this division into positive and negative strategies, the questionnaire contains two more, less common ones, namely the Need for Social Support and Avoidance (Janke & Erdmann, 2003).

D. Analysis Methods

To determine the preferences of coping strategies, we used descriptive statistics. The data obtained were processed using the IBM SPSS Statistics 24 statistical program. The following methods were used: method of analysis, synthesis, induction and deduction and method of comparison.

Results and Discussion

a. Results

In fulfilling the goal, we identified preferences in the use of coping strategies for University of Defence students - future commanders. The data we obtained through descriptive statistics are presented in Table 1. For a benchmark, we include averages of gross scores of the population aged 20-34 including the upper and lower limits of this standard.

Table 1:Preference of coping strategies and benchmark compared to the population standard (20-34 years) according to average gross scores (source of reference data: Janke & Erdmannová, 2003)

Variable	sample (N = 130)				population standard (20-34 years)			
	Min	Max	Mean	SD	Mean	Upper limit	Lower limit	SD
Undervaluation	6	24	14.55	4.04	10.42	15.13	5.71	4.26
Rejection of guilt	5	21	11.68	3.26	10.98	14.20	7.76	3.62
Departure	2	23	11.76	3.52	11.36	19.29	3.43	3.15
Satisfaction Replacement	0	24	9.37	4.70	10.02	14.76	5.28	5.00
Situation control	7	24	17.30	3.36	16.84	20.18	13.50	3.61
Reaction control	8	24	16.58	3.17	14.82	18.92	10.72	3.64
Positive self-instruction	8	24	17.10	3.52	16.31	19.69	12.93	4.03
POZ 1	1	24	13.02	4.44	10.7	14.10	7.39	3.44
POZ 2	0	22	10.53	4.56	10.69	14.26	7.12	3.44
POZ 3	0	17	16.89	3.46	15.99	18.99	12.99	2.98
POZ	0	23	14.05	5.24	12.46	14.89	10.03	2.24
Need for social support	0	17	12.28	3.75	13.22	18.29	8.15	4.91
Avoidance	0	18	12.84	3.61	10.64	15.34	5.94	4.28
Escape tendency	10	20	7.70	2.03	7.47	11.65	3.29	5.03
Perseveration	6	23	10.12	3.18	14.58	19.5	9.66	4.40
Resignation	1	22	5.70	3.33	8.02	11.74	4.30	4.33
Self-blaming	9	24	8.50	2.90	10.6	14.72	6.48	4.35
NEG	1	16	7.90	3.21	10.17	13.30	7.04	3.42

Note. Raw scores are given
N = number of observation, SD = standard deviation, POS 1 = Underestimation and Rejection of Guilt, POS 2 = Diversion, Satisfaction Replacement, POS 3 = Situation Control, Reaction Control and Positive Self-Instruction, NEG = Negative coping strategies (for detail see Methods section)

Respondents preferred a situation-control strategy and a positive self-instruction, where average gross scores in both cases exceeded 17 points and tended to approach the upper limit of the population standard. These ways of coping with stress are among the active strategies that belong to positive strategies that reduce stress.

The least used were resignation and escape tendencies, which are among the negative strategies, stress rather maintaining or amplifying. On the contrary, these strategies tended towards the lower limit of the population standard.

When we compared the average gross scores between the results of our respondents with the standard population (see Figure 1), we can see the biggest difference in the strategy of perseverance (by 4.46 points less). Significant differences were also observed in the undervaluation strategy (4.13 points more), in resignation (2.95 points less) or negative strategy overall (2.27 points less).

Compared to the common population, military students used less the social support strategy, but rather included a strategy of avoidance into their repertoire. These strategies cannot be classified as positive or negative management strategies.

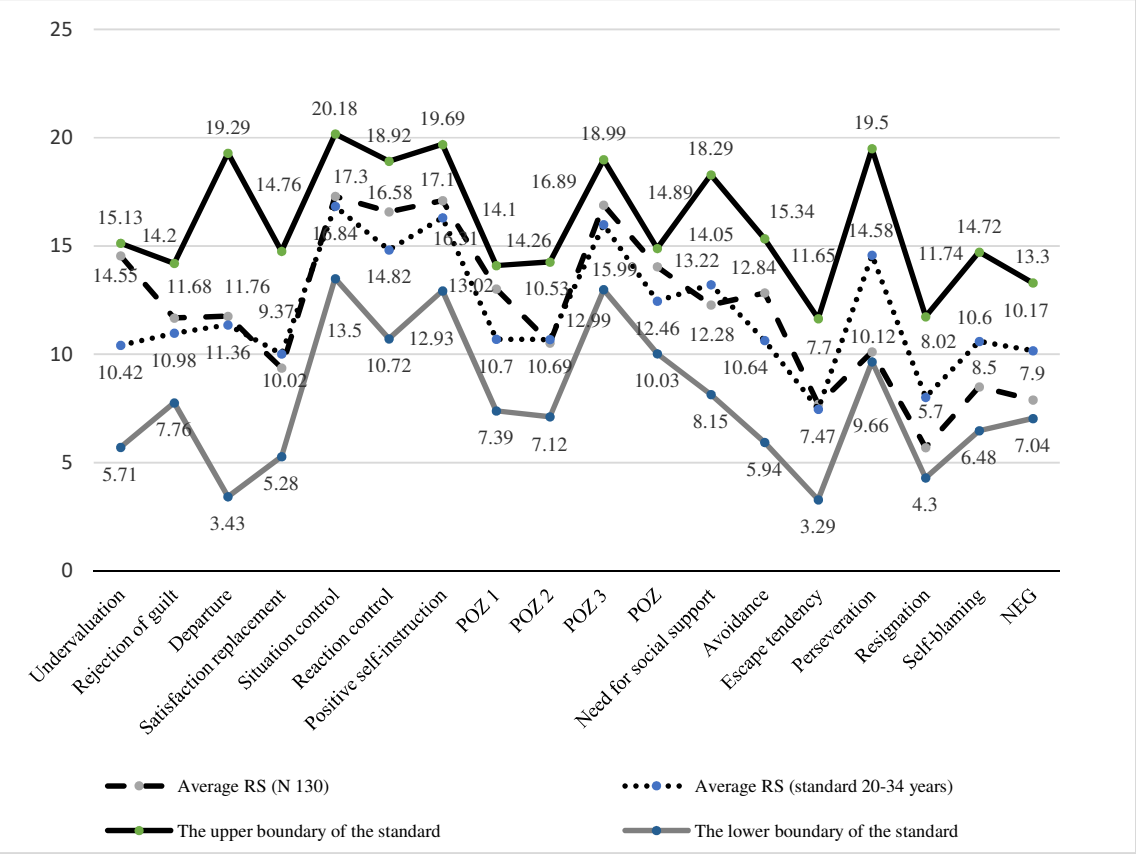

Figure 1: Preference of coping strategies and benchmark with the population standard according to average gross scores (source of reference data: Janke & Erdmannová, 2003)

b. Discussion

We identified preferences in the use of coping strategies for UD military students, future ACR commanders. The saturation of individual strategies in average values showed the highest use in the control of the situation: 17.3 and positive self-instruction. 17.1 (part of the POZ 3 strategy), which, from the point of view of the future military leader, can be considered a very favourable trend. We

could confirm this not only by comparison with the normal population, but also by comparison with civilian university students and especially with military professionals, members of the Armed Forces of the Czech Republic, where the gross score at the control of the situation averaged 17.19 and the positive self-instruction 17.15 points (Honzek, 2017).

Under Army conditions, controlling the situation is considered a particularly constructive and useful strategy. We find it particularly useful in solving difficult decision-making situations. Based on our present experience at the University of Defence, it seems to be stimulating from the point of view of training and education for military professionals to support activities that contribute to the development of analytical thinking, the ability to plan and orient students to a proactive approach. This obviously is reflected in the components of the strategy.

With positive self-instruction, an individual in stressful situations strengthens and encourages himself and creates a sense of self-competence to handle the situation. In challenging and sometimes life-threatening situations in the performance of service tasks (especially in military missions), it is important for a soldier to be able to keep his competence in dealing with the burden, in other words - to encourage himself. This requires an individual to deal with thoughts and attitudes that enhance self-confidence and do not accept the resignation or other inefficient ways of coping with the burden.

Using a similar psychological method, in the research file of 126 students of the Bachelor's programme called Military Studies at the University of Defence in Brno, where the SVF 78 questionnaire was used, the higher saturation (values of the RS in the range 16-18) was shown in using the strategies of the so-called "Three manager's rules" - the strategy of situation control, reaction and positive self-instruction (POZ 3). These strategies are closely related to processes of perception, evaluation, decision making, self-control and they are judged as useful in the command, respectively in a leadership context (Pindešová, 2010).

The least used strategies were resignation (average RS 5.7) and escape tendency (average RS 7.7). If we compare our results with the data in the Honzek's research (2017), the military professionals from the combat units achieved the average value of the first reported value strategy RS 4.08 and RS 5.78 of the second one. These differences in outcomes could indicate how to focus more effort on education and training of young military professionals, future military commanders. We believe that more should be done to strengthen those personality aspects that are related to the greater will and the effort to overcome the unfavourable obstacles on the way to the goal, it means not to give up difficult situations, not to choose ways of resignation or escape from such situations and, on the contrary, to be exposed to a reasonable extent of these situations. The optimal tuning of the soldier to the burden differs depending on the congenital assumptions and the life experience of the burden handling. It turned out that military management students have very good resistance to stress. However, when interpreting these results, consideration must be given to the desirability of the answers. In an environment in which it is desirable not to show "weakness" and show rather courage and determination, the tendency to desirable responses in a similar spirit can sometimes prove to be a problem. In spite of this, we consider the positive factors that contributed to these results.

Conclusion

Pospisil (2011, p. 180) states that "unlike many other professions, the activity of a military professional is characterized, above all, by high intensity, continuity, variability and risk, sometimes at the border where exhaustion can occur of the organism and the failure of not only individuals, but sometimes even whole teams". Training in the army must therefore remain very demanding. In this context Dziaková (2009, p. 164) states that "training is necessary to continuously include elements causing psychological burden so that the soldiers can adapt appropriately". We believe that the good quality of psychological training at the University of Defence could also play a positive role here. Occupations with practical psychological training in the so-called field training are guided here as a "combat adaptation" based on the principle of apprehension when the psychic of military students become accustomed to a real combat situation by means of training that is as close as possible to

reality. The deliberate creation of stressful situations and their repetition force them to seek and consolidate new habits, skills, attitudes, qualities and corresponding behaviour.

In addition to what we have said, we also need to be aware of what types of personalities are applying for work in the army. In prevalence, these are healthy and physically well-disposed men and women in a period of young adults who are assessed by psychologists of military hospitals before being accepted to military studies and recommended as mentally fit to serve in the armed forces. Overall, success from the beginning is conditioned by a good selection of suitable candidates for this demanding profession.

There are no differences between soldiers and civilian students at universities when solving many stressful situations. Most often, this is the test situation, respectively the period immediately preceding it. We believe that, on the one hand, eliminating negative strategies such as escape tendencies, perseverance, resignation and self-blaming, leads to better performance as well as the ability to use positive strategies. Some of them may not lead directly to test success, but rather indirectly, for example by reducing stress by undervaluation before a challenging test. Similarly, we can think of fulfilling a variety of duties for military professionals during their demanding service.

Unlike many other professions, the activity of a military professional is characterized, above all, by high intensity, continuity, variability and risk, sometimes at the border where exhaustion can occur of the organism and the failure of not only individuals, but sometimes even whole teams. In addition to the application mentioned above potential at the beginning of this research study, we believe that its results could also be used in classifying students into study modules by command specialisation. To a certain extent, it is possible to imagine the use of the results from the conducted research also for recommending the selection of the appropriate type of military service after completing the study in the framework of the provided professional counselling services at the school. Last but not least, it would be possible to use the acquired data to improve the quality of accredited teaching (content, methods and forms) in the subjects of Psychology and Military Leadership, respectively. In specialised military courses after graduation. From the possibilities currently offered by the University of Defence, there is mainly the intensive use of the so-called experiential pedagogy elements, the solution of various case studies, the application of computer 3D simulations and the use of modern instrumentation methods (e.g. EEG and HRV biofeedback). Competence to manage the burden can also be enhanced by self-experience techniques or by introducing more intensive elements of project and model teaching. These methods of learning are increasingly developing critical and creative thinking in students, without which future commanders will not be able to get by in practice.

Acknowledgment

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Modernization of the Labor Market in Kazakhstan: Finding Ways of Implementing

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Abstract

One of the complex problems of economic science is the study of the relationship between economic growth and the functioning mechanism of the labor market. In most studies, it is customary to emphasize the determining impact of the economy on employment and unemployment. Meanwhile, in my opinion, we shouldn`t underestimate the significance of the bilateral causal relationship between them. The practice of Kazakhstan also convinces the importance of studying the reverse impact of the labor market on economic growth. High rates of economic growth during the favorable period in the oil market in the early 2000s made it possible to meet the basic human needs much better. But economic growth has become unstable in the context of the recent changes in the oil market conditions. A natural response to the two crises experienced over the past decade has been the search for a new model of economic growth. This growth would be view modernizing the labor market as a driver of economic growth among other important measures.

Keywords: Kazakhstan, economy, crisis, models of economic growth, labor market modernization.

Introduction

In today's global world profound changes are taking place in the labor market sector. The growth of unemployment, the fall in real wages characterize the failure in the economy. As a result individual states resort to strengthening their intervention through the regulatory mechanism. Meanwhile, developed countries modernize their labor market under the influence of the introduction of new technologies, improve the quality of labor market institutions, and thus gain great advantages.

Modernization of the labor market has also become inevitable for Kazakhstan in connection with the exhaustion of the potential of the current model of economic development. Two crises in the last decade in Kazakhstan were caused by exogenous shocks, which affected the nature of the country's economic dynamics (**Figure 1**).

The pace of economic growth in Kazakhstan fell sharply: in 2015 and 2016, they were 1.2 and 1.1%, respectively, as against 5.4% of the average annual GDP growth rate in 2007-2014. Real wages fell by 2.3% and 1.1%. Over the two years (2014 - 2015), the number of employed decreased by 137.3 thousand people. Concerning the reasons for this change, there are different points of view among researchers, but many of the main reason is seen in the exhaustion of the potential of the raw material growth model.

The main task for Kazakhstan is to create a new model of economic growth through accelerated technological modernization of the country's economy, which also involves solving the task of modernizing the labor market (N. Nazarbayev, 2017). But particular mechanism for the solution of this task remains unclear.

The introduction of new technology positively affects their economic growth and the improvement of the living standards of the population as the best practice of developed countries shows in the long term. The landscape of employment is changing for the better. The increase in demand for skilled labor should lead to an increase in the productivity of workers. The consequence is an increase in

their wages, from which social contributions are made, which positively affects the growth of incomes of the population.

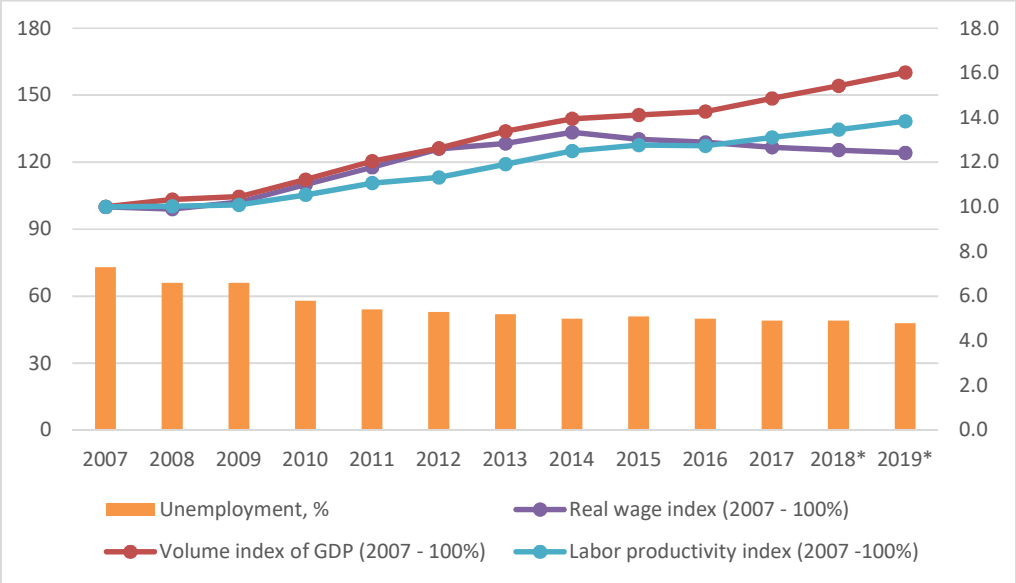

Figure 1: Dynamics of GDP indicators, average wages, labor productivity and unemployment in Kazakhstan with forecast indicators (Created by author based on data of Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan)

The main trend of labor market modernization in most developed countries is the weakening of state paternalism, the liberalization of labor relations. A vivid illustration of this is the reform of the labor market undertaken by the French government this year. The first steps focus on this direction by introducing amendments to the new Labor Code of the Republic of Kazakhstan (Labor Code of the Republic of Kazakhstan, 2016).

The employment forecast for 2018 and 2019 was prepared through using correlation dependence of employment on the dynamics of GDP. According to the latest estimate of the Government of the Republic of Kazakhstan, GDP growth in these years should be 103.8 and 103.9%, respectively. The author derived an equation reflecting the dependence of employment on GDP: $Y = 0.1909 * X + 81.281$ based on data for the years 2005-2017. The results of the calculations reflected in Figure 1. Based on these results author suggests the next inference: there is a relatively steady excess in the growth rates of labor productivity over the growth rates in the number of employees. But at the same time, the former mechanism of the labor market continues to function, when the preservation and increase of employment is achieved by lowering real wages.

The problem of labor market modernization covers a wide range of interrelated issues requiring an integrated approach to their solution. For example, the authors contradictively assess the role of informal employment in modern society (Standing, 2014; Pink, 2005). But very significant share of informal employment in Kazakhstan emphasizes the archaic nature of the structure of the economy in which prevails low level of technology, low-productivity and weak system of social protection of the unemployed from the perspective of labor market modernization.

The modernization of the labor market also suggests that the improvement of the system of material support for the unemployed must be combined with rational protection of the interests of employers.

Therefore, it is necessary to decide which regulatory instruments to integrate into the modernized labor market in order to take into account the interests of employers.

The consistent implementation of labor market reforms aims not only to achieve sustainable economic growth through the introduction of new technologies, but also to reduce the social burden on the state, and to increase the personal responsibility of the employee himself. Modernization of the labor market should be aimed at the effective use of workers and their motivation for high-performance work. It assumes high labor and professional mobility of employees, meaning their rapid transition to new jobs created and the best use of their skills.

Literature Review

The number of researchers who put forward various theoretical and methodological concepts and on their basis approaches to the transformation of the labor market is great. Therefore, we cite only a few authors who linked the indicators of the labor market and economic growth.

For example, L. Ball (2013), E. Krivelli (2012) studied the quantitative dependencies between production and unemployment in different countries, which differed significantly. An important conclusion of these studies is that the reasons for this were institutional factors that reduce the flexibility of the labor market.

O. Blanchard and D. Quah (1989) draw attention to the fact that the employment reaction in the labor market depends on a change in demand or supply of production. Foreign scientific publications also explore possible options for the labor market reaction to the growth and decline of the economy, due not only to the specifics of the labor market, but also to the conditions of economic development in a particular country.

Among the Russian researchers should be noted V. Gimpelson (2015, 2016), R. Kapelyushnikov (2016, 2017), E. Vakulenko, E. Gurvich (2015), V. Bobkov and his colleagues (2014) and other authors who investigated the most various aspects of improving the functioning mechanism of the labor market. The general opinion of Russian authors boils down to the fact that economic and legal deregulation of labor relations in the labor market is currently taking place with simultaneous dismantling of social guarantees in order to reduce labor costs and increase employment flexibility.
The study of a large volume of scientific and practical materials allows to author to state that in modern conditions a new concept of regulation of the labor market is breaking its way. There are two opposite points of view on measures to regulate the labor market and, in particular, the conditions for hiring and firing workers.

One believes that tight regulation reduces the dictatorship on the part of the employer, enhances the social security of the employee, reduces the risk of unemployment and material difficulties in the event of the employee's dismissal. Thanks to the accumulation of human capital, the worker's productivity increases when working in one workplace (Myths of employment deregulation, 2017).
Another view suggests that excessively tight regulation of the labor market reduces the possibility of firms adjusting to changing economic conditions, inhibits activity to create jobs, leads to the segmentation of the labor market and the growth of the informal sector (Gimpelson and Kapelyushnikov, 2015).

Author thinks the formal institutions of the labor market have a controversial impact on many aspects of the economy. For example, the rules governing recruitment and dismissal are introduced in order to increase the security of employees, but at the same time they can have an adverse effect on employment, raising the unemployment rate among young people (Lehmann and Muravyev, 2011).
The essence and content of labor market modernization are still unrevealed, and the questions of defining the criteria of the "modernity" of the labor market are not even raised in the studies of Kazakhstani authors. None of the works of domestic or foreign researchers touched upon the choice of the country of the developed world as a preliminary model of the modernized labor market in Kazakhstan.

According to many researchers, institutional conditions, including regulation of the recruitment and firing of employees, serve as common reasons for the observed differences in the labor markets of different countries. About the extent of regulation of labor relations can be judged by the degree of interference in the work of the market mechanism of the functioning of the labor market.

The fairness of this or that point of view can be judged by what level of labor productivity the country has achieved through the introduction of appropriate changes in the mechanism of regulating the labor market. They create more favorable conditions for creating new jobs, which lead to higher labor productivity and wages of workers, and in the long run to economic growth and employment. Therefore, in many OECD countries, there has been a downward trend in the degree of regulation over the last decade (OECD, 2013). Labor laws become less rigid, giving greater flexibility to the labor market is combined with the protection of workers. This approach, if necessary, allows employers to easily dismiss an employee, but dismissed people fall into an effective system of social protection.

An example of the labor market model, in which slight regulation is allowed and the intervention in the market mechanism is practically excluded, is the United States. This model is characterized by the decentralization of the labor market and legislation on employment and social security; high level of control over the employee by the employer; high geographical and professional mobility of workers.
In Germany was carried out the labor market reform which resulted in a rapid decrease in unemployment in the early 2000s. On this path is now France, which was marked by strict labor legislation. Suffice it to say that the country's Labor Code contained more than 10,600 articles on almost 2,000 pages. Even more stringent laws are typical for Portugal, Italy, Greece, which predetermined the severity of their problems with unemployment.

From a formal point of view, the level of rigidity in the regulation of the labor market is quite high In Kazakhstan. For example, the indicator of protection of permanent workers from individual dismissals for Kazakhstan is 3.20, which is much higher than in countries such as the United States (0.49), Britain (1.18), Germany (2.53) (OECD indicators on Employment Protection Legislation, 2016). Although it should be noted that the rigidity of the legislation is accompanied by a weak enforcement system. Perhaps, this can explain the relatively high position of Kazakhstan in the ranking of countries by the criterion of the practice of hiring and firing.

Methodology

There are disparate preliminary results on this subject and intensive research continues on it. Kazakhstan lags with the carrying out of these studies.

Kazakhstan did not address the issue of its potential, which is mobilizing the economy for growth in the current model of the labor market. The policy of the state focused entirely on the problems of supply of labor, which ultimately led to low labor productivity. It became obvious that with the modernization of the labor market, the problem of the demand for labor should be given priority.

Accelerated technological modernization of the economy will create new jobs, thus the demand for highly skilled labor will expand. There will arise new professions, the demand for workers with new skills and skills will increase. This will create a reliable basis for developing measures to train and improve the skills of employees. All this requires the modernization of the labor market in order to improve the quality of institutions and the effectiveness of its regulation.

The modernization of the labor market is important for Kazakhstan in terms of ensuring sustainable progress among the top 30 countries in the world. Therefore, it is proposed to conduct a comparative analysis of the labor market impact in developed countries on economic growth, employment indicators and other indicators. The necessary material for this can be found in methodological developments and empirical data published by WEF, ILO, OECD, EuroStat and individual countries.
The results of such an analysis will help to develop a practical approach to labor market modernization taking into account the specifics of Kazakhstani conditions and the simultaneous

fulfillment of the requirements necessary for the country's entry into the number of highly developed countries of the world.

Hypothesis / Analysis

As a hypothesis, author proposes the thesis that the insufficient demand for skilled labor by employers and investments by firms in training and retraining their employees depend on the introduction of new technologies in Kazakhstan. New technologies lead to a reduction in the number of employees, and the serious problem of labor market modernization is to remove obstacles to the independent resolution of the firm's issues of dismissal of workers who have become redundant.

But in order to assess whether this hypothesis is justified author will carry out the following analysis. As is known, the World Economic Forum (WEF) defines national competitiveness as the ability of the country and its institutions to ensure stable rates of economic growth. High indicators of national competitiveness, as a rule, provide a higher level of well-being of its citizens. When calculating the country's GCI, the labor market efficiency factor is used, which includes 10 components.
The analysis of the practice of hiring and firing workers has great importance in the conditions of accelerated introduction of new technologies. The author proposes to deepen this analysis in the direction of its impact on achieving sustainable economic growth, increasing employment and other indicators.

Table 1 shows the location of countries is subordinated to their position on the degree of liberalization of recruitment and dismissal in 2016. These are developed countries of the world (with the exception of Kazakhstan), but they do not represent a homogeneous group with regard to rigid regulation of hiring and firing practices. There is a clear trend among the first three countries. Firstly, virtually all countries in recent years have more or less liberalized the practice of hiring and firing. Secondly, the higher the level of liberalization of the practice of hiring and firing, the higher is the efficiency of the labor market, which accordingly affected the Global Competitiveness Index of these countries. Exceptions from this trend were Sweden, Japan, France and Spain. This is probably due to the dominant influence of other features of the Swedish and Japanese labor market models on labor market efficiency and the country's competitiveness index. For example, in Sweden, public expenditure on employment policies is about 2.2-2.7% of GDP against 0.8% in the US. And Japan is known for the so-called "lifetime recruitment" system. Naturally, such peculiarities affect to entire mechanism of functioning of the labor market in these countries.

Table 1: Indicators of hiring and firing practices, labor market efficiency and the global competitiveness index (Created by author based on data The Global Competitiveness Report 2008–2009 and 2017-2018)

Country	Hiring and firing practices		Labor market efficiency		Global Competitiveness Index	
	Rank		Rank		Rank	
	2016 y. /137	2007 y. /134	2016 y. /137	2007 y. /134	2016 y. /137	2007 y. /134
1	2	3	4	5	6	7
United States	5	6	3	1	2	1
United Kingdom	8	61	6	8	8	12
Germany	18	130	14	58	5	7
Kazakhstan	41	4	35	12	57	66
Sweden	90	102	20	26	7	4
Japan	113	111	22	11	9	9
Spain	115	116	70	96	34	29
France	133	126	56	105	22	16

Source: The Global Competitiveness Report 2017–2018. The Global Competitiveness Report 2014–2015.

Figures 2 and 3 provide a comparative analysis of the three leading developed countries. Results clearly show the advantages of the United States and Germany in comparison with France in terms of such indicators as the dynamics of GDP growth rates and the level of employment over the last decade. France characterized by a high level of regulation of the labor market in these years compared with the other two countries.

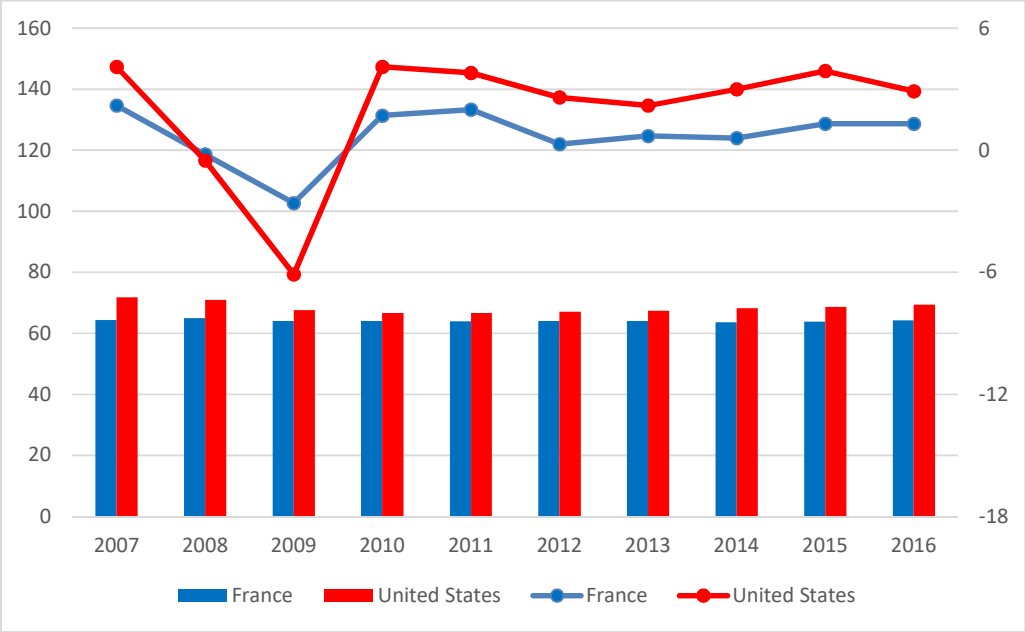

Figure 2: Dynamics of GDP growth rates and employment levels in the USA and France (Created by author based on data of OECD. *Stat* - https://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE3#)

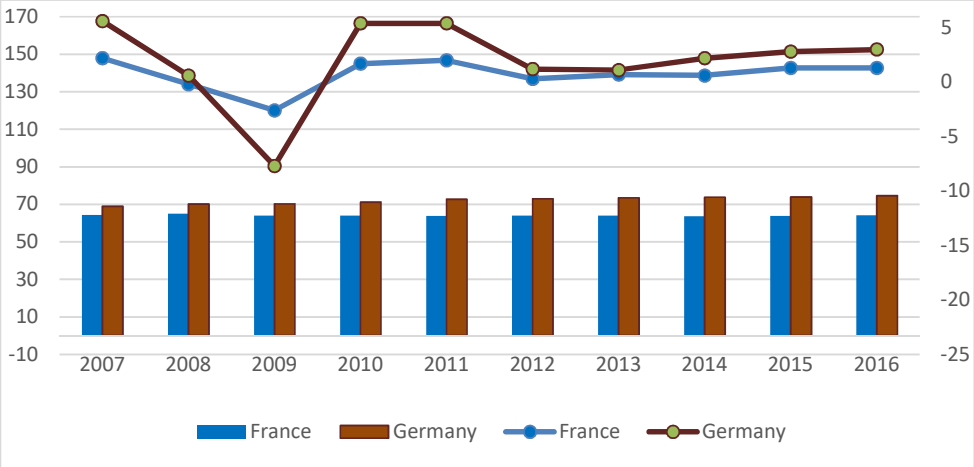

Figure 3: Dynamics of GDP growth rates and employment levels in the Germany and France (Created by author based on data of OECD. *Stat* - https://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE3#)

Table 2 shows the author's calculations that identify the advantages of the US and Germany over France and Japan in such indicators as the average annual GDP growth rate and the level of employment for ten years (2007-2016). Data from Sweden again drop out of this trend at the same time. The possible reasons for this have been mentioned earlier.

Table 2: Average annual rates of economic growth, employment, labor productivity and wages for 2007-2016, in% (Calculated by author based on OECD.org and Data-Eurostat, selected country data)

Country	Average annual rates (in %) of			
	GDP (in current prices), in US dollars	number of employed	average annual salary, in US dollars	productivity (GDP per employed population)
1	2	3	4	5
United States	3,3	0,4	0,8	2,9
Germany	1,9	2,9	1,1	-1,0
Sweden	2,6	1,2	1,5	1,4
Japan	0,8	0,1	0,1	0,7
France	1,0	0,2	0,9	0,8

Results

The results of the study confirm the thesis that there is a correlation between the level of regulation of the labor market on the part of the state and the indicators of economic growth of the economy and employment. These results especially true for large developed countries.

The observed trend in the process of regulating the labor market towards greater liberalization in the long run has a positive effect on the growth rates of GDP, employment and wages. Thus, the higher degree of liberalization of the labor market shows the better results of these indicators.

Data about Sweden deserves in-depth study, because it reflects the remarkable success of this country in the study period. The analysis of labor market models in developed countries provides an answer to many questions concerning the modernization of the Kazakhstan labor market.

Summary

Kazakhstan is in search of a better option for modernizing its labor market. The results should be supplemented by expanding and deepening the research, including a wide range of issues that fully reflect the processes of labor market reform in various countries.

It will be possible to develop a clear strategy for modernizing the labor market in Kazakhstan on their basis. It should include the most rational elements from the best practices of reforming the labor market of developed countries, with due regard to the specific conditions for the development of Kazakhstan. An analysis of the functioning of the labor market in Kazakhstan shows that the provision of greater freedom to employers in matters of hiring and dismissing employees has not yet had a noticeable effect on the labor market. This is hampered by the ongoing policy of state paternalism and the slow pace of the introduction of new technologies into the economy.

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Does Engage Youth in Agriculture Support National Food Sovereignty? : Empirical Evidence from Indonesian Rural Area

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Abstract

This study provides an alternative viewpoint of the agriculture issue from a demographics and social perspective which few researchers put attention on it. Rural youth as a successor of the family farming business prefers to go to the cities and escape from agriculture. Data shows only 4 percent of farmer's children in Central Java Indonesia eventually become a farmer. Contemporary, agriculture is been populated by the old farmer with an average age of 52 years. Indeed, agriculture always requires innovation to deal with rapid changes in the rural environment. In this concern, youth will be the principal actor to adopt those changes. This study aims to map issues of food agriculture that cause young people to abandon rural life and to formulate policy alternatives in preventing farmer regeneration crisis. Data was obtained through in-depth interviews with 150 households in rice-growing villages in Indonesia. The study reveals that rural youth face many hurdles to earn a livelihood in agriculture. Lack of land access, income uncertainty, and dependence on chemical fertilizers are reasons which cause agriculture to become unattractive for the youth. Some policy strategies have been offered to engage youth in agriculture. Examples include the provision of communal for young to conduct organic farming, involving local communities to transfer agricultural knowledge, upgrade technological youth skills to access broader markets, expand the entrepreneurship program in rural and provide farmer incentives in the form of financial assistance.

Keywords: Youth; Family Farming; Agriculture; Java Indonesia.

Introduction

This study provides an alternative viewpoint of the agriculture issue from a demographics and social perspective which few researchers put attention on it contemporary. In the agrarian country such as Indonesia, agriculture is still an important sector to ensure the livelihood of the majority population in the rural area and support food supply for the nation. Amid of the structural challenges facing in agriculture today such as lack of land access, low income, and environmental damage. Then the author asked, who will produce our food in the future?

In Indonesia, rural development and modernization began in the 1970s which has had an impact on youth's perceptions and aspirations in agriculture. Today, agriculture such as paddy fields are considered dirty, physically demanding, and an unfavorable job. One youth study found that most rural youth with higher education prefer to be government employees or work in regular employment in the urban area (Minza, 2014). Rural-to-urban migration is increasing, and agriculture in the countryside is being undertaken by old farmers with an average age of more than 52 years (Indonesia Agriculture Census, 2013). The escape of youth from agriculture has an impact on employment structure in the countryside, not only the aging farmer but also, in the long run, threatening farmer regeneration. Similar conditions occur in other agrarian countries in the world. In the Philippines, the average age of farmers reaches 57 years , with a rare tendency for youth to return to agriculture (Vilar, 2017). As well as in developed countries such as Japan and Europe, the average age of farmers has reached 65 years (Carbone at el, 2008 ; Yamashita, 2008). The same thing is found in African countries, although 65 percent of youth live in rural areas, Some researcher such as White at el (2016) and Leavy at el (2010) mentioned that they are not interested to working in agriculture. In the context of food sovereignty, the phenomenon of youth out from agricultural will be a serious problem that threatens farmer regeneration.

The Indonesian government committed to developing food sovereignty through two policies; agribusiness improvement and farmer regeneration. The program to support these policies are rural economic activities built on agriculture that involve youth so that the average age of farmers is getting younger (Vision, Mission, and Action Plan Indonesian President, 2014). The presidential policy is implemented by the ministry of agriculture by way of developing the rural agricultural sector. Mechanisms of implementation include securing the availability of water supply, improving the market, utilizing information technology, agricultural corporations, and synergy of all stakeholders at central and regional levels (BPPSDMP, 2017).

Furthermore, the regeneration policy of farmers works explicitly through the Counseling Agency and Human Resources Development of Agriculture in the Ministry of Agriculture (Badan Penyuluhan dan Pengembangan Sumber Daya Manusia Pertanian- Kementerian Pertanian- BPPSDMP). Their two main programs are the Integrated Farmers Empowerment (Gerakan Pemberdayaan Petani Terpadu- GPPT) and the Farmers Regeneration, BPPSDM, which have a purpose of increasing national strategic food products such as rice, corn, soybean, various chili, red onion, sugarcane, cow/buffalo, palm, rubber, cocoa, and coffee, as well as attract young people to work in the field of agribusiness.

Method

Amid the implementation of farmer regeneration policy, the agricultural sector is still dominated by old farmers. Youth migration from rural to urban is increasing and the farmer's child who wants to become a farmer is decreasing significantly. The BPPSDMP's programs should target rural youth who have a firm intention to do business in agriculture, provide not only training but also consider many obstacles such as the lack of land, lack of market access, and the lack of entrepreneurship skill. My question to be asked in this article is how to involve the rural youth through agriculture policy amid the agricultural aging workforce? And how can the farmer regeneration policy in the Ministry of Agriculture integrate with other strategies to support food sovereignty?. The data presented in this article is based on research conducted in 3 rice-growing villages (Sragen, Klaten, and Sukoharjo District) and seven young farmers from Yogyakarta, Salatiga, and Garut District. The author used some methods such as focused discussions, workshops, and surveys of 150 households in 2015 and 2016. To get in-depth analysis, we learned the empiric youth agricultural models that have been applied in Salatiga, Kulonprogo, and Garut District.

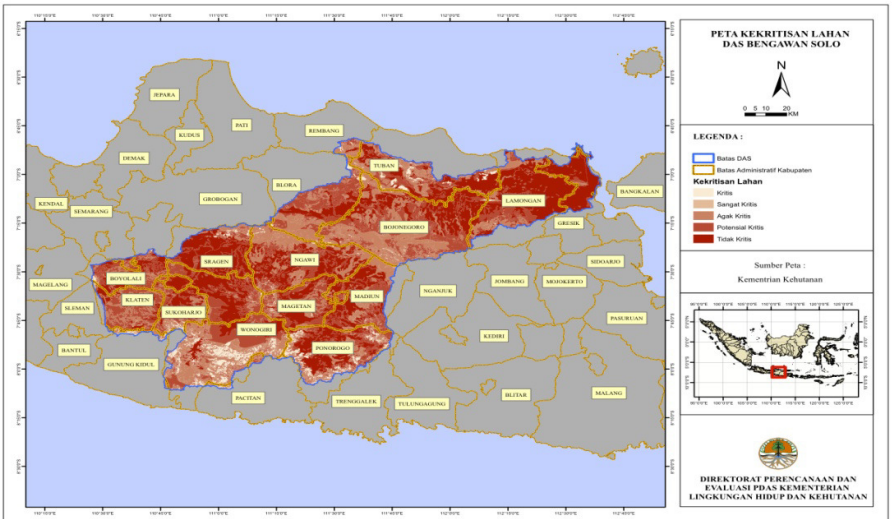

Fig. 1: Map of Research Sites in Java, Indonesia

From Food Security to Food Sovereignty

The food insecurity issue is not a new thing in Indonesia; this awareness has made many institutions and organizations focus on solving food insecurity problems. Most consider the food security crisis caused by fluctuations in prices and food availability. Some of Indonesia's significant foodstuffs are dependent on imports such as rice, soybeans, corn, onions and other food. The Indonesian government has responded by establishing a food security agency and task force staff to monitor food supply and food price movements in the market. Such efforts are intended to ensure the availability of national food and the needs of every citizen. Criticism of food issues is not only on the availability of food but also includes the social, economic, and political structures of food systems that produce food. This is because food security, in the long run, depends on those who provide food and maintain the environment (White, 2015). This view then led to a conceptual shift from food security to food sovereignty that focuses more on community involvement in food production. La Via Campesina in the Declaration Nyeleni 2016 defines the concept of food sovereignty, i.e.

> *The right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It depends on the interest and inclusion of the next generation. [.....], It ensures that the right to use and manage our land, territories, water, seeds, livestock, and biodiversity are in the hands of those of us who produce food.*

Pillars in food sovereignty that cannot be ignored as in the above concept include farmer regeneration, as an important element to produce food. Involving rural youth to participate in agriculture means reinforcing food production in ensuring future food supply. Loss of interest among young people to return to the fields would be a threat and create a crisis of farmer regeneration. It could jeopardize the future of rural farming. In such conditions, food sovereignty is threatened as well. At a time when families can no longer produce food such as rice, hence the need for rice is highly dependent on the availability of imported rice on the market. Data from the USDA (The United States Department of Agriculture) shows that domestic rice production in Indonesia tended to decrease as much as 6.5 percent from 2008 to 2015, while the domestic rice consumption increased by 4 percent. There is a shortage of 2,700 tons of rice to meet domestic consumption. A significant amount of eating that cannot be supported by domestic production led to the Government of Indonesia to tackle the rice import policy.

The Depeasantization

The phenomenon of rural youth who migrate to cities for study or work is increasing. In other words, there is lack of employment available to accommodate the labor force from rural, so that most urban youth work in the informal sector without proper job security. Nearly 70 percent of jobs in 2003 (Nazara, 2010) or those who do not get a job become unemployed in the city. During the last 44 years (from 1971 to 2015) the average rate of youth unemployment in urban areas reached 15 percent per year and that figure was 9 percent higher than in rural areas. The increasing number of unemployed in the city cannot be separated from the massive flow of youth migration from rural to urban areas. The youth decrement in the rural areas is also responsible for the declining number of labor in agriculture. Over the past 15 years (2001 - 2015) there has been a decline in youth labor in agriculture by 32 percent with an annual rate of 3 percent decline. This condition causes the age of farmers today to tend towards the elderly, 60.97 percent of farmers are aged 45 years and over (Statistics Indonesia, 2013).

Based on a survey of rural households in Central Java, only 4 percent of children live rural and continue to work as farmers like their parents (2% as a farmer and 2% as farm labor). While children who have lived outside away from parents, only 2 percent work as farmers. Although most rural households are farmers, rural youth prefer to work as non-agricultural laborers such as factory day laborers or shopkeepers, with a proportion of 70 percent for live-in children and 47 percent's for children living separately from parents (see fig. 2).

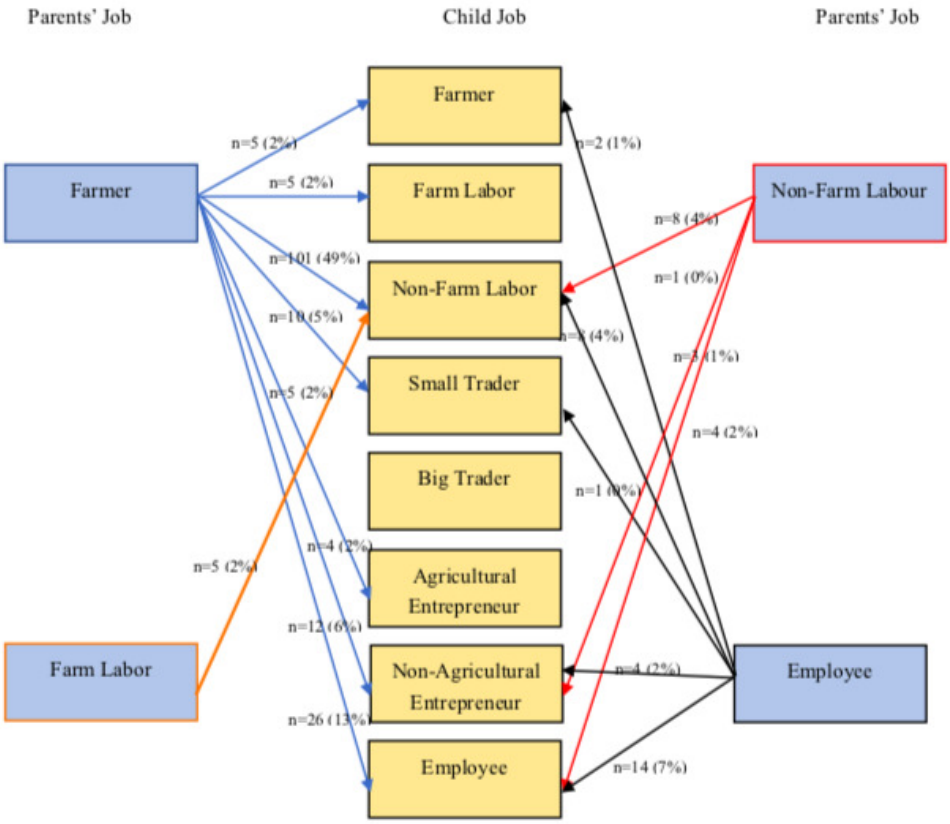

Fig. 2: Parents and Children Occupation in 3 Rural Agriculture in Indonesia (Based on Research Survey in 2016 and 2017)

The declining number of agricultural labor can be seen as a symptom of *depeasantization*, which in this study is regarded as a lack of youth engagement in agriculture. The term *depeasantization* has been alluded by Hobsbawm (1992) as a process of social change which is characterized by peasantry being a minority (regarding numbers of peasants), not only in advanced industries country but also peasants being a minority in the agrarian region. More broadly, global *depeasantization* is defined as a form of *derularization* (reduced number of villagers) because of overurbanization, i.e., increased urban activity in the world (Araghi, 1995). Recent research using the term *depeasantization* refers more to the shifting of agricultural labor out of agriculture as a source of livelihood (Singh & Bhogal, 2014) and the phenomenon of farmers who abandon their agriculture (Ploeg, 2008). Qualitative studies in three research villages show that the reduced youth interest to engage in agriculture based activity is due to limited access to land, reduced agricultural income to meet the economic needs of households, and the high dependence of farmers on government subsidies and production inputs provided by corporations such as seed and fertilizer.

Challenges Faced by Youth Engagement in Agriculture

The Land Problem

Based on our survey in three rice farming villages in Java, the farmers' land area averaged 0.66 hectares. According to farmers, the land of 0.66 hectares is still far from the need more to meet family income, which amounted to 0.9 hectares. At the national level, statistics show that 58 percents of farmers have less than 0.1 hectares, and only 4 percent of farmers occupy more than one hectare (BPS-Statistics

Indonesia, 2013). This small farmland owned by farmers causes the pattern of land inheritance from parents to children to be insufficient. Not only the narrowness of the land but also 53.3 percent of the farmers in the three villages are the sharecropper.

Uncertain Income

The net income of paddy farming from three villages in Central Java (fig 3) is less than Rp. 1 million per month (63 percent's of farmers), while the highest income on average only reached Rp. 2 million per month (11 percent of farmers). When compared to other income outside agriculture, the yield of paddy farming is still far below factory workers, factory labor income between Rp. 1.2 million up to Rp. 1.5 million per month. The uncertainty of revenue is due to lower selling price at farmer level, Data show 90 percent of farmers sell their crops with a debt-to-collector system, the amount of harvest received by farmers is only based on the collector's estimates, not on the actual harvest quantity. Another problems are pest attack and caused quantity rice harvest failure.

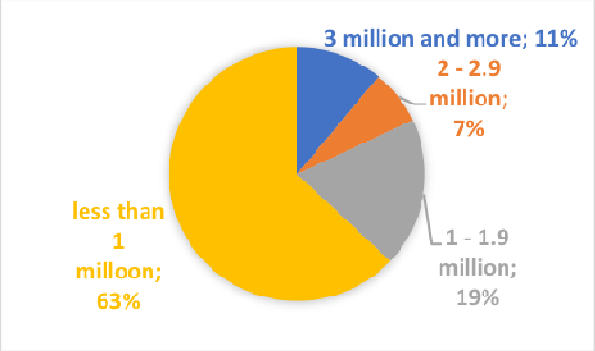

Fig. 3: Distribution of rice farm income in Central Java Village (Based on Research Survey in 2015)

Risks of income uncertainty increase due to a small land area, enlarged access land for the farmer can be a strategy to increase their income. Based on the relationship between land and net yield, this study found that 1 percent increase in the land will follow 0.89 percent increase in net yield. This figure indicates that every increase of 1,000 square meters of paddy field will raise the net farmer income around Rp. 700,000.

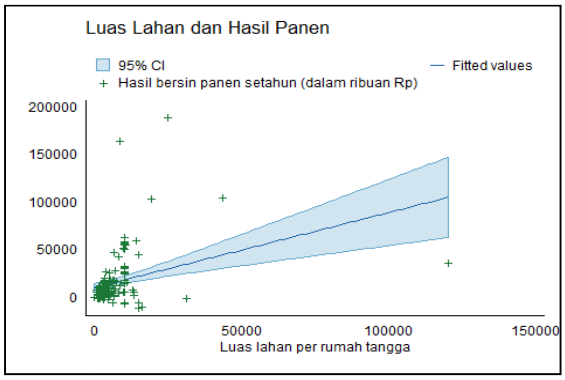

Fig. 4: Relationship between Land and Net Yield

Dependence of Farmers on Chemical Fertilizers

Since the green revolution in the 1980s, farmers have been forced by the government to use chemical fertilizers to increase yields. In the long run, the excessive use of chemical fertilizers reduces soil nutrients that are essential ingredients for maintaining soil fertility. As a result, farmers increase the use of chemical fertilizers more and thus impact the cost of agricultural production. The habit of using chemical fertilizer eliminates the autonomy of farmers who were previously able to produce organic fertilizer for agrarian needs. In the research location, it is difficult to find the youth who can make organic fertilizer. The rural modernization causes young people who are still in school, spending more time attending education activities than being directly involved in agriculture. The survey showed that 75 percent of rural youth with a secondary education level said that they were not getting farming skills from the school.

Strategy for Engaging Youth in Agriculture

These three main challenges to engage youth in agriculture require a comprehensive and interrelated approach, not only in the ministry of agriculture but also involve the Ministry of Agrarian and Spatial/National Land Agency (ATR/BPN) as well as the Ministry of The Villages, Disadvantaged Regions and Transmigration (Kemendesa). The interconnecting policies are needed to improve the effectiveness of BPPSDMP's program. So, the system can include enhance skills and knowledge for sustainable agriculture and give access to land and market for rural youth. The proposed policies should consider:

1. Targeting the rural youth in agriculture
   The BPPSDMP program is now more targeted to agricultural students and young people who already have advanced agrarian enterprises. The benefits of the program only provide for youth who already have independence while youth with limited land access and agricultural skills still face barriers to becoming farmers. If the farmer regeneration program is more focused for young living in rural areas, then youth migration can be reduced, and the availability of youth labor in agriculture will increase.

2. Making the farmer regeneration program as an agricultural movement and involving many parties
   Connecting the BPPSDMP program with the land redistribution program from the Ministry of Agrarian and Spatial/National Land Agency (ATR/BPN) provides an excellent opportunity for rural youth to gain land and agriculture. They will be trained to conduct sustainable agriculture as well as become agricultural entrepreneurs. Also, most of the rural areas in Java have land owned by the local government; the local government can encourage the farmer regeneration movement by providing land management to the rural youth to develop farming business.

Several BPPSDMP's strategies to make the farmer regeneration movement more widespread:

Table 1: Strategies for Engage Youth in Agriculture

Strategy Components	Interconnection of BPSDMP program with other ministries/ institutions
Land Access	Providing agricultural training programs for rural youth and strengthening rural institutions into agricultural corporations, especially in areas where there is a land redistribution program by the Ministry of Agrarian and Spatial/National Land Agency (ATR/BPN) BPPSDMP and rural government provide rural land access for youth including financing for

	agriculture.
Empowerment of rural youth	BPPSDMP and the Ministry of The Villages, Disadvantaged Regions and Transmigration (Kemendesa) provide training to utilize agricultural advisory and infrastructure assistance from various ministries and expand the entrepreneurship program in border areas and underdeveloped areas in Indonesia. Trainees are targeted for rural youth.
Strengthen farmer assistance by involving Non-Governmental Organizations (NGO)	Provides a great role for NGOs to assist young farmers to practice organic farming.
Involve young farmers in the agricultural chain	BPPSDMP facilitates rural youth to trade agricultural products through the Rural Enterprise (Badan Usaha Milik Desa)

Conclusions

The study result mentioned three main reasons why rural youth are not interested in agriculture and increasing the youth migration from rural to urban. Those are:
1. The lack of land access
2. The income uncertainty from agriculture because of the variability of price and the risk of harvest failure
3. High dependence on chemical fertilizers thus high agricultural cost

Integrated government policies should be created in the rural area. Those strategies are, increase land access for youth, involve youth in all chains of agriculture to get more value-added results, provide organic training, expand the entrepreneurship program, and provide an excellent role for NGOs to assist young farmers in rural settings.

The purpose of these strategies are not only the responsibility of BPPSDMP which exclusively focus on providing training, but the policy should be linked with other ministries such as The Ministry of Agrarian and Spatial/National Land Agency (ATR/BPN) to give access to land. The Ministry of The Villages, Disadvantaged Regions and Transmigration (Kemendesa) can also be involved to strengthen the entrepreneurial institutions in rural areas. Engaged youth in agriculture means reinforcing food production and ensuring future food supply and support for food sovereignty in Indonesia.

Acknowledgment

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Determinants of Migration Following the EU Enlargement: A Panel Data Analysis

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Abstract

International migration is one of the key elements of global integration process together with international trade and foreign direct investment, but unlike the latter migration still hasn't experienced liberalisation on a global level during the last few decades. At the same time, several shifts in global migration flows have occurred, consequently driving the European Union from net emigration area to net immigration area, with almost three folds larger share of international immigrants in total population in comparison to the global average. The eastern enlargements of the European Union in the early 2000s, which included post-transitional countries at different stages of development in comparison to old member states, significantly affected the stock of migrants in the European Union and, in addition, also the labour markets on both sides. The objective of the paper is to examine the determinants of migration flows that followed the process of European Union enlargement since 2004, which was followed by the liberalisation of migration through removing restrictions to labour markets at different periods of time in different member states. The research will be conducted using the panel data analysis which includes several pull and push factors including economic, geographical, cultural and demographic determinants of migration flows from "new" European Union member states to "old" European Union member states, together with estimating the effects of changes in immigration policies within the accession period. The results of the analysis will enable better understanding of migration flows determinants, as an essential prerequisite for estimating future migration flows and their overall potential effects, together with effects on origin and destination countries.

Keywords: international migration, EU enlargement, pull factors, push factors.

Private Label Perception Of Food Related Lifestyle Segments In Croatia

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Abstract

Market importance of private labels is continuously increasing in the last few decades. Most people are buying private labels at least in some product categories, but not all consumers are equally inclined to buy private labels regularly or in most product categories. Regarding the fact that consumers of different lifestyles also have different attitudes toward products and brands, the aim of this paper is isolation of consumer segments according to food consumption lifestyle, identification of their demographic characteristics and to determine how different segments perceive private label food products (perception of price, quality, value, country of origin, satisfaction with offer, loyalty, recommendation). Food Related Lifestyle instrument, constituted of 69 statements, was used to measure five dimensions (ways of shopping, quality aspects, cooking methods, consumption situations, purchasing motives). Methods used for analysing of collected data are descriptive statistics, cluster analysis and Kruskal Wallis test. Three different segments of consumers regarding food lifestyle are identified by cluster analysis and these are: Traditionalists (2%), Experimentalists (60,5%) and Relaxed (37,6%). Results show that retailers should focus on the Experimentalists when developing private labels. Special focus should be directed towards improving private label quality, offer consumers as much information as possible (on product characteristics and usage possibilities) and adjust the sales area to make the shopping more relaxed.

Keywords: food related lifestyle segments, private label perception, Croatia

Introduction

Private labels, private brands, own brands are all names for brands owned by a distributor (mostly retailers) and not the producer (Horvat, 2009). When it comes to private labels retailers are responsible for their development, production, distribution and brand management while manufactures are just contracted partners in the production process. Private labels give retailers the means of differentiation, giving that they are, in most cases, exclusively sold in the stores of their owner (Fraser, 2009; Pandya and Joshi, 2011). Given the steady growth of their market share, as well as their categorical and geographical disparity, private labels as a global phenomenon attract more and more attention from all market participants as well as from researchers (Beneke, 2013, AC Nielsen, 2014, Kadirov, 2015). However, researcher that link private labels and lifestyle are still rather scarce so the aim of this article is to fill that research void. The remainder of the paper is organised as follows. First, we offer literature review on private label perception followed by literature review on food related lifestyle. Research, conducted for the purpose of this paper, is presented through research methodology, sample description and research results. At the end of the paper, we give concluding remarks, managerial implications and research limitations.

Private Labels' Perception

Previous research has shown that consumers generally perceive difference between private labels and manufacturers brands in price, quality, value and risk/confidence in different product categories (Nenycz-Thiel and Romaniuk, 2009). Private labels are generally cheaper than manufacturer brands. The price gap between private labels and manufacturer brands can sometimes be very high so private labels provide a good alternative to price conscious consumers (Sethuraman and Cole, 1999). Specified economic benefits are usually the first benefit consumers' associate with private labels and primary reason they initially start to buy them. Giving their lower price consumers perceive they can buy more quality products for the same amount of money (Diallo and Siqueira Jr., 2017). Therefore, price is often the dominant variable emphasized in communicating benefits of private labels while manufacturer brands use a more complex formulation of values based on product characteristics (Webster Jr., 2000). Research by Sethuraman and Cole (1999) has shown that around 30% of respondents believe that the quality of a private label is comparable to manufacturer brands. Nonetheless, only 7% of respondents would for private label pay a price that is equal or higher than the price of the manufacturer's brand. Accordingly, research shows that a higher price perception of private labels negatively affects their brand equity (Abril and Rodriguez-Cánovas, 2016)

Consumers perceive manufacturer brands better than private labels in terms of product quality. In their research, De Wulf et al. (2005) have concluded that consumers are inclined to rate manufacturer brands significantly better than private labels when the brand name is visible. However, during the blind testing private labels have received better scores indicating that brand does influence consumer perception. Taking all this into consideration the main positioning of private labels lies in their value for money, as a crucial antecedent in the formation of consumer loyalty (Rubio, Oubina and Gómez-Suárez, 2015). Another aspect is also higher perceived risk related to private labels compered to manufacturer brands. Previous research have shown that the perception of private label as a riskier alternative decreases the likelihood of their purchase (Richardson et al., 1996) and the reduction of the perceived risk difference increases the likelihood of private label purchase (Erdem et al., 2004). Nenycz-Thiel and Romaniuk (2009) consider this to be the result of private label specific consumer expectations shaped by their historical positioning as a lower priced/good value products. This "halo effect" makes it more difficult to change consumer perceptions of private labels although retailers have introduced a "new generation" of private labels whose development is based on strategic planning, innovation and new product development ready to respond to higher quality consumer requirements (Veloutsou, Gioulistanis and Moutinho, 2004). Therefore, in addition to traditional private labels, they develop premium and value brands and they focus on limited demand segments like children, young people, people with certain diseases etc. (Cristini and Laurini, 2017).

Food Related Lifestyle

Although unique to every individual, the basic lines of lifestyle are shared by numerous individuals around the world. As a significant component, the lifestyle has a major impact on the decision to buy a product and its consumption (Kucukemiroglu, Harcar and Spillan, 2006; Kesić and Piri Rajh, 2009). Lifestyle is defined as the way people spend their time and money, what they consider important in their lives and what they think about themselves and the world around them. In other words, it is the way of life of each individual presented by his activities, interests and opinions (Kesić, 2006). According to Bruns and Grunert (1995), the lifestyle is a mental structure that explains consumer behaviour, ie the cognitive categories, scripts and their associations that connect a product with a set of values. As a marketing concept, it includes products that consumer buys, the benefits the product offers as well as what they think and feel about products (Kucukemiroglu, Harcar and Spillan, 2006).

A number of factors determine the lifestyle. In the first place, these are the characteristics of the individual, such as gender, age, race, etc., then personal context of the individual (culture and subculture, personal values, reference groups and families, social classes ...) and ultimately individual variables (needs and emotions). These three groups of factors together with the desired lifestyle shape the attitudes and needs of the individual affecting consumer behaviour (Hawkings, Best and Coney,

1994; Kesić, 2006). Knowing the concept of lifestyle helps marketers understand the specific needs and wishes of consumers and adjust marketing activities to particular consumer segments (Kesić and Piri Rajh, 2009).

When we talk about food lifestyle Grunert, Brunsø and Bisp (1993) have developed the Food Related Lifestyle (FRL) instrument and opened the possibility of exploring the food lifestyle. This instrument represents the only deductive cognitive approach to lifestyle research in the food category and provides businesses with information about what is valuable to consumers enabling the company to detect long-term trends among consumers. FRL instrument contains 69 items that measures 23 lifestyle dimensions within the five domains (ways of shopping, quality aspects, cooking methods, consumption situations and purchase motives) consistent with means-end approach to consumer behaviour (Ryan et. al., 2004). The instrument was successfully applied over the years to various European and non-European food cultures (Scholderer et al., 2004) so it was selected for this research.

Research Methodology and Results

The survey was conducted on a sample of 205 adult consumers from the Republic of Croatia via an electronic questionnaire distributed over the Facebook social network (several Facebook pages and personal profiles of its users) and by electronic mail. Out of 205 respondents, 77.1% were female and 22.9% male. As far as age distribution is concerned, the majority of respondents were between 18 and 25 years (up to 60.5%) or between 26 and 35 years (26.8%). The lowest number of respondents belongs to the age group between 56 and 65 years - only 0.5%. Looking at the total number of respondents, almost half (ie 46.8%) were women aged 18-25. The structure of respondents in terms of education is also biased towards respondents with higher level of education. Thus, 24.4% of respondents finished high school, while 75.7% in total completed some form of higher or high level of education. When it comes to income level, the largest share of respondents had monthly household income between 3,000 and 6,000 HRK, while the least represented (12.2%) were those with income of less than 3,000 HRK per month. Majority of respondents (71,2%) buys private labels every time or every other time they go shopping. Only 1.5% of respondents does not buy private labels, what shows that consumers in Croatia have accepted private labels.

Considering the objectives, the research results analysis was carried out following few steps. In the first step, the method of multivariate analysis, ie cluster analysis was used to determine the different homogeneous segments of Croatian consumers. The primary purpose of the cluster analysis is to group certain objects (variables) based on the properties they possess (Hair, 2010). In this case, the homogenous segments of Croatian consumers are grouped with regard to their views on purchasing, preparing and consuming food products based on the FRL instrument. This instrument was used in many research papers (including Croatia), where it proved to be a reliable and valid instrument that can serve as a good basis for defining individual lifestyle segments. Therefore, it was not necessary to further test its validity.

In order to identify homogeneous segments of Croatian consumers that are different in terms of purchasing, preparation, and consumption of food products, the hierarchical cluster analysis was applied, ie we used Ward's method of clustering with quadratic Euclidean distances. Three distinct consumer segments were obtained in terms of lifestyle. Segments contain those variables that have certain similarities in terms of purchasing habits, quality of food products, how meals are prepared and consumed, and with regard to certain purchasing motives. Table 1 shows the statements that are characteristic of a particular segment and their respective mean values.

Table 1: Scale/items distribution among clusters and their mean values

SEGMENT	SCALE/ITEM	MEAN VALUE
TRADITIONALISTS	7P - I always try to get the best quality for the best price.	4.44
	32P - Nowadays the responsibility for shopping and cooking ought to lie just as much with the husband as with the wife.	4.28
	38P - Over a meal one may have a lovely chat.	4.13
	48P - I prefer to buy meat and vegetables fresh rather than prepacked.	4.10
	22P - I prefer fresh products to canned or frozen products.	4.03
	39P - It is important to me that food products are fresh.	3.97
	63P - Eating is to me a matter of touching, smelling, tasting and seeing, all the senses are involved. It is a very exciting sensation.	3.97
	55P - When I serve a dinner to friends, the most important thing is that we are together.	3.92
	21P - When cooking, I first and foremost consider the taste.	3.86
	35P - To me the naturalness of the food that I buy is an important quality.	3.82
	51P - Being praised for my cooking adds a lot to my self-esteem.	3.81
	69P - I like to try out new recipes.	3.80
	13P - I compare prices between product variants in order to get the best value food.	3.79
	34P - My family helps with other mealtime chores, such as dishes and setting the table.	3.78
	1P - To me product information is of high importance. I need to know what the product contains.	3.77
	5P - I find the taste of food products important.	3.76
	67P - I like to try new foods that I have never tasted before.	3.71
	40P - I love trying cooking recipes from foreign countries.	3.61
	49P - I try to avoid food products with additives.	3.61
	56P - I prefer to buy natural products, i.e. products without preservatives.	3.61
EXPERIMENTALISTS	64P - It is important for me to know that I get quality for all my money.	3.52
	68P - When I do not really feel like cooking, I can get one of the kids or my husband to do it.	3.47
	3P - I only buy and eat foods, which are familiar to me.	3.46
	17P - I find that dining with friends is an important part of my social life.	3.46
	15P - I notice when products I buy regularly change in price.	3.45
	41P - I always check prices, even on small items.	3.45
	50P - It is more important to choose food products for their nutritional value rather than for their taste.	3.43
	8P - Well-known recipes are indeed the best.	3.42
	37P - Recipes and articles on food from other culinary traditions make me experiment in the kitchen.	3.41
	53P - I just love shopping for food.	3.41
	42P - I do not consider it a luxury to go out with my family having dinner in a restaurant.	3.39
	47P - I make a shopping list to guide my food purchases.	3.38
	60P - Before I go shopping for food, I make a list of everything I need.	3.33
	29P - I compare labels to select the most nutritious food.	3.32
	33P - A familiar dish gives me a sense of security.	3.28
	28P - I watch for ads in the newspaper for store specials and plan to take advantage of them when I go shopping.	3.26

	24P - I look for ways to prepare unusual meals.	3.25
	61P - What we are going to have for supper is very often a last minute decision.	3.25
	2P - The kids always help in the kitchen; for example, they peel the potatoes and cut the vegetables.	3.21
	11P - I compare product information labels to decide which brand to buy.	3.15
	46P - Shopping for food is like a game to me.	3.14
	30P - I do not mind paying a premium for ecological products.	3.13
	62P - Cooking is a task that is best over and done with.	3.07
	45P - We often get together with friends to enjoy an easy-to-cook, casual dinner.	3.06
	66P - Cooking needs to be planned in advance.	3.05
	54P - I am an excellent cook.	3.03
	58P - Information from advertising helps me to make better buying decisions..	2.97
	9P - I make a point of using natural or ecological food products.	2.95
	16P - I always buy organically grown food products if I have the opportunity.	2.94
	44P - I am influenced by what people say about a food product.	2.92
	36P - I like to know what I am buying, so I often ask questions in stores where I shop for food.	2.90
	18P - I do not like spending too much time on cooking.	2.89
	26P - It is the woman's responsibility to keep the family healthy by serving a nutritious diet.	2.87
	65P - I eat whenever I feel the slightest bit hungry.	2.81
	25P - I do not see any reason to shop in speciality food stores.	2.75
	43P - I like to have ample time in the kitchen.	2.74
RELAXED	12P - I like buying food products in speciality stores where I can get expert advice.	2.55
	27P - Going out for dinner is a regular part of our eating habits.	2.52
	6P - Usually I do not decide what to buy until I am in the shop..	2.48
	20P - I have more confidence in food products that I have seen advertised than in unadvertised products..	2.47
	19P - I dislike anything that might change my eating habits.	2.45
	59P - I use a lot of mixes, for instance baking mixes and powder soups.	2.43
	23P - In our house, nibbling has taken over and replaced set eating times.	2.34
	10P - I eat before I get hungry, which means that I am never hungry at meal times.	2.15
	31P - I always plan what we are going to eat a couple of days in advance.	2.13
	52P - I use frozen foods for at least one meal a day.	2.12
	14P - We use a lot of ready-to-eat foods in our household.	1.93
	4P - Shopping for food bores me.	1.81
	57P - I consider the kitchen to be a woman's domain.	1.55

Source: authors' research

The segment, to which a given subject will belong, depends on the mean value to the statements from the FRL instrument. In other words, if the mean value of the respondent is higher than the mean value of all the variables clustered into a given segment, the respondent is allocated to that segment.

Table 2 shows the share of the sample, mean values and the Cronbach alpha coefficient for each segment.

Table 2: Share of the sample, mean values and Cronbach Alpha values for all segments

Segment	Share of the sample	Mean value	Cronbach alfa
Traditionalists	2,0%	3,89	0,893
Experimentalists	60,5%	3,18	0,874
Relaxed	37,6%	2,23	0,584

Source: authors' research

The largest number of respondents were in the Experimentalists segment - 60.5%. Relaxed segment accounts for 37.6% of respondents. The Traditionalist segment contains the smallest share of respondents (only 2.0%), which is not surprising, given the dominance of young educated women in the sample.

Although the smallest, Traditionalists segment is characterised by the highest average mean value of 3.89. High average mean value of this segment is the consequence of traditional attitude regarding nutrition, preparation and purchase of food. The results show that Traditionalists attach great importance to freshness of products, value for money and socializing with their friends over meals. Surprisingly, Traditionalists agree that the responsibility for buying and cooking should be equally distributed between husband and wife. The socio-demographic characteristics of the segment indicate that the typical representative of this segment is a young woman between 18 and 35 years of age, with completed secondary school or higher education and earning between 3,001 and 6,000 or 8,001 and 10,000 HRK.

Segment named Experimentalists, the largest consumer segment with a mean value of 3.18 and a Cronbach coefficient of 0.874. The most significant variables for this segment are those related to the importance of product quality and price and the experimentation in the kitchen. Although careful when selecting food products, they are relaxed when preparing meals and like eating with their friends. The analysis of sociodemographic data indicates a high proportion of women between 18 and 35 years with high or higher education of all income levels.

The third segment called Relaxed accounts for 37.6% of respondents, mostly young women of higher or high educational level. The average value of all variables is 2.23 with a Cronbach coefficient of 0.584, which tells us about segment instability. The members of this segment are not concerned with what to buy, cook, and when and how to dine. They do not pay much attention to the quality of nutrition and often eating out.

Finally, the non-parametric Kruskal Wallis test was used to examine whether there was a statistically significant difference between the segments in private label perception using a single variable approach (Field, 2009). Table 3 shows the p-value cross-section for each claim.

Table 3: Results of Kruskal Wallis Test

		Number of respondants	Mean value	Standard deviation	p-value Kruskal Wallis
Private labels are sold at low prices.	Traditionalists	4	3.75	1.258	0.315
	Experimentalists	124	3.67	0.881	
	Relaxed	77	3.42	1.092	
Private labels are of high quality.	Traditionalists	4	4.00	0.816	0.001
	Experimentalists	124	2.75	0.813	

	Relaxed	77	2.45	0.820	
Private labels offer good price/quality ratio.	Traditionalists	4	4.25	0.957	0.011
	Experimentalists	124	3.49	0.933	
	Relaxed	77	3.12	1.100	
I would buy private labels despite lower quality, just to save money.	Traditionalists	4	3.00	1.414	0.137
	Experimentalists	124	2.24	0.983	
	Relaxed	77	2.48	1.046	
It is important to me that private label is produced in Croatia.	Traditionalists	4	4.25	0.957	0.000
	Experimentalists	124	3.34	1.089	
	Relaxed	77	2.60	1.330	
I am satisfied with private labels offered in Croatia.	Traditionalists	4	4.00	1.414	0.012
	Experimentalists	124	3.41	0.911	
	Relaxed	77	2.99	1.094	
I am loyal to certain private labels.	Traditionalists	4	4.75	0.500	0.000
	Experimentalists	124	3.14	1.192	
	Relaxed	77	2.65	1.189	
There is not enough private labels in stores.	Traditionalists	4	3.50	1.915	0.044
	Experimentalists	124	2.89	0.973	
	Relaxed	77	2.53	1.071	
The private labels I buy, I recommend to friends.	Traditionalists	4	4.75	0.500	0.000
	Experimentalists	124	3.49	1.078	
	Relaxed	77	2.94	1.239	

Source: authors' research

Given the first claim, it can be concluded that there is no statistically significant difference between the segments. The mean values range from 3.42 to 3.75, which means that Traditionalists and Experimentalists generally agree that private labels are selling at low prices, while Relaxed neither agree nor disagree with this claim. A significant difference does not exist when assessing claims that consumers would buy private labels of lower quality just to save money. Traditionalists and Relaxed are indifferent towards this claim while Experimentalists do not agree.

When looking at other claims, there is a significant statistical difference between consumer segments. Traditionalists generally agree with most of the claims. They believe that private labels offer high quality and a good price/quality ratio; they are satisfied with private label offering in Croatia, they are loyal to certain private labels and would recommend private labels, they themselves buy, to their friends. They are the only segment, which attaches the importance to domestic production of private labels and they consider there is not enough private labels on the shelves.

Experimentalists agree that private labels offer good price/quality ratio and are inclined to recommend private labels to friends. When all other claims are concerned, they are indifferent. They neither agree nor disagree with claims that (a) private labels are of high quality, (b) there is not

enough private labels on the shelves, (c) they are loyal to certain private labels, (d) private labels should be produced in Croatia and (e) they are satisfied with private labels in Croatia.

Relaxed segment exhibits indifferent attitudes towards all researched claims but with the lowest mean values compared to other segments. The highest mean value is assigned to the claim that private labels are sold at low prices (3.42) while the lowest value is for the claim that private labels are of high quality (2.45). Although indifferent, the mean value of 2.48 for the claim that they would buy private labels of lower quality just to save money, is the only claim where Relaxed segment exhibits higher mean value than that of Experimentalists.

Conclusion, Managerial Implications and Research Limitations

Results show that three food related lifestyle segments can be distinguished namely Traditionalist, Experimentalists and Relaxed segment. From all the segments Experimentalists are the largest, followed by Relaxed while Traditionalists account for just 2% of total sample. These results are not equal to the results of longitudinal study by Kesić and Piri Rajh (2009) which distinguish five different segments. The reason for this difference probably lies in the characteristics of our sample that was mostly limited to young, well-educated woman.

Giving the sample constraints, we cannot generalise results for entire Croatia but results can be useful in developing new private label food products and directing communication to target consumer segments. Traditionalists perceive private labels more positively than other segments that means that they have already accepted private labels. The results show that they are even loyal to certain private labels. Therefore, the retailers should focus on the segment of Experimentalists that show some positive attitudes towards private labels but are still mostly indifferent. When developing private labels retailers should focus on the quality aspect because quality is for Experimentalists an essential element in product selection. Current private label offer Experimentalists do not consider as being of high quality, indicating that there is room for improvement in this respect. When promoting private labels to Experimentalists, retailers need to provide as much information that can be used in product evaluation and selection. They should also emphasize information such as nutritional value and different ways in which specific private label can be used (eg recipes from different cultures that show variety of food usage). Retailers in Croatia should follow the example of Kaufland and especially Lidl, which promote their private labels through the weekly recipes from two famous chefs, special features in their weekly catalogues, on the website and via TV ads. Experimentalists show a tendency to experiment in the kitchen, so this type of promotion would be suitable for them. The atmosphere at the store should be as pleasant as possible, space beautifully arranged, products and prices laid out clearly in order to make the shopping relaxed, as the Experimentalists prefer.

The main limitation of this research is a convenience sample mostly constrained on young well-educated women that, according to the situation in Croatia, probably still live with their parents. In this situation, it is possible to assume that they mostly eat with their parents, and do not buy food products themselves. Consequently, there is a high probability that their attitude to private labels is still not (fully) formed. Further research should be directed towards more heterogeneous research sample. Additionally, future research should take a more in-depth look at private labels, like the difference in perception among generic, traditional and premium private label or intention to purchase private labels.

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A Conceptual Model of Social Media Marketing Strategy

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Abstract

All companies wishing to be successful in the long run considering the current market dynamics, the adoption of technologies in everyday life, and the changes in the purchasing and consumption behavior of people resulting from this, must have or develop a strategic approach to integrating social media in the general mix of marketing communications. In the following paper, the authors propose a conceptual model of strategic use of social media instruments in the context of their integration into the marketing communications mix of companies in Romania.

The main results of the researches previously conducted have led to the development of this framework for strategic use of social media instruments by organizations in Romania, taking into account all the participants involved in this endeavor (communication and marketing specialists from companies, top management, social media users) the interests and needs of each category and the steps needed to be taken in order to build and implement an online social media strategy with the highest probability of success. The article comprises a summary of relevant research related to social media marketing, the description of the conceptual model of strategic use of social media tools for companies in Romania, followed by conclusions and recommendations.

Keywords: Social media, integrated marketing communications, communications strategy, conceptual model

Introduction

The main features of social media that differentiate it from traditional media result from the powerful interactivity of this relatively new environment. In the academic literature there is an increasingly widespread belief, according to which the growing involvement and engagement between consumers and brands has to be addressed beyond the purely transactional level, in order to include all other potential points of contact with the brands (Schultz and Peltier, 2013). The two-way communication flow, between consumers and brands allows such a level of interaction between the two that social media users become active participants in the brand communication program. Among the effects of having such involved consumers one can mention brand equity increase, customer retention, return on investment (ROI), as well as positive word-of-mouth (both online and offline) (Vivek et al., 2012).

A common conclusion which can be drawn from most social media definitions is that it represents more than the mere sum of the instruments and technologies used and equally important components

are user generated content, as well as the online communities in which it is consumed (Mazurek, 2009, Weber, 2009). A thing that has become increasingly stressed by academic articles on the subject is that more than ever modern organizations are no longer asking themselves whether or not to invest in social media tools, their benefits and importance being undeniable today, but instead are considering what specific social media tools to use, in what way and how much. Although the modern communication tools, such as social media, don't replace traditional instruments and techniques, but rather complement them, there is still much to be determined and studied on the most effective ways to integrate these tools into a coherent integrated marketing communication program (Tuten and Solomon, 2014).

Social media has advanced from simply providing a platform for individuals to stay in touch with their family and friends. Now it is a place where consumers can learn more about their favorite companies and the products they sell (Paquette, 2013). Marketers and retailers are utilizing these sites as another way to reach consumers and provide a new way to shop. "Technology related developments such as the rise of powerful search engines, advanced mobile devices and interfaces, peer-to-peer communication vehicles, and online social networks have extended marketers' ability to reach shoppers through new touch points" (Shankar et al. 2011, 30).

Nowadays, most consumers expect organizations to be present online in general and in social media in particular, hence they must find the best and most effective ways to establish this presence (Nair, 2011). Social media offers a wealth of opportunities for companies to listen to their consumers, to engage them in activities and of course, communicate and establish relationships with them. However, it should be kept in mind that there may also be some negative effects which result from a poorly managed social media presence or lack of concrete objectives and strategy. Some organizations actually invested millions of dollars in social media, in response to the pressure of its popularity, without understanding how to accurately manage it, or knowing the steps to be followed in order to build a coherent social media strategy (Divol et al., 2012).

According to Porter et al. (2011) this seems to be a real problem for modern companies, given that more than half of the Fortune 1000 companies which sponsor virtual communities rather destroy than create value for themselves and their clients. Therefore, social media management and overcoming existing barriers are two intensively studied subjects by experts and academics, most studies of this kind stressing the paramount importance of incorporating the social media strategy into the overall strategy of the organization (Fournier and Lee, 2009, Bottles and Sherlock, 2011, Nair, 2011, Andzulis et al., 2012, Bruhn et al., 2012, Drillinger et al., 2013). It is important that organizations realize that social media is more than just an information distribution channel, therefore it is equally important to determine why social media is effective from a strategic perspective for the company and what it wants to achieve in this context (Bottles and Sherlock, 2011). "While social media provides never ending avenues for communicating, it is the individuals who serve as the influencers not the technology" (Gonzalez, 2010). User generated content produces social currency for marketers because it helps define a brand. Therefore, social currency is when individuals share a brand or information about a brand (Zinnbauer and Honer, 2011).

For this reason, experts recommend integrating social media into the company's communication mix in a consistent manner, rather than simply substituting other means of communication with it (Wilson, 2010, Bruhn et al., 2012). eMarketer (2013) states that firms have increasingly adopted social media for various marketing activities such as branding, market research, customer relationship management, service provision, and sales promotion.

However, companies must understand that they don't have absolute control over the social media content present on different platforms (Cafasso, 2009). Still, most organizations try to control as much as possible the content available on social media, instead of allowing users greater freedom so that they can post content directly to their community pages (Parsons, 2011). By allowing more freedom, companies can actually take advantage of social media features, such as the existence of user-generated content, rather than fight them.

Despite the initial progress made by researchers, development in this area of study has been limited. Research needs to expand by providing a deeper understanding of the long-term promotional gains retailers obtain from social media marketing.

Social Media Tools

In 2008, Brian Solis, one of the most prominent thinkers and opinion leaders of online marketing and digital transformation, created "The Conversation Prism" in order to provide marketing strategists and experts a visual tool, a map, to help them take into account unforeseen opportunities related to the digital environment and evaluate them through a holistic lens (Solis, 2015). Thus, Solis has succeeded in providing a unique and fresh perspective on the entire social media ecosystem. "The Conversation Prism" is now at version 4.0, being in fact a longitudinal study in digital ethnography, looking into dominant and promising social media tools and organizing them according to the way they are used by consumers. It is a very valuable and important instrument for the entire industry because it is the only map of its kind based solely on research, managing to explore social media development since its emergence. Basically, "The Conversation Prism" is one of the most complex and comprehensive visual studies on how social media tools are used and how they have evolved over time. Brian Solis proposes no less than twenty-six different categories in which the most popular social media tools are divided. These include everything from the already popular social and professional networks, wikis, blogs to the "quantified self" (recent trend to use various technologies and applications in order to share statistics related to personal performances with the network of friends) and "crowd wisdom" (e.g. BuzzFeed, reddit, digg, NowPublic etc.) or social marketplace (ex: Airbnb, Etsy, Groupon, Kickstarter, etc.).

Another very interesting classification and explanation of social media instruments is that of Tuten and Solomon (2014) who organized the social media space into four main areas, according to similarities in use and established objectives: Social Community, Social Publishing, Social Entertainment and Social Commerce (Fig. 1).

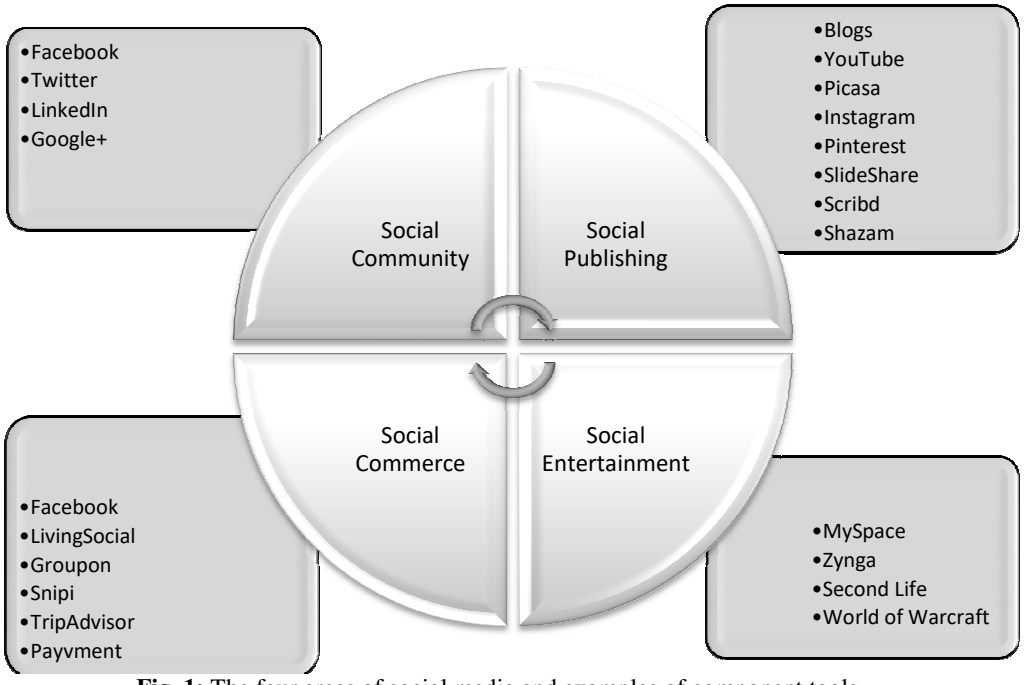

Fig. 1: The four areas of social media and examples of component tools

Source: Tuten and Solomon, 2014

Conceptual Model Development

Based on the findings and conclusions of a few previously conducted marketing researches (both qualitative and quantitative) by the authors (Pachițanu, 2017; Pachițanu, 2016) as well as on the in-depth analysis of the literature review on the topic, we have developed a conceptual model for the strategic use of social media tools in the context of their integration into the marketing communications mix for companies in Romania.

Moreover, the main results of the researches previously conducted have led to the development of this framework for strategic use of social media tools by organizations in Romania, taking into account all the participants involved in this endeavor (communication and marketing specialists from companies, top management, social media users) the interests and needs of each category and the steps needed to be taken in order to build and implement an online social media strategy with the highest probability of success.

Therefore, in the proposed model, the authors delimitated three key processes that contain and highlight the main aspects of the strategic use of social media tools. The aim was to find a solution for presenting all relevant information regarding the strategic use of social media tools discussed and revealed during the previous researches and articles and of course establishing correlations and flows between them. Thus, the three pillars of the strategic use of social media tools by companies are: *the social media strategy development process*, *the strategy implementation process*, and *the social media tools management process*. The conceptual model developed on the structure created by these three pillars, as well as the representation of the sub-processes and the directions underlying their development are shown in Fig. 2.

The social media strategy development flow is based on three basic sub-processes: defining the strategy, purpose and objectives (defining the contribution of social media tools to the strategy and goals of the organization), defining the target audience profile (delimiting and understanding how the target audience use social media tools) and to develop a social media strategy implementation program. These sub-processes are made up of a series of specific activities designed to help and guide the company's efforts in their implementation, and will be further detailed below.

In order to determine the strategy, purpose and objectives, the authors have defined six important activities which describe the steps the company has to take in order to accomplish this sub-process. The first activity is internal marketing audit, basically evaluating the company's level of readiness to start activities in social media environments, a stage in which operational variables are analyzed (sales evolution, market share, profit margin, etc.), along with existing marketing strategies and tactics (related to the marketing mix), the organization of the entire marketing activity (the type of structure used, the way of assigning responsibilities, the experience of the organization, communication and collaboration with other departments, etc.), and including its planning and control, as well as the marketing information system (the existence of a system able to provide the necessary information, at the appropriate time, the extent to which they are used in marketing decisions, the organization's experience in this field, etc.) (Balaure et al, 2002).

This stage is basically a preamble for developing the company's social media strategy, but also a milestone for gaining a critical perspective on this. Next, the organization's overall strategy and marketing strategy must be considered to ensure the company's consistency in social media and, of course, to set the specific objectives of these actions. The foundation of the company's social media strategy is therefore represented by its corporate strategy and marketing strategy. Once this analysis has been carried out, marketing and communication specialists in the company must establish and prioritize the specific objectives of the social media strategy, taking into account the company's overall and marketing objectives. In this way, the social media strategy is developed from the beginning in accordance with the marketing and overall strategy of the organization, thus being able to contribute in the most effective way to achieving the company's goals and objectives. These goals are different for each company of course, but may range from improving consumer engagement to brands, brand image consolidation, building and developing the company's reputation, developing

innovation based on the co-creation process (company-consumers), increasing sales, to attracting talents for the company.

Next, there is a very important step, the establishment of the social media governance (Zerfass, Fink and Linke, 2011, Leskovec, Huttenlocher and Kleinberg, 2010) - analyze the opportunities, challenges, risks and internal policies related to the company's activity in these environments. The term social media governance has been borrowed from the concept of corporate governance that describes the entire system by which companies are run and controlled (Huse, 2007). Therefore, it is equally important for organizations to set up a system of leadership and control over their social media presence, identifying the unique opportunities of this environment, understanding the possible risks to which they can be exposed, as well as clarifying the risks of non-participation in social media, establishing clear policies related to the company's social media activity, developing some guidelines for it and, in particular, communicating these policies and guides inside the company to all employees.

Once the social media governance has been established, the next step is to create an initial action plan. This must be done in the development phase of the social media strategy in order to define the set of operations needed to meet the objectives of the strategy (established in a previous stage) and to define the target audience of the whole approach so that the organization can have the best presence in social media, at the right place and at the right time. This initial action plan will be completed and finalized in the next steps, but drawing its guidelines is very important in achieving the sub-process of determining the strategy, purpose and objectives, taking into account that it contributes significantly to the estimation stage for internal resources (material, financial, human). Every company needs to be aware what the resource needs are for its planned social media actions, and more than that, it needs to know how many resources it is willing to allocate to these activities. In this way, the company can analyze whether the whole process is feasible or not, before implementing it. In order to be successful in social media, organizations must realize that they need to allocate not only enough money and time, but also that people, the team, are essential to ensuring success. Ideally, the team responsible for managing the company's social media presence should include people from different departments (not only from the marketing department) with different skills, depending on the actions and objectives that the company proposes.

As for the sub-process of target audience profile creation, it is also an essential element in developing the social media strategy and involves determining the behavior and use of social media tools by the target audience. This approach involves five steps that are equally important in its realization: user segmentation, establishing the target audience and identifying its characteristics, analysis of the social media use by the target audience, exploration of company and market views and conversations, identifying influencers and identifying communities, and relevant conversations.

In the stage of user segmentation, target audience selection, and identification of their characteristics, the company must continue to analyze in depth the target segment identified during the initial action plan creation stage. Therefore, the segmentation of social media users is now completed in a complex and complete way, the choice of the segments to be targeted by the company is finalized and their defining characteristics are identified (needs, desires, interests, demographics, buying habits, etc.).

The sub-process of elaborating a program for the development, implementation and management of social media tools is next, which makes the transition from the strategy development process to its implementation process. This sub-process consists of five stages that companies should consider: defining the start-up platforms (the social media tools to be used by the company), establishing the team and resources to be distributed, defining the tasks of the members and deadlines, the development of an implementation timetable and the clear establishment of the social media development, implementation and coordination program (by consolidating all the information and decisions made in the previous steps).

The social media strategy implementation process consists of two very important sub-processes: integrating social media with the other marketing communication tools used by the company and the

actual execution of the developed strategy. In order to assure social media integration into the company's overall marketing communications, the following steps have to be made: alignment with existing offline and online marketing tactics, sending information across and educating all employees (so that all employees are up to date with the company's activities, know the role of each employee and department, and the conduct they should have), finalizing budgets and finalizing the implementation timetable and setting deadlines (taking into account all additional costs and activities to be added to ensure social media integration with other marketing communication tools).

In the execution sub-process, the company must prioritize company initiatives and execute the designed program. Therefore, the steps to be taken by the organization to achieve this goal are: implementing the organizational structure established to manage the activity in social media (creating the team according to the chosen structure), prioritizing the implementation of the initiatives (what tools and activities/campaigns will be first used by the company), identifying, collecting or creating relevant content (activity in which the content to be posted by the company is being prepared according to the activities to be implemented), engaging in conversation (participating in relevant conversations taking place in social media, providing real-time responses to users' comments or queries, providing relevant content to the target audience, engaging in conversations with influential and other users, adding value to communities which the company has joined or formed), creating value for the company and consumers (basically co-creation of value by the company and users; in social media people share content, comment, discuss and interact with each other, so it can be said that value is usually co-created by users and the company) and the actual implementation of the program.

The last pillar of social media strategic use by companies is their management process, which in turn is made up of two main sub-processes: performance monitoring and strategy improvement and learning. These sub-processes are just as important as the previous ones, their correct and complete implementation by companies impacting the entire strategic use of social media, of course the whole framework being incomplete and incapable of evolution in their absence.

So, after the implementation of the social media strategy, it is essential for the company to evaluate its performance and draw up a future development plan. In order to do this, organizations must first identify the key performance indicators, both quantitative (e.g. number of shares, likes, clicks, comments, etc.) and qualitative (e.g. "Online brand sentiment" - the positive or negative tone of online brand conversations, etc.). Of course, each company needs to set its own set of key indicators, depending on the goals previously established, as well as the specifics of their social media activity, in order to ensure that it is as relevant as possible and allows for the correct evaluation of success of the social media strategy implementation (the value created for shareholders, sales growth, market share, awareness, etc.) or, on the contrary, highlighting the negative effects caused (loss of customers, negative word-of-mouth or other unforeseen consequences).

Once the key performance indicators are set, the next step is to identify the relevant monitoring tools for these indicators and, of course, to monitor and periodically review them. Depending on the indicators to be monitored and the budget that the company has at its disposal to achieve this (most of the time, only primary indicators are monitored, the simplest ones are free), there are a number of software tools / applications (e.g. Google Analytics, Facebook Analytics, Yahoo! Web Analytics, etc.) that can be used and even specialized companies that provide periodic reports and consultancy in this area (e.g. HootSuite, BrandWatch, Radian6, Sprout Social etc.).

Another important activity for social media performance monitoring is return on investment (ROI), as well as the evaluation of success based on the objectives (analyzing the achievement of objectives or the extent to which they have been achieved, if some have not been fully met). Following all these stages, it is very important that marketing and communication specialists in companies report all these results to higher management to ensure that they know the impact of social media use across the company's marketing communications, and that they support it (perhaps even by increasing the budget allocated to social media tools in the future).

Of course, after all the performed analyzes, the organization has to act on these results by refining and adjusting the strategy and measures used as well as the long-term social media strategy. This activity is also being pursued within the improvement and learning sub-process, in which the company has to learn from its social media experience and explore new directions of development. Thus, the first step to be taken is to learn the most effective ways to use social media tools (based on experience) and to analyze relevant case studies (taking into account the specificity of the brand and its industry; best or worst practices at national and international level). Of course, the company must always be aware of and explore the latest trends in social media (tools, technologies, content types, how users interact with each other, etc.) and develop programs to continuously train the team responsible for its work in social media (organizing roundtables, training sessions, exchange of experience, participation in various national or international conferences or seminars). One element which may be as important as team training is to educate decision-makers (senior management), to make them understand exactly the benefits and disadvantages, opportunities and risks of the company's social media presence as well as their role and impact on the achievement of the overall objectives of the company. One of the most pressing issues currently for companies in Romania (Pachițanu, 2016) is the lack of adequate budgets for the development of social media presence, which is a direct consequence of the lack of trust and vision of the higher management in their potential. Moreover, creating and communicating case studies and best practice guides to all company employees (not just to the team directly managing the social media activities) is an important element for ensuring the company's long –term social media success. It is a well-known fact that company employees are already present in social media, and informing them of the company's activities and achievements as well as the limits to be respected can only bring benefits to it by transforming them into brand supporters and, on the other hand, by avoiding inappropriate behaviors or by avoiding the sharing of confidential or sensitive information.

In addition to this, once the company gains social media experience, it has to evolve even from the perspective of the tools and types of activities used, to innovate and try different approaches to differentiate itself from other competitors. It is therefore important to create pilot programs in which to develop, test and validate new ways and means of interacting in social media. Finally, throughout the social media use by organizations, it is essential to develop a culture of transparency that is done in a responsible way both by the organization and by all its employees. Social media users appreciate and interact only with those companies that demonstrate transparency, sincerity and authenticity, both through their own actions and the actions of their employees. For this reason, responsible behavior by all employees of the company, as well as the proof of transparency, are elements that bring a major contribution to the long-term success of organizations in social media.

From all the studies made, there is no doubt that social media have significant potential benefits for companies, through open communication and transparency, but at the same time, for the exact same reasons, many companies still remain reluctant to get involved or to intensify their communication activity in his environment. This model of strategic social media use comes to provide a solution to this problem and is a valuable guide in the process of developing and implementing the strategy of companies in Romania, as well as a very useful tool in assessing the level of integration of social media tools with other marketing communication tools.

Marketing and communication specialists at both international and Romanian levels agree that social media occupy an increasingly important place in the lives of their users and are also a driving force for marketing and market communication in general. Where there is change, there are always many opportunities for those visionary companies that predict and know how to take advantage of them. Therefore, this model of strategic social media use is intended to meet the needs of those companies in Romania which are aware of the changes in this field, foresee the opportunities that will emerge and want to develop a correct, complex and long-term strategy of their presence in social media.

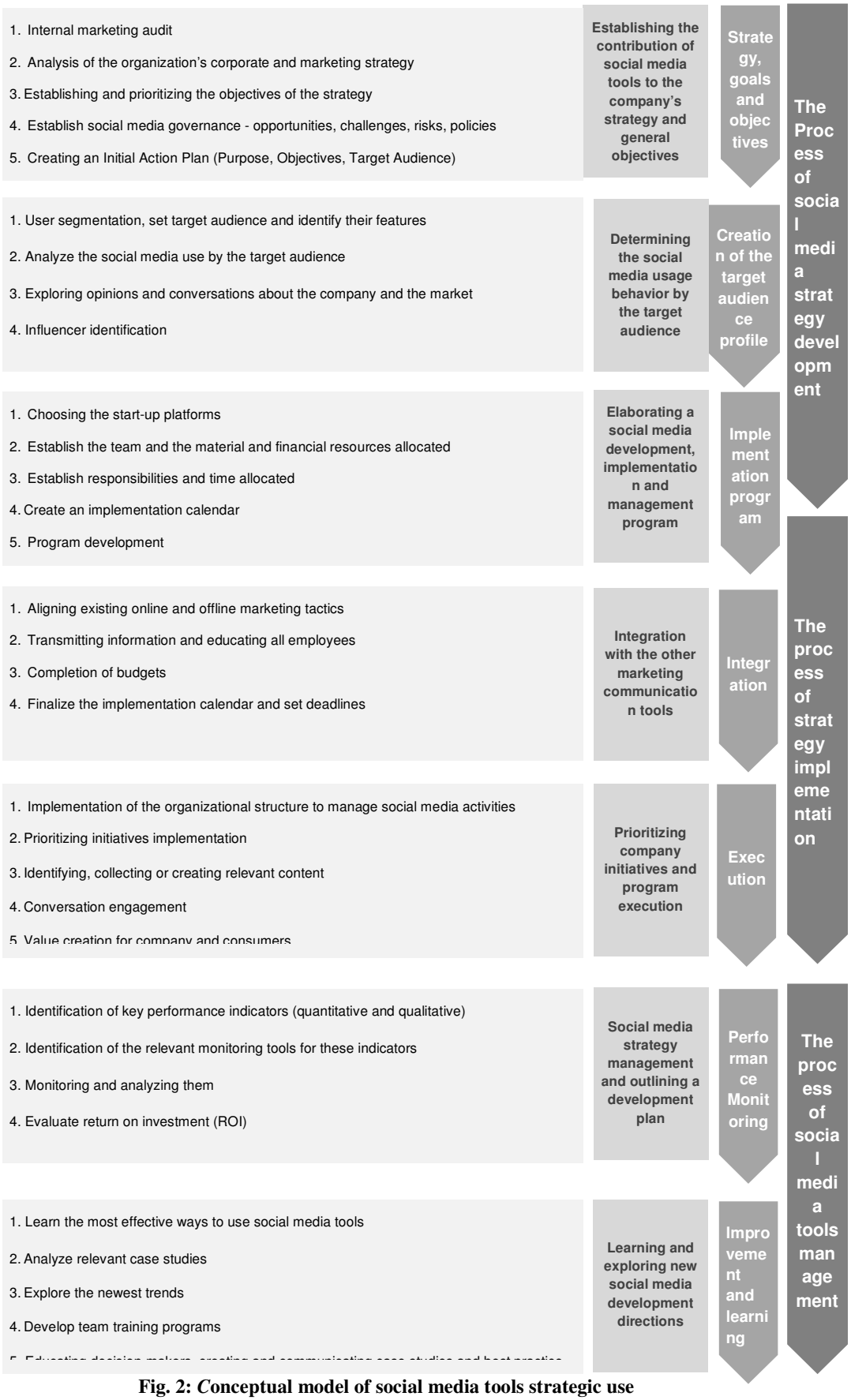

Fig. 2: *C*onceptual model of social media tools strategic use

Conclusions and Recommendations

The present paper helps Romanian companies to understand and make better use of the place, role and importance of social media tools in achieving the organization's overall objectives as well as their marketing and communication objectives by proposing a model for an integrated approach on marketing communications which recognizes the importance and includes the contribution of social media in the development stages of a successful marketing communications program. This model incorporates social media as a dynamic aspect of the integrated marketing communications process, directly affecting key decision and implementation phases, as well as the end results, by creating new implications for them. The level of social media activities integration into the integrated marketing communications mix can have profound effects on the success of their implementation.

Furthermore, the authors propose a conceptual model of strategic social media use in the context of their integration into the marketing communications mix of companies in Romania. The conclusions of the previously conducted researches and the literature review on the topic have been oriented this approach towards building a framework for the strategic use of social media by the companies in Romania, taking into account all the actors involved in this activity (social media users, marketing and communication experts from companies, senior management), of their particular interests as well as the steps needed to be taken in order to build and implement a social media strategy with the highest probability of success. This model is a valuable guide in the process of developing and implementing the social media strategy of the companies in Romania, as well as a very useful tool in assessing the level of their integration with the other marketing communication tools.

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Using the Methods of the Company's Capitalization Optimal Management

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Abstract

In countries with market economies, there is a saying: "economists know the prices of all assets in the world, but do not know the value of any of them." In a sense, the proverb is true - the value of an asset is the price at which an asset purchase transaction is made on the market. However, the question of why the value of an asset may be below its market price economists usually redirect to philosophers. If the cost is a synonym for the market price of the sale, the best indicator of the company's value will be the aggregate price at which its own capital and debts are sold on the financial market. But in many cases the use of market prices is unacceptable, it is necessary to have a more accurate and reliable assessment of the market value of assets and the company as a whole.

Keywords: Market value. Capitalization. Assets valuation.

Introduction

More precise definitions of terms and main notions are of great significance (it is, probably, greater than in other issues of economic management) in the scientific field generally characterized as “innovation problematics research”. A lot of research studies are dedicated to investigating innovations both at the macro level (Nelson (1993), Burns& Stalker (1961)), and at the micro level (Utterback, 1994). In actively developing risk environment, up-to-date effective management mechanisms must be developed. It is based on the use of the single indicator of the previously achieved result (Estrin& Holmes (1990), Mednikov et al., 2017,). Main aspects of the risk management of innovation projects in the context of globalization were also discussed in scientific literature (Sokolitsyn, Ivanov, Sokolitsyna, 2017, Rodionov et al. 2016, Niyazova, Kuporov, Nadezhina, 2016) as well as were elaborated adaptive management models for innovative activities of an enterprises.

Maximizing shareholders value has become the new corporate paradigm in recent years. The Corporates, which gave the lowest preference to shareholders curiosity, are now bestowing the utmost preference to it. Shareholder’s wealth is measured in terms of returns they receive on their investment. It can either be in forms of dividends or in the form of capital appreciation or both. Capital appreciation depends on the changes in the market value of the stocks. The market value of stocks depends upon number of factors ranging from company specific to market specific. Financial information is used by various stakeholders to assess firm’s current performance and to forecast the future as well. (Sharma, A. K., & Kumar, S. (2010)).

Economic Value Added (EVA) is the best available metric for measuring value (Young, S. D., O'byrne, S. F., Young, D. S., Young, S., & O'Byrne Stephen (2000)). EVA is now recognized as an important tool of performance measurement and management all over the world, particularly in advance economies by adopting it as corporate strategy.

In countries with market economies, there is a saying: "economists know the prices of all assets in the world, but do not know the value of any of them." In a sense, the proverb is true - the value of an asset is the price at which an asset purchase transaction is made on the market. However, the question of why the value of an asset may be below its market price economists usually redirect to philosophers. If the cost is a synonym for the market price of the sale, the best indicator of the company's value will be the aggregate price at which its own capital and debts are sold on the financial market. In many cases the use of market prices is unacceptable, it is necessary to have a more accurate and reliable assessment of the market value of assets and the company as a whole. The reasons for this are as follows:

1) The shareholders' equity of the companies is in the hands of shareholders or public companies and is exchanged in this environment, so market prices may not exist.
2) Securities of companies are traded on the market, but irregularly and in small volumes, therefore, based on the analysis of purchase / sale prices, adequate market value estimates cannot be obtained.
3) Securities of companies are actively traded, but in order to obtain commercial benefits from buying / selling. When performing independent comparisons of value and market price a significant number of undervalued assets is often found.
4) Analysts are forced to use activity control to identify the presence (or absence) of market value growth and thus assess the correctness of the company's economic strategy

Hence there is the need to use special methods to determine the market value or capitalization of companies. This explains the existence of such a specific direction of economic and financial analysis in companies, as an estimation of their cost

Problem Statement and Research Objective

To determine the market value / capitalization of the company's asset, there are, as you know, several methods that give different accuracy of the results of the assessment. To compensate for possible risks of unreliable assessment, according to the applicable standards, evaluation is usually performed using different methods. The acceptable proximity of the obtained results attests to their reliability and reliability.

1) Cost-based - a set of methods based on the determination of costs necessary to restore or replace an object, taking into account its wear and tear.
2) Comparative - a set of methods based on the comparison of the object with similar objects, in relation to which there is information on the prices of transactions with them.
3) Profitable - a set of methods based on the definition of expected revenues from the facility.

The main methods used in assessing the capitalization of companies in the framework of three approaches to valuation are given in Table.

Basic approaches to the company's capitalization valuation

Cost-Based	Comparative	Profitable
Net assets method	Capital market method	Method of capitalization of profit
Method of liquidation value	Method of Industry Coefficients	Discounted cash flow method
	Transactions method	

1) A cost-based approach to assessing capitalization determines the value of the company in terms of costs incurred. It is calculated either the amount of rational costs for the creation of the evaluated object in its current state and in the existing market environment, or the proceeds from the sale of existing assets. The core of the approach is that the value of liabilities is deducted from the value of assets, as a result, the market value of the company's equity is formed.

The method of net assets, or the method of accumulation of assets, is used in the following cases:
- the company has significant tangible assets;
- it is possible to identify and assess intangible assets, if any;
- it is expected that the company will continue to be an operating enterprise;

- the company does not have retrospective profit data or there is no possibility to reliably estimate its profits or cash flows in the future.

The value determined by the method of accumulating assets is the value of the company's assets, less the value of its liabilities. The peculiarity of this method is that the assets and liabilities of the enterprise are valued at market costs

The liquidation value method is applied when the company is in the process of bankruptcy, or there are serious doubts about the company's ability to remain active and bring in an acceptable income. Feature of the method is the fact that the magnitude of the estimated value of assets is significantly affected by the forced sale, as well as the possibility of selling in parts. This leads to the fact that the liquidation value is significantly lower than the market value. The liquidation value (essentially - the proceeds from the planned liquidation of the company after all the creditors' claims have been satisfied from the funds received from the sale of assets) is the absolute lower limit of its market value

2) The comparative approach is based on market information and takes into account the current actions of potential sellers and buyers. This approach provides for the use of information on transactions for the sale of companies. Usually a comparative approach is used in the following cases:

- there is a sufficient number of comparable companies (similar to those valued for the most important economic parameters) and transactions with them;
- there is sufficient data on comparable companies and transactions for conducting the relevant financial analysis;
- there are reliable data on the profits or cash flows of both valued and comparable companies.

Within the framework of this approach, the following methods of company valuation are used:

- the capital market method is based on the analysis of the prices of real transactions with shares of similar companies.
- the method of transactions - is based on the analysis of the prices of acquisition of controlling or significantly significant blocks of shares in similar companies;
- the method of industry coefficients (multipliers) - is based on special formulas or price indicators used in one or various industries.

The main condition for the implementation of the multiplier method is the search and collection of data on comparable companies. The next stage is the analysis of the capital structure of the valued and comparable companies. The final stage is the choice of the multiplier, which is used to determine the estimated value. The multipliers that are often used in business valuation can be the following:

- Price / Revenue;
- Price / Profit before taxation;
- Price / Net profit;
- Price / Cash flow;
- Price / Total Assets;
- Price / book value.

Several multipliers can be chosen and several cost indicators can be calculated. When summarizing the results, it is necessary to take into account the relative importance of each indicator used in the preparation of the valuation judgment.

Key Results

The most common method of estimating the capitalization of a company is the "profitable" method, according to which the value of the current value (at the time of assessment) of future / projected earnings of the company) is taken as an estimate of capitalization. As a revenue measure, pre-tax or net profit, net cash flow, company sales, and other "volumetric" indicators that characterize performance can be used. The use of this approach based on the use of forecast data carries risks of unreliable forecasts, but this is currently the only way to obtain an estimate that is not based on previously obtained results.

When using the profitable method of capitalization estimation, the length of the period for which the forecast is carried out is of great importance. This can be seen from the following example. At a 10% interest rate over a period (usually one year), capitalization (current value at the time of valuation 1 monetary unit (MU- д.е) of income) over a 20-year period (a series of income of 1 MU in 20 years - income annuity) is 8.51 MU. The capitalization of the same revenue stream for an infinite period with the same interest rate will be 10 MU (1 unit / 0.1). The transition from a 20-year annuity to an endless annuity gives an increase in capitalization of about $\frac{10\partial.e.-8,5\partial.e.1}{10\partial.e.}*100=15\%$

Another example. The present value at the time of the annuity estimate of 1 MU. income with an annual growth rate of 6% over 20 years will be 13.08 MU The current cost of an endless annuity,

taking into account growth, determined by a known formula, will be $\frac{1\partial.e.}{0,1-0.06}=25\partial.e.$

Taking into account the growth undervaluation of capitalization will be even more

$$\frac{25\partial.e.-13,08\partial.e.}{25\partial.e.}*100=48\%$$

The company's capitalization is valued under the following conditions. In each period of activity, a normally functioning company can receive the following revenues: from the sale of the beneficial results of its activities on the market, from the sale of the company at the price of capitalization (market value). Under these conditions, the company's market capitalization is determined from the following obvious equation:

$$V=\sum_{t=1}^{n}C_t*(1+k)^{-t}+C_n*k*(1+k)^{-n}+V*(1-a)*(1+k)^{-n}$$

Where is the V-market capitalization of the company, MU. k - risk-free interest rate; income from the sale of the company's beneficial results of its activities, MU. a - the share of expenses for the valuation of the capitalization of the company

In this equation there is one unknown "V" - the value of the company's market capitalization, which can be determined. It should be noted that at the end of the last period of company operation the company receives an income equal to the price of its sale, the value of which is unknown. Discounting of cash flows of income is made at a risk-free interest rate, the same in all periods. The second sum and of the formula reflects the expected capitalization of income after the resale of the company and it is a constant, because according to the rules of evaluation it is determined by the amount of income of the presale period.

This approach determines the duration of the useful life of the company before its sale, and its duration is determined by "non-economic" conditions. In this case the company's capitalization does not matter, because it is the more, the longer the company carries out its activities and is sold at later period. The reason is the use of a risk-free interest rate and, therefore, does not take into account the risk factor in determining the company's capitalization. A coefficient is added to the valuation, taking into account the share of costs for the company's capitalization assessment, because the cost of the assessment can be significant.

In fact, when determining the amount of capitalization by the revenue method, the risks of incorrect evaluation and other risks is of great importance. As is known, in the financial and economic analysis, the magnitude of the risks when discounting cash flows is taken into account through the use of a risk premium to the risk-free rate. The magnitude of the risk in each period can be determined by different methods of statistics, but it can be assumed that the further the estimated period from the time of assessment, the larger the risk premium will correspond to it. This changes the rule of discounting cash flows when determining the value of capitalization. Under these conditions, the company's market capitalization is determined from the following equation:

$$V = \sum_{e=1}^{n} \frac{C_e}{\prod_{e=1}^{n}(1+k_e)} + \frac{V(1-a)}{\prod_{e=1}^{n}(1+k_e)} (*)$$

In this formula, there is no component that takes into account the company's revenues after reselling it to a new owner, because there is no reason for determining the length of the period of operation of the company after its resale. In the case when each period is assigned its own interest rate, it becomes possible to determine the "optimal" duration of the period of operation or sale of the object, because the company's capitalization will be maximum in this period. Obviously, the company should be sold when its market capitalization is at its maximum. The features of discounting cash flows when using the various rates for capitalization are reflected in the formula (*).

With respect to individual interest rates, it can be assumed that they increase with distance from the moment of valuation. The optimal value of the term of sale is established by looking through the possible terms of sale of the company: after the first period, after the second, and so on. .. The optimal period is established when, in the process of enumeration, the value of market capitalization begins to decline.

Conclusion

As a result of our research, we introduced the concept of the "optimal term for the sale of an object", "the maximum value of the company's capitalization," the optimal methods for making optimal decisions for use in quality management systems of organizations. It should be noted that currently application of processes for assessing the market capitalization of companies is a practical area of economic analysis and does not have a serious scientific basis, so the use of optimization principles in the process of estimating the value of market capitalization can contribute to an increase in the scientific level of this direction.

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Factors Influencing Customer Loyalty towards Private Labels

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Abstract

Understanding consumer behaviour plays an important role at the competitive market. This article focus on the factors that influencing customer loyalty towards private labels. This article focus on the key factors influencing customer loyalty towards private labels and explores the relationships among crucial factors and main socio-demographic characteristic. Author stated several hypotheses and tested them through chi-squared test. The statistical tests proved that importance of price as a key factor for loyalty towards private labels depends on income at the 5% confidence level.

Keywords: customer loyalty, consumer behaviour, consumer satisfaction, price and price sensitivity, consumer experience

Introduction

Lots of authors devote their researches to the field of consumer behaviour, since the understanding of this phenomenon plays key role in success at today's competitive markets. Consumer behaviour represents the process of selection, purchasing, consuming, or using a product that should satisfy customers desires and needs (Juvan, Omerzel, Maravić 2017). Customer loyalty is understood as of the key elements of consumer behaviour that contributes significantly to contemporary success in a highly competitive markets, too. Customer loyalty towards particular brand thus becomes one of the most important intangible assets of business in both cases – branded goods as well as non-branded (generic goods) and private labels. Generally we can say that there are two groups of customers – loyal customers preferring branded goods and customers preferring generic (non-branded goods).

Private labels occupy a prominent position at the contemporary market and their importance is still growing. According to Statista.com the average market share of private label fast-moving consumers goods (FMCG) sales in Europe is around 28%. The highest share of private labels is reported by Switzerland 45%, followed by Spain and Great Britain 41%. Czech republic reports the share of private labels at the level of 22% (Statista 2018). There is no doubt that there is a strong competitive interaction between branded goods and private labels and lots of authors devoted their researches to this phenomenon since 1990s´ (Cotterill, Putsis, Dhar 2000).

Private labels are not any more represented only by FMCG, but the can be found in other categories, too. This article addresses the issue of customer behaviour and customer loyalty towards private labels at the Czech FMCG market and the factors influencing both groups of customers – customers preferring branded goods and customers preferring generic (non-branded goods, customers preferring private labels) when buying private labels.

Theoretical Background

Consumer behaviour represents on of the most investigated and researched areas in the marketing field (Cohen, Prayag, Moital 2013). First of all it is necessary to explain what is consumer behaviour, since customer loyalty is an integrated part of the consumer behaviour. Consumer behaviour is connected with purchasing process of goods and services and involved activities connected with purchasing, consuming, as well as disposing of the goods and services (Engel, Blackwell, Miniard 1995). Solomon stated that consumer behaviour includes the whole range of activities, decisions, ideas and experiences connected with purchasing process that are able to satisfy customer wants, needs and desires (Solomon 1996). Consumer behaviour presents a cognitive process through which consumers decide how to solve their purchasing problems. Therefore the need of information is during this process very important (Peter, Olson 2002).

Consumer behaviour is connected with so called black box that explains factors influencing consumer behaviour. Juvan, Omerzel and Maravić (2017), Ali (2016), or Furaiji et al. (2012) distinguish following factors influencing consumer behaviour:

- psychological – perceptions, skill,
- personal – age, lifestyle, education, gender,
- social – family, social groups – primary, secondary groups,
- cultural – attitudes, habits, values,
- economic – purchasing power, income, etc.

The question of customer loyalty has become a part of research and practical applications several decades ago. Customer loyalty is one of the ways not only to keep existing customers, but also to reach potential new customers and transform them into loyal customers. Building long-term relationship with customers through customer loyalty is key element of success at the market. Customer loyalty must be taken into account during all strategic decisions, since customer loyalty is reflected in the overall customer behaviour (Auka, Bosire, Matern 2013).

The history of customer loyalty dates back to the 1950s. In the 1950s, two distinct brand loyalty concepts were developed to measure customer's loyalty towards brand and brand behaviour. In the 1960s, Trucker (1964) and others followed suit. Early views of customer loyalty focused only on repeating purchasing (Srinivasan, Anderson, Ponnavolu 2002). Since the nineties, the concept of customer loyalty has gradually become increasingly relevant to the field of service marketing, and its importance is gradually increasing (Latif, Islam, Noor 2014).

Customer loyalty is understood from a variety of perspectives, for example as a set of symbolic brand values that lead to repeated purchases over time (Aaker 1991). Therefore, customer loyalty is defined in different ways. Most definition of customer loyalty is connected to the willingness of the customer to repeatedly purchase the same brand (Dick, Basu 1994). Brown (1952) classified the customer loyalty based on the patterns in consumers purchasing behaviour into 4 different categories:

- Undivided loyalty,

- Divided loyalty,
- Unstable loyalty,
- No loyalty.

Brand loyalty is defined as customer loyalty to the brand (Aaker 1991), or the tendency to be brand loyal, when this tendency is reflected in the interest of buying the product. Engle and Blackwell (1982) defined customer loyalty as the attitudinal, preferential, and behavioral response of the customer toward one or more selected brands in a specific product (or service) category expressed over a specific period of time by a customer.

There are lots of authors dealing with consumer behaviour and brand loyalty - for example Latif, Islam, Noor (2014), Chiou (2004), Cohen, Prayag, Moital (2013), Gruen, Osmonbekov, Czaplewski (2006), Auka, Bosire, Matern (2013), Juvan, Omerzel and Maravić (2017), Ali (2016) and many others. Customer loyalty to brands is conditioned by a number of psychological processes in the minds of customers, and researches of many authors also demonstrate that it is closely related to brand image and its success (Aaker, Blanco 1995, Latif, Islam, Noor 2014).

In practice, we can find many factors influencing customer loyalty. The main parameters influencing customer loyalty follows (Latif, Islam, Noor 2014, Chauduri, Holbrook 2001a, Chauduri, Holbrook 2001b, Bilal 2010, Dick, Basu 1994, Satvati, Rabie, Rasoli 2016, Grönholdt, Martensen, Kristensen, 2000):

- customer satisfaction,
- customer expectations,
- customer experience,
- perceived quality,
- perceived value,
- brand awareness,
- trust,
- price and price sensitiveness
- market share,
- recommendation, etc.

Material and Methods

This article is based on the above-mentioned authors and their research on customer loyalty. The author will examine whether factors influence customer loyalty towards private labels at the Czech FMCG market and if there some statistical differences between the two identified groups of customers – customers preferring branded goods and customers preferring non-branded goods.

In order to achieve the objectives of the authors research, marketing research was designed, using a questionnaire survey as the main technique of primary data collection. Altogether, 300 respondents of different socio-demographic characteristics were randomly approached.
The questionnaire was completely anonymous. Respondents were asked to fill the basic sociodemographic characteristics that shaped the respondents' profile - age, gender, average income per month.

The basic research question set by the author is: Which factors affect the most customer loyalty of customers preferring branded and customer preferring non-branded goods to private labels?

The basic parameters influencing customer loyalty identified based on the literature search was evaluated by the Likert's five-point scale, where 1 means total disagreement, i.e. the fact that customer loyalty is not influenced by this factor, 3 neutral attitude and 5 the fact that customer loyalty is completely affected by this factor.

For the analysing of data author used basic mathematical and statistical methods:

- minimum, maximum, mean, standard deviation – for evaluation of all factors influencing customer loyalty towards private labels,
- chi-square test – for testing independency of data for comparison of observed data with expected to a specific hypothesis. The chi-square test will be used to reveal statistical differences of response of male and female and different income groups. The formula for calculation of chi-square test follows.

$$\chi^2 = \sum_{i=1}^{k} \frac{(X_i - Np_i)^2}{Np_i}$$

Author will stated hypotheses for the factors that will be marked as the crucial for the loyalty towards private label.

The demographic profile of respondents summarizes the following table.

Tab. 1: Basic characteristics of the research sample, source: author's research

Gender	Absolut frequency	Relative frequency	Education	Absolut frequency	Relative frequency
Female	126	42%	Elementary school	15	5%
Male	174	58%	High school	96	32%
			Bachelor degree	120	40%
			Master degree	69	23%
Age	Absolut frequency	Relative frequency	Average income per month	Absolut frequency	Relative frequency
16-24	34	11%	less than 10.000CZK	24	8%
25-34	80	27%	10.001 - 20.000 CZK	90	30%
35-44	73	24%	20.001 - 30.000 CZK	117	39%
45-54	50	17%	30.001 - 40.000 CZK	42	14%
55-64	42j	14%	40.000 CZK and more	27	9%
64+	21	7%	less than 10.000CZK	24	8%

The largest group of respondents were women aged 18-30 with average monthly income CZK 20001 - CZK 30000 and bachelor degree. Basic demographic characteristics will be used to investigate whether there are differences between age, gender, or average income per month and characteristics that respondents consider crucial for their customer loyalty.

Results and Discussion

First part of the questionnaire focused on the general aspects. Respondents were asked if they are buying private labels, how often they are buying private labels and if they are loyal to private labels.

First of all respondents were asked, if they are buying private labels. All respondents answered that they have at least once purchased private label. The frequency of buying private labels is shown in the following graph.

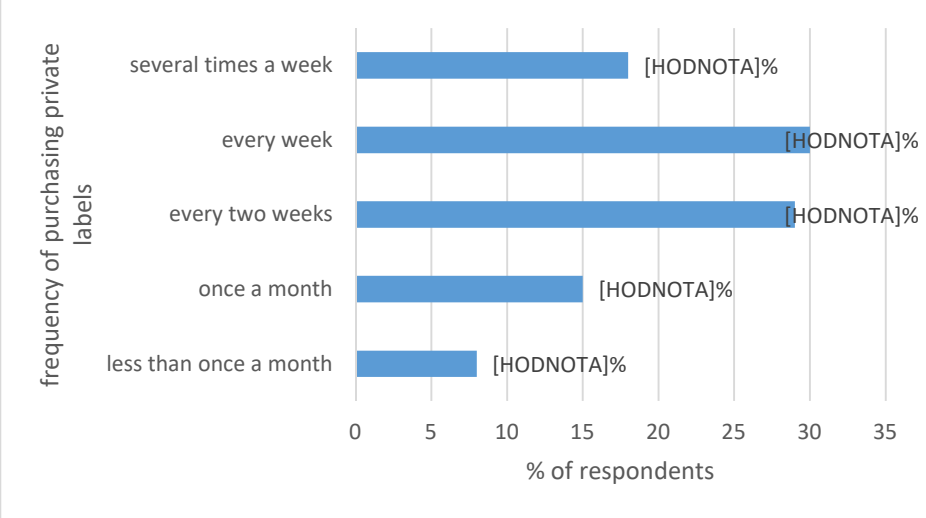

Fig. 1: Frequency of buying private labels, source: Author's research

As we can see from the Fig. 1 – 59 % of respondents is purchasing private labels every week or every two weeks. Respondents with lower month income less than 20.000 CZK and high school education are the most frequent buyers of the private labels. On the Likert 5-point scale, respondents should factors influencing their loyalty towards private labels. As stated above these factors were indicated based on the literature search.

Tab. 2: Evaluation of factors influencing customer loyalty towards private labels, source: author's research

Factor	Minimum	Maximum	Mean	Std. deviation
price	2	5	4,21	0,365
customer satisfaction	3	5	4,08	0,235
customer experience	3	5	4,06	0,695
recommendation	3	5	4,01	1,346
trust	2	5	3,98	1,328
perceived quality	2	5	3,78	1,020
customer expectations	1	4	3,65	2,031
brand awareness	1	5	3,56	1,234
perceived value	1	4	2,35	1,069
market share	1	4	2,01	1,118

As we can see from the table 2, the most important factor influencing customer loyalty towards private label is price. Almost 90% of respondents stated that they agree or strongly agree with the fact that price is an important factor of their loyalty towards private label. The following figures shows the evaluation of importance of the price, customer satisfaction, experience and recommendation for loyalty toward private label for different income and age groups.

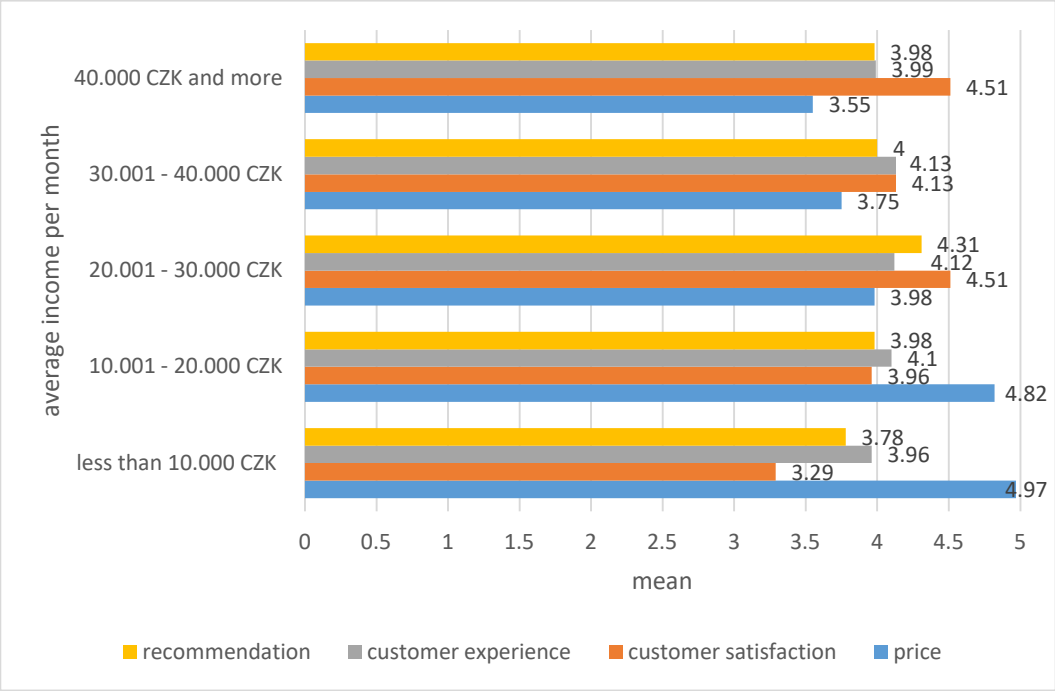

Fig. 2: Evaluation of the importance of price, experience and satisfaction for different income groups, source: Author's research

As we can see, the price is most important for groups with the lowest income – that means for groups with average income per month less than 10.000 CZK and 10.001-20.000 CZK. Connection of price sensitivity and income proved many authors in their researches and research papers – for example Binkley and Bejnarowicz, 2013, Wakefield and Inman, 2003, Estelami and Lehmann, 2001 or Estelami, Lehman, and Holden, 2001. The mean of the answers in the income group less than 10.000 CZK is 4.97 that means that almost all customers in this group answered that they strongly agree with the statement that price is an important factor for their loyalty toward private labels.

For the highest income group is the most important factor satisfaction with the private label as well as for groups with average income per month 30.001-40.000 CZK, 20.001-30.000 CZK.

Concerning education the most frequent buyers of private labels are customers with elementary and high school education. These groups consider as the most important factor price. On the other hands groups with higher education marked that the more important for their loyalty towards private brands is recommendation and previous experience with these products.

For the two most important factors influencing customer loyalty towards private labels author stated following hypothesis:

Price

$H_1$0: Importance of price as a key factor influencing loyalty toward private labels is independent on the gender

$H_1$1: Importance of price as a key factor influencing loyalty toward private labels is not independent on the gender

$H_2$0: Importance of price as a key factor influencing loyalty toward private labels is independent on income

$H_2$1: Importance of price as a key factor influencing loyalty toward private labels is not independent on income

Satisfaction

$H_1$0: Importance of customer satisfaction as a key factor influencing loyalty toward private labels is independent on the gender

$H_1$1: Importance of customer satisfaction as a key factor influencing loyalty toward private labels is not independent on the gender

$H_2$0: Importance of customer satisfaction as a key factor influencing loyalty toward private labels is independent on income

$H_2$1: Importance of customer satisfaction as a key factor influencing loyalty toward private labels is not independent on income

Results for Price

First of all the null hypothesis: Importance of price as a key factor influencing loyalty toward private labels is independent on the gender was tested at the 99% confidence level.

Chi-Square Test

Chi-Square	Df	P-Value
24.32	1	0.00
20.89	1	0.00 (with Yates' correction)

In this case since the p-value is less than 0.01, we can reject the null hypothesis that Importance of price as a key factor influencing loyalty toward private labels is independent on the gender of respondents at the 99% confidence level. The p-value with Yates' correction was used because it should be more accurate for 2-by-2 table.

The results of the second hypothesis follows

Chi-Square Test

Chi-Square	Df	P-Value
5.98	6	0.3612

The chi-square test performs a hypothesis test to determine whether or not to reject the hypothesis Importance of price as a key factor influencing loyalty toward private labels is independent on income. Since the P-value of this test is greater than 0.01, we cannot reject the null hypothesis that the price as a key factor influencing loyalty toward private labels is independent on income at the 99% confidence level.

Results for Customer Satisfaction

In both cases the p-value of conducted chi-square test is greater than 0.05, we can state that customer satisfaction as a factor of loyalty towards private labels is independent on income and gender (p-value in the case of gender 0.434, p-value in the case of income 0.231)

Conclusion

Consumer behaviour and loyalty varies with the type of the product. It is not easy to predict the future consumer behaviour since there are many factors influencing consumer behaviour and loyalty. The author's research focused on the factors influencing consumer loyalty towards private labels, since the market share of private labels is still growing. Author's research revealed that the most important factors influencing consumer loyalty towards private labels are price customer experience, customer satisfaction and recommendation.

The statistical test revealed a significant statistical dependence of importance of price as a factor of loyalty towards private label on income. The price is most important for groups with the lowest income. That means that nearly for almost customers in these income groups price is an important factor for their loyalty toward private labels. The groups of higher income prefer satisfaction and experience. The most frequent buyers of private labels are customers with elementary and high school education and the price is important for them.

The further author research will focus on detail analysis of perception of private labels by customers and their intention to purchase private labels.

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Service Recovery Influence on Consumer's Complaint Intention to Obtain Benefits. The Case of the Cruise Ship Industry

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Abstract

This paper investigates the influence of service recovery in the consumer's complaint intention to obtain benefits on the cruise industry. The research model proposed and tested empirically, was base on a sample of 164 cruise vacationers who had experience in the past a service failure. The model also shows the influence of cruise blogs on consumer's complaint intention.

The result of the analysis demonstrates higher influence of cruise blogs and reviews than service recovery strategies on the complaint intention. The findings of the study provide a better understanding of the service recovery on the cruise industry, being useful for the managers of the cruise companies. Finally, suggest as well, that cruise ship managers should implement new marketing strategies related to service recovery and at the same time attract cruise blogs to the company.

Keywords: service recovery, cruise ship industry, cruise blogs, complaint intention.

1. Introduction

The cruise industry is one of the fastest-growing sectors of the tourism industry (Dickinson, & Vladimir, 1997; Hall, 2001) with an annual growth rate of 6.55% from 1990 - 2019 ("Cruise Market Watch," n.d.). As much as cruise ship companies try to maintain their customers happy and loyal, complaint on cruise ships will always be present, as customer has more time to pay attention of the service offered (Weaver, 2005).

Nowadays, cruise blogs are one of the most visited webpage from the cruise vacationers before their travel. Due to the high influence of this websites on the vacationers, that rely more on the information and suggestion of other cruise travelers rather than the cruise companies itself or travel agents ("CLIA," 2017).

The common explanation of complaining has been described as "dissatisfaction is based on disconfirmation theory and is defined as a customer experience that is lower than the perceived expectation" (Tronvoll, 2011, p. 114). However, "complaints do not always come from dissatisfaction and dissatisfaction does not always lead to complaining behaviour; therefore, dissatisfaction is not sufficient cause for customers to complain" (Tronvoll, 2011, p. 114).

The goal of this research is to find out the relationship between the service recovery strategies with complaint intention. Furthermore, investigate if service recovery has influence on the intention to complaint by the consumers.

Cruise blogs and reviews, was added in the study due to high influence that have on cruise vacationers. Particularly we want to explore how service recovery influence consumer's complaint intention to obtain benefits in the cruise ship industry.

This paper is divided in five sections. The research starts with the literature review and an overview of the main definitions: service recovery; cruise ship industry; customer satisfaction/dissatisfaction, previous complaint experience and complaint intention. Secondly, we describe and justify the methodology used in this research. Then we introduce the empirical research results with quantitative analysis and moderator analysis that will demonstrate if the hypothesis raised is supported or rejected. It follows the discussion of the research main findings. The paper ends with the limitations of the research and suggestions for further research.

2. Literature Review

2.1 Service Recovery

Different authors define Service recovery as the strategic solution when service failure occurs. According to Zeithaml, Bitner and Gremler (2013, p.180), "service recovery refers to the actions taken by an organization or service supplier in response to a service failure". This definition is supported by Grönroos, (1988) who added that service recovery is a service provider response in response to a poor quality service.

McDougall & Levesque (1999), Nwokorie (2016), Skaalsvik (2011), stated that the most frequent service recovery actions are: apology, assistance or speed and compensation. Meanwhile, the study of Bitner, Booms and Tetreault (1990), suggest that: acknowledge of the problem, the explanation, the assistance, apology, upgrades and compensation are part of a satisfactory service recovery that consumer may remember.

The justice theories also form part of the different studies related to service recovery, as there is relationship between service recovery strategies and the three types of perceived justice.

Wirtz and Lovelock (2017, p. 418) who analyze the service recovery process from the customer point of view, by "three dimensions of fairness" or also called "three dimensions of perceived justice", where the customer perceived a similar service recovery like: Interactional justice (apology), Procedural justice (assistance) is the recovery process, plus the solution of the problems and Outcome Justice (compensation) is the restitution or replacement for the service failure.

2.2 Customer Satisfaction/ Dissatisfaction

The satisfaction or dissatisfaction of a customer is expressed after the service experience (Lovelock, & Wright, 1999). Only after trying the product or service the customer can decide if the product/service meet their expectation or not.

Mittal and Frennea (2010, p. 3), describe customer satisfaction as a "customer's post-consumption evaluation of a product or service". Also Mittal and Frennea (2010) consider customer satisfaction as a valid and useful marketing metric, which can be used to improve service in companies.

The problem arises when a service failure occurs and dissatisfaction gives the right to complain: the customer then decides whether doing nothing or taking one or more complaint actions for his/her best interest (Day, 1984; Qadeer, 2013).

2.2.1 Service Failure

The study of Kazi and Prabhu (2016, p. 1) stated “Service failure is a situation when a service provider delivers the service performance far below the adequate service expectations of the consumer”.

Koc (2017, p. 3), also explain “service failure is any type of error, mistake, deficiency or problem occurring during the provision of a service.

Base on above statements, it seems that most of the complaints are consequence of service failure that may occur during phases of service delivery. Therefore, when a failure occurs, companies provide a service recovery to seek loyalty and long-term relationship but as well, seek to get the confidence back and increase the levels of customer satisfaction with the recovery (Hassan, Azhar, & Farooq, 2014).

2.2.2 Service Quality

There is a large empirical literature studying service quality, as is one of the most widely used instruments to measure the quality on service (Choi, Ann, Lee & Park, 2018; Kar, 2016). Being SERVQUAL, the first quality model used, from which other studies were adapted (Parasuraman, Zeithaml & Berry, 1988).

These studies help companies identify problems in the service, find a rapid solution and which will allow to offer a better service that will increase customer satisfaction.

2.3 Service Recovery onboard Cruise Ship

Cruise ships are considered as floating hotels or ship hotels due to fact that have similar activities as a hotel on land (Dowling, 2006). The cruise ship industry features a “high degree of interactions between the service employees and the tourists, and there are many opportunities for service failures to occur during phases of service delivery” (Skaalsvik, 2011, p. 158).

Different authors (Dowling, 2006; Jaakson, 2004; Weaver, 2005) stated that on cruise ships passengers could be in enclosed environment for a long period of time, described as “environmental bubbles” (Weaver, 2005, p. 169) - this will depend on the itinerary booked.

As a service company, some cruise ships offer a specific service recovery to their passengers onboard and also a post-service recovery from land. On the other hand, cruise companies by offering service recovery seek that customers "become advocates for cruising, overwhelmingly rating cruising ahead of land-based vacation in a number of categories" (“CLIA,” 2017, p. 14).

2.3.1 Apology

As mentioned before, is perceived by the customer as an interactional justice, since it is related with the way the customer is treated while makes the complaint. Includes aspects of: explanation, honesty, politeness, effort, and empathy. (Tax, Brown, & Chandrashekaran, 1998).
Skaalsvik (2011) consider apology as the first recovery strategy that should be applied onboard a cruise ship, as it is the minimum that could be offered to a customer and is what they usually expect for minor inconveniences (McDougall & Levesque, 1999; Wirtz & Lovelock, 2017).

2.3.2 Assistance

Is the next recovery strategy. Previous studies stated that the speed in which the problem is solved is perceived as procedural justice (Blodgett, Hill, & Tax, 1997; Smith, Bolton, & Wagner, 1999). The study made by Blodgett, Hill and Tax (1997, p. 189) stated: “this dimension, in effect, is reflective of

the timeliness, responsiveness, and convenience of the complaint handling process". Thus, we can say that procedural justice is the time that customer wait, while his/her problem is solved.
The goal here is to rectify the problem effectively as quick as possible, in order "to bring the customers back to the level of services they initially expected or contracted for" (McDougall & Levesque, 1999, p. 7).

2.3.3 Compensation

The last service recovery strategy previously mentioned is "compensation". Different authors including Smith, Bolton and Wagner (1999), associate any monetary compensation with the distributive justice.
Based on the study made by Blodgett, Hill and Tax (1997, p. 188), distribute justice is "the perceived fairness of the redress offered to consumers to resolve their complaints", where redress include "refunds, exchanges, repairs, discounts on future purchases, store credits, etc., or some combination".
The study of Skaalsvik (2011, p. 165) of service recovery in a cruise line context, find out that three service recovery actions provided are: economic compensations, service personal assistance and upgrading of the core delivery value.

For this study in cruise ships we separated the last service recovery strategy: compensation or distributive justice in *upgrades* (replacement of the product/service - e.g. stateroom or dinner upgrade) and *economic compensation* (onboard credit or discount on future cruise), which will be explained in the following paragraphs.

2.3.3.1 Upgrades

Upgrades are consider a plus on the compensation, because are applied without any extra charge on the passenger account. These upgrades usually are replacement of the service or product failure onboard. Skaalsvik (2011, p. 165) provide a clear example of upgrades in a cruise ship. Also added that "upgrading the core delivery implies that the complainer(s) receive(s) more than the original paid for".

2.3.3.2 Economic compensation

Is the last recovery strategy applied onboard cruise ship to recover a fail service**.** The case study of Schumacher and Komppula (2016, p. 121) find out that "monetary compensation is considered to be the easiest and most satisfactory method among customers". Economic compensation is a partial or full refund of the product or service failure and "also for the time, effort, and energy spent during the process of service recovery" (Wirtz & Lovelock, 2017, p. 418).

Cruise lines companies offer economic compensation such as "onboard credit", considered monetary compensation that should be spent onboard before the cruise finish (the amount varies depending on the problem) or "discount on a future cruise" that is applicable only in the next sail with the company and applied only by managers (in some cruise lines).

Additionally to the previous statements, cruise companies can direct their passengers to the customer service ashore, due to continuous complaint or dissatisfaction on the last day of the cruise - disembarkation day (Hochberg, 2016).

2.4 Cruise Blogs and Reviews

Blogs are not part of a service recovery process, however, for this study cruise blogs and reviews play an important role as a large number of cruise blogs readers use this websites before their cruise vacation ("CLIA," 2017). Through this blogs and forums, consumers become knowledgeable about the service recovery provided on a cruise ship in case a service failure occurs.

Penco, Remondino and Esposito De Falco (2012, p. 2) mention on their research "blogs can be a powerful source of WOM, while on the other hand they can be the source of negative influence from unsatisfied customers" and it is necessary to consider that most of the consumers rely on the information and opinions shared on these blogs (Yang, 2011).
There are a number of websites suggesting the best cruise blogs and reviews to follow before buying a cruise, and these websites, are also the most visited by the tourists before they make any purchase.

One of the most visited web page is Cruise Critic, "a cruise review community website" ("Cruise Critic," n.d.), who offer information, news and forums related to cruising. However, this website also influences on the consumer complaint behavior (when customer express their dissatisfaction), teaching customers directly or indirectly to get a compensation back (Cruise Critic Staff, 2017), from the service recovery provided on the cruise companies.

2.5 Complaint Intention

Complaint intention can be defined as the intention of dissatisfied customers to report a complaint to a company (Rehman, Saeed, Kanwal, Rizwan, Rehan, & Hassan, 2013, p. 108). Also consumer may "complain even when they do not have a legitimate concern about product performance, it was notice in general" (Singh, & Pandya, 1991, p. 8).

Wirtz and Lovelock added that "studies of consumer complaining behavior have identified four main purpose of complaining: (1) obtain restitution or compensation; (2) vent their anger; (3) help to improve the service; (4) for altruistic reasons" (2016, p. 508). This study is focus on the first purpose of complaining by Wirtz and Lovelock (2016): (1) obtain restitution or compensation, with the aim to find out if the service recovery provided by cruises ships have influence on the intention to complaint by the consumers to obtain benefits.

2.6 Complaints in the Cruise Ship industry

Recent research in cruise lines stated that first-time and repeat customers are different in various aspects like the product related knowledge that consist on two components: familiarity and expertise - meaning that familiarity would lead to increased consumer expertise. First time and repeat cruise customers have a different perception in regard of the quality and service offer by the cruise line, as an example: repeat consumers will have an accurate judgment of the company, whereas the first time consumers due to limited knowledge will rely on service offer because of the lack of prior experience (Chua, Lee & Han, 2017). There is a high possibility that repeat customers will complain more due to fact that they are familiar and are "experts" with a specific cruise line. Thus, they are aware of the service recoveries that a cruise line offers when a service failure occurs.

2.7. The Moderating role of Previous Complaint Experience

There are limited studies that use "previous complaint experience" as a moderator variable. However, different studies in service recovery takes into account this variable as part of the complaint intention studies. Therefore, previous complaint experience is proposed for this study as a moderator variable.

2.7.1 Previous Complaint Experience as Moderator between Service Recovery in Cruise Ships and Complaint Intention and Cruise blogs and Reviews, and Complaint Intention.

Service recovery strategies in cruise ships (apology, assistance, upgrade and economic compensation) described previously on the literature review show that they are directly related with the complaint intention. Authors like Skaalsvik (2011), investigate this relation on his study of service recovery in a cruise line context. The relationship between cruise blogs and reviews and complaint intention has been already explained in the previous literature review.

3. Research Methodology

3.1 Conceptual Model

This research study seeks to examine the relationship among the independent variables and dependent variable that had been explained on the preceding literature review.

The proposed model consists of seven variables. The model wants to demonstrate the relationship among variables. The independent variables: apology, assistance, upgrades and economic compensation (related to the service recovery on cruise ships), and the other independent variable: cruise blogs & reviews seeks to find out which of them has the highest influence with the dependent variable complaint intention.

For this model, previous complaint experience was proposed as a moderator variable, in order to know if strength the relationship between the independent variables and the dependent variable (Hayes, 2018a). Lastly, complaint intention as dependent variable require a further research on the cruise ship industry as there is limited information.

After analyzing the literature review, the following research question was raised: How service recovery influence consumer's complaint intention to obtain benefits in the cruise ship industry?

The aim of this research is to find out if the service recovery provided by cruises ships have influence on the intention to complaint by the consumers. Therefore, the following conceptual model (Figure 1) provides a descriptive representation of the variables mentioned, attempting to explain the relationship among them.

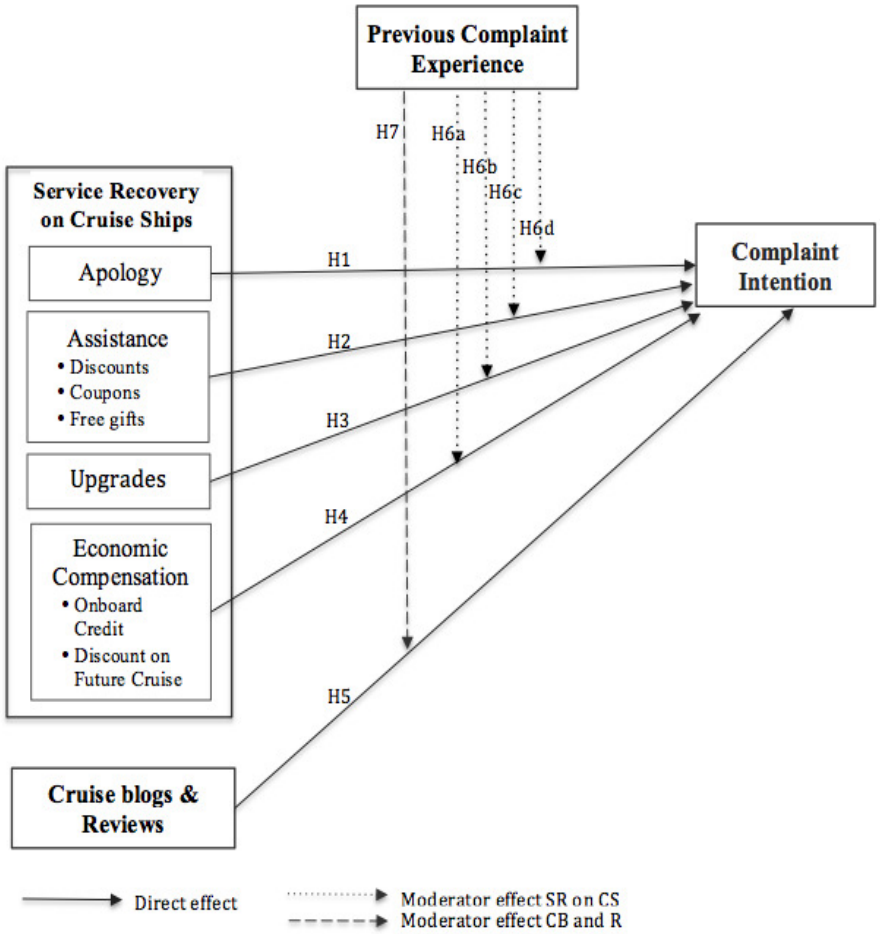

Figure 1: Conceptual Model.

Based on the above conceptual model and literature review, the following hypotheses were formulated for this study:

H1 *- The apology offered onboard a cruise ship will have a significant influence on the complaint intention, as customers seek for apology plus extra benefits.*
H2 *- The assistance offered with discounts, coupons or free gifts will have significant influence on the complaint intention, as passengers like to receive extra compensation while the problem is rectified.*

H3 *- Upgrades onboard cruise ships will have significant influence on the complaint intention, as is consider an extra benefit of the compensation.*

H4 *- The economic compensation onboard cruise ships (Onboard Credit and Discount on future cruise) will have significant influence on the complaint intention, as monetary compensation is what the passengers seek the most.*

H5 *- Cruise blogs & reviews will have significant influence on the complaint intention, as these websites directly or indirectly influence on the consumer complaint behaviour.*

H6a *- The relationship between apology and complaint intention is moderated by previous complaint experience, such that if consumers have a previous complaint experience the effect of apology on complaint intention will increase, but if consumers not have previous complaint experience the effect of apology on complaint intention will decrease.*

H6b *- The relationship between assistance (discounts, coupons or free gifts) and complaint intention is moderated by previous complaint experience, such that if consumers have a previous complaint experience the effect of assistance on complaint intention will increase, but if consumers not have previous complaint experience the effect of assistance on complaint intention will decrease.*

H6c *- The relationship between upgrades and complaint intention is moderated by previous complaint experience, such that if consumers have a previous complaint experience the effect of upgrades on complaint intention will increase, but if consumers not have previous complaint experience the effect of upgrades on complaint intention will decrease.*

H6d *- The relationship between economic compensation (Onboard Credit and Discount on future cruise) and complaint intention is moderated by previous complaint experience such that if consumers have a previous complaint experience the effect of economic compensation on complaint intention will increase, but if consumers not have previous complaint experience the effect of economic compensation on complaint intention will decrease.*

H7 *- The relationship between cruise blogs and reviews, and complaint intention is moderated by previous complain experience, such that if a consumer read the previous complaint experience of other consumer on cruise blogs the complaint intention will increase, but if the consumer not read the complaint intention will decrease.*

3.2 Research Design

For this study the descriptive research design was chosen along with quantitative research method and primary data sources (Hair, Celsi, Ortinau, & Bush, 2013; Malhotra, 2007).

In order to gather the information a structured questionnaire was developed to measure the relationship between the variables and the strength of the moderator variable, scales related to service recovery and blogs from different authors were used and adjusted to this study. Maintaining the same scale used by the different authors, the 7-point Likert scale.

The population of this research it's cruise ship passengers. The sample was selected from different cruise companies and passengers from different countries in order to understand the passenger complaint behavior in different environments. The sample is focus in men and women between 20 to 75 years old who are frequent cruise travelers, according to the recent research of "CLIA," of 2017. As the population is unknown, due to the fact that cruise ship passengers travel from different parts of the world and they are from different countries, the Multiple Regression Analysis will be used in order to calculate the population along with a Statistical power analysis.

This study will utilize convenience sampling, a type of non-probability sampling technique that will allow collecting relevant information in a short time and at a low cost.

A questionnaire link was posted on the main cruise forum web page, such as "Cruise Critics" that is the most visited web page for cruise travelers among the others websites. The posted link directly leaded respondents to the questionnaire that was also posted through different Facebook groups related to cruises. The data was collected in 6 days (from April 14 to 19).

Finally, the data was exported and analyzed statistically using SPSS (Statistical Package for Social Sciences) version 25 (IBM, n.d.).

4. Empirical Research Results

As mentioned before, the data was collect through online reviews. A total of 164 responses were collected in 6 days, from where only 96 responses were analyzed as 68 of them have be eliminated because of incomplete response (10), and for the 3 first filtered questions (58).

4.1 Regression Analysis

The regression analysis determines if the hypotheses raised previously are supported or rejected. Also, seek to know which independent variables (Apology, Assistance, Upgrade, Economic Compensation and Cruise Blogs & Reviews) have more influence towards the dependent variable (Complaint Intention). A multiple linear regression was carried out for this statistical data analysis.

The model summary (Table 1) shows that R-Square for the overall model is 0.315, meaning that 31.5% of the variability of Complaint Intention can be explained by the 5 independent variables. Despite a relative low R-Square, we can still predict by 32% the answer for the new respondents.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of The Estimate
1	.562[a]	.315	.269	1.02417

a. Predictor: (Constant), MPri, Blog, Apo, Upg, Eco, Asst
b. Dependent Variable: DComp

Note. Compiled by the authors

The Anova test (Table 2) shows that the model is significant at the $p < .000$, therefore the regression model is good predictor for Complaint Intention. A significant regression equation was found $F(6,89) = 6.833$, $p < .001$, in other words the regression model is a good fit of the data

Table 2: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.004	6	7.167	6.833	.000[b]
	Residual	93.355	89	1.049		
	Total	136.359	95			

a. Dependent Variable: DComp
b. Predictor: (Constant), MPri, Blog, Apo, Upg, Eco, Asst

Note. Compiled by the authors

4.2 Hypotheses Testing

The previous analysis demonstrates that there is relationship between the variables and the model is significant. The next test displayed on the regression analysis is the coefficient table, which provides a better understanding of the results for each variable, from where is possible to know if the hypotheses were supported or rejected.

The table 3 represents the Model 1, which analyzed the hypotheses H1, H2, H3, H4, H5 including the moderator variable. To understand better the table each variable was renamed for the analysis. The independent variables renamed such as: Apology (Apo), Assistance (Asst), Upgrade (Upg), Economic Compensation (Eco) and Cruise Blogs & Reviews (Blog). The moderator variable Prior Complaint Experience was rename with (MPri) and the dependent variable Complaint Intention with (DComp). The Summary of the Hypotheses Test Result on Table 4.

Table 3: Linear regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.722	.595		4.577	.000
	Apo	-.075	.103	-.098	-.726	.470
	Asst	-.271	.129	-.376	-2.102	.038
	Upg	.035	.077	.059	.456	.650
	Eco	.261	.121	.362	2.165	.033
	Blog	.291	.077	.342	3.767	.000
	MPri	.286	.084	.321	3.421	.001

a. Dependent Variable: DComp

Note. Compiled by the authors

DComp = Complaint Intention; Apo = Apology; Asst = Assistance; Upg = Upgrade; Eco = Economic Compensation; Blog = Cruise Blogs & Reviews; MPri = Previous Complaint Experience

Table 4: Summary of the Hypotheses Test Result: H1, H2, H3, H4 and H5

Hypotheses	Result
H1 -	Rejected
H2 -	Supported
H3 -	Rejected
H4 -	Supported
H5 -	Supported

Note. Prepared by the authors

As already mentioned, *previous complaint experience* was chosen as the moderator variable. Hayes' (2018a), explain that "moderator variable W influence the magnitude of the casual effect of X on Y" (p. 8).

Therefore, Hayes' (2018b) PROCESS v3.0 macro Model 1 was performed, in order to know if the moderator variable strength the relationship between the independent variables and the dependent variable for the hypothesis H6a. H6b, H6c, H6d and H7. Table 5, shows the summary of the hypotheses raise for the moderator effect.

Table 5: Summary of the Moderation Hypotheses Test Result for: H6a, H6b, H6c, H6d and H7

Hypotheses	Result
H6a -	Rejected
H6b -	Rejected
H6c -	Rejected
H6d -	Rejected
H7 -	Supported

Note. Prepared by the authors

5. Findings

In this section, findings will discuss the relationship between the variables proposed and the results obtained from the analysis. The results of the findings, are explained below:

5.1 The Relationship between Apology and Complaint Intention

The studies find out that apology is expected when a service failure occur (Smith, Bolton & Wagner, 1999). Meanwhile, the study of Mattila and Cranage (2005), may provide the insight of the rejecting of the hypothesis, as suggest that apology and compensation have to be provide together in order to assure a maximum customer satisfaction.

5.2 The Relationship between Assistance and Complaint Intention

This relation also has been supported. Wirtz and Lovelock (2017) stated, that the assistance offered to the consumer for an inconvenience should be accompanied by extra benefits in order to have a good service recovery outcome. Also, the speed at which assistance is offered is also important for the consumer, meaning that less time waiting for the recovery, better the outcome (Blodgett, Hill, & Tax, 1997).

5.3 The Relationship between Upgrades and Complaint Intention

Upgrades on service companies like hotels, restaurants or airlines, are especially provided when a service failure occurs (Wirtz & Lovelock, 2017). Whereas, in cruise companies (Skaalsvik, 2011), upgrades are especially provided when is necessary to rectify a service failure. However, results of the empirical research were rejected. Meaning that onboard a cruise ship, costumer may prefer an economic compensation instead of upgrades when a service failure occurs.

5.4 The Relationship between Economic Compensation and Complaint Intention

The research results confirm the theory of Shumacher and Komppula (2016), stating that in a service company consumers prefer more monetary compensation among the others service recovery strategies. Nevertheless, cruise companies are not the exception, as consumers prefer a monetary compensation the most due to the fact that this kind of compensations like onboard credit, can be applied directly to their account (Cruise Critic Staff, 2017), or in their next sail with the same company as a Discount on future cruise.

5.5 The Relationship between Cruise Blogs and Reviews, and Complaint Intention

"CLIA" (2017), stated that cruise vacationers use cruise blogs looking for information or tips prior their travel. The results of the findings demonstrate that if a consumer reads more cruise blogs and reviews from another consumer, will increase his/her desire to complaint. . It is in this interaction that consumers learn about other consumer experience (good and bad ones), acquiring knowledge about the possible benefits that may obtain from the service recovery.

5.6 The Moderator Effect in Service Recovery Strategies

Base on the research findings previous complaint experience have strong significant influence with complaint intention. However, the analysis demonstrate that in the service recovery strategies the moderator effect was not significant, even if consumers have previous complaint experience with service recovery.

5.7 The Moderator Effect in Cruise Blogs and Reviews

The findings demonstrate relationship between cruise blogs and reviews with complaint intention. This effect is stronger on consumers that don't have previous complaint experience, as they will read more cruise blogs and reviews. These results have already been explained by different studies confirming that cruise blogs has influence on the consumer complaint behaviour (Cruise Critic Staff, 2017), as blogs is the place where consumers learn from other experienced consumers (Yoo & Gretzel, 2009).

6. Discussion

After this analysis, it can be answer the research question: *How service recovery influence consumer's complaint intention to obtain benefits in the cruise ship industry?*
The result of the analysis demonstrates that service recovery influence the consumer complaint intention, since the customers seeks to obtain the same service recovery outcome learned from their past experience - Customers know that there is a high possibility to obtain the same benefits from the service recovery if the same service failure occurs.

The analysis of the research also confirms that among the service recovery provided in a cruise ship, consumers seek more economic compensations, meaning, monetary compensations have higher influence among the overall recoveries provided. However, costumers prefer more the combination of service recoveries: apology or assistance plus an extra benefit (any kind of monetary compensation).

In addition, through the cruise blogs and reviews, consumers acquire knowledge about the possible benefits that they can obtain from the service recoveries provided onboard a cruise ship. Also, considering that by reading other customers experiences related to service recovery, customers obtain certain level of knowledge of the benefits that they may obtain from the cruise company.

7. Managerial Implications

This study has several implications for cruise ship managers and for marketers.
First, cruise ship managers have to pay more attention to the service recovery provided when a consumer complaint. This study, demonstrate that consumers prefer to have a combination of service recoveries, especially the ones that include economic compensation. Based on these findings, it is suggested to the managers along with the marketers, to work in new service recovery strategies. Even though cruise companies collect information from surveys provided at the end of each cruise (Reijnders, 2016), companies should direct a second survey to the customers that presented a complaint during that cruise. This will allow the companies to have a better insight about the expected service recovery and suggestions to improve.

Second, another important factor that managers have to take in consideration is the influence of cruise blogs and reviews towards the passengers. Findings of the study demonstrate that the statistical analysis of cruise blogs and reviews have a strong influence on the complaint intention. Therefore, cruise ships companies have to engage this cruise blogs with the company, in order for the managers to have a better control of the information shared through this blogs and start to work in possible solutions for problems shared there.

Third, another implication that managers should consider are the expertise consumers. The findings indicate that previous complaint experience has strong influence on complaint intention. Meaning, that this consumers are expertise in different areas of the cruise including service, procedures and complaints. Therefore, cruise ship managers have to be able to recognize this consumers in order to work different with them as they will have more intention to complaint and they know what service recovery to expect when they encounter another service failure (Bitner, Booms & Tetreault, 1990).

8. Limitations and Recommendations for Future Research

The study has several limitations. First, the collection of the data was limited to few cruise blogs and cruise Facebook groups. As most of the cruise forums only accept as a member actual cruisers, and allow the members to delete posts that are not relevant, the link posted was eliminated in a short period of time, most of the time by the members and not by the website itself. Future research should be conducted as a personal interviewer or as qualitative analysis.

Second, the respondents expressed through the blogs that they were not interested in finish the survey because was not link to a specific company as they were seeking to complaint about them. As a

recommendation for future research, surveys should be focus on a specific type of Cruise Company. In order to focus on a specific company the survey has to target on a specific segment.

The third and last limitation is related to compensation in service recovery. Most of the service industries call compensation to any extra benefits provide to the consumer for a service failure. As an example discounts, coupons, free gifts, free dinners, upgrades or any kind of monetary compensations is called with the same name, producing bias to the consumers that may not know how to differentiate when each compensation have to be provided. Therefore, as a recommendation for future researches, will be necessary to make studies based only on compensations.

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Analysis of India Ecosystem for Startup with Using Data Mining: Settlement of Big Data

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Abstract

In conditions of knowledge-based and digital economy research ecosystem of the startup have to make some decisions every day and in the framework of it analyze factors influencing them and estimate the potential of an ecosystem. An important feature of the ecosystem of startup development is understanding of what field is popular among the investors and estimate the level of involvement of different areas of the country in the startup ecosystem. Data mining techniques are a necessary approach for accomplishing practical and effective solutions to this problem. Indian startup has been an obvious target for big data. This work directly includes the existing literature about ecosystem concept and Big data application.

Keywords: Big data, data mining, startup ecosystem

Introduction

The challenge of modern life requires a flexible approach and quick reaction to changes in the world. Today we are building a training system based on professional standards. However, this situation becomes irrelevent for professionals in the field of knowledge-based and digital economy, because environment requirements change faster than standards. In this way, some researchers believe that we have become information dependents of the twenty-first century, living in an on-command, on-demand Big data world (Hota C. and others, 2015). Big data receives data from all fronts and it would be a helpful decision-making tool to use if it can be analyzed properly sure, but it also has huge data complexity which in turn make the computation of the data complex (Doruk et al, 2016). Besides, during the time of development knowledge management academies and government makers face the problem of decision making in any way. The lack of a synthesized overview of existing definitions and knowledge of the startup ecosystem framework indicates a research gap and poses a challenge in the conduct of further studies (Tripathi et al, 2018). According to this research gap, it is important to understand the potential of Indian startup ecosystem in the context of what type of startups are getting funded in the last few years, and what field is popular among the investors. Big data about the Indian startup scene, which could give the possibility to estimate the funding situation and help to make a forecast in the framework of business development. The main question, which clearly been researched in this paper: Data mining is an instrument for managing and predicting the strategy of development for governments and other involved participants of the startup sphere. Addition to that, some scholars consider, that big data has not only transformed the business models but also paved the way for organizational strategic decision-makers to act in a timely manner (Beath et al., 2012; McAfee and Brynjolfsson, 2012).

Data mining technique includes methods of classification, modeling and forecasting, based on the use of decision trees, artificial neural networks, genetic algorithms, evolutionary programming, associative memory, fuzzy logic and statistical methods (descriptive analysis, correlation and regression analysis, factor analysis, variance analysis, component analysis, discriminant analysis, time series analysis, survival analysis). However, it takes some knowledge of the data being and analyzing.

Literature Review

There are different methodologies developed and evaluated by the researchers all over the world in the field of startup. One of them: Researcher like Srivardhini (Srivardhini, 2018) is analyzed entrepreneurial ecosystem in India. He distinguished main domains, which includes access to markets, finance, and quality human capital progressive policy framework and a range of institutional support as key factors of a strong ecosystem. In the framework of research in the area of 'entrepreneurial ecosystems' (Feld, 2012; Isenberg, 2011; Mason and Brown, 2014; Neck et al., 2004) takes an embedded view of new business ventures and their evolution. In this way, ecosystem approach supports firms to develop in the comprehensive development in the social, cultural and institutional context that increase their possibility for success.

Most development efforts have been focused on the industrialization and commercialization of data technologies and infrastructure, while few efforts have addressed the immense repercussions of the social dynamics and organizational, political, and managerial decisions inherent in the development of big data (Housley et al, 2014). The ecosystem concept is also used in the business field, such as a business ecosystem forming a network of companies that collaborate to produce systems that hold value for customers (James, 1997).

Bahrami and Evans (1995) were one of the first in the academic entrepreneurship literature to invoke the term "ecosystem" in their study of Silicon Valley. At the same time, Spilling (1996: 91) emphasized the "entrepreneurial system," describing it as the actors, roles, and environmental factors that interact to determine the entrepreneurial performance of a region. Because when entrepreneurs identify, create, and respond to market opportunities, they exhibit intentionality in formulating implicit and explicit action plans (i.e., projective linkages of actions to objectives; Encinar& Muñoz, 2006; Zapkau, Schwens, Steinmetz, &Kabst, 2015). In addition, a growing demand for big data is a noticeable note, because, nowadays, big data analytics has become a trendy practice in business intelligence encompassing combination of massive data sets and advanced analytics techniques, and it plays a key role in influencing aspects of business activities and customer choice (Russom, 2011).

At this point, Sheng (Sheng et al, 2017) made an analysis of big data's significance in business and management improvement. He demonstrates in his work that besides the data-driven approach the technological innovation promotes changes in managing an organization, operation, marketing and other business activities. In the process of using big data into management mechanism, it is estimated additional values, and it was created and realized in business development. Furthermore, he distinguishes that firms need to formulate and implement a data-driven strategy and their head of management should organize the strategy taking into account the investments in IT innovation and data analytics skills development. So as high level of techniques to analyze and interpret big data, executives would be able to make decisions in a strategic, timely, and flexible manner, which gives competitive advantages overall.

Methodology

The objective of the proposed work is to analyze the startup environment data using data mining techniques. In the proposed work, startup data has been collected from the following sources: The dataset for research aim [https://kaggle.com]. Input dataset consists of 3-year data for the period from January 2015 to August 2017. It includes columns with the date funded, the city the startup is based out of, the names of the funders, and the amount invested (in USD).

Big data analysis was made by authors using data mining techniques which are illustrated in figure 1. It begins with the tracking, which is meant a recognition of the pattern of the dataset. According to the

dataset about funding startup in India, the description of every indicator was learned. After that, it took place classification, which is used for collection of various attributes together into discernable categories, which you can then use to draw further conclusions or serve some function. Following that at the stage of association, you'll look for specific events or attributes that are highly correlated with another event or attribute. In turn of outlier detection, you have the possibility to exclude outliers in your data, because simply recognizing the overarching pattern doesn't enough for a clear understanding. Subsequently, clustering is necessary for data points. Cluster analysis divides data into well-formed groups (Majumdar et al, 2017). Finally, regression and forecasting used as a form of planning and modeling. Particularly, multiple linear regression (OLS) is the method used to model the linear relationship between a dependent variable and one or more independent variables. The dependent variable is volume funding startup and independent variables are investment type, industry, and location. Purpose of this work is to find suitable data models that achieve high accuracy and show for an interested person the picture of an ecosystem for startup. As it is known, least square method - the most well-known regression analysis method, which supports creating a global variable or process model that you want to study or predict.
Linear multiple regression model:

$$y = a + b_1 x_1 + b_2 x_2 + \ldots + b_m x_m + \varepsilon$$

OLS makes it possible to obtain estimates of the parameters for which the sum of the squares of the deviations of the actual values of the effective characteristic from the calculated ones is minimal:

$$\sum_i \left(y_i - \hat{y}_{x_i} \right)^2 \rightarrow \min$$

At the result of OLS method, it is possible to make interpretation of variables and prediction, which is one of the most valuable data mining techniques, since it's used to project the types of data you'll see in the future.

Panel Data

Figure 2 contains log normal distribution data of funding amount of startup according to investment type for panel data. The data reveals subordination to the normal distribution law and the possibility of application of statistical methods of analysis. It can be clearly seen, that the majority of India startup was funded by private equity and seed type of investment, which may be due to certain conditions of the ecosystem for startup of the country. Moreover, it is noticeable that the share of crowdfunding in the funding amount is minor, that means the necessity to improve infrastructure for crowdfunding or improve another suitable type of investment for the country.

At the next stage of analysis, it is seen that the consumer internet industry has got the great demand among investors which could be connected with the globalization of the world economy and digital technologies. In this way, technology and e-commerce industry take the second and the third place among the investors by funding rate (figure 3).

On the other hand, it is important to take into account the location of startup financing. It is evidently, every region of the country needs support from the government with the aim of development and well-being. Krajcik (Krajcik&Formanek, 2015) described a regional startup ecosystem as follows: «A regional startup ecosystem is an effective method to endorse regional innovations and the development of the business environment along with securing the growth of the domestic product and employment in the given country». So in this way, we researched the visualization of funding rate according to location

(figure 4). As we see, four main cities of India at the top place of ranking because of their relatively well-developed infrastructure. However, it is noticeable that such cities like Vadodara, Pune/US, Chandigarth use the least demand in startup funding.

New players in the market in the face of innovative firms take a key role in the conditions of a knowledge - based economy, because they are one of the sources for creating new jobs, however, they are restricted by the lack of funding. Thus, in addition to our research, we have created the visualization of funding amount according to investors. It is noticeable, that the majority of startups is funded by undisclosed investors and Indian angel network (figure 5). The smaller part of the funding amount takes different venture companies and other private companies.
We chose the regression model in order to analyze the dependence between the variables of the dataset and provide coefficients that influence the result of the funding of startup projects. Moreover, in the process of building a regression model to predict funding rate startups with dummies variables.

Table 1 reveals the regression model results. The control variables Investment type and Investor name reach significant levels, p-value <0.05 and adjusted R-squared > 50%. Oppositely, control variables Industry Vertical, City, and Sub-industry show a weak dependence on funding amount with a low level of statistical significance (p-value >0.05) and R-squared.

The implication is that data mining technique can be useful as a tool for analysts of all the spheres. Particularly, such tool provides policy makers with the opportunity to better create and manage the state program of supporting ecosystem for startup. According to the figure 6, which illustrates the scheme of decision making for policy makers in the framework of supporting ecosystem for startup. As a result, the use of this kind of Big Data analysis has allowed managers to make decisions according to the strategy development in the country and choose appropriate mechanism of funding in appliance with the specific of the economy.

Results

We focused on two relative questions for this study: research perspectives of the Indian startup ecosystem and could data mining be the instrument of strategic management for startup ecosystem development. This work extends previous research on the two specific ways. Firstly, at the result of analyzing Indian startup dataset using data mining techniques we found out, what industry is funded by investors, in which area, and type of investment, which illustrated that innovative possibility of entrepreneurship was developed in the different levels among the areas of India. Secondly, we could estimate the ecosystem of Indian startup according to the dataset, which was analyzed by using a data mining technique in the settlement of Big data. We could be convinced, that Big data can provide benefits such as more focused advertising and marketing of products and services – leading to higher prosperity and more adaptable and sustainable products and services (Ryan and etc., 2018). As such, the information analyzing and big data helps investors and governments in creating the strategy of development and making a decision in the aim of improvement startup ecosystem. Furthermore, in this case, it takes place estimate efficiency of investment type, which influences to funding amount and successful realization of a startup.

We think this is a reasonable assumption for startups since information about the ecosystem of startups could be collected and tend to the right way of a good establishment. On the other hand, investors could find an answer to their questions and information assumption relevant even in such settings.

This study is limited to firms, which are interested in other information about funding, such as stage of financing and other information about factors affected successful funding of the firm. This study essentially parallels the work about the interaction between government and business in the framework of the knowledge-based economy conditions, so additional work is needed in a couple of areas. Besides,

technically it was difficult to process data because of incorrect data format. It took enough time for changing the format of data in order to analyze it. The nature of this dataset does not allow us to explore the efficiency of knowledge-intensive production, and estimate results of high tech innovation in industries. In fact, it is possible to accomplish some cutting-edge data mining with relatively modest database systems, and simple tools that almost any company will have.

However, data mining is the best collection of techniques which is popular among scholars for making the most out of the data. As long as we apply the correct logic, and ask the right questions, we can get conclusions that have the potential to revolutionize everything.

Figures and Tables

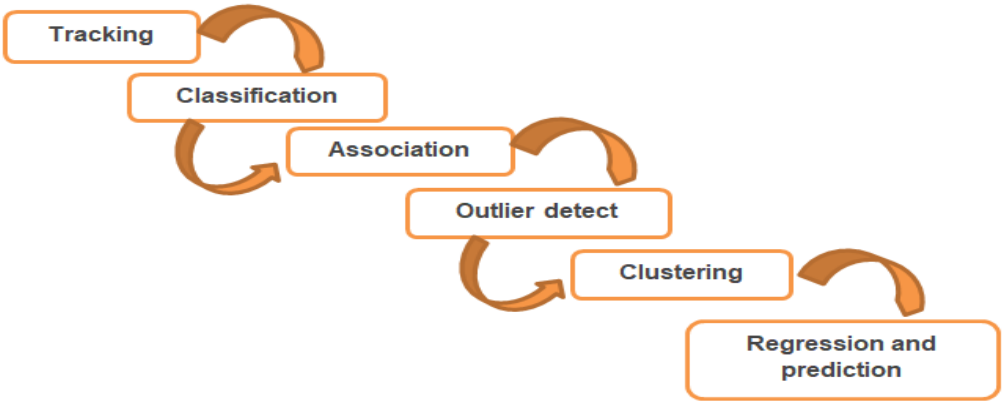

Figure 1: Data mining techniques

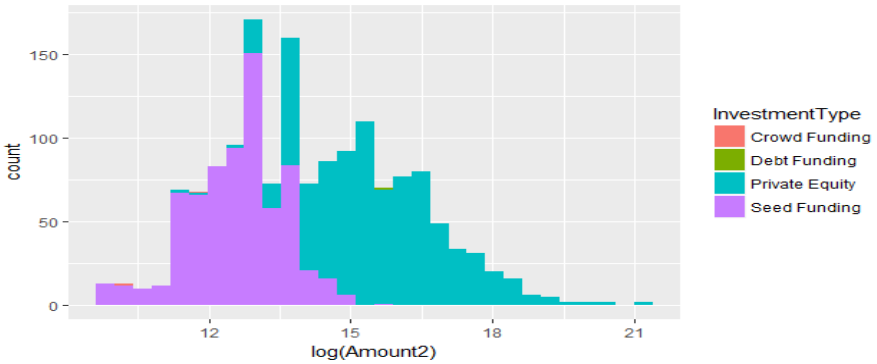

Figure 2: Data funding amount

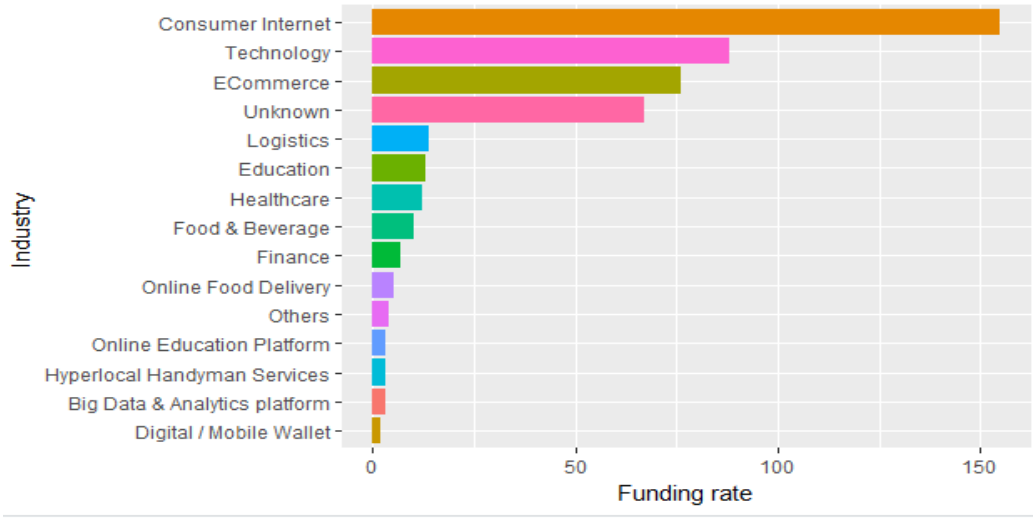

Figure 3: Visualization of funding rate according to industry

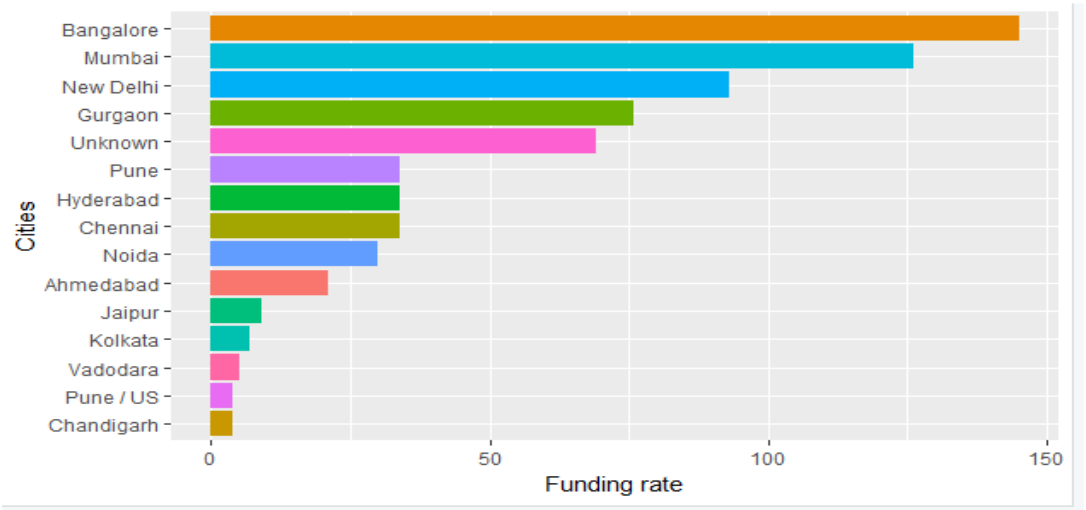

Figure 4: Funding rate according to location

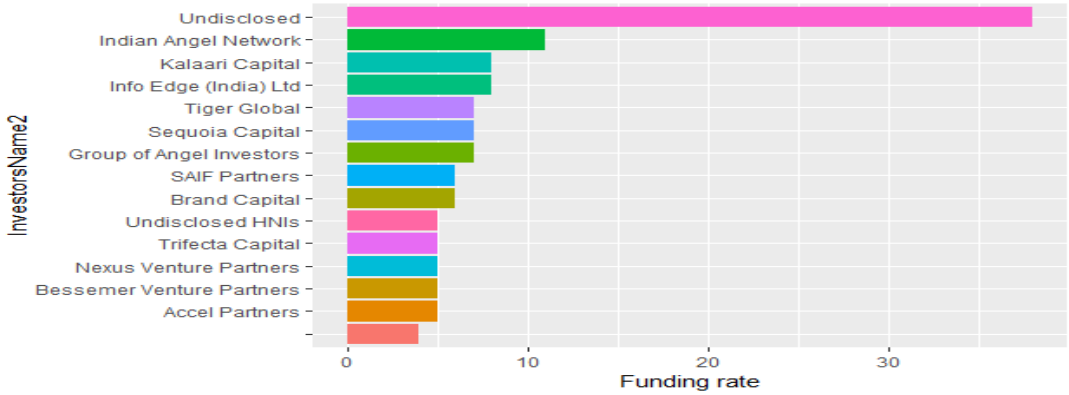

Figure 5: Funding amount according to investors

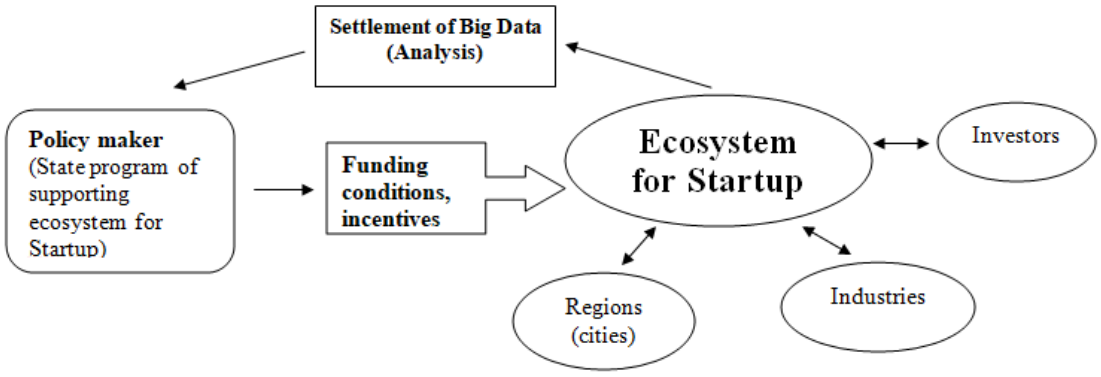

Figure 6: Scheme of decision making for policymakers

Table 1: The results of the regression model of India startup dataset

	Variable name	Type of variable	Adjusted R^2	p-value	F-statistic
1	Amount of Funding	number			
2	Investment type	dummie	58%	2.2e-16	698.8
3	Industry Vertical	dummie	1,4%	0.2889	1.043
4	City	dummie	1,9%	0.005895	1.578
5	Sub Industry	dummie	- 2,8%	0.7635	0.9493
6	Investor Name	dummie	70%	2.2e-16	3.883

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The Impact of New Technologies on Employment in Kazakhstan

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Abstract

Study investigates the influence of technological factor on employment in Kazakhstan in comparison with the indicators of the world`s leading countries in the short run. Comparative analysis of the factor of technological readiness and its sub-indicators for five countries showed the absence of link between the new technologies introduction, the employment rate and the growth of mass unemployment. The analysis revealed that it`s necessary for developing countries to overcome the growing gap from the developed countries to accelerate the technological modernization of the economy. Study reveals that we should focus on the introduction of the latest technologies, which can provide economic growth and increase employment in the long term.

Keywords: new technologies, technological development, employment rate, unemployment, product and process innovation

Introduction

The analysis of literature sources shows that there are two opposite points of view regarding the new technologies impact on employment: some claim that workers displaced by the new technology will find a new job (D.H. Autor, 2014, D. Rotman, 2013); another scholars believe that the new technology will create massive technological unemployment (F. Postel-Vinay, 2002). However, everyone agree that new technologies will have a fundamental impact on labor markets and jobs in all countries, including developing countries.

K. Schwab (2016) emphasizes two important indicators: growth (mostly through the prism of the long-term determinant - productivity) and employment. He thought companies and countries must introduce innovations in all their forms in order to ensure competitiveness. The fourth industrial revolution associated with such technological achievements as "digitalization", creation of artificial intelligence, robotization, etc.

Industry 4.0 has the potential to increase economic growth, but negative effects on employment are possible (E. Bryjolfsson, A. McAfee, 2011). The Brussels European and Global Economic Laboratory (BRUEGEL) has determined that almost 50% of professions in the leading European countries will be computerized in the coming decades. Almost 60% of professions can be replaced by new technologies in Romania, Portugal, Croatia and Bulgaria (N. Pashkevich, D.M. Haftor, 2014). Scientists forecasted reduction of professions with low qualifications and low wages. Technology pushes workers` redistribution to solve problems that requiring creative, social intelligence and not susceptible to computerization. In this case, workers should improve appropriate creative and social skills (C. B. Frey, M. A. Osborne, 2013).

Kazakhstan is country with an emerging market, which set a strategic goal by 2050 to become one of the 30 most developed countries of the world (N. Nazarbayev, 2017). In this regard, the authors analyzed the possible technology impact on employment in Kazakhstan and compared it by similar indicators of a number of leading developed countries.

Methodology and Analysis

An analysis of the innovation`s impact on employment can be conducted at micro, meso and macro levels. For many reasons, analysis at different levels gives divergent results: at the micro level there is a stable positive relationship between technological innovation and employment growth in the long term. At the meso level technological changes cause a multidirectional employment reaction. At the macro level technological progress acts as a positive or neutral factor. In the short term, a burst of technological unemployment seems extremely unlikely (Kapelyushnikov, 2017).

The study at the macro level has advantages over micro and meso levels, but from methodological point of view, the main drawback of macro research is that the trajectory of changing total employment is determined by a variety of structural, institutional and social factors. Authors consider the employment change problem with the technological factors action at macro level. We took the relevant data for the last five-year (2013-2017) for the analysis because the influence of technological factor on employment is most clearly manifested in the short term.

Fig. 1 shows the dynamics of the place of countries in the indicator of technological readiness and their employment levels. Kazakhstan improved its positions according to latest report of the WEF, but it lags far behind the leading countries.

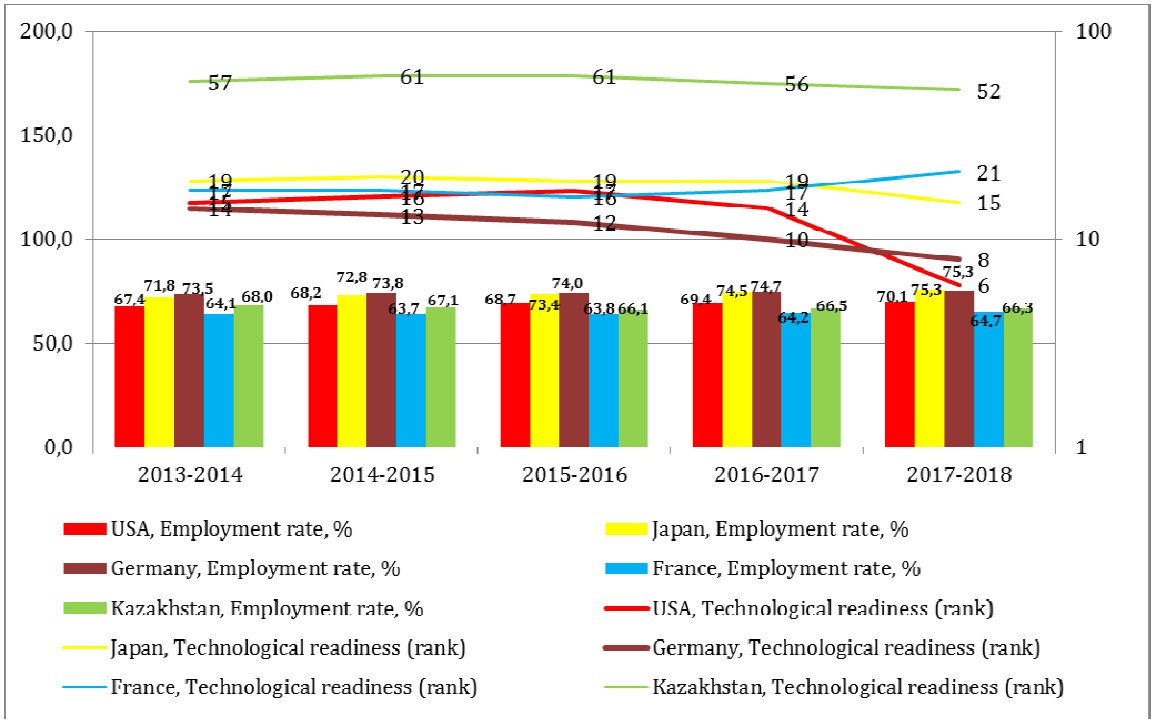

Figure 1: Rank of countries on technological readiness and their employment levels (Created by authors based on data of The Global Competitiveness Reports 2012–2018 of the WEF and OECD. Stat)

Changes in the countries` rank considered for technological readiness were not accompanied by significant changes in the level of employment. There are no convincing signs that the introduction of the latest technology in developed countries leads to mass unemployment. In some of them even led to an increase in the level of employment. Against the background of the backlog in technological development from the leading countries, Kazakhstan has also developed a relatively stable employment situation.

Table 1 shows GCI and some sub-indicators of technological readiness. Results show that, Kazakhstan didn`t improve its positions during five-year. This naturally affected the decline of Kazakhstan`s GCI.

Table 1: Ranks of countries GCI and sub-indicators of technological readiness (Created by authors based on data The Global Competitiveness Report 2013–2014 and 2017-2018)

	2013-2014				2017-2018			
	The GCI	Availability of latest technologies	Firm-level technology absorption	FDI and technology transfer	The GCI	Availability of latest technologies	Firm-level technology absorption	FDI and technology transfer
USA	5	6	9	46	2	6	2	5
Japan	9	14	6	55	9	11	15	25
Germany	4	13	16	58	5	16	12	11
France	23	18	32	73	22	19	30	28
Kazakhstan	50	88	78	93	57	104	81	93

Detailed analysis showed that Kazakhstani economy characterized by a low demand for technology. This is due to the dominance of extractive industries, which are characterized by a lower propensity to innovate.

The leading developed countries have already begun the transition to the sixth technological order, the share of the fifth technological order is less than 1%, the fourth technological order is about 35%, the third technological order is about 65% in the Kazakhstan`s economy (F.Dnishev, F.Alzhanova, 2014).

The cost of innovation in Kazakhstan ranged from 1.07-1.41% of GDP in previous years, and reached 2.89% of GDP in 2016. The majority of these costs realized in industry. Fig. 2 shows the share of costs for product and process innovation in industry. Despite the fact that the costs of process innovation were about 4 times higher than product innovations, they almost didn`t affect the decline in employment. They had to lead to increased productivity with fewer employees and a corresponding growth in the economy. This is not clearly traced due to the low level of novelty of technological innovations. Enterprises prefer to buy used and cheap equipment, don`t try to move aside high-tech production.

The authors claim that other factors of structural, innovative and social nature influenced a relatively favorable situation with employment in Kazakhstan. The experience of developed countries shows that the accelerated introduction of new technologies should become the main driver of economic growth and factor of improving the well-being of citizens.

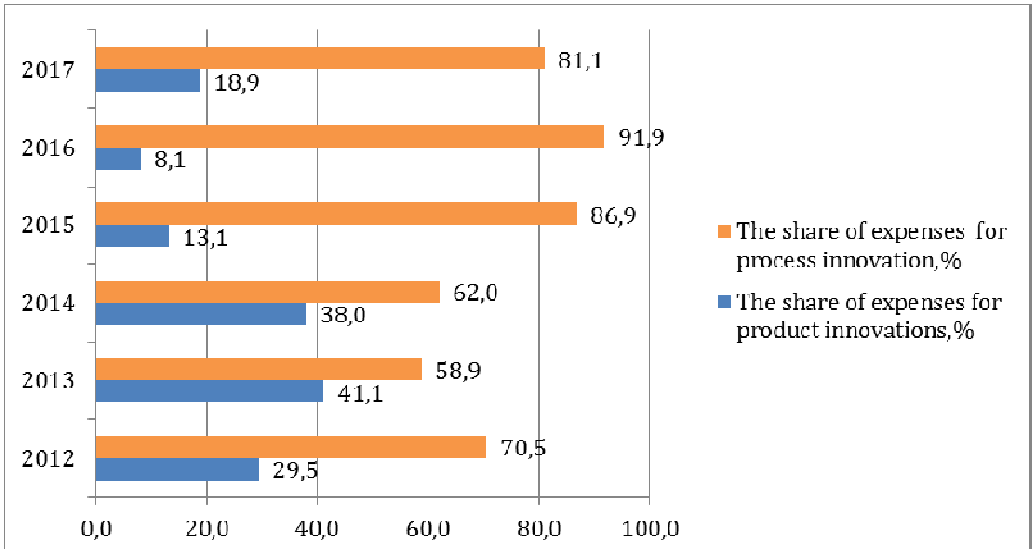

Figure 2: The share of expenses for product and technological innovation in the industry in Kazakhstan, (Calculated by authors based on data of Committee on Statistics of the Ministry of National Economy of Kazakhstan Republic)

Results

The results of this study confirm the thesis that positive or neutral influence of the factor of technological progress on the employment indicator. A surge of technological unemployment in the short term is not observed. Leading developed countries retain their leading positions in the economy and provide relatively high employment of their citizens through the rapid introduction of new technologies.

Summary

Example of Kazakhstan shows the real threat of developing countries lagging behind developed countries if the state's technological policy is not deliberately pursued. It is necessary to overcome the existing phobia regarding negative social consequences. As a result, the competent implementation of technological modernization in Kazakhstan is able to ensure sustainable economic growth and positive changes in the labor market and employment.

Acknowledgment

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Internal Factors Environment and Small Medium Enterprises (SMEs) Performance: Malaysian Evidence

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Abstract

This study investigates the association between internal factors environment, and the performance of Small and Medium Enterprise (SMEs) comprises employee's capabilities and behavior, technological environment, financial management and creativity and innovation. A total of 152 SMEs were selected as sample for this study, and each was given a three-section survey questionnaire. The findings reveal that all the internal factors, except for creativity and innovation, have a significant association with the SMEs performance. The outcome of this study heightened the importance of internal factors, which could be a reference to the government agencies and authorities to strengthen the performance of SMEs, locally as well as globally. The findings are expected to add to the extant literature as well. Several limitations and recommendations for future research were discussed.

Keywords: Creativity and innovation, employee's capabilities and behavior, financial management, SMEs performance, technological environment

Introduction

Small and Medium Enterprises (SMEs) have a significant role in contributing to the country's economy. In particular, the establishment of SMEs is contributing to the gross domestic product (GDP) of the country as well as reducing the level of unemployment, promoting entrepreneurship activities (Sitharam and Hoque, 2016), expanding the tax base and becoming the driver of innovation (Katua, 2014). Furthermore, SMEs are facilitating the development of the market economy through innovation, creativity, encourage the advancement of technology and promote economic competitiveness by venturing into various fields, such as agriculture, processing, manufacturing, services, trading and others (Indris and Primiana, 2015). Generally, SMEs is an independent business entity with a small market share and operated by the owners or co-owners (Margaretha and Supartika, 2016). There is a need to standardize the category of companies that fall into the criteria different from large companies to be considered as enterprise or small and medium enterprise when describing SMEs (Berisha and Pula, 2015). According to Berisha and Pula (2015), the European Union and the World Bank designate the size of the business entity, namely micro, small, and medium-sized under

enterprise according to specific criteria such as the number of employees, annual turnover, annual balance sheet and total asset to identify a company as SMEs.

Accordingly, an enterprise in Malaysia take into account the number of employees and the annual sales turnover as the quantitative criteria for SMEs and can be categorized into manufacturing and services or other sectors. The enterprises are governed by the SME Corporation Malaysia (SME Corp.), which is one of the government agencies responsible for formulating policies and strategies for SMEs and coordinating the implementation of SME development programme. The SME Corp. (2013) has simplified the definition of SMEs in which an enterprise in the manufacturing sector can be labeled as SME if it has employees not exceeding 200 workers and the sales turnover not exceeding MYR50 million. On the other hand, an enterprise in the services and other sectors are described as SME if it has full-time employees not exceeding 75 workers with sales turnover not exceeding MYR20 million. Scholars emphasize on SMEs vital role in the Malaysian economy, acting as the backbone of the industrialized development, addressing the unemployment issue (Jan Khan and Khalique, 2014) and improving income distribution in the economy of urban and rural areas (Madanchian, et al. 2016). In fact, 98.5% business establishment in Malaysia is SMEs across all sizes and sectors (Atan, 2017). According to the Department of Statistics Malaysia (2017), the SMEs contribution to the country's GDP increased steadily to 36.6% in 2016 compared to 36.3% in the preceding year with value added of MYR405.5 billion. Remarkably, the SMEs GDP grew by 5.2% outpaced the 4.2% growth of Malaysia GDP in 2016, thus reflecting the importance of SMEs role in gearing up the nation's economy (Department of Statistics Malaysia (2017).

SMEs exceptional role and success in the economy has caught the attention of many scholars and practitioners to study the factors that influence the performance and profitability of SMEs (Mohamad Radzi, et al. 2017; Ahmed Fouad, 2013). It is imperative to recognize the performance measurement because of the SMEs aggregate impact and economic functions to the nation since SMEs are facing more competition not only from peers but also from large enterprise in the niche market (Mwihaki, 2015). Despite the numerous SMEs' success stories, there are a substantial number of Malaysian SMEs that performed poorly (Mohamad Radzi et al. 2017). Characteristics such as reactive, informal strategies, resource limitation, poor strategic planning and flexible structures are among the factors contributing to their failures (Gnizy, et al. 2014). Besides, management factor, human resources, and economic factor also serve as antecedents affecting the performance of SMEs (Ahmed Fouad, 2013). Prior studies reveal that SMEs' business performance is driven by entrepreneurial orientation, which is influenced by the environment and national culture (Onkelinx et al. (2015). The business environment may consist of several factors beyond the firm level management expectation or control, which could invite either opportunities or threats to the company and affects the company's performance directly and its profitability (Dut, 2015).

Since performance refers to the way a company execute their action or do things successfully, thus, it is crucial to analyze the company performance to see its economic structure integration and harmonization (Ahmed Fouad, 2013). This paper focuses on the internal factors, such as employees' capabilities and behavior, technological environment, financial management, creativity and innovation, which have some influence on SMEs' performance and profitability. It is important to identify the internal factors that influence SMEs' performance because it could be the unique determinants for the business survival (Mohamad Radzi et al. 2017). Thus, the findings of this paper are anticipated to facilitate SMEs and industry practitioner in developing business strategies and identifying the internal success factors to strive in a highly competitive market.

Literature Review

There are wide spectrums of research discussed the issues of SMEs, and most of the studies often take the approaches and models that can be related to growth and performance (Janeska-Iliev and Debarliev, 2015). However, there are still not many research studied the internal factors to understand the growth and performance of SMEs (Larrañeta, Zahra, and González, 2014) especially in Malaysia hence, make it as wide interest to explore more on this area (Deepa and Annamalai, 2018). Internal environment in an organization provides the aspects for the organization to achieve their objectives

smoothly (Oluwadare and Oni, 2015). Internal factors could reveal how the company characteristics and management preference in resolving issues or developing a plan for products or services (Morrison, 2006) and determining the variations of a firm's performance (Hirsch and Schiefer, 2016). The internal factors such as the tangible business resources, employees, marketing, production, competencies and strategic choices that influence the effectiveness or efficiencies of its operation are internally controllable by the management and plays significant role as contributing factors to SMEs performance (Shiamwama et al. 2014) and also as another great way to analyze the strength and weaknesses of the organization (Indris and Primiana, 2015).

Performance of SMEs

Performance has been operationalized, conceptualized, and measured in different ways. Most authors measure performance based on conventional indicators of effectiveness or efficiency, such as sales growth, market share, employment, liquidity, reputation or image (Dragnic, 2014) or by benchmarking against their business competitors (Covin, et al. 2004). It was also held that different models and different stages of development have their impact on growth and performance of SMEs (Janeska-Iliev and Debarliev, 2015). However, there are rare studies that examine the internal environment as a whole on business strategy and performance (Dragnic, 2014, Muthoni, 2015; Deepa and Annamalai, 2018). Hence, it is essential to understand the internal factors as a basis evaluation for SMEs to improve and enhance their performance. According to Anggadwita and Mustafid (2014), internal factors are associated with qualitative performance measures, which have some advantages compared to quantitative performance measures from financial statements. The profitability of a company in different industries is not comparable to each other because of the differences in capital intensity (Anggadwita and Mustafid, 2014). Therefore, performance measures using the internal factors provide another point of view and a holistic approach to understanding the firm level performance, especially among SMEs, which relatively have different environment form large companies (Anggadwita and Mustafid, 2014; Shiamwama et al. 2014). The following section discusses the four variables of internal factors environment used in this study with the SMEs performance.

Employee capabilities and behaviors and SMEs performance

Employees are one of the critical success factors for SMEs because they motorized the business in manufacturing, production and services. Moreover, the employee is one of the human resource components of organizational capabilities that encompass knowledge, skills, talents, expertise and creativity of an individual in the firm (Erdil, Kitapci and Timurlenk, 2010). Vast literature has explored employee productivity and capabilities (Griliches and Regev, 1995; Oulton, 1998; Griffiths and Simpson, 2004; McKelvie and Davidsson, 2009) and found positive effects on the firm performance. Employees play a major role as the enabling factor that allows a firm to acquire and apply new knowledge, thus, making use of the resources and capabilities to its fullest potential. The skills and capabilities of employees are essential to SMEs to perform tasks of making products or providing services, and other qualified contribution to value creation (Erdil, et al. 2010). In fact, employee skills and capabilities not only contribute to the firm's performance but it also influences customer satisfaction, which is essential to achieve by every business. The study by Abbasi and Alvi (2013) examined employee characteristics towards firm performance and discovered that employee expertise and reliability have a strong association and significant effect on the managerial practice and firm performance. Employee behaviour may also influence the firm performance since behaviour have a degree of discretion with the employee commitment and workplace performance (Brown, Gray, McHardy andTaylor, 2015). Past studies also documented that individuals' behaviour is shaped by culture, attitudes and perceptions that led to trust, knowledge sharing, and a favorable job performance (Sengottuvel and Aktharsha, 2016), which create the initiation and intentional actions regardless of work role, group or organization that influence new and useful ideas, products, processes and procedures (De Jong et al. 2015).

Technological Environment and SMES Performance

The extant literature mentioned that technological environment increased the competitiveness of SMEs and reported to experience a higher growth compared to those who did not employ technological innovation (Moorthy, et al. 2012). Technologies implementation has created a breakthrough for a firm to produce products and processes that could sustain the competitive advantage. Various studies revealed that a firm prefers technological environment and diversification as a strategy to maximize the accessibility of internal resources (Kook et al. 2017). Technological environment was shown to have a positive link with firm performance (Chang and Lee, 2016; Sanjeev Dewan, 2009; Moorthy et al. 2012) because it drives more innovation, and generate synergy among technological resources such as knowledge and intellectual properties (Kook et al. 2017). A study by Mat Dangi et al. (2017a) on entrepreneurial environment among SMEs in Malaysia discover that entrepreneurs recognize the importance of technological environment in their business as it can be the catalyst for growth, reenergize business functions and accessibilities. However, SMEs is reported to invest below average in technological capability resulting in this industries to perform under average in the economic performance indicator (Reichert and Zawislak, 2014). Thus, it is suggested that firms should assemble all resources and competencies that allow them to acquire more developed technologies than their competitor to reach a higher level of technical-economic efficiency (Reichert and Zawislak, 2014).

Financial Management and SMEs performance

Another important factor indicating the SMEs performance is financial management, which is central to the industry success. Financial management concerned with collecting of funds and resources to finance the assets and activities to achieve the firm's goal (Jennifer and Dennis, 2015). The most common practices in financial management include cash budgeting, accounting practice, capital structure management, working capital management, fixed assets management, and risk management practice (Addo, 2017). According to Jennifer and Dennis (2015), there are three main financial decisions, namely investment decisions, financing decisions and dividend decisions that require owner-managers of SMEs to understand finance. Finance is not only the source for the enterprises but also has implications for investment, production, marketing or personnel decisions and the total performance of a firm. However, most SMEs, particularly in developing countries are not well-versed in such areas causing the business failures (Mazzarol, 2014). Past studies revealed that poor accounting and financial management practices are the most important contributing factors to SMEs' failure rate in the short run (Gawali and Gadekar, 2017; Jindrichovska, 2013; Rathnasiri, 2015). Although one study (see Orobia, Warren and John, 2013) indicated that working capital management practices does not linked with the company performance, Turyahebwa et al. (2013) argue the work by Orobia et al. (2013) who employed action theory, and it still had unresolved contradictions along with theoretical limitations applicable to SMEs. Therefore, as suggested by Turyahebwa et al. (2013), more study on the financial management practices among SMEs, especially in developing countries must be conducted. Furthermore, a recent study by Gawali and Gadekar (2017) concludes that the SMEs success or failure in business activities will likely depend on the owner or managers attitudes in interpreting the financial statements and their involvement in the firm's financial management aspects.

Creativity and Innovation and SMEs Performance

Meanwhile, the emergence of an economy in the future also encourage a shift toward producing products from the invention and creative innovation (Ngugi, et al. 2013). Innovation in the business environment can be described as offering something new to customers and solving their problems in a distinctive way (Noreen and Junaid, 2015). It is believed to have a positive impact on productivity and business sustainability that includes improvement in existing product in line with the current trends, technology application, and also unique marketing and distribution strategy (Mat Dangi, et al. 2017b). Past researchers suggest innovation as the fundamental and integral part of entrepreneurship and business growth (Dragnic, 2014). It also has a positive impact on the performance in term of an increase in market share and reduction of material cost (Noreen and Junaid, 2015), while low

innovation capability will hinder the entrepreneurial activities (Tu and Hwang, 2014). Innovation is viewed from multiple perspectives, for instance, early literature has described three types of innovation, namely product, process, and strategy or business model (Olughor, 2015). With the changes of technology and high-demand customer, it requires SMEs to embark on innovation to produce valuable products using relevant resources to remain competitive in the market (Ngugi et al. 2013; Sengottuvel and Aktharsha, 2016). Based on the above arguments, the following hypotheses are developed for this study:

Table 1: Hypothesis Development

Hypothesis 1 (H1)	There is a significant association between employees' capabilities & behaviour and SME performance.
Hypothesis 2 (H2)	There is a significant association between technological environment and SME performance.
Hypothesis 3 (H3)	There is a significant association between financial management and SME performance.
Hypothesis 4 (H4)	There is a significant association between creativity and innovation and SME performance.

Figure 1 below resembles the relationship between the independent variable and outcome variable where SME performance is associated with employees capabilities and behavior; technological environment; financial management; as well as creativity and innovation.

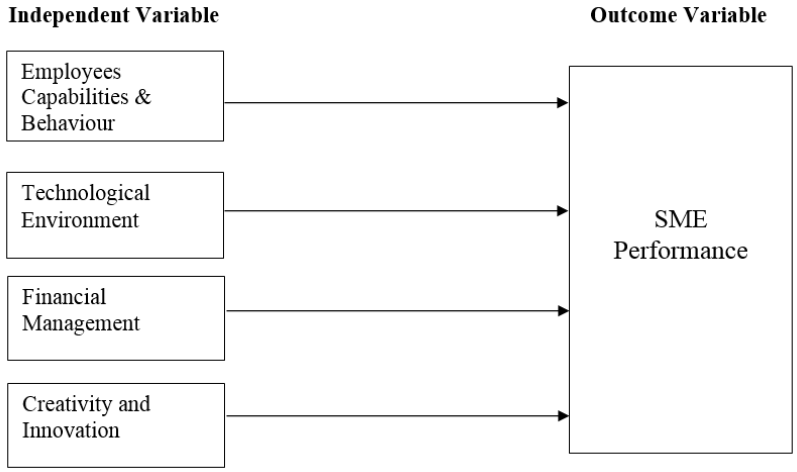

Fig. 1: The framework of association between independent variable and outcome variable.

Research Methodology

This quantitative study employed a relationship approach to investigate the relationship between internal factors environment and SMEs performance. The study used primary data by distributing the survey questionnaire to gather information about the performance of firm-year observation of which 152 SMEs became the sample. The composition of the research model of this study included four independent variables, namely employee's capabilities and behaviors, technological environment, financial management, and creativity and innovation, whereas SMEs performance was the dependent variable. The survey questionnaire used was adopted from the combination of instrument by Al-Mahrouq (2010), Bouazza, et al. (2015), and Mat Dangi et al. (2017b) with some modifications to fit the context of this study. The questionnaire is divided into three main sections; Section A required respondents to complete eight items related to their demographic profile, Section B necessitate

respondents to complete three items to measure the firm's performance, and Section C demanded respondents to complete 46 items related to the four internal factors environment and monetary performance. A total of 152 (76%) survey questionnaires were returned and usable from the 200 samples distributed to various states in Malaysia. Statistical analysis was used to test the hypotheses and validated the findings using SPSS software version 24 to perform the descriptive statistical analysis, correlation test and multivariate analysis. Assumption testing was applied to ensure that the model yield from the sample can be accurately applied to the population of interest. The model of this study is used to represent the SMEs performance as reflected in the following:

Model:

$$PERFORMANCE = ß0 + ß1\ (Int\_ECB) + ß2\ (Int\_TE) + ß3\ (Int\_FM) + ß4\ (Int\_CI) + \varepsilon it$$

Where PERFORMANCE = Performance is measured by monetary performance
(Notes: Int_ECB = Employees Capabilities & Behaviors; Int_TE = Technological Environment; Int_CI = Creativity and Innovation)

Results and Findings

Normality test was conducted by employing the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk test on all items. Analyses by both K-S test and Shapiro-Wilk test pointed out that all items were significant ($P < 0.05$), which specified a deviation from normality. The test of homogeneity of variance was also performed, and the results for all variables indicated an unequal variance, which is $p < 0.05$. For multicollinearity, the VIF (Variance Inflation Factor) values were below 10 with tolerance values were above 0.2. Therefore, it can be safely concluded that there is no collinearity within the data. Reliability analysis was performed to ensure the internal consistency and reliability of the survey questionnaire used in this study. The majority of the variables showed the scores of more than 0.8, which indicated the scale used is reliable. The next section of results and findings exhibit the demographic analysis, correlation analysis, and multivariate analysis.

Demographic Analysis

From the total of 152 sample respondents, 72 (47.4%) of them aged between 31 to 35 years old with male respondent made up 65.8%. Meanwhile, the Chinese were the highest ethnic group in this sample with 84 (55.6%) respondents compare to Malay, Indian and other ethnics. In terms of educational background, 71.7% or 109 respondents claimed they have a bachelor degree as the highest level of education. This study also asked respondents for the place of their business operation, and most of them (97: 64.2%) stated the township as the strategic location for their business other than the city centre and the district or suburb area. The majority of SMEs (33.1%) in this study have been in operation between six and ten years, and most of them (36.2%) involved in the business of producing consumer goods.

Pearson Correlation Analysis

Pearson correlation matrix analysis was conducted between variables, which yielded the result in Table 2. According to Sekaran and Bougie (2010) $0 < /r/ < 0.3$ implies a weak correlation; $0.3 < /r/ < 0.7$ means a moderate correlation, while $/r/ > 0.7$ represents a strong correlation. The results reveal that Int_ECB, Int_TE, Int_FM and Int_CI are positively correlated with PERF at 0.282, 0.113, 0.242 and 0.151, respectively. Whereas, the correlation result in this study between some independent variables were with positive (Int_ECB and Int_TE: 0.058; Int_FM and Int_CI: 0.448**; Int_FM and Int_ECB: 0.483**; Int_CI and Int_ECB: 0.701**: Int_CI and Int_TE: 0.155) and negative correlation (Int_TE and Int_FM: -0.175). Therefore, there is no serious problem with multicollinearity since the values are < 0.9 and within the acceptable range for all of the variables remained in this study.

Table 2: Pearson Correlation matrix

		PERF	Int_ECB	Int_TE	Int_FM	Int_CI
PERF	Pearson Correlation	1	.282**	.113	.242**	.151
	Sig. (2-tailed)		.000	.166	.003	.064
Int_ECB	Pearson Correlation		1	.058	.483**	.701**
	Sig. (2-tailed)			.478	.000	.000
Int_TE	Pearson Correlation			1	-.175*	.155
	Sig. (2-tailed)				.031	.056
Int_FM	Pearson Correlation				1	.448**
	Sig. (2-tailed)					.000
Int_CI	Pearson Correlation					1
	Sig. (2-tailed)					

Notes: PERF = Performance; Int_ECB = Employees' Capabilities & Behaviors; Int_TE = Technological Environment; Int_FM = Financial Management; Int_CI = Creativity and Innovation

*** Correlation is significant at 0.01 level (2-tailed).*

** Correlation is significant at 0.05 level (2-tailed).*

Multivariate Analysis

Multiple regression analysis was carried out to examine if the internal factors environment significantly projected the performance of SMEs. Table 3 shows the result of SMEs performance with four internal factors, namely employee's capabilities and behavior; technological environment; financial management, and; creativity and innovation. Most of the variables used are positively significant to the performance of SMEs with p-value as a whole is at 0.001 ($p < .005$), which describes that the performance model is sufficiently developed for this study. The value of F ratio is higher (5.223), which is also highly significant ($p < .001$) and it can be said that the model can predict the outcome variable of SMEs performance and could influence the internal factors environment. To validate this study for multicollinearity, the value of VIF for all variables are below 10 ($VIF < 10$) and the tolerance value of more than 0.1, which indicates no collinearity within the data used. Coefficient result shows that, Int_ECB (ß=0.351, p<.005), Int_TE (ß=0.297, p<.005), Int_FM (ß=0.353, p<.005) are significantly associated between the internal factors environment and SMEs performance, thus, supported H1, H2, and H3. The outcome for H1 is consistent with Brown et al. (2015) who found that employee capability and behaviour have a positive relationship with the firm's performance since this factor influences the workplace performance, commitment, labour productivity and product or service quality. Meanwhile, the positive association between technological environment and SMEs performance (H2) is analogous with Chang and Lee (2016) and Kook et al. (2017) since technological environment plays the crucial role to reinforce the competitive advantage. On the other hand, financial management is also an important internal factor for SMEs since cash is regarded as the most precious non-human asset and failure to manage this area will jeopardize the business operation (Jindrichovska, 2013). In overall, the variables used in this study are able to predict 35.3% of the relationship of the outcome variable.

However, for the Hypothesis 4, which represents factors of creativity and innovation (Int_CI) in SME is found to be not significantly associated with the performance of SMEs. In this regard, prior studies elucidate that firms may hesitate to undertake innovation because of the constraint, such as market size and saturation, high competition with large companies, and financial limitation (Bozic and Rajh, 2016). In particular, SMEs also consider venturing into innovation, which is relatively costly because it is not only about exploring new ideas or improvement of the existing product, but it also includes the application of new technology, research and development (R & D) initiative, using premium or high quality materials, unique marketing strategy, and distinctive business management or services (Mat Dangi et al. 2017b). Consequently, the regression framework can be delineated by switching the β coefficient in Equation 1 as follows:

PERFORMANCE = 5.040 + 0.351 (Int_ECB) + 0.297 (Int_TE) + 0.353 (Int_FM) - 0.282 (Int_CI) + ϵ_{it}

Table 2: Regression Results

Variables	Beta Coefficient	Std. Error	t-value	Prob.	Tolerance	VIF
Constant	5.040	.793	6.357	.000		
Int_ECB	.351	.134	2.622	.010**	.473	2.116
Int_TE	.297	.152	1.949	.053*	.901	1.110
Int_FM	.353	.160	2.203	.029*	.689	1.451
Int_CI	-.282	.184	-1.529	.128	.471	2.125
F-statistic	5.223					
p- value	.001					
Adjusted R^2	.353					
Notes: PERF = Performance; Int_ECB = Employees' Capabilities & Behaviors; Int_TE = Technological Environment; Int_FM = Financial Management; Int_CI = Creativity and Innovation						
** Represent the significant at the 1% level. * Represent the significant at the 5% level.						

Conclusion and Recommendation

This paper investigates the internal factors environment whether it is associated with the SMEs performance. The result specified that three hypotheses were accepted, which indicated three factors have a significant association and could be the influential internal factors to the performance of SMEs, namely employee's capabilities and behavior, technological environment, and financial management. Consistent with the previous studies, these three factors can be a strong indicator to measure the performance of a firm other than the quantitative or financial measurement that has been used extensively. On the contrary, the creativity and innovation indicate an insignificant association with SMEs performance in this study. Although prior literature revealed innovation as vital for entrepreneurs to grow their business and could assist them to remain competitive in the market, this study indicates otherwise; there might be an ambiguous factor or another issue worth exploring to gain a deeper understanding. Perhaps, there are still undiscoverable factors preventing SMEs from executing creative and innovative initiatives other than financial limitations.

Apart from the findings, this study has several limitations that should be taken into consideration. This study focuses on internal factors with only four elements included and scrutinized. It is expected that future study should explore other elements of internal factors such as the owner-managers characteristics and demographic factors. Alternatively, it is also important to discover external factors as well that could influence the performance of SMEs. It is also recommended that future studies could include more samples of SMEs as a larger sample could give more information and stronger findings, thus ensuring a robust result.

Generally, the outcome of this study can heighten the importance of internal factors for SMEs performance. As SMEs are deemed vital economic engine for the nation, gaining understanding about the factors that could improve their performance are integral. Hence, it is anticipated that the findings of this study can assist policy makers, government institution, and SMEs agency to formulate a more robust approach in managing the business towards sustainability, expanding, and venturing into the global market.

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Intellectual Capital as a Basis of Competitiveness Development: Qualitative Research of Retail Companies

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Abstract

The modern development of emerging markets makes organizations find the ways of enhancing their competitiveness. While the issues of sources of attaining competitive advantages and competitiveness assessment have been widely discussed by numerous researchers, there is a paucity of studies pertaining to the impact of different factors on developing retail company competitiveness under conditions of emerging markets. Therefore, this paper aims to investigate the main factors affecting the retail company competitiveness and examine the impact of intellectual capital and intangible assets on it. Conclusions were based on the results of in-depth interviews with 10 key top-managers of retail companies in Saint Petersburg in the period of April-June 2017.

Keywords: intellectual capital, competitive advantage, competitiveness, retail companies

Introduction

The retail sector is one of the essential sector for the Russian economy. It has an important role to play in stimulating growth and job creation in the internal market, and enhancing the standard of living. The efficiency of this sector has implications for innovation, price trends and regional competitiveness.

The year 2013 was relatively successful for FMCG retail trade, new stores were opened, chains continued their expansion, having entered the regions that were new for them. However the economic situation began to deteriorate and in 2014 political risks of the industry increased. Retail sales in Russia decreased 9.20 percent in July of 2015 over the same month in the previous year reported by the Federal State Statistics Service.

There is ample evidence that the situation in the retail sector was improved in 2017. The Federal State Statistics Service shows, that in the first quarter, the rate of decline in retail trade turnover slowed significantly (-1.6% year over year), and in the second quarter was replaced by an upward trend (+ 0.7% YOY).

According to the National Rating Agency, the main trends of the retail sector are the consolidation of the market, the growth of discounters, retail outlets and specialty stores, the continuing decline in the share of sales at fairs and market-places in favor of trade organizations.

However, in recent years the nature of competition and shifting economic conditions have given rise to achieve the retail company competitiveness by developing not only tangible assets but also intangible including intellectual capital. In this paper we try to examine the factors affecting the competitiveness of companies engaged in retail trade. An exploratory field study utilizing an inductive methodology involving a multiple-case study approach was undertaken by conducting in-depth interviews with 10 key top-managers of retail companies in Saint Petersburg in the period of April-June 2017. As the present and also future success of a company is largely predetermined by the conditions in which the company exists, the interview included open questions concerning factors of both internal and external environment. We utilized content analysis techniques to identify these factors with their associated variables and further developed a research model. This study offers a comprehensive model for future competitiveness research and provides managerial implications for organizations to enhance their competitiveness.

Literature Review

The theory of intellectual capital originated from the theory of human capital (1962) and has been considered in the papers of such foreign economists as A. Brooking (1996), L. Edvinsson (1997), M. Malone (1997), T. Stewart (2010), and many others. In Russia, the development of intellectual capital theory can be seen in the publications of such scholars as B. Leontiev (2001), V. Inosemzev (1998), A. Pankruhin, I. Prosvirina etc.

Every economist gives his vision for a particular problem. As a result, the intellectual capital theory doesn't have unified concepts: there is no single notion of its definition or structure, etc. Moreover, despite the fact that the concept of "intellectual capital" has long existed, it has still not become customary in the world, especially in Russia. Very often, the concept of «intellectual capital» is used along with the concepts of «knowledge», «human capital», «cognitive capital», using as synonyms by the absence of unambiguous interpretations (Afonin, 2009).

All definitions of intellectual capital can be classified into three approaches: knowledge-based approach, value approach, and resource-based approach. According to the knowledge-based approach, the IC is a set of knowledge in the form of skills and competences of employees (Galbraith J.K., 1979; Inozemtsev V.L., 1998). According to the value approach, the IC is the excess of the company's market value over the book value of its assets (P. Strassman, 1998; D. Tobin). The resource-based approach defines IC as a key resource in the development of the company (E. Brooking, 1996; T. Stewart, 2010; C. Bradley, J. Roos, 2006). The authors adhere to the resource-based approach in this study.

There is a large number of opinions on the structure of intellectual capital and its constituent elements. The most frequently used is the classification of intellectual capital into three components. According to J. Roos (2006), intellectual capital contains human capital, structural and relational capital.

Despite the theoretical importance of research in the field of intellectual capital, which deals with issues of identification, classification, reporting and evaluation, empirical researches have become more relevant. However, the studies vary in the directions of analysis (the relationship between IC and various parameters), industries, size of the company, geographical area of the study, etc.

For example, some recent empirical studies examine relationship between IC and business performance (K.Y. Wong, 2004; I. Herremans, 2007; G.B. Kamath, 2008). The positive relationship between IC and financial efficiency indicates the effectiveness of corporate strategy.

Other studies are devoted to the relationship between IC and business innovation. For example, D. Wang, S. Chen (2013) found that intellectual capital is the link between high-performance systems (some human resource practices including recruitment, large-scale trainings, knowledge and skills compensation systems, team-working, participation of employees in company management) and innovative opportunities.

C. Fernández-Jardón, R.V. Costa and P.F. Dorrego (2014) examined the relationship between structural capital and innovative development of the company. As a result, it was revealed that not all elements of structural capital have a significant impact on innovation. The most significant element affecting the effectiveness of innovative products is "product innovation management".

Others define the role and structure of IC for enterprises of different sizes. S. Cohen, V.-C. Naoum, O.Vlismas (2014) studied the relationship between intellectual capital and the strategies of small and medium-sized enterprises, as well as their decisions on the IC portfolio under conditions of financial crisis. They conclude that, firstly, managers must take into account that the IC is a strategic resource even in times of financial crisis and, thus, it is not worth reducing investments in its development. Secondly, companies are not likely to follow the recommendations on the strategic management of the IC portfolio. Thus, even realizing the importance and implementing the management of the IC, companies do not manage it consistently and effectively.

The influence of intellectual capital on competitive advantages and firm performance was studied by N. Chahal, P. Bakshi (2014). The authors investigated the role of innovation and self-learning in the relationship between intellectual capital and the competitive advantage of the company.

Kianto, Andreeva Pavlov (2013) studied the impact of IC management on company performance under the example of Russian, Finish and Chinese companies. They identified the mediation effect of competitiveness in relationships between ICM and performance.

Thus there is a lack of studies devoted to the factors of IC and its relationships with firm's competitiveness. Nowadays the role of intangible assets in competitiveness development is significant (Andreeva, Kianto, Pavlov, 2013). Key approaches addressing to role of intangible assets in firm's competitiveness are resource-based view and knowledge-based view theories.

The RBV theory_of competitiveness assumes that competitive advantages are based on the firm-specific internal resource and do not depend on external factors, like industry structure (Flanagan, 2007). According to Barney (1991) resources should be rare, valuable and inimitable to excel in competition.

KBV theory extended RBV approach in increasing the role of knowledge in evaluating business performance (Kogut & Zander, 1992; Grant, 1996).

Taking into account the main ideas of RBV and KBV the competitiveness of modern companies depends on the value of its intangible assets and development of IC.

Building on this theoretical perspective, we hereafter develop more detailed model of retail firm competitiveness. Our findings provide new insights regarding the process by which IC is connected with firm competitiveness and indicated elements of intellectual capital among all the factors of retail company competitiveness.

Research Method

In-depth interview was selected as a research method. according to Malhotra (2000), it is applicable for deeper understanding of the problem and conducting an interview with professionals, which meets the research. In-depth interviews give the researcher the opportunity to ask suitable questions about the data and make the comparison, which allow to extract new insights from the data (Strauss A. & Corbin J., 1990)

Sample Selection

To conduct the survey available subjects from retail companies in Saint Petersburg were chosen. A nonprobability sampling method was chosen basing on the availability and convenience of selecting elements (Zikmund W.G., 2000; Huang Li-Su, 2011). In determining the sample size, such factors as

poorly developed culture of information dissemination in Russia, financial constraints, and novelty of subject area were taken into account. In addition, the retail market of St. Petersburg has an established structure, which is characterized by a high degree of homogeneity, as well as general business conditions. The sample size was 10 respondents, which corresponded to the principle of saturation (Glaser B. G. & Strauss A. L., 1967) and research objectives (Charmaz K., 2006).

The main criterion for respondents was that they must be aware about the company concepts, corporate strategy, personnel, motivation, relationships with partners, financial results. They are the representatives of top-management such as CEO, owner of business, head of retail department and so on. All companies belong to the retail trade, and they differ by the type of product.

All interviews were conducted on a voluntary basis of participants.

Data collection

The data were collected by using in-depth interviews approach.

The main aim of the survey was to identify factors and variables affecting the company competitiveness in the conditions of development of intellectual competition.

The questionnaire included questions focused on the following areas (Appendix 1):

- understanding the significance of being competitive;
- competitive factors of foreign and domestic retail companies;
- external factors that determine the company competitiveness on macro level;
- external factors that determine the company competitiveness on micro level;
- internal factors that determine the company competitiveness.

Before conducting all interviews, the questionnaire was pre-tested on the first respondent‘s answers. Received feedback from the first respondents proved that the questionnaire was working well for purposes of the survey. Finally, 10 interviews were conducted. The interviews were audio taped and then transcribed. All texts were reviewed for errors by the principal researcher in order not to miss mistakes for further content analysis.

Data Analysis

Data analysis was conducted with the program of content-analysis. As Patton (1990) reported, ‘Content analysis is the process of identifying, coding, and categorizing the primary patterns in the data. This means analyzing the content of interviews and observations’.

The procedure of content analysis was divided into two stages.

The first stage dealt with identification of mentioned variables and included the following steps:

- check the content of interviews with correspondence with the program;
- download the data into the program;
- identify the words with the function “analysis” in the program;
- correct groups of similar words formed by the program considering peculiarities of the Russian language (different endings of the same word);
- sort words by the absolute value of the frequency of mentioning;
- sum frequencies of mentioning words in all interviews.

The second stage of content analysis dealt with the identification of factors with their associated variables influencing the retail companies competitiveness in order to develop a research model. This stage included the following steps:

- study the variables;
- divide variables into systematic categories of factors;

- name factors;
- check the names of the factors with the literature and give new names if necessary;
- sort variables by the factors, combining variables with different wording, but with one meaning;
- establish the tables of integrated factors and variables.

Results

Background Information

Table 1 shows the background information about the retail companies involved in this survey.

The interviewees take in the retail companies positions such as CEO, Director of marketing and Commercial director. And their competences afford to gather necessary information for the purpose of the research.

The number of employees in the retail companies varies from 100 to over 4000.

The retail companies differ by the type of product – from clothes and jewelry to products for home and building materials (DIY).

Table 1: background information of the interviews

Company	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Age	40	43	38	47	42	32	41	45	35	53
Position of intervie-wee	CEO	Director of marketing	Director of the retail network	CEO	CEO	CEO	Commer-cial director	Head of Sales Depart-ment	Top manager of the store	CEO
Tenure of intervie-wee in the enterprise, years	5	10	8	10	7	11	15	16	9	20
Type of product	products for home and garden	building materials (DIY)	electric tools, tools for home appliances, auto products	luxury items, jewelry	products for home	bikes and bike accessories	clothes	shoes, clothes	shoes, clothes, accessories	building materials (DIY)
Education	higher education	two higher education	two higher education	two higher education	higher educa-tion	higher education	higher education	higher education	higher education	higher education
Gender of intervie-wee	male	female	male	male	male	male	female	male	female	male

Procedure No 1. Frequency of mentioning

According to the step-by-step procedure described above, 158 significant words were identified. The words with the number of mentioning not less than 5 are presented in the table.

The table includes words with frequency of mentioning not less than 5. Further number of words with frequency of mentioning less than 5 greatly increases. For example, there are 13 words with frequency 4, 23 words with frequency 3, 35 words with frequency 2 and 41 words with frequency 1.

Analysis of mentioned words lets distinguish main spheres that managers put attention to.

As you can see the first places take words in the sphere of marketing like ‘price’, ‘goods’, ‘client’, ‘cost’, ‘service’ ‘quality’, ‘assortment’. ‘brand’.

Another sphere is dedicated to innovation and include words like ‘technologies’, ‘innovation’, ‘information’, ‘informative’.

Sphere of characteristics of personnel is also important and includes words like ‘personnel’, ‘qualification’, ‘education’, ‘training’.

Table 2: list of frequently mentioned significant words

Word	Sum of mentioning	Word	Sum of mentioning	Word	Sum of mentioning
level	22	effectiveness	11	relationship	7
price	22	company	10	rate	7
goods	21	condition	10	qualification	6
personnel	20	product	9	tax	6
technologies	20	process	9	education	6
client	15	development	9	training	6
politics	15	market	9	resources	6
speed	14	availability	8	strategy	6
finance	14	innovation	8	brand	5
business	13	credit	8	currency	5
quality	13	service	8	informative	5
assortment	12	power	8	competitiveness	5
ability	12	attendance	8	delivery	5
cost	12	information	7	sanctions	5
loyalty	11	marketing	7	demand	5
production	11				

Some retail companies talked about production as they produce their own goods under private labels. That is why there are words like ‘production’, ‘standard’, ‘R&D’, ‘equipment’, ‘patents’, ‘raw materials’. These words are not presented in the table because they have frequency of mentioning less than 5.

It is important to notice, that there are the words connected with the economic crisis in 2014-2015 such as ‘crisis’, ‘sanctions’, ‘currency’, ‘politics’. Crisis worsened activity of companies that bought goods and equipment abroad.

Moreover, identified spheres correlate with the factors that were identified in the Procedure No 2.

Procedure No 2. Identification of factors and variables

Identification of factors and variables was conducted separately for internal and external environment.

As for internal environment, 7 factors and 35 variables were identified. 7 variables were stated by more than 5 enterprises: ability of leaders to recruit talented staff, level and availability of

technologies, speed of reaction and decision-making, providing managers with up-to-date information, staff motivation and KPI, training and staff development, terms of cooperation with partners.

As for external environment, 10 factors and 80 variables were identified. Factors and variables of external environment include aspects of activity of competitors. External factor 'Environments' includes political, economical, social and technological factors that influence company's activity and cannot be changed by the company. 13 variables were mentioned by more than 5 respondents. Moreover, one variable 'level and availability of technologies, IT' was mentioned by all 10 respondents.

Both internal and external factors and variables include elements of intellectual capital. There are many opinions according to the structure of intellectual capital and its consisting elements. The most popular and most often used for practical purposes is classification of intellectual capital into 3 elements. According to Ruus, intellectual capital includes human capital, relational and structural capital (Ruus, 2010). We revealed typical elements of intellectual capital from internal and external environment (table 3).

Table 3: elements of Intellectual capital affecting company competitiveness

Internal environment	External environment
Human capital	
• sanity • staff qualifications • staff motivation and KPI • training and staff development	• speed of decision-making • level of thinking • creative approach • training and staff development
Structural capital	
• corporate culture • level and availability of technologies, IT	• brand strength • level and availability of technologies, IT
Relational capital	
• communication with customers	• reputation • style of working with clients • relationship between managers of wholesale and retail

Most of the elements refer to human capital. It supports the idea that human capital is the main element of intellectual capital that influences and form relational and structural capital. Human capital is a link between company and partners and form the level and conditions of collaboration.

The importance of human capital can be proved with the frequency of mentioning of keywords. Thus, the word 'personnel' was mentioned 20 times, words connected with structural capital such as 'technologies', 'innovation', 'brand' were mentioned from 20 to 5 times, and elements of relational capital such as 'loyalty', 'relationships' have frequency of mentioning from 11 to 4.

Comprehensive Model

Figure 1 shows a comprehensive model that describes relationships between the factors affecting the company competitiveness.

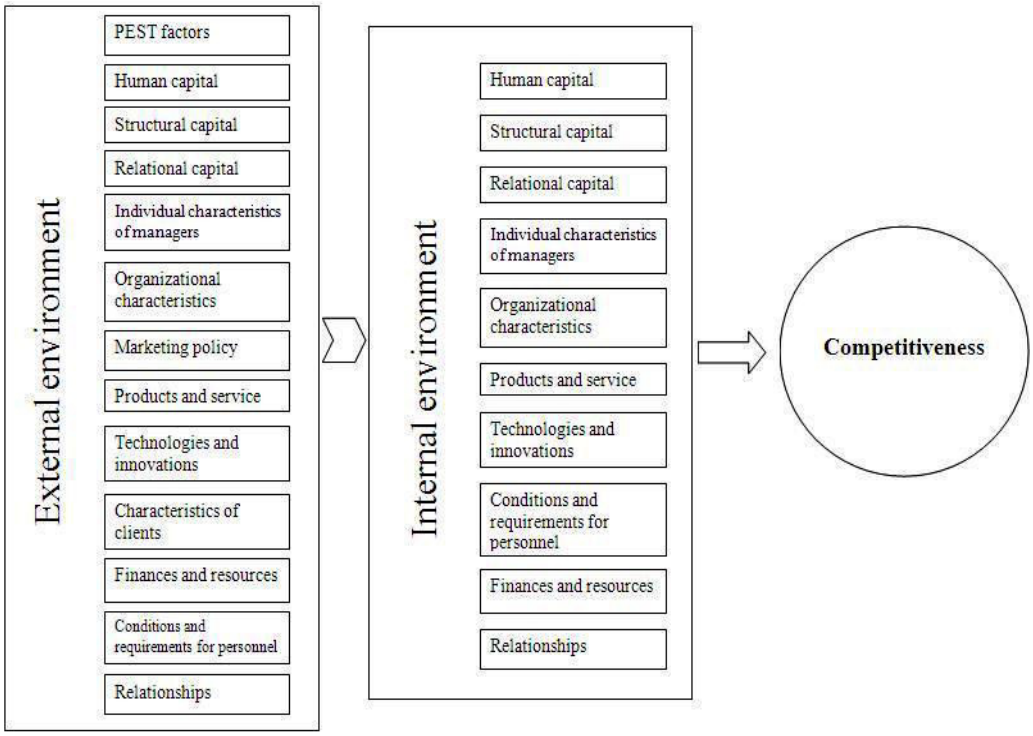

Fig. 1:Factors affecting company competitiveness

Limitations

This study identified the list of significant factors and elements of intellectual capital that influence a retail company competitiveness. Nevertheless, the research has some limitations and assumptions. So the most important limitation is related with disadvantages of in-depth interviews like influence of interviewer. Moreover, we faced mistrust and disclosing information by companies because of features of Russian culture or commercial secrets.

The further study includes quantitative research conducted by online-questionnaire to identify the significance of factors and relation with company performance.

Conclusion

This study presents an approach utilizing multiple-case method to identify the main factors and variables affecting retail companies competitiveness in Russia. Content analysis techniques allowed the researchers to create a comprehensive model that can be utilized for future studies in examining the influence of factors on retail companies' competitiveness.

To improve the competitiveness of retail companies through the development of IC elements, the following recommendations were made:

As for human capital, the following elements of improving competitiveness were identified: sanity, staff qualifications, staff motivation and KPI, training and staff development and creative approach. In view of this, we recommend taking into account development of individual freedom, focus on targeted incentives for employees to generate, spread and apply knowledge, as well as constant interaction between employees and managers.

In structural capital corporate culture, technologies, and brand were identified as factors of competitiveness. Structural capital management should focus on creating a favorable climate through the development of intercompany communications, striving to achieve technological advantage through unique technologies and inventions, as well as comprehensive regular management of building and improving the brand portfolio.

Increasing competitiveness through relational capital is carried out through communications with customers and counterparties, and reputation. It can be achieved by development of loyalty programs. Relational capital for retail companies can be developed by CRM-based relationship management, detailed service and customer service development at retail outlets, as well as the formation of trustworthiness and image.

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Appendix 1

Project of questionnaire to conduct in-depth interviews

Details about experts

1. Age
2. Position of interviewee
3. Tenure of interviewee in the enterprise, years

4. Type of product
5. Education

Part 1. General questions about the concept of competitiveness and its factors

1.1. What is competitiveness in your opinion?
1.2. List the factors that determine competitiveness of Russian companies in your industry
1.3. List the factors that determine competitiveness of foreign companies in your industry

Part 2. External factors that determine the company competitiveness

Macrolevel

2.1 What political factors affect the company competitiveness?
2.2 What economic factors affect the company competitiveness?
2.3 What social factors affect the company competitiveness?
2.4 What technological factors affect the company competitiveness?

Microlevel

2.5 What actions of competitors affect the company competitiveness?
2.6 What parameters of relationships with intermediaries affect the company competitiveness?
2.7 What parameters of relationships with suppliers affect the company competitiveness?
2.8 What parameters of relationships with financial institutions affect the company competitiveness?
2.9 What parameters of relationships with clients affect the company competitiveness?
2.10 What other stakeholders affect the company competitiveness and how?

Part 3. Internal factors that determine the company competitiveness

3.1. What factors related to the production affect the company competitiveness?
3.2. What parameters of financial management affect the company competitiveness?
3.3. What key parameters of the HR strategy affect the company competitiveness?
3.4. What benefits do information technologies give to improve competitiveness?
3.5. In what areas does your company use information technologies?

Thank you for participation

The Issue of CO_2 Emissions in the Context of Sustainable Development - A Regional Approach with the Example of Poland

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Abstract

Research background: This article presents issues of rational management of energy throughout the Lubuskie voivodship. The starting point was the idea of permanently sustainable development. The authors focused on the problem of limitation of emission of gases pollution in the context of sustainable development. The results which were arrived at were matched with other voivodships and comparative analysis was made.The analysed problem has been widely discussed on the global scale. It points out the necessity to limit the use of conventional energy and gradual transformation towards renewable energy. In this paper research covers all voivodships, with particular attention paid to the Lubuskie voivodship.**Purpose of the article:** The aim of the article is the evaluation of the changes of emission of pollutants and their context including the determining of the social, economic and environmental equilibrium. Such an approach is connected with both a long and short term horizon, which results from the necessity to protect the needs to use clean air and "healthy atmosphere" at present as well as for future generations, however taking into consideration the economic, social and environmental context. In that sense we are looking for the alternative within the frame of recommendations of the conception of permanent sustainability of development throughout the voivodship.**Methodology/methods:** The paper looked at different solutions to decrease the use of coal to achieve the aims within the reduction of CO_2 emissions throughout the Lubuskie voivodship by means of an econometric model. The authors used a fixed effects model and selected statistical tests serving to evaluate and chose the right model. For evaluating the levels of penetration of different technologies considering their economical technical and environmental characteristics, a probabilistic approach and historical data were used. Innovative procedures at regional stage were presented, such as spatial planning, promoting renewable energy resources and change of life style, which play increasingly important role in accelerating the degree of CO_2 reduction.**Findings & Value added**: In the context of sustainable development variables such as forestation, wages, number of plants, the level of poverty and population density have proven to be important. All these factors explain a significant impact on the sustainable social, economic and environmental development. Conducted regional policy exhibits a diverse mechanism of regulation of priorities between these areas and the phenomenon of substitution between economic and environmental effects, but in the short term. So it is possible to sort the province considered in terms of the balance achieved.

Keywords: Lubuskie voivodship; CO_2 reduction; sustainable development

JEL Classification: *Q01; Q54*

Introduction

The concept of sustainable development combines economic and social aspects while respecting the natural processes and capturing the intergenerational perspective applies to contemporary as well as future generations. The environmental subsystem plays an increasingly important role in shaping the balance necessary to maintain long-term development due to the scope of the transformations that have occurred as a result of the implementation of the current paths of economic growth determined primarily by economic factors. Increasingly in these considerations, searching for the right relations between these areas, the researchers refer not to economic growth but to the concept of the quality of human life in the understanding of intergenerational choice as a mechanism for assessing the ongoing changes. The problem of the mentioned mutual relations can be considered in a global perspective, but also can concern one of the aspects and narrowed spatial area. This article refers to the narrow approach and issue of carbon dioxide emissions to the atmosphere. The area of undertaken research covers the territory of Poland, with particular reference to the Lubuskie voivodship. The aim of the study is to assess changes in air pollution emissions and their economic, social and environmental conditions. Such an approach is related to both the short and long-term horizons, which results from the necessity to secure the needs for the use of clean air and the "healthy atmosphere" of present and future generations. In this sense, we seek sustainable balancing of development within the voivodship compared to other Polish voivodships. The article analyses the mechanism of shaping CO_2 emission reduction in the Lubuskie voivodship using an econometric model. A panel regression model with fixed effects and selected test statistics were used.

Research Methodology

The study carried out a statistical analysis of CO_2 emission in cross-sectional terms by individual voivodships in Poland. The minimum and maximum values, average, median, standard deviation, coefficient of variation, average rate of change and average level of the studied phenomenon were calculated allowing to show differences between individual units of territorial division. In order to estimate the impact of individual factors on the emission level, a panel regression model with permanent effects was used. The analytical form of such a model is expressed by the equation:

$$y_{it} = \alpha_i + \delta_t + \beta' x_{it} + \varepsilon_{it},$$

where:
i - object index (voivodship),
t - period (year),
α_i - individual effect, constant over time, different in space for individual voivodships in the panel,
δ_t - a permanent periodic effect, having the same value for all units in the panel in the same period, but is different in each period,
β' - vector of variable coefficients,
x_{it} - cross-sectional variables.
The model includes economic, social and ecological variables that were to condition CO_2 emissions. They were distinguished based on the studies of other authors [Szabo, Hidalgo et al. 2006, pp. 72-87; Fan, Liu et al. 2006, pp. 377-395; Wang, Wu et al. 2013, pp. 65-71]. Among them were the number of enterprises particularly onerous for air cleanliness, the relative poverty line, the capacity of installed equipment and installations to reduce pollution, the average level of remuneration and forest cover. They represented the basic components of sustainable development (economic, social and environmental). Therefore, the model hypothesis took the form:

$$CO_2 emission = \alpha_0 + \alpha_1 number\ of\ enterprises + \alpha_2 poverty\ line + \alpha_3 machine\ abilities + \alpha_4 salary + \alpha_5 woodiness + \beta' DU + \lambda' DV$$

where,
β - vector of zero-one variable parameters for individual effects of DU countries,
λ - vector of zero-one variable parameters for the time T.

The choice of the method was dictated by the Breusch-Pagan statistical test, for which acceptance of the null hypothesis means the legitimacy of using the MNK panel method [Najbar 2016, p. 219]. Statistics LM 366,883 with a p value equal to 8,92869e-082. A low value of parameter p allows H_0 to be rejected in favour of an alternative hypothesis that a panel model with fixed/random effects will be more appropriate. Then a Hausman test was carried out, for which H_0 means the legitimacy of applying the model with random effects to the alternative hypothesis about the legitimacy of using the model with the determined effects [Najbar 2016, p.220]. Statistics H was 13,1775 with a p value of 0,021771, which allowed the rejection of the null hypothesis for an alternative one. An estimation of the MNK panel was carried out using 128 observations when switching on 16 cross-section units and a time series of length 8 (tab.3).

Atmospheric pollution - CO_2 problems

Nowadays, the Earth's atmosphere is used by people for the deposition of huge amounts of CO_2 coming from the combustion of fossil fuels. It involves the occurrence of external effects, using the atmosphere, without incurring the costs of its use. The atmosphere is a public good which is connected with non-exclusion from consumption and non-attributability in consumption. The price for using the atmosphere for CO_2 discharge is zero (it is difficult to attribute ownership to it), but the social costs of its use can be very large and spread over time. As a result, CO_2 concentrations in the atmosphere are 40% higher than the highest values that the planet has achieved in the last 650 000 years [Devanney 2010, p. 2]. There are also studies showing the association of CO_2 with premature mortality. This may be important implications for regional, national or supranational policies to reduce carbon dioxide emissions [Jacobson 2010, p. 2497]. Although there are various methods of reducing excessive carbon dioxide emissions, such as emission taxes, emission trading or the use of green certificates [Kunsch, Springael, Brans 2004, p. 387-388], the issue of excessive emission is still visible on a global scale. The problem is the necessity to achieve multi-stage agreements on a global basis. In 2012, Poland achieved the highest level in Europe of air pollution from fine dust. It is also worth noting that Polish power plants belong to the largest EU payers due to the damage they generate for health and the environment caused by air pollution. In 2010, about 25 000 deaths in Poland were related to air pollution, which was one of the highest levels in OECD countries [Environmental Performance Reviews 2015, pp. 3-5]. The largest air pollutants in Poland relate to the emission of carbon dioxide. According to Eurostat data, Poland is one of the leading countries with the highest CO_2 emissions in Europe (Fig.1).

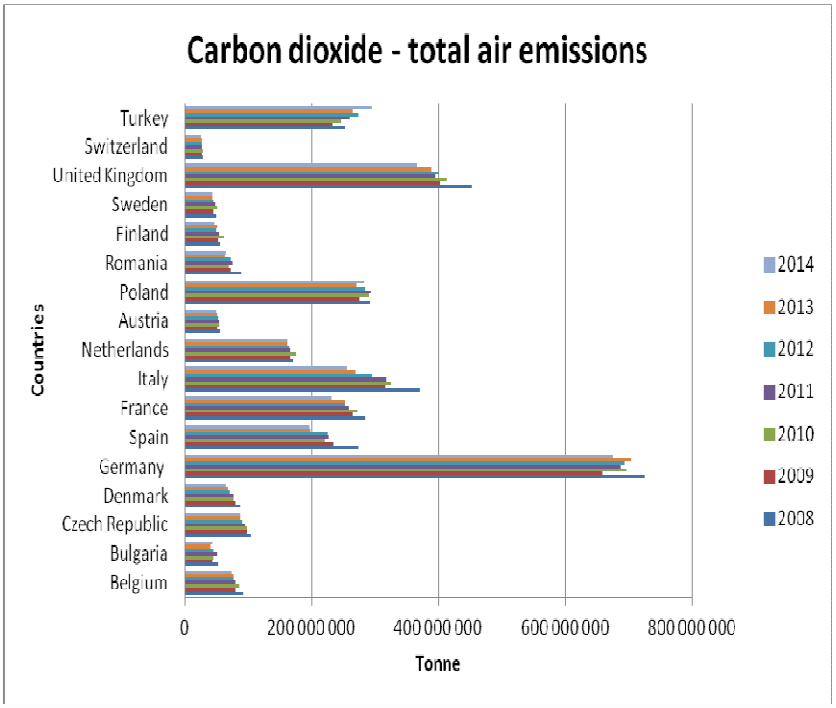

Figure 1: CO_2 emissions in Poland and selected European countries in 2008-2014.

Source: own study based on the Eurostat data danych eurostatu.

In 2014 alone, CO_2 emission in Poland accounted for approximately 9,7% of total emissions in Europe. However, in the country, this emission accounts for over 99% of the total emissions of substances delivered to the air [appsso.eurostat.ec.europa.eu]. Excessive greenhouse gases in the air can have negative environmental consequences. The most-described effect of excessive CO_2 emissions to the atmosphere is the greenhouse effect, which is supposed to cause an increase in the temperature on Earth. It is also possible to meet with divergent opinions of climatologists as to the actual threat associated with the greenhouse effect [Godlewska-Lipowa, Ostrowski 2000, p. 29], which question the thesis about the impact of anthropogenic carbon dioxide emission on temperature [Wilk, Sładka 2010, pp. 5-9]. Assuming the impact of CO_2 emission on the greenhouse effect, the most important effects of such a process include the increase in temperature, which affects the rise in the level of sea waters as a result of melting glaciers. Thus, the risk of flooding in some regions of the world is growing. Under the influence of air warming, more intensive evaporation of oceans can occur, which is associated with more clouds and rainfall. It is also emphasized the unfavorable impact on plants and their production, and at the same time the increase in temperature promotes the development of insects and parasites. It should also be pointed out the possibility of ecological disasters and increasing the possibility of infectious diseases with cholera or malaria [Gajdzik, Wyciślik, 2010, p. 42]. The interest in climate change and its impact on life on earth has been reflected in its inclusion in the PSR (pressure-state-response) system in international organizations. The PSR indicators for climate change according to a given methodology are presented in Table 1.

Table 1: PRS climate indicators of selected international organizations

Methodology	Problem	State	Pressure	Response
OECD/UNEP	Climate change	CO_2 concentration	Greenhouse gas emissions	Energy efficiency, environmental protection instruments
	Breach of the ozone layer	Chlorine concentration, amount of atmospheric ozone	Emission and production of halons, freon and other gases	Signed international agreements
World Bank	Greenhouse gases	CO_2 emissions	Concentration of greenhouse gases	Energy efficiency
	Atmospheric ozone	CFC consumption*	CFC concentration*	International protocols and conventions
UNO	Atmosphere protection	Greenhouse gas emissions	Emissions of pollutants in urban areas	Expenditure on the reduction of atmospheric emissions
		Emissions of nitrogen oxides		
		Consumption of ozone-destroying substances		

CFC - chlorofluorocarbons.*
Source: own study based on: J. Śleszyński, Approach of international organizations and institutions to the construction of eco-development indicator systems, [in:] Ecological development indicators, edited by T. Borys, Wydawnictwo Ekonomia i Środowisko, Białystok 1999, pp. 162-169 and S Kozłowski, Sustainable development, The challenge of the 21st Century, Wydawnictwo Naukowe PWN, Warszawa 2000, p. 121.

Reducing greenhouse gas emissions, in particular CO_2, and their effective use are both a difficult challenge for the world and a great opportunity for sustainable development in the field of energy and the environment. The global CO_2 control strategy should start with energy-related issues because the problem arises from the method the energy sources are selected and used. The amount of carbon in CO_2 emitted as a greenhouse gas from the combustion of fossil fuels around the world has become higher than the amount of oil and petroleum products consumed as a chemical raw material in the world, namely the amount of carbon used to produce most chemicals [Song 2006, pp. 27-28].

Sustainable development and CO_2 in the Lubuskie voivodship

Attempts to implement at least part of the assumptions of the concept of sustainable development in the Lubuskie voivodship were included in the Lubuskie voivodship Development Strategy 2020 (SRWL). This document contains basic guidelines for the regional policy of the voivodship self-government, and its implementation was to ensure permanent and sustainable development of the region. In this strategy, the Lubuskie region is to be perceived as a place of a healthy lifestyle and to be called the "green land of modern technologies". The implementation of this slogan is to be served by natural capital, which is the greatest asset of the Lubuskie voivodship, which consists of the values of the natural environment and its diversity. It is necessary to first of all point out the large forest cover and relatively clean air, and this should be seen as a chance to improve the quality of life of inhabitants and the development of tourism. Natural resources, such as energy (lignite or natural gas), have also been taken into consideration, which in the future may affect the development of the region and the region's competitive advantage, but pose a threat in the area of CO_2 emission growth. In the context of the sustainable development of the voivodship, the challenge is to preserve the high values of the natural environment while maintaining long-term socio-economic development as well as highly specialized agriculture. This is one of the challenges of the Strategy and aims to ensure sustainable development and optimal resource management. The crowning of efforts is to make the

best use of its location in Europe by the Lubuskie voivodship, environmental values as well as transport accessibility [Strategia Rozwoju ... 2012, pp. 4-30]. In 2015, CO_2 emissions in Poland amounted to 209,96 million tons per year. Each of the voivodships contributed to a greater or lesser extent to emissions from particularly burdensome establishments.

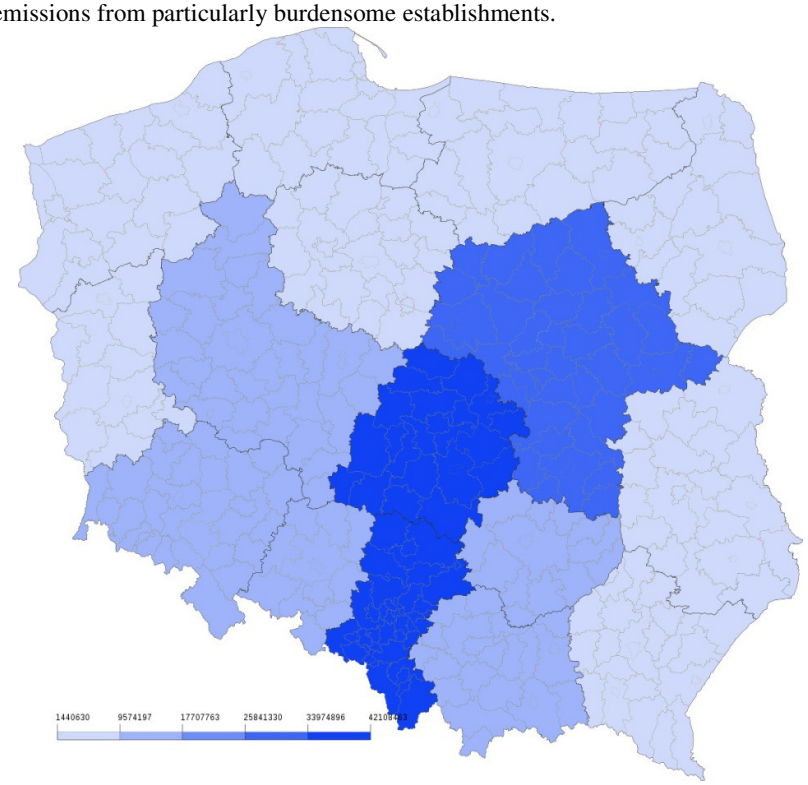

Figure 2: Map of CO_2 emissions by voivodships in 2015.

Source: own study based on BDL data using http://mapy.easysoftware.pl/ portal http://mapy.easysoftware.pl/

Recently, the most gases in Poland from particularly burdensome plants have been observed in the central and south-western part of the country, whereas in the Mazowieckie, Łódzkie and Śląskie voivodships the emission was the highest. The results of the statistical analysis for a longer time horizon (1998-2015) are presented in Table 2.

Table 2: CO_2 emission statistics in voivodships

Voivodships	Min	Max	Average	Me	S	VZ	Average rate of change	VPZ
POLAND	201 527 376	221 250 166	212 257 917	213 075 236	62266 87	0,029	0,998	212214 368
ŁÓDZKIE	33 837 516	48 421 902	40 189 519	40 224 933	46517 01	0,116	0,994	399316 59
MAZOWIECKIE	22 575 138	29 331 528	26 620 575	27 667 210	22031 65	0,083	1,011	266566 20
MAŁOPOLSKIE	10 129 113	15 326 540	12 294 637	12 628 981	16183 59	0,132	0,987	123051 97
ŚLĄSKIE	33 361 715	45 520 486	39 074 209	39 470 550	37251 99	0,095	1,004	392177 91
LUBELSKIE	4 254	5 697	5 056	5 100	34066	0,067	0,992	503947

	946	816	073	290	3,9			3,6
PODKARPACKIE	2 510 982	3 790 507	3 353 720	3 452 138	35882 4,2	0,107	0,987	335026 9,7
PODLASKIE	1 471 973	2 004 380	1 790 927	1 824 191	16992 9,8	0,095	1,000	178044 6,2
ŚWIĘTOKRZYSKIE	9 087 497	13 769 959	11 702 693	11 678 363	10441 17	0,089	1,002	116720 93
LUBUSKIE	1 498 178	2 178 198	1 948 672	1 981 881	16068 8	0,082	1,002	194853 0,2
WIELKOPOLSKIE	16 229 480	18 709 896	17 295 716	17 112 720	72513 6,2	0,042	0,992	172854 83
ZACHODNIOPOMORSKIE	7 856 374	10 045 221	8 924 079	9 153 386	68122 1,3	0,076	0,991	890130 2,1
DOLNOŚLĄSKIE	12 789 373	17 941 373	15 343 906	15 302 047	14578 68	0,095	0,992	154409 04
OPOLSKIE	12 012 520	15 486 993	13 398 460	13 448 046	88742 2,1	0,066	0,998	134481 71
KUJAWSKO-POMORSKIE	6 715 258	8 765 058	7 869 689	8 060 613	64121 3,5	0,081	0,998	783615 6,7
POMORSKIE	4 920 995	6 872 496	5 918 241	6 056 018	65532 3,9	0,111	1,017	592781 4,1
WARMIŃSKO-MAZURSKIE	1 371 567	1 660 686	1 476 802	1 452 610	88923, 43	0,060	0,992	147245 7,7

Explanations: Me - median, VZ - coefficient of variation, VPZ - average level of the phenomenon
Source: own study.

There was a slight decrease in CO_2 emissions at the level of the whole country, however, this process did not occur in all voivodships. The increase occurred in the Lubuskie voivodship, but also in Mazowieckie, Pomorskie and Świętokrzyskie. In the analysed period, the highest emission level measured by the average level of the phenomenon was observed for the voivodships of Łódź, Silesia and Masovia. High emission levels in these voivodships also confirm high values of maximum and minimum observations as well as the average level. The average emission level in the Lubuskie voivodship was one of the lowest in the examined period. In order to determine the impact of selected economic, social and environmental factors on CO_2 emissions, a panel regression model with permanent effects was used (Table 3).

The issue of CO_2 emissions can be considered through the search for mutual dependencies in the econometric model. Various economic, social and environmental factors have been analysed in the literature. The works of Xu and Lin (2016, p. 1462), Du Wei, Cai (2012, p. 378) Kepplinger, Templ, Upadhyaya, (2013, p. 757), Xu et al (2017, p. 3063) included: GDP per capita, level of urbanization, number of private cars, energy consumption, level of coal consumption, exports, energy production structure, imports, per capita consumption level, investments. These studies are often dominated by a regional or sectoral approach, or a simultaneous consideration of both approaches. The constellation of the factors assessed indicates that the problem of sustainable development is stressed to a lesser extent.

Table 3: Estimation of model parameters for the dependent variable: CO_2 emission

Specification	***Coefficient***	***Standard error***	***t-Studenta***	***value p***	
Constant	-4,16482e+07	1,39527e+07	-2,9850	0,0093	***
Number of enterprises	50252,9	16619,3	3,0238	0,0085	***
Salary	12682,9	3400,02	3,7302	0,0020	***
Poverty line	109969	54736,6	2,0091	0,0629	*

Machine abilities	-2,43741	1,17148	-2,0806	0,0550	*
Woodiness	-4,48497	3,35023	-1,3387	0,2006	
Kujawsko-pomorskie	2,81446e+06	1,70435e+06	1,6513	0,1018	
Lubelskie	−1,03599e+06	1,22519e+06	−0,8456	0,3998	
Dolnośląskie	2,58206e+06	2,84781e+06	0,9067	0,3668	
Łódzkie	3,15042e+07	2,14055e+06	14,7178	<0,0001	***
Małopolskie	−59682,2	2,6912e+06	−0,0222	0,9824	
Mazowieckie	5,46343e+06	6,00437e+06	0,9099	0,3651	
Opolskie	5,44696e+06	2,87273e+06	1,8961	0,0608	*
Podkarpackie	56750,6	795081	0,0714	0,9432	
Podlaskie	−2,34622e+06	947654	−2,4758	0,0150	**
Pomorskie	−3,79132e+06	2,31199e+06	−1,6399	0,1042	
Śląskie	1,49586e+07	6,48096e+06	2,3081	0,0231	**
Świętokrzyskie	5,92941e+06	2,40853e+06	2,4618	0,0155	**
Warmińsko-mazurskie	66382,7	1,00484e+06	0,0661	0,9475	
Wielkopolskie	9,18687e+06	1,89466e+06	4,8488	<0,0001	***
Zachodniopomorskie	3,31443e+06	1,43168e+06	2,3151	0,0227	**

*Designation: * p<0,1; ** p<0,05; *** p<0,01.*
Source: own study using the Gretl 2016d program.
Due to the exact collinearity, the time variable for 2015 has been omitted.

Table 4: Match assessment and statistical tests of the estimated model

Arithmetic mean of the dependent variable	13265837	Standard deviation of dependent variable	12084811
Sum of residual squares	1,28e+14	Standard error of residues	1132754
LSDV R-square	0,993082	Within R-square	0,211507
Logarithm of credibility	-1950,166	Crit. inform. Akaike	3956,332
Crit. bayes. Schwarz	4036,189	Crit. Hannan-Quinn	3988,778

Source: own study using the Gretl 2016d program.

In the model with variable effects, the analysed regressors, such as the number of plants and the level of remuneration, showed statistical significance at the level of 1%, while the capacity of installed devices and installations to reduce pollution and the relative poverty line of 10%. The introduction of the time variable into the model showed statistical significance for each year at the level of 1%. Due to the occurrence of strict collinearity, the time variable for 2015 was removed from the model. It should be noted that the results for the analysed years refer to the base year 2007. Structural parameters at voivodships are also given in relation to the Lubuskie voivodship. Negative values indicate a lower impact on CO_2 emissions, only in the Podlaskie, Pomorskie, Małopolskie and Lubelskie voivodships. This conclusion is also confirmed by data from table 2. Statistically significant regressors occurred for Łódzkie (1%), Opolskie (10%), Podlaskie (5%), Śląskie (5%), Świętokrzyskie (5%), Wielkopolskie (1%), Zachodniopomorskie (5%). Positive parameter values suggest higher emission levels in these voivodships compared to the Lubuskie voivodship. This phenomenon is also confirmed by statistical analysis (Table 2). The quality of the model measured by the LSDV R^2 matching index is much higher than Within R^2, which indicates a better fit of the model taking into account individual effects. It also means a strong differentiation of emissions due to the geographical area of Polish regions. Therefore, it requires the use of different actions in individual provinces to limit it.

On the basis of the analyses carried out, several important regularities can be identified, especially in the context of persistent differences. The size of the emission depends, of course, on the number of entities transmitting such pollution. From the point of view of the considerations and the search for the mechanism of shaping the balance, corrective factors are important. Higher tendency to accept higher level of carbon dioxide emission was partially compensated by the level of real wages (the economic sphere), which positively influenced their size.

At the same time, it should be noted that in line with theoretical assumptions, the increase in the number of people below the poverty level was also conducive to higher CO_2 emissions. It is a social element in the considered balance system. Similarly, measures related to the size of funds targeted at investments aimed at reducing emissions undertaken by private entities should be included. It is a socio-legal factor resulting from changes taking place in the legislation and the impact of the community also at the local level (although it cannot be clearly narrowed down) to decisions of economic entities and additional costs related to pro-environmental activities. The environmental aspect has been included in the form of broadly understood green areas. Their higher level is a correction for emissions and the adoption of a different direction for resource allocation. This is both a direct effect (CO_2 absorption), but also decisions on spatial development of the voivodship in the long-term perspective.

Conclusion

The presented results of statistical analysis and the results of the panel regression estimation show a low impact of the Lubuskie voivodship on CO_2 emissions. Although the Lubuskie voivodship contributes little to the growth of national CO_2 emissions, it should still take steps to reduce it. Despite the drop in gas emissions in Lubuskie since 2011 activities at the local level are still important, such as the promotion of renewable energy sources, spatial planning or lifestyle changes. The observed increase in emissions in the earlier period should be combined with the deterioration of social conditions and the pursuit of a faster improvement of the economic situation of the voivodship in relation to other regions. This resulted in the exposure of the economic sphere that was not compensated for by environmental conditions.

In the context of sustainable development, variables such as forest cover, wages, number of plants, level of poverty and population density were important. All these factors significantly explained the impact on sustainable social, economic and environmental development. This is in some way an element of choice between shaping the available space (including the share of green areas), and economic and social effects, which are specific substitutes for the consequences of the election in terms of the level of emissions occurring in individual provinces.

On the basis of the panel analysis it was found that there are individual effects confirming the legitimacy of studying CO_2 emissions in a regional context, where the level of this emission in the region is influenced by its specific characteristics related to the geographical location and the adopted level of sustainability. However, the existence of spatial dependencies is confirmed by the conclusions resulting from the Tobler's geography law, referring to the interaction between regions and mutual influence of one region on the other.

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Factors that Impact Employee Performance: The Empirical Case of Two Telecommunication Companies in Palestine

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Abstract

Job performance depends on many different factors including establishing a productive relationship between staff and management. The success of any organization is reliant on employees who enjoy doing their jobs and are rewarded for their work. So, the main purpose of this study is to identify non-monetary factors that influence the work performance of employees using as sample two companies in the telecommunications sector in Palestine. Seven hypothesis are tested to find which may be the factors that influence the performance of the employees in these companies. The key findings of the study show that in both companies the employees rated recognizing and appreciating of their work as the most important factor affecting their performance. Furthermore, it is found that the strong employee and manager relationship with motivation does have a positive effect on employee performance of both companies. The office environment only affects positively the employee's work performance in one of the sample companies.

Keywords : Job performance, human resources management, telecommunications sector, Palestine.

1. Introduction

In the early 20th century, money was considered the most important factor in the production of goods and services (Kreitner, 1995). However, after a line of researches, it was concluded that employees were not motivated not only by salaries, but that employee behaviour was linked to their attitudes – several studies shifted the focus of the human relations approach to management, where the needs and motivation of employees become the primary focus of managers (Lindner, 1998).

Having the previous sentence in mind, this research is designed to gain a better understanding of motivation factors, which influence job performance in service organizations in a country established is an economic, social and political problematic geographic area – Palestine, having as a sample employees from two companies in the telecommunications sector – companies here called Company1 and Company2.

Palestine is a developing country in the middle-east containing many service firms, which contribute to its economy. Moreover, Palestine service organizations play significant roles both socially and economically with a contribution of 20.8% to GDP in the year of 2014 (Portland Trust, 2015). Providing the employees of service companies with motivating factors that influence their job performance. The telecommunications sector had a 7.9% contribution to real GDP by economic activity in the year 2015. However, the Palestinian communications sector is suffering from political obstacles that impact the economy negatively. The direct impact represents up to 3.0% of the GDP over the last three years (World Bank, 2016). Therefore, the findings in this study will have both theoretical and practical contribution and will add to the collective research literature on factors that can enhance job performance. First, it will provide much insight into the level of motivation and performance of employees of "Company1" and "Company2". Secondly, it may help these two companies in retaining, satisfying, and attracting qualified employees. Thirdly, it will also reveal interesting information about the importance of employee motivation and impact on work performance for other companies and they may find this knowledge relevant and useful to them when motivating their own employees. Fourthly, it will generate data that may be used to develop further research on the topic. Lastly, this study will assist in providing explanations of the reasons why the performance of employees is affected in either a positive or negative way, which could consequently lead to increased productivity in organizations. Furthermore, the results of the study have practical use as managers of service organizations may use it to motivate their employees to improve job performance.

The work is divided as follows. Next section will present the literature review that offers the theoretical framework for the empirical research. After a third section will present the methodology followed to reach the research objective, namely it will be described how the data was collected and the hypothesis to test. Section four will present the main results and the related analysis. The work concludes with a section devoted to the conclusion, work limitations and possible future lines of research.

2. Literature review on job performance and satisfaction: a brief discussion of several factors which may impact on it

Job performance is a multi-dimensional construct that shows how good employees perform their tasks, the initiative they take and the resourcefulness they show in solving problems. Furthermore, it indicates the extent to which they complete tasks, the way they use their available resources and the time and energy they spend on their tasks (Boshoff, & Arnolds, 1995). Job performance could be affected by situational factors, such as the characteristics of the job, the organization and co-workers and by dispositional factors. Dispositional variables are personality characteristics, needs, attitudes, preferences and motives that result in the likelihood to react to situations in a specific way (Strümpfer, Danana, Gouws, & Viviers, 1998). In this case, it is possible to consider performance increase when there is less absenteeism, less human errors, meeting deadlines, organization and prioritization, successful teamwork, less turnover, impactful creativity, efficiency in completing tasks, less postponing of duties, and fast-paced communication between members and departments of the organization.

Simply put job satisfaction is how people feel about their jobs and different parts of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs (Spector, 2000). Job satisfaction is also a psychological concept that refers to job-related attitudes and characteristics such as pay and reward, policies, leadership practices, management styles, and relations with co-workers (Amponsah-Tawiah, & Darteh-Baah, 2010). Armstrong (2010) points out that job satisfaction relates to the attitudes and feelings people experience about their work. Employee satisfaction leads to ensuring that a higher productivity is received from all employees of the organization, and is linked to better job performance, lower absenteeism, higher organizational citizenship, greater organizational commitment, lower turnover. It was also found that leadership has a significant impact on employee satisfaction (Sarah, Nik, & Pranav, 2012).

If the managers of the organization enrich the jobs of employees, they could be more satisfied. This is done by increasing the number or the variety of tasks for the employees. The result will be an increase in their level of performance. In order to achieve these results, the tasks should be redesigned and the employees should be given more responsibility (in what is called, horizontal and vertical job expansion). Moreover, if the employees themselves are involved in the planning, organizing and designing their own tasks, they will satisfy their esteem and self-actualization needs, and increase their performance (Ekerman, 2006).

Job rotation and transfers is a way of expanding the skills and knowledge of employees of the organization by moving employees from one official responsibility or job to another. For example, moving to a higher rank position within the organization, or from one branch of the organization to another, or from one department to another. In the case of bigger and international organizations transfers could be done by moving employees from one country to another. These job rotations and transfers help employees to gain new knowledge of the different tasks and operations of the organization. Additionally, this newly acquired knowledge will improve employee performance and constitute a competitive advantage for the organization (McCourt, & Derek, 2003). Herzberg (1986) says that providing employees with opportunities to advance in their company through internal promotions acts as a motivator related to work. He also further states that the chance of promotion and advancement for employees is one of the best tools to motivate those employees. The research of Harrison and Novak (2006) supports this by showing that when managers try to establish employee promotion opportunities, there is a positive motivating impact on the satisfaction and levels of employees.

DeCenzo and Robbins (1996) define a motivation as how much a person is willing to complete a task based on the desire to satisfy his or her needs. The managerial part of motivation entails the practices of the managers and leaders to influence employees to produce the preferred results. At this point, it is important for management to know what exactly stimulates employees so that the resources are put to the best possible use and are not misallocated. Motivation increases the job involvement by making the work more meaningful and interesting as well as the fact that it keeps the employees more productive and improves their job performance (Ekerman, 2006).

In the field of human resource management, the purpose of employee training is to improve the performance of organizational members. Employee training is sometimes referred to as including employee development, human resource development, and learning and development (Aguinis, & Kraiger, 2009). The training of employees has a positive effect on their productivity and satisfaction. Trained employees are more capable of performing their duties and experience more job satisfaction (Sutermeister, 1976). Employee training benefits both employees by advancing their knowledge, competencies, behaviour, and skill and abilities. The consequence is an improved employee performance that positively benefits the organization (Wright, & Geroy, 2001). There are additional benefits of employee training as listed by Cole (2002): (1) High morale: employees who receive training have increased confidence and motivations; (2) Lower cost of production: training reduces risks because trained personnel are able to make better and more efficient use of material and equipment, thereby reducing waste; (3) Lower turnover: training brings a sense of security at the workplace which in turn employee turnover and absenteeism; (4) Change management: training helps to facilitate change by increasing the understanding and involvement of employees in the change process, and it also provides the skills and abilities needed to adjust to new situations; (5) Training provides recognition, a sense of responsibility and the possibility of increased pay and promotion; and, (6) Training improves the availability and quality of employees.

Leadership, as defined by Northouse (2007), is a concept where an individual can influence a group of people to modify their behaviour towards achieving a common objective. The type of leadership process inside an organization has a considerable impact on either encouraging or impeding employee

performance (Armstrong, & Murlis, 2004). Therefore, leaders and managers are a key factor in the success of the organization. Effective managers will use the interpersonal relations between the employees to strengthen their loyalty and raise their morale. Carrell, Kuzmits and Elbert (1989) explain that there must be mutual trust between subordinates and managers, and employees should be given the freedom to participate in organizational decisions. This will help the organization to become more flexible and more innovative. In other words, the planning of the organization should not be for the people but with the people. When employees are heard and are part of the decision-making process, they become motivated since management treats them more like partners rather than just subordinates. Innovative human resource management approaches that encourage employee participation and flexibility of work, facilitate decentralization of managerial duties and responsibilities and will improve employee performance (Ichniowski, Shaw, & Prennushi, 1997). Caruth and Handlogten (2002) articulate that reward systems are the foundation of employee motivation. The knowledge, skills, and abilities of employees are the most essential aspects to the success of any organization. Therefore, management should always support by exploring effective ways to reward the efforts, loyalty, dedication and input of employees.

Finally, is important to refer to the workplace environment which includes the location of the work, where the employees perform their everyday activities and duties, such as office or site of construction. Other factors like fresh air, refreshment, noise level and other facilities like child care, also become a part of the workplace environment. Workplace environment may have either a positive or negative impact on the satisfaction level of employees depending upon the nature of the working environment. The employees can perform better if they are provided with a good environment. Poor work conditions could lead to company property damages and accidents that could cause harm or even fatalities - that will have a significant negative impact on the morale of employees. Thus, working conditions that are supportive must be established in the organizations. Examples of performance improving work environments include safe, noise-free, well lit, and a suitable temperature (Weil, & Woodall, 2005).

3. Objective of the Study, Research Hypotheses and Data Collection

The objective of this research is to identify the non-monetary factors that affect employee performance. Based on the objectives of the study main research hypothesis of the study are presented in Table 1.

Table 1: Hypothesis listing and description

Hypothesis	Dependent Variable	Independent Variables
H_1: Strong management and motivation effects employee performance	The strong relationship with managers helps employee performance	The feedback received from management is positive and useful; Managers encourage employees.
H_2: Employee-manager relationship effects employee performance	The employee's relationship with their managers helps them be more productive	Motivation from management; The importance of strong supervision.
H_3: Employee involvement in decision making influences their performance	The employees perform better when they can make their own decisions	Employees are satisfied by their decision-making affecting their work; The importance of employee involvement in decision making.
H_4: A comfortable office environment effects employee performance	Whether the office environment effects performance	A comfortable office environment helps work performance.
H_5: Recognition of efforts	The employee feels valued at	The employee is fairly rewarded for his

effects employee performance	work	or her quality of work; The importance of recognizing the efforts of employees.
H_6: Training impacts employee performance	Training improves job performance	Training is based on the knowledge and skills needed for the job; Quality of training programs; Relevance of training programs; Need for further training.
H_7: Job rotation impacts employee performance	Employee performance is improved when job tasks are varied	Job rotation advances skills

Primary data is collected using a questionnaire designed to assemble the needed information for analysis about the different possible factors affecting employee performance. The questionnaire is divided into 5 sections: section1 inquiries about general information and about the company and the position of the employee via multiple choice responses. Section2 inquiries about the training process through multiple choice and true or false questions. Section3 inquiries about employee agreeableness towards performance factors Likert scale from 1 to 5 such as strongly disagree, disagree, neutral, agree, and strongly agree. Section4 asks the employees to rate the importance of different factors from 1-11 with 1 being the most important. Section5 contains two open-ended questions regarding how to improve training and employee performance.

Both the management of each company and the participants were ensured complete anonymity and confidentiality to encourage them to answer honestly and without fear of any kind of reprisal. The developed structured-questionnaires were first presented to the Human Resources departments of each of the two companies for approval, after which they distributed through hard-printed copy handouts within the organizations and by emails to the official employee work emails. In this study, 140 questionnaires were distributed to Company1 (90 questionnaires) out of approximately 400 employees and Company2 (50 questionnaires) out of approximately 250 employees and 127 of those were filled and collected back (90%) response rate. Additionally, 58.3% out of the total of 127 respondents are male and the rest of 41.7% are female. The target sample geographical location is in West-Bank, Ramallah. Where the major headquarters for the two companies are located. This information is summarized in the following table (Table 2).

Table 2: Absolute and relative distribution of participants in the sample in the study

Companies	Participants (n)	Percentage of respondents (%)
Company1	90	22.5%
Company2	50	20.0%

The first target company is Company2 which is a member of Ooredoo Group that was launched in November 2009. The current ownership structure has Ooredoo with 48.45%, the Palestine Investment Fund at 34.03% and 17.52% free float. Ooredoo brings extensive experience in telecommunications through its operations in 14 countries which provide Company2 with the knowledge and expertise to work towards achieving a superior customer experience. As part of its strategy to help build an independent and vibrant Palestinian economy, the Palestine Investment Fund continues to invest in strategic industries such as telecommunications, which includes Company2. This combination of partners brings the international telecommunications experience, coupled with a drive towards economic change to Palestine, bringing with it employment and business development (Company2, 2016).

The second target company is Company1, which is the first Telecom company in Palestine, employing almost 887 people. Company1 was established in 1999. Since its launch, Company1 has a leading market share of 81.5% of the Palestinian market. In 2004, for being a pioneer of promoting international standards of preserving the environment in Palestine Company1 obtained the "Environmental Quality Management" certificate ISO14001. In addition, Company1 offers international roaming services with more than 391 operators in over 160 countries and has covered up to 98% of the West Bank and Gaza Strip. Company1 has an extensive network of 29 stores, more than 1,000 major and primary distributors, and 10,000 outlets in the West Bank and the Gaza Strip serving subscribers in every corner of the country. Also, this mobile company has roaming services for its subscribers when travelling abroad with an extensive roaming network of 436 operators in 170 countries and a coverage level of 98% from the West Bank and Gaza. The political situation has created some difficulties for the operations of Company1 - it has always been struggling with the limited frequency allocated by Israel, namely that used by the third-generation technology (3G) (Company1 Telecom, 2016).

4. Results: Hypothesis Testing and Analysis

In order to answer the main objective of this current research, it will be carried the Spearman's rho correlation coefficient once the nature of all variables is qualitatively measured on an ordinal scale. The results of the hypothesis H1 to H7 are presented in Tables 3 to 7, presented next.

Table 3: Employee manager relationship with feedback and encouragement

H_1: Strong management and motivation does have an effect on employee performance		Company1			Company2		
Dependent variable	A strong employee-manager relationship	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Independent variables	Feedback received from management.	0.235*	0.041	76	0.265	0.063	50
	Encouragement received from management	0.257*	0.025	76	0.335*	0.018	50

Note: *, correlation is significant at 5% level of significance.

The results for both companies in the table above show that both exploratory variables have a weak positive relationship with the dependent variable. However, there is 95% certainty that when an employee receives both more feedback and encouragement from management, the relationship between the employee and the manager will be stronger. Even though both independent variables have a weak positive relationship with the dependent one is evident that the relationship is positive and statistically significant. So, it is possible to conclude that a strong management, feedback and motivation does have an effect on employee performance.

Table 4: Relationship productivity and management motivation

H2: The employee-manager relationship does have an effect on employee performance		Company1			Company2		
Dependent variable	A productive employee-manager relationship	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Independent variables	Management motivation	-0.179	0.122	76	-0.081	0.577	50
	Strong supervision	-0.330	0.779	76	0.022	0.880	50

Table 5: Employee involvement and satisfaction in decision making

H_3: Employee involvement in decision making does have an effect on their performance		Company1			Company2		
Dependent variable	A strong employee-manager relationship	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Independent variables	Employee satisfaction regarding their decision making	-0.160	0.891	76	-0.006	0.968	50
	Employee involvement in decision making	0.044	0.703	76	-0.043	0.765	50

Regarding H2 and H3, for both companies the outcomes of the tables above (Table 4 and Table 5, respectively) are inconclusive and no statistical significance between the dependent and independent variables can be proven.

Table 6: Office environment and performance

H_4: A comfortable office environment making does have an effect on employee performance.		Company1			Company2		
Independent variable	Office environment and performance	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Dependent variables	Comfortable office environment	0.231*	0.045	76	0.211	0.141	50

*Note: *, correlation is significant at 5% level of significance.*

For Company2 company the results of the table above are inconclusive and no statistical significance between the dependent and independent variables can be proven. For the second company, Company1, there is a weak positive relationship but a statistically significant one between the independent variables and the dependent one. There is 95% certainty that when an office environment is more comfortable it will affect the performance of the employees in their work environment. A more comfortable office environment conducts to a better performance of the employee.

Table 7: Effort recognition and rewards

H_5: Recognition of efforts does have an effect on employee performance.		Company1			Company2		
Dependent variable	Employee is valued at work	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Independent variables	Employees are fairly rewarded	0.278*	0.015	76	0.238	0.096	50
	Recognition of employee efforts	0.131	0.259	76	0.161	0.263	50

*Note: *, correlation is significant at 5% level of significance.*

It is understood from the above information that, for the company Company1, there is a positive but weak relationship between the independent and dependent variable regarding fair employee rewards. This statistical significance means that, with 95% confidence, when an employee is fairly rewarded, he or she will feel more valued at work. As for the other independent variables, other than the recognition of employee efforts, there are no more statistical relationships of significance for both companies.

Table 8: Training and performance

H_6: Training does influence employee performance.		Company1			Company2		
Dependent variable	Training improves job performance	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Independent variables	Training is based on skills needed	-0.374**	0.004	57	-0.475**	0.002	40
	Quality of training programs	-0.254	0.054	58	-0.369*	0.019	40
	Relevance of training programs	-0.464**	0.000	58	-0.179	0.270	40
	Need for additional training	0.097	0.467	58	0.728**	0.000	40

*Note: *, correlation is significant at 5% level of significance and **, correlation is significant at 1% level of significance.*

A conclusion different than the one expect from the literature is drawn based on the above table. In the case of Company2 company, the negative values of the Spearman's coefficient mean that there is a moderately negative relationship between the independent variable of basing training on the skills needed and the dependent variable. Thus, there is 99% certainty that when training is based on the skills needed it will not improve job performance and this is a surprising result. There is also a weak and negative relationship between the independent variable the quality of training and the dependent variable. Hence, there is a 95% certainty that the better the quality of the training programs the less training will improve performance, and again this too is an unexpected result. However, there is a strong and positive relationship with statistical significance between the need for training and the dependent variable. With 99% certainty that the more employees need more training, the better this training will improve their performance.

In the case of Company1, the results also contradict the literature. There is a weak and negative relationship between basing training on the needed skills and the dependent variable. Meaning, there is

99% certainty that when training is based on skills, the less training will improve job performance. Moreover, there is a moderate and negative relationship between the relevance of the training programs and the dependent variable. Meaning, there is a 99% degree of certainty that the more relevant the training is, the less it will improve performance.

Table 9: Performance and job task variation

H_7: Job rotation does influence employee performance		Company1			Company2		
Dependent variable	Employee performance in job task variation	Spearman's coefficient	P-value	n	Spearman's coefficient	P-value	n
Independent variable	Job rotation advances skills	0.266*	0.020	76	0.384**	0.006	50

*Note: *, correlation is significant at 5% level of significance and **, correlation is significant at 1% level of significance.*

In the case of Company2, the results show that there is a weak and positive relationship between the independent variable and the dependent variable. This allows to conclude that there is a 99% degree of certainty that when job advancing skills occur, employee performance will be improved. In the case of Company1, there is a weak and positive relationship between the dependent and independent variables. It can be understood that there is a 95% certainty level that the more job rotation advancing skills there are, the more this variety of job tasks will improve employee performance.

5. Conclusions, Limitations and Possible Future Research Lines

There are many various factors that impact employee performance. The degree to which these factors affect employee performance differs from one company to the other. It also differs in the same company itself from within across its departments and hierarchy levels. The major factors focused on in this study fall under the following main categories: (1) Management and motivation; (2) Employee-manager relationship; (3) Work and office environment; (4) Employee involvement in decision making; (5) Employee training; (6) Job rotation; (7) Recognition of efforts. Based on the hypothesis testing the following is concluded:

1. Employees of both companies value that recognition of their efforts is the most important factor that affects their performance since it is rated the highest among all others.
2. For employees of both companies, it is concluded that the strong relationship and motivation from their managers do have a positive effect on their performance.
3. For employees of both companies, it is ascertained that their satisfaction with their involvement in decision making does not significantly affect their performance.
4. For only one of the two companies - Company1 - the office environment does have a positive effect on the performance of its employees.
5. For only one of the two companies - Company1 - it is determined that the recognition of efforts does have a significant positive effect on the performance of employees.
6. For employees of both companies, it is concluded training has a negative significant effect on the performance of employees.
7. For employees of both companies, it is established that job rotation has improved the performance of employees positively.

There are several different shortcomings facing this study: (i) Geographical constrictions: the data sample size collected was focused on the area of West-Bank Ramallah and not inclusive of all branches of both companies; (ii) The small date size did not allow to use other statistical tests/methods that would allow a more comprehensive analysis of data; (iii) All the collected data is self-reported by the employees which are inherently dependent on their honesty in participating; (iv) The performance of employees themselves reported is subjective and not derived from the actual performance appraisal results; and, (v) There are very few participants from the management especially the higher management segment, which skews the results a bit towards the lower levels of organizational hierarchy. Moreover, future studies may wish to explore other variables that may impact employee performance not studied or focused upon in this study such as employee loyalty, employee emotions, work time flexibility, corporate culture and values or employee retention.

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Factors Affecting the Innovation Implementation in Small and Medium-Sized Enterprises in the Czech Republic

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Abstract

The aim of this article is to evaluate the factors influencing the introduction of innovations and innovative solutions in small and medium-sized enterprises (SMEs) in the Czech Republic. For SMEs, competitiveness enhanced by innovative activities is important, their innovation and innovative solutions must be supported by the implementation of enterprise information system. The data obtained from the questionnaire survey, which focuses on SMEs' access to innovation, was used in order to verify the established hypotheses. The data obtained has shown that factors such as higher annual turnover of enterprises and implementation of the corporate information system positively influence the introduction of innovations in SMEs and are the key to the success and enhancement of their business value.

Keywords: information system, innovation, small and medium-sized enterprises, competitiveness

Introduction

In today's world, small and medium-sized enterprises (SMEs) are an irreplaceable part of every functioning market economy. In the Czech Republic, the share of SMEs in the gross domestic product (GDP) is constantly growing as well as the number of these economic entities. While globally in the European Union (EU) this segment produces an average of 58% of GDP, in the Czech Republic SMEs generate only about 40% of GDP. For this reason, it is necessary to support and to increase the competitiveness of small and medium-sized enterprises on the domestic and foreign markets (Finance.cz, 2017).

In the Czech Republic SMEs represent more than 1 million entities employing more than 2 million workers. This segment also participate in about 51% of export and about 56% of import. SMEs are the predominant form of business organizations not only in the Czech Republic but also in all EU countries (BusinessInfo, 2013).

Primary research, conducted through a questionnaire survey realised within the Student Grant Competition (SGS) project, focuses on enterprise approaches to innovation in the Czech Republic and clarifies the hypotheses specified below. The subject of the research is the analysis of the factors influencing the introduction of innovations and innovative solutions of SMEs in the Czech Republic.

Research Background

Innovation is a driving factor in the development of every business entity. An enterprise without any innovation cannot nowadays exist in a competitive world of economy. The goal of all modern companies is to increase their market value thanks to implemented innovation. Today's company does not only focus on the profit, its attention is also drawn to the "business value". Agile approach to innovation is the key to success in an increasingly aggressive competitive environment. This topic is also addressed in the scientific paper from the University of Žilina *Organizing Innovation Activities in Company* (Lendel, 2017). The authors' team discuss the approach of enterprises to the innovative process. Based on the research, the article states that although the enterprises welcome their employees' innovative ideas, they have no tools or means to implement them. In addition, the lack of capital and the inability to accept changes are other obstacles.

Innovations, as well as all company's functions, are part of a controlled process. Company decides on its product policy based on the results of marketing analyses concerning the business environment and on the knowledge of its own abilities. Innovation management is a key area that merits careful management. The ability of an enterprise to benefit from innovation depends on the ability to manage the entire innovation process. Innovation contributes to economic performance, corporate competitiveness, helps with sustainability and, in addition, even increases the quality of life. Therefore, business managers often get into risk situations when taking decisions that have a direct impact on costs, human resources, communication, and willingness to work together (Dodgson, 2014).

Methodology manual for measuring innovative activities *The Oslo Manual* defines innovation as the implementation of a new or significantly improved product (product or service) or process, new marketing or organizational methods in business practice. Innovation also involves changing external business relationships or improving organization at work (Oslo manual, 2005).

In conditions of constant and very dynamic changes, it is essential for current management that informatics effectively helps to identify, visualize and understand the external and internal conditions of managerial work. It gives a number of tools and methods to handle new requirements and demands of successful management of organizations, in particular by improving information systems and their efficient use (Veber, 2009).

Another factor that companies need to cope with is shortening of the product's life and an increasing number of competitors not only from local area but also from international (global) sources. Those who are not flexible enough and cannot keep up with the dynamic changes struggle for survival. In this fight for success wins the business that is able to innovate (Kislingerová, 2008).

The greatest potential for introducing changes can be mainly found in strategic innovation – the ability to produce with creativity, visionary thinking and innovation management in line with business strategy. Other areas for introducing changes are logistics and the development of new products or services (Goodman, 2017).

Innovative company's activities, regardless of the firm's size, have the same goal – to improve market position and gain a certain competitive advantage. The enterprise that wants to be successful on the market must innovate, irrespective of its size. However, compared to large companies, there are advantages and disadvantages that SMEs have to count with when introducing innovations. The advantage of SMEs, given by their size, lies in a dynamic and flexible decision-making process. It means that SMEs are able to operationally adapt to market requirements and are capable to react promptly. These advantages are due to a simple and flat organizational structure. Close contact with customers, often through direct co-operation with the company's management, provides important source of information on customer needs and requirements. The company is thus able to gain a good understanding of the market segment in which it operates. On the other hand, insufficient number of qualified employees, related lack of theoretical knowledge and practical experience in important areas of business management are among the disadvantages of SMEs while introducing innovations. Therefore, some of the SMEs' activities remain underestimated and without due attention. A major drawback is also the unavailability of technological and especially financial resources to support innovation (Dodgson, 1994).

Sample Characteristics

For the purpose of the research, a questionnaire survey entitled *Business Approaches to Innovation in the Czech Republic*, was carried out from May to August 2018, as part of the SGS project. In total, 583 of SME respondents participated in the questionnaire survey. The statistical survey was conducted through an online questionnaire compiled by the author of this article, a PhD student at the Technical University of Liberec. Subsequently, the questionnaire was electronically distributed to SMEs in the Czech Republic. Individual contacts were retrieved from the Bisnode database while using MagnusWeb application. The questionnaire survey gathered general business information (industry segment, size, and location) together with specific information concerning business

innovation. Of the total number of 583 respondents, 15 respondents were excluded as they did not meet the criteria for inclusion in the SME category. Among the excluded respondents, 11 enterprises employ more than 250 workers and 4 enterprises exceeded turnover of 50 million euros in 2017.

One of the objectives of the research was to evaluate the factors that influence the introduction of innovation in SMEs. The hypothesis of the author is that innovations are more often introduced in companies with higher annual turnover. The second hypothesis is the statement that innovations are more often introduced in enterprises that have implemented an information system to support business processes, including the processes that are innovative.

Results

Table 1 shows the relation between the business size within the SME segment, the implementation of the information system and the introduction of innovations. Taking into account the criteria for defining SMEs, it is clear that in the questionnaire survey there participated 27% of micro-enterprises, 50% of small enterprises and 18% of medium-sized enterprises. 5% of enterprises could not be classified into SME categories as they did not indicate their annual turnover.

Table 1: Relation between enterprise size, information system implementation, and innovation

Enterprise size	Number of respondents	Information system implementation	Innovation
Micro-enterprise	152 (27%)	60 (39%)	81 (53%)
Small enterprise	285 (50%)	167 (59%)	190 (67%)
Medium-sized enterprise	105 (18%)	80 (76%)	74 (70%)
Non-classified	26 (5%)	10 (38%)	15 (58%)
Total	**568**	**317 (average 56%)**	**360 (average 63%)**

Table 1 also demonstrates that information systems are the least used in micro-enterprises (39%), and small enterprises have an information system introduced in 59% of cases. Most often, the information system is implemented in medium-sized enterprises (76%). The average then shows that the information system is implemented by the over-majority of SMEs. Almost two-thirds of all respondents (63%) introduce innovation or innovative solutions into their enterprise. It involves introducing new or substantially improved processes, services and products. Innovations also include organizational changes within the enterprise or new marketing strategies. In the SME environment, innovations are introduced more frequently than the informational system. Micro-enterprises innovate in 53% of cases, small businesses in two-thirds of cases. According to the results of the questionnaire survey, medium-sized enterprises are the most innovative of all – they implement innovation in 70% of cases.

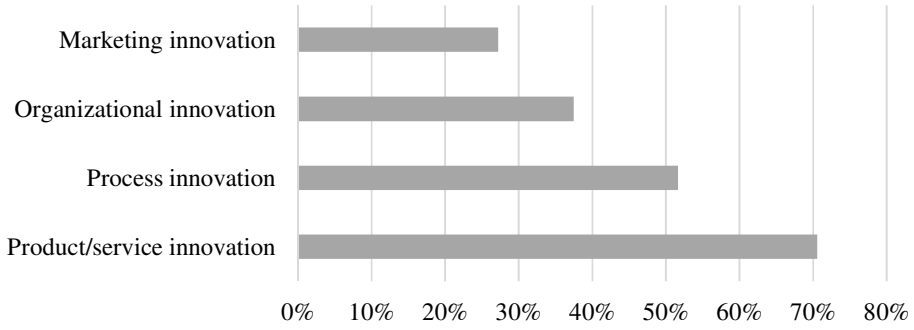

Image 1: Types of innovations introduced in SMEs

It is interesting to look at the different types of innovation introduced in enterprises. Image 1 demonstrates that the most frequently introduced type of innovation is a product or service innovation (71%) followed by process innovation (52%), organizational (38%), and last but not least marketing innovation (27%).

Table 2 shows the relation between the annual turnover of the company, the implementation of the information system and the introduction of innovations. At the lowest annual turnover level up to 2 million euros, only 44% of enterprises have the implemented information system. Enterprises with the turnover of 2-10 million euros already use the information system in 73% of cases and the highest percentage of information system implementation (88%) can be found in enterprises with the turnover of 10-50 million euros. Innovations and innovative solutions are being implemented in companies with the turnover of up to 2 million euros in 57% of cases. With the turnover growing to the level of 2-10 million euros, the percentage of enterprises that innovate is also increasing – up to 72%. Enterprises with very high annual turnover are innovating in 88% of cases. 4% of enterprises did not report their annual turnover.

Table 2: Relation between annual turnover, implementation of the information system and innovation

Annual turnover (EUR)	Number of respondents	Information system implementation	Innovation
0–2 million	322 (57%)	141 (44%)	182 (57%)
2–10 million	187 (33%)	137 (73%)	134 (72%)
10–50 million	33 (6%)	29 (88%)	29 (88%)
Not mentioned	26 (4%)	10 (38%)	15 (58%)
Total	**568**	**317 (average 56%)**	**360 (average 63%)**

Table 3 demonstrates that if an enterprise information system is implemented, 76% of enterprises also introduce innovations and innovative solutions. If there is no support of the information system in the enterprise, innovation is only introduced in less than half of enterprises (47%). 2% of enterprises reported that they did not know whether they had an information system in their structure. This may be given by the fact that the questionnaire was filled in by an incompetent employee without sufficient information.

Table 3: Relation between information system implementation and innovation

Information system implementation	Number of respondents	Innovation
Yes	317 (56%)	241 (76%)
No	240 (42%)	113 (47%)
I do not know	11 (2%)	6 (55%)
Total	**568**	**360 (average 63%)**

Conclusion

The aim of this paper was to evaluate the factors influencing the introduction of innovation in SMEs in the Czech Republic. The hypothesis was that innovations are more often introduced in enterprises with higher annual turnover and in companies that have an implemented information system.

Table 2 demonstrates that innovation and innovative solutions are more often introduced in enterprises with higher annual turnover. Specifically, an increase in innovation implementation was recorded by 15 percentage points in the case of the turnover of 2-10 million euros and 31 percentage points in the case of the turnover of 10-50 million euros, always in relation to enterprises with the turnover below 2 million euros where the innovation is introduced in 57 % of cases. Therefore, the hypothesis that innovations are more often introduced in enterprises with higher annual turnover has been confirmed by the tested sample of data.

Table 3 shows the relation between the implementation of the information system in the company and the introduction of innovations. Enterprises that do not have an implemented information system introduce innovations in only 47% of cases. By contrast, companies with an implemented information system are 29 percentage points more active in implementing innovations and innovative solutions. The hypothesis that the innovations are more often introduced in enterprises with an implemented information system has been confirmed by the tested sample of data.

In order to succeed in business, the company must be competitive. Thanks to modern information systems, the ability of business management to support and initiate innovation and to trigger change management, the enterprise is able to reduce unemployment, increase GDP growth as well as import and export.

The SGS project, on the basis of which this work was realised, will continue to serve as a source of data and background for the author's dissertation, which deals with innovations and demonstrates them on real case studies.

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Approaches to Innovation Process in Small and Medium-Sized Enterprises in the Czech Republic

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Abstract

The aim of this article is to analyse approaches to the innovation process of small and medium-sized enterprises (SMEs) in the Czech Republic. It is precisely the choice of a suitable approach to the innovation process, which influences its implementation, the development of the process and the reaction to possible changes. In order to verify the established hypotheses, the data obtained from the questionnaire survey dealing with SME approach to innovation, was used. From the data obtained, it has been demonstrated that the strategic and systematic approach to the innovation process is growing with the enterprise size within the SME segment. Agile approaches to the innovation process are also used in many businesses, but their extent does not increase with the size of the enterprise, therefore they do not depend on the number of employees and the annual turnover of the enterprise.

Keywords: agile approach, innovation, small and medium-sized enterprises, strategy

Introduction

Innovations are one of the driving factors in the development of every business. In today's competitive world an enterprise without innovation cannot exist. The goal of all modern organizations is to increase their market value thanks to the implemented innovations. Thus, one of the main interests of a modern company is not only its profit but also the added "business value" (Lendel, 2017). This paper analyse approaches to the innovation process of SMEs in the Czech Republic. It is clearly the choice of a suitable approach to the innovation process, which influences its implementation, the development of the process and the reaction to possible changes. The purpose of this article is to illustrate the different approaches used to the innovation process for SMEs. An agile approach to innovation is the key of success in an increasingly aggressive competitive environment, given the fact that it is both systematic and supported by an appropriate strategy as well as by the presence of a project team. Primary research – a questionnaire survey conducted within the Student Grant Competition (SGS) project, deals with business approaches to innovation in the Czech Republic and clarifies the hypotheses set out below in this article.

Research Background

In today's dynamic and turbulent times, enterprises cannot succeed if their approach is not agile and open to change in all aspects of corporate life. The key factor of success and competitiveness of an enterprise on the selected markets is a good knowledge of its position in a global and also a local environment, and at the same time, the ability to face crises and economic threats. It is necessary to react with agility to all external (sociological, economic, political, technological, etc.) as well as internal stimuli and influences (Kašík, 2012).

However, in order to function effectively and to properly evaluate the situation in the company and its surroundings, it is necessary for an enterprise to merge its activities with the corporate strategy. Business strategies can fundamentally vary. For a large part of the companies, the main goal is to generate profit, other businesses strive to become the number one in on market, and for others it is crucial to increase the value of the company. All strategies and business goals are based not only on

the current situation in which the enterprise occurs, but also on the type of industry in which the business operates (Campbell, 2011).

Another key factor of success is innovation that ensures the company's development and moves the business forward to a higher performance and profit. A company must be able to offer to customers not only what they need, but to come up with a new product or service which can meet the customer needs in a completely new way, and on the top of that which can also create new needs. An increasingly demanding customer loses part of its conservative approach and wants new and better products and innovative services in the shortest time possible (Zadražilová, 2004).

Given this rate of change and the growing dynamics of the whole market environment, agile approaches are becoming increasingly popular. In practice, it is the ability to respond flexibly to customer requirements, who is also part of the project team, and continuously provides feedback to help define and refine the original project plan according to partial outputs of the project, for example when testing the prototype of a product (Šochová, 2014).

An important source of information, though not a scientific work in the true sense of the word is the so-called "Agile Manifesto", created in 2001 in Utah, USA. This document based on the experience of renowned IT specialists (for example, Kent Beck or James Grenning) engaged in non-traditional approaches to software development, summarizes basic agile values and basic principles:

*"**Individuals and interactions** over processes and tools.*

***Working software** over comprehensive documentation.*

***Customer collaboration** over contract negotiation.*

***Responding to change** over following a plan.*

That is, while there is value in the items on

the right, we value the items on the left more."

(Manifesto for Agile Software Development, 2001)

The manifesto provides a source of information for various agile methodologies. These methodologies have recognized that high-quality software and customer satisfaction can only be achieved if their processes bring into the development a certain degree of easiness (Awad, 2005).

Scrum is one of the most popular agile methodologies. According to a global survey, 56% of companies use this methodology (CollabNet, 2018). Leading experts in their publications define Scrum in several ways: Scrum is the process framework for delivering the most comprehensive value-added products and solutions (Schwaber, 2017). Scrum is a development framework in which multi-functional teams develop products and manage projects in an iterative and incremental way (Deemer, 2012). Scrum is an iterative process for developing any product or managing any work (Beedle, 2001). It follows from these definitions that Scrum is a methodology for iterative and incremental development of complex products and project management that covers a complete development cycle.

Sample Characteristics

For the purpose of this research and as a part of the SGS project, a questionnaire survey entitled *Business Approaches to Innovation in the Czech Republic*, in which participated 583 SMEs respondents, and which was conducted from May to August 2018. The statistical survey was conducted via an on-line questionnaire compiled by the author of this article, a PhD student at the Technical University of Liberec. Subsequently, the questionnaire was electronically distributed to SMEs in the Czech Republic. Individual contacts were retrieved from the Bisnode database using MagnusWeb application. The questionnaire survey examined general business information (industry

sector, size, and location) together with specific information about business innovations and approaches to the innovation process.

Out of the total of 583 respondents, 41 respondents were excluded. The reason for the elimination of 15 respondents was the non-fulfilment of the SME criteria; another 26 respondents did not report their annual turnover and therefore could not be categorized by one of the crucial SMEs criteria.

One of the research objectives was to analyse the approaches to the innovation process that are being implemented in the SME environment. The hypotheses of the author are that larger enterprises within the SME segment implement more frequently an innovation strategy and more often use agile approaches.

Results

Table 1 shows the relation between individual enterprise size within the SME segment and the introduction of innovations. As explained in the chapter entitled "Sample Characteristics", a sample of 542 SME respondents was used for this research. Almost two-thirds of respondents (64%) reported that they are introducing innovation and innovative solutions in their enterprise. In particular, 53% of micro-enterprises, 67% of small enterprises and 70% of medium-sized enterprises introduce innovations.

Table 1: Relation between individual enterprise size within the SME segment and innovation

Enterprise size	Number of respondents	Innovation
Micro-enterprise	152 (28%)	81 (53%)
Small enterprise	285 (53%)	190 (67%)
Medium-sized enterprise	105 (19%)	74 (70%)
Total	**542**	**345 (average 64%)**

Table 2: Relation between enterprise size and strategy when introducing innovation

Enterprise size	Innovation implementation without a management system and long-term strategy	Systematic innovation implementation with a long-term strategy	Non-specified
Micro-enterprise	44 (54%)	26 (32%)	11 (14%)
Small enterprise	81 (43%)	81 (43%)	28 (15%)
Medium-sized enterprise	27 (36%)	40 (54%)	7 (9%)
Total	**152 average (44%)**	**147 average (43%)**	**46 average (13%)**

Table 2 demonstrates the relation between enterprise size within the SME segment and strategies used while introducing innovation. Out of a total of 345 enterprises introducing innovations, only 43% of enterprises reported that they were implementing innovation systematically and with a long-term strategy (including project team, planning, control and ex-post evaluation). Specifically, the strategy is implemented by 32% of micro-enterprises, 43% of small enterprises and 54% of medium-sized enterprises. A total of 44% businesses stated that they were introducing innovation, but the process was not regulated and without any strategy or the staff responsible for its implementation. Some businesses (13%) did not specify their approach to the innovation process.

Table 3: Relation between enterprise size, innovation and agile approach to the innovation process

Enterprise size	Innovation	Agile approach to the innovation process
Micro-enterprise	81 (53 %)	58 (72 %)
Small enterprise	190 (67 %)	130 (68 %)
Medium-sized enterprise	74 (70 %)	51 (69 %)
Total	**345 average (64 %)**	**239 average (69 %)**

Table 3 shows the relation between enterprise size within the SME segment, innovation and agile approach in the innovation process. In the questionnaire survey the agile approach was examined by three questions concerning the values and principles defined by "The Agile Manifesto". The questions addressed the approach to the implementation of the innovation process, its development and ability to react to change. As an enterprise with agile approach to the innovation process is considered the one that answered positively to all three questions about their use of agile approaches. Of the total number of enterprises introducing innovations, 69% of them are agile in this process. Namely, it is 72% of micro-enterprises, 68% of small enterprises and 69% of medium-sized enterprises.

Conclusion

The aim of this research was to analyse the approach of SMEs in the Czech Republic to the innovation process. The hypothesis was that larger enterprises within the SME segment have more frequently implemented an innovation strategy and more often used agile approaches.

Table 2 shows that if the size of the enterprise grows within the SME segment, there is also a growth in the number of companies that are introducing innovation systematically, with a long-term strategy and with the support of the project team. Micro-enterprises employing fewer than 10 employees and having an annual turnover of less than 2 million euros have a strategic approach to innovation in only 32% of cases. For small enterprises with less than 50 employees and a turnover of less than 10 million euros, a strategic approach to innovation has grown by 11 percentage points to 43%. Most often, innovations with strategic approach are introduced by medium-sized enterprises, in 54% of cases. The systematic character, strategy and presence of the project team in the innovation process is in the larger enterprises within the SME segment due to a higher number of employees involved in the process, but mainly by the presence of the capital necessary to finance the entire innovation process. The hypothesis that larger companies within the SME segment are more likely to implement the strategy of introducing innovations has been confirmed by the tested data sample.

Table 3 demonstrates the relation between enterprise size, innovation and agile approach to the innovation process. As shown in the table, with the increase in enterprise size, the percentage of innovation grows from 53% to 70%. Regarding the agility of the approach to innovation, we find that it does not change significantly with the increase of the enterprise size. Within the entire SME segment, 69% of respondents are applying agile approaches in their innovation process. The second hypothesis was not confirmed by the data sample and thus refuted.

This article was elaborated on the basis of the SGS project, which will continue to serve as a source of data and background for the author's dissertation dealing with innovations and demonstrating them on real-life case studies.

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Cost Accounting in Logistics

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Abstract

The aim of the paper is to present chosen aspects of costs accounting in logistics of production company. There are analyzed academia articles linked with logistics and costing within this area of management the business unit in order to present the information value of such solutions. The author has found that effective logistics cost management can be an important strategic tool that supports the systemic approach to identifying and shaping the potential of cost reduction in each important functional area of the company. There are also some difficulties during implementation new costing methods connected with recognizing logistic costs or usage of information systems (also supported by ITC technology). The research suggests the adoption of modern costing systems in logistics of an enterprise in order to optimize logistic costs and get higher economic results.

Keywords: cost accounting, logistics, logistic costs

Introduction

Nowadays we can observe very dynamic changes in business units. They caused a rapid increase in the demand for decision makers on the most up-to-date and current information about the situation of the business unit. Managers need quick access to relevant information that is necessary for efficient and effective management of the business unit.

The basis for the functioning of the organization is to have appropriate information that allows the implementation of various management processes. Information is a type of company resource that allows increasing the knowledge inside the organization, regarding the individual and the environment (Kisielnicki, 2013). Information is the basic element of business management and the decision-making process.

A dynamically growing company needs cost information, thanks to which it will be able to make the right decisions. The logistic costs accounting enables to define those areas of activities within the organization in which logistic costs constitute high values and stimulates managers to search for new logistic solutions that would allow reducing these costs.

The paper identifies and describes the recent research areas connected with logistic costs and costing systems used by logistic managers. Much has been written on the adoption, implementation and development of logistic costing. The main goal of the paper is to describe chosen aspects of costing in the area of logistics. There are presented advantages and barriers in proper functioning logistic costing systems in modern enterprise.

Theoretical Background: The Idea of Contemporary Logistics

Logistics is an area of management within an organization that generates high costs, so it should be analyzed and reported in a particular way and, if necessary, also transformed, as Karmańska stated in her study (2006). Logistics is one of the most important determinants of the economy. Its purpose is planning, coordinating, and implementing the connections of time and space within the whole

system. The scope of logistics ranges from the procurement of raw materials to processing them, and at the end to delivery of finished goods to the customers (Gleissner and Femerling, 2013).
In author's opinion the basic definition of "logistics" is that one formulated by European Logistics Association (ELA, 2005): "*Logistics is the management of the processes of moving goods and/or people and activities supporting these processes in the systems in which they occur"*.

Systems in which the processes of moving goods and/or persons are taking place are both economic systems, i.e. systems whose activity is aimed at achieving profit (production, service or trade companies and also their supply chains), as well as systems whose activity is non-profit (public health, public education, city, natural environment) (Fertsch, 2016).

The term „*logistics*" can be defined in many ways.
A closer analysis of the concept of logistics allows us to state that definitions formulated by different authors differ in terms of the range of physical processes involved (range and institutional structure), their way of handling and the interpretation of specific objectives, showing one thing in general, compliance on the very essence of the problems constituting their essential content.

Blaik (2001) mentioned that the definitions and concepts of logistics known in the literature could be understood (especially as they are covered by more complex logistic problems) in the aspect:

- conceptual and functional,
- structural
- efficiency.

It means that in the conceptual and functional aspect logistics can be understood as an idea of managing the flows of goods and information through a set of methods and functions of planning and controlling, which are based on the integrated and systemic recognition of these flows. Logistics in terms of structure can be treated as an integrated process of goods and information flows and a specific complex of undertakings and structural solutions related to the integration and implementation of these flows. Finally, the efficiency aspect of the concept of logistics means that it can be considered as a certain orientation and determinant of efficiency increase, oriented to offering customers the desired service (level and quality of logistics), while rationalizing the structure of logistics costs and increasing the overall efficiency of management in the enterprise.

Weber (2002), Weber and Kummer (1998) define logistics as a concept of process and potential management for coordinated implementation of materials flows in the enterprise and links between its market partners. Materials flows oriented coordination is primarily about the coordination of planning, control, implementation and control sub-systems (from strategic to operational) as well as the coordination of suppliers, enterprises and buyers. The definitions of logistics in research studies of Pfohl (2001) and Blaik et al. (2013) are also oriented on flow.

Christopher (2011) characterizes logistics as "*… the process of managing orders, flow and storage of goods (and information) in the organization so as to maximize profits*".

By Śliwczyński (2007) the essence of logistics is based on supporting the managers of integrated material and information flow in the company and makes the linkages, between logistic systems of supply chain participants, much simpler to establish.

The analysis of the above definitions shows that almost everyone, among the presented authors, emphasizes the following features of the logistics concept:

- time-space transformation of the object of flows (goods and values),
- integration of planning, organization and control functions of logistics processes,
- assignment of information flows to flows of goods,
- orientation on the criterion of market effects and usefulness related to the implementation of deliveries, and the criterion of rationalization of the cost structure,

- separating the scope and structure of the object of logistic activity.

From this point of view of the evolution and development of the logistics concept, there seems to be a noticeable change in the treatment of the basic components of the concept of logistics, going towards the concept of management. At the same time, the essences of this concept are not individual logistic activities, but management-oriented, integrated shaping of all logistics processes. Planning, organization and control of logistics processes acquire the essential meaning, because without these functions it is not possible to effectively and efficiently implement logistic thinking and acting in practice.

In study of Gołembska (2001) contemporary logistics is treated and described as:

- principle, concept of thinking and acting (idea, management criterion),
- integrated system and decision-making process related to the physical management of the circulation of goods and information,
- coordinated, integrated function,
- a set of integrated instruments, management methods and actions,
- the concept of creating and delivering new values and market services for customers in the process of goods delivery,
- activity focused on rational use and creation of efficiency potential and increase of competitiveness,
- the concept of stimulating the implementation of the company's goals (marketing),
- the concept and function of the organization (reorganization) of the enterprise,
- the process of managing the whole supply chain (the flow of products and services from the source to the form in which they are consumed by the final customer).

There are stated in work of Rybicka (2012) four basic and clearly outlined development trends, called megatrends, crucial for shaping the goals and content of logistics and logistic management, as well as for the company's strategy:

- globalization (internationalization of markets),
- individualization of customers preferences,
- increasing understanding of the environment (environmental consciousness),
- development of ICT technology.

Nowicka-Skowron (2000) and Kufel (1990) stated that the flow of goods, the maintenance of inventory, the involvement of substantial capital in them, and finally the functioning of technical infrastructure are the cause of occurring logistic costs. Logistic costs are category of costs, representing a financial image of the consumption of a company's assets, caused by the planning, implementation and control of out-technological processes of movement in time and space of all forms of materials.

One of the basic tasks of modern logistics is to reduce the costs of flow and maintenance of inventory. These costs constitute a significant component of the costs of business operations, and the reduction through integrated logistics activities become an important source of improvement in the economy of companies.

Skowronek and Sarjusz-Wolski (2012) distinguished following elements of logistic processes:

- material and information flows,
- maintenance of inventory,
- infrastructure of logistic processes,
- logistic costs.

As Śliwczyński (2007) stated, the logistics management in an enterprise is understood as ensuring the availability of products on the market and the previously established level of customer service, continuity of material flows, reliability, cost optimization, and increasing the efficiency of the company's activities. Logistics management covers such processes as: planning, organizing, controlling material flows (materials, semi-finished products, finished products), from the moment they are received, through successive stages of production, then distribution, to delivering the finished product to the final recipient in order to achieve the assumed goal.

Cost Accounting in Logistics

The cost accounting has earlier been defined in literature as a set of activities aimed at reflecting processes (which take place in the enterprise) through the capture, grouping and interpretation in specific cross-sections of production and sales costs, measured quantitatively and in value for a period of time, in order to obtain the information needed for determining results and managing the enterprise (Fedak, 1962). Today, the cost accounting is understood much more broadly and is often defined as a cost and effect accounting.

Nowak (1996 and 2015) understands the costing as possible measurement, grouping, examination and interpretation procedures of the economic effects of phenomena and processes occurring in the enterprise in connection with its business operations that are aimed at determining the size of the final financial result, its elements and proportion of the distribution. Together with management accounting, the cost accounting offers a set of internal reports. The cost accounting is a system generating both ex post and ex ante financial data.

Świderska (2003) characterizes cost accounting as the process of identifying, collecting, processing, presenting and interpreting information about costs for making assessments and making decisions by users of this information. The feature of modern cost accounting systems is their flexibility, enabling multi-variant analysis and continuous adjustment of the cost model of the enterprise to changes in the environment and management needs. With the increase of competition, managers need more and more information about the costs of resources used, processes, activities, current and future products, research projects, workplaces, or organizational units.

Drury (2012) argued the cost accounting for management purposes should provide information on the expected impact of the selection of a specific option on the level and structure of costs. Due to the fact that decision-making often concerns products or customer service that do not exist yet, cost planning must be done "from zero". The preparation of such information should be the domain of services not directly related to the external reporting of the enterprise. Analyzes of the costs of activities that show medium- and long-term cost phenomena should be made periodically, e.g. annually, semi-annually, and not on an ongoing basis. It should also be remembered that the cost calculation must be made outside the accounting records so as not to distort the financial result with the procedures of closing the reporting period.

The accounting systems tend to support logistic decisions only in a limited way. Twaróg (2003) mentioned in his study the following reasons:

- too strong focusing of accounting on the production zone,
- too little differentiation between the types of logistics costs,
- lack of a separate list of logistic costs for a given area of activity,
- lack of a comprehensive view of logistics costs falling in various spheres of the company, incorrect settlement of logistics costs in the scope of various logistics areas,
- incorrect addition of logistic services costs to products, customers, distribution ways, etc.

Rybicka (2012) mentioned that the logistic cost accounting belongs to the basic tools supporting the functioning of the enterprise. In practice, the approach to calculating and analyzing logistics costs must necessarily be simplified, adapted to the applicable accounting principles, cost calculation and

financial results. From the theoretical point of view, it is important to fully and comprehensively treat costs, reflecting fully the essence of the problem and allowing a complete assessment. From the practical point of view, it can be difficult or impossible in the light of accepted registration sections. Identification of logistics costs in a specific case should take into account the practical aspect.

The logistics costs accounting allows to determine those areas where logistics costs are the largest and mobilizes to look for logistic solutions that would allow these costs to be reduced to the most optimal level.

A comprehensive and systematic approach to logistics costs should serve not only to understand their level and structure, but also to enable the use of appropriate methods to reduce them. The reduction of logistics costs may take place by reducing the size of stocks maintained, rationalizing transport, mechanization and automation of storage processes, and the use of IT systems.

The cost accounting in the area of logistics consists of the activities in the field of recording and identifying the level and cost structure together with formulating the premises for making decisions in the scope of rationalization of these costs. The basic tasks of the logistics cost account consist in capturing the entire logistics costs and settling them on separate origination places and carriers in order to make the control of the logistics effectiveness of the company's logistics subsystems and providing information for making correct decisions in the management processes.

Biadacz (2017) and Rumniak (2014) mention that very often the enterprise does not create new cost categories, it only extends the cost accounting to register events in the new scheme. The cost accounting designed for the management of the logistic system should enable registration of costs in the cross-section of physical material flow processes, warehouse processes, and information processes.

Nowak et al. (2004) stated that in the structure of the total costs of physical flows, the most important share is depreciation of fixed assets and intangible assets, remuneration with overheads of employees employed in logistics subsystem, consumption of materials and energy, external services. Researches conducted in several enterprises shows that the largest share in the structure of physical flows costs are transport costs (internal and by outsourcing companies) as well as handling costs.

As noticed by Rybicka (2012) the cost accounting in the cross-section of physical flow processes should create the basis for making decisions in the elimination of unnecessary indirect storage, limiting the number of manipulation operations, increasing work efficiency, simplifying physical flows, implementing modern physical transfer technologies, etc. The effect of these decisions is - already seen in examined production enterprises - a tendency to deplete transport infrastructure for specialized transport and forwarding companies providing comprehensive transport services. Restricting own transport bases allows minimizing fixed costs of maintenance of transport infrastructure, but increases variable costs when purchasing services outside.

According to Ficoń (2001) the second, in addition to physical flow costs, basic component of logistics costs are the costs of warehouse management (the processes of stock collection and maintenance). Inventories are not only condition of the continuity and rhythmicity of internal economic processes, but also cause the interruption of physical flows and the freezing of certain capital measures, thus generating additional costs. The global costs of collection and maintenance of stocks are, in addition to transport costs, the largest, and their total share is estimated at 80-90% of total logistic costs in companies. The essence of inventory management results from the need to reduce this category of costs which amount to 20-40% of the value of stocks.

Logistic costs are not separated from the company's cost evidence. As the sum of storage costs, transport costs and the entire procurement process, they form the basis for calculating the economic efficiency of the company's logistics. In order to optimize the amount of costs, the knowledge of their structure is needed (Sojak, 2015).

The functioning and development of business units in the modern market economy are conditioned by quick access to information (cost information). It can be noticed that the costs of information processes in the logistics system are characterized by the highest growth dynamics and should therefore be subject to special control. The need to effectively process mass economic information in a company requires the use of advanced IT technologies that involve highly qualified staff, expensive equipment (computers, peripheral devices, intranet networks), and complex systems of data processing (Rybicka, 2012).

Nowak et al. (2004) stated that the efficient cost accounting, taking into account the costs of service the information streams, could be a source of many benefits for the company. It contributes to a better use of information received, to optimize the flow of information and, above all, to modernize these streams in terms of general standards and requirements of information technology.

The lack of transparency of logistics costs and problems related to the analysis of the costs of logistic processes in the companies caused the new idea of costing system - Activity Based Costing. Cooper and Kaplan developed the Activity Based Costing (ABC) methodology as an answer to increasing share of fixed costs in product's cost structure and not sufficient methods of calculations. Cooper and Kaplan (2000), Sobańska (2009) and Świderska (2010) followed such idea and thought that the company must be perceived from the perspective of processes and activities (the elements of processes). Very essential was the need of distinguishing cost objects – not only goods, but also customers, as Zieliński mentioned in his studies (2017a, 2017b).

In author's opinion there can be indicated many benefits resulting from the use of the ABC in management of logistics costs. ABC costing should, in particular, help to increase the transparency of logistics costs, obtain accurate information on the factors that create these costs, as well as improve the efficiency of logistic processes and reduce errors when making decisions related to them.

In modern enterprises, classical logistic cost management instruments are insufficient because they do not help to identify the factors responsible for the creation of specific costs. The reason for this is the fact that in a multistage and hierarchically developed organizational structure with a highly advanced labor section, various departments and organizational units participate in the implementation of economic processes. The advantage of the Activity Based Costing is that it allows the inclusion and control of the performance of both partial activities, as well as the assessment and improvement of the efficiency of the entire economic process.

In this sense, the activity costing should be treated as a pro-efficiency idea, aimed at identifying those logistic processes, the improvement of which can bring the greatest benefits to the enterprise.

The following benefits resulted from the usage of ABC in logistics are mentioned by Nowak et al. (2004):

- forcing logistics managers to analyze their processes and determine value-creating activities,
- the possibility of comparing the costs of processes carried out in its own scope with the costs of processes performed by other enterprises (e.g., costs of transport done by other companies),
- effective assets management by focusing attention on value-creating activities,
- the ability to identify costly activities that can be reduced or eliminated,
- the ability to determine customer profitability and distribution channels,
- the ability to correct calculation of costs of products including logistics costs.

As mentioned in the study of Rybicka (2012), the ABC cost accounting is in recent years perceived as a system that could ensure the performance of all tasks put to the logistic cost accounting. This is particularly about the possibility of identifying logistic processes and related workflow, planning and controlling logistics costs and calculating the costs of logistics. The assumptions of the ABC concept should therefore be taken into account when transforming the existing cost structure into a structure corresponding to the process orientation in managing logistics costs. The implementation of the ABC

system is necessary in business units with a large diversity of processes, products manufactured, orders received and customers served.

The methodology of ABC is still developing. Kaplan and Anderson proposed the new idea – Time Driven ABC (2004). This method recognizes the capacity of each department or process and allocates the cost of this capacity of resource groups over the cost object based on the time required to perform an activity.

There are also other costing systems that can be successfully introduced into management of companies. In author's opinion the main costing systems that can be used in the area of logistics are target costing and kaizen costing.

The concept of target costs was developed at Toyota Motor Corporation in the sixties, and since the early 1970s it has been used in many (mainly Japanese) assembly companies, in the automotive, electronics and precision industries. Target costing is often referred to as planning or cost design, as it applies to future manufacturing processes, and its use begins at the product design stage and planning of production volumes and sales prices (Szychta, 2000).

As mentioned by Sakurai (1989), Szychta (1994), Kiziukiewicz (2003), Masztalerz (2010), the target costing system is a cost management tool before production launch, in order to reduce all the cost components of a given product throughout its life cycle with the involvement of research and development, construction, production department, marketing department and accounting department. The target costing system identifies the expected (target) sales price of a specific product already in the design phase and subtracts the desired target profit margin to determine the target production costs of the product. The overriding goal of applying target costing is to ensure that a given product achieves the required profits throughout its life on the market.

Target costing - as an instrument of cost management, located in the early phases of the value creation chain - is committed to strengthening the market and strategic orientation of costs management of the chain and increasing its efficiency. In these phases, a significant part of the costs revealed later in the direct and indirect spheres of the company's operation can be determined and designed. Thanks to the early impact on costs, the risk of design failure and product development can be minimized, which facilitates the avoidance of unnecessary costs associated with it and leads to improved product acceptance in the market. The early settlement of target costs facilitates, among others, avoiding unnecessary development costs of the product.

Target costing is more and more often used to estimate logistics costs. In addition to the integration of the expected indirect costs of logistics, inducted by processes, it should be observed also the transferring the objectives of the target costing concept to logistics processes. Logistic activities and processes in the development and construction phase as well as the market product cycle are particularly important. The logistic benefits that the recipient expects can in a broad sense be considered as product functions. When distributing target costs and shaping the product, the target costs of these services are set, as well as their desired level. In addition, the costs that are assigned to other product functions also include components stimulated by logistical measures. Examples in this area may be transport and storage costs arising in the sphere of supply of production factors and as part of the production process (Rybicka, 2012).

Other costing system, mentioned by Szychta (1994) and Jarugowa et al. (1997), is kaizen costing. This is a continuous improvement system of the technological process and organization of work, whose aim is to reduce costs and improve work efficiency at individual workplaces. The goal is to attempt to increase the efficiency of production processes. Kaizen costing is defined, for example, in the Daihatsu Motor Company of Osaka as "a set of activities that maintain the current level of costs of currently manufactured cars, and then reduce costs to the desired level on the basis of the company's plan." The objectives of cost reduction are set and implemented monthly. Analysis of cost deviations requires determining the amount of cost reduction according to the kaizen concept and the amount of actual cost reduction. The strength of the continuous improvement system is to link it to

the process of profit planning for the whole enterprise. Its relationship with overall cost planning and budgeting ensures that the company can control its progress in achieving long-term goals without limiting itself only to the implementation of standard costs and determining deviations in the traditional cost control system based on the standard cost accounting.

Conclusions

The increasing scope of management of logistic processes and systems entails the need to modernize and deepen the identification of logistics costs. As the use of modern methods of logistic management has become popular, the average logistics costs in enterprises show trends not only to reduce, but also a certain trend to maintain their own level. Leading enterprises in the field of logistics are distinguished by the fact that they not only supervise the costs of transport, storage and shipping, but also involve process-oriented treatment of planning and production control costs, waste management costs and data processing costs.

Effective logistics cost management is an important strategic tool that supports the systemic approach to identifying and shaping the potential of cost reduction in each important functional area of the company. One of the key conditions for other enterprises are problems related to the implementation of the principles of the systemic cost accounting for logistics is the change in thinking and decision making in the process and market aspects, based on an integrated logistics and marketing information system.

For the purpose of inventory control in the surveyed enterprises, where it is not necessary to maintain them, the Just-in-Time concept is used. This idea can be especially seen in the leading enterprises of the automotive industry. This concept requires computerized inventory control systems, so that you can get the right information about stock levels at any time. Thanks to the application of the JIT principles, significant financial benefits can be achieved, however, trade partners should be carefully selected to prevent a delivery failure.

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Accounting Educators' Adoption and Integration of Educational Technology in the Classroom: A Qualitative Study

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Abstract

This paper discovers the view and perceptions of accounting educators about the adoption and integration of educational technology in the classroom for higher education. Six accounting educators of selected public university in Malaysia from different age group are selected as the sample of study. An interview were undertaken with the respondents using the survey question modified and adapted from previous literatures. All the respondents had varying opinions and perspective with some being most supportive and a few is skepticism about the adoption and integration of educational technology. The factors such as facilities and infrastructure, knowledge, skills university support, resources, attitudes and beliefs, are paramount to encourage educators for the adoption of educational technology. The findings also indicates that educators' characteristics and their behavior are the key role that affect them whether to adopt or not to adopt the educational technology, whereas other factors also being discussed. Several limitations and recommendation for future research also deliberated.

Keywords: Accounting educators, adoption, educational technology, integration.

Introduction

Technological revolution is paving the way people obtain, retrieve and share information because the rapid development in information and communication technology (ICT) has altered human daily activities and interactions. The impact of technological developments not only influence individuals, but also organizational and societal level through the use of computers, internet, the World Wide Web, smartphone, and digital devices (Dahawy et al., 2005). In the educational field, technology is being used to transform the process of teaching and learning with the purpose of attaining high quality outcome and improving learning experiences (Eyyam and Yaratan, 2014).

Government institution worldwide has established policies and strategies to strengthen the quality of education through the application of technology as one of the resilience development efforts of providing solutions for sustainable development goals (SDGs) (United-Nations, 2017) Likewise, the government of Malaysia through its Ministry of Education (MOE) encourages the efforts that can leverage technology to enhance student learning. For instance, the Ministry has spent more than MYR6 billion on ICT in education initiatives, such as establishing smart schools and widening the internet access to cater for the 21st century education and preparing the country towards industry revolution 4.0 (IR 4.0). Smart schools equipped with multimedia technology and worldwide networking are ensuring the students to be proficient with technology. MOE has formulated plans and policies to improve the education system imbued with ICT to encourage self-directed learning experiences and an open-ended curriculum(Abedalaziz et al., 2013).

In this regard, the process of teaching and learning has become exciting as technology promotes changes in the training system environment, for instance, virtual learning or e-learning (Hamidi and Chavoshi, 2018). Furthermore, it is evidenced that educational technology improve style of teaching, encourage learner-centered collaboration (Govender and Govender, 2014), promote students engagement and knowledge sharing, flexible, and cost effective (Domingo and Garganté, 2016). The current trend shows that educational field needs to keep up with the industry sector hustle to embrace the emerging technologies. Therefore, it is imperative for the educational sector to be equipped with the essential technological literacy, because falling behind this area will widened the gap of technological divide (Spector, 2013).

Numerous authors declared that educators and educational institution of various discipline need to shift from traditional classroom setting to a resource-rich environment by embracing the technology-enhanced learning approach (Montrieux et al., 2015) according to a dynamic sociotechnical context for future profession and practice(Al-Htaybat et al., 2018). The call also include accounting discipline where numerous scholars and researchers envision that accounting classroom should deploy advance technology and ICT to cater for students both in class and distance learning (Abdul Latiff et al., 2015, Dahawy et al., 2005) in anticipation for the market demand (Yap et al., 2014). Despite evidence that technologies could elevate the educational field to another level and ICT are readily available in most educational institution, they are yet to be fully integrated into the teaching and learning process (Arokiasamy et al., 2014, Mat Dangi and Mohamed Saat, 2018). Many educational researchers claimed that most educators and instructors are reluctant to use technologies because of various factors such as insufficient skills, misconception (Carver, 2016), factors related to perception and acceptance, or barriers in technology integration (Baturay et al., 2017).

Hence, this current study attempts to explore the perception, factors, issues, and the state of the ecosystem in regards to the adoption and integration of educational technology in the classroom from the accounting educators' perspective. Above all, this study strive to understand the reasons for educators' reluctance in adopting educational technology. The results of this study may provide an insight on the accounting educators' dilemma in adopting educational technology, and consequently offer a deeper understanding of this issues. Thus, it could further improve the initiatives and efforts to maximize the deployment of educational technology, particularly in the accounting field.

Literature Review

Early definition of educational technology is often associated with audiovisual communication (Luppicini, 2005), while in modern environment, it is described as the adoption of applications and electronic tools in delivering learning materials to assist the teaching and learning process (Cheung and Slavin, 2013). Numerous literature presented theoretical and empirical research works verified the application of technology in teaching and learning process, which indicate its positive benefits and potential of becoming an instrument for pedagogical transformation (Baturay et al., 2017, Baran, 2014, Cheung and Slavin, 2013, Solano et al., 2017). Technology application in education began in 1920 when films and radios were introduced into the classroom. It grew until 1980s and 1990s after education institution started utilizing computers to assist the process of teaching and learning (Delgado et al., 2015). Traditionally, the focus of computer usage was to facilitate the lower level of cognitive skills routine of memorizing facts and figures. Subsequently, the advent of technology and gaming proved to be efficient tools for generating higher level cognitive skills such as critical thinking skills (Delgado et al., 2015). The current advancement of technology shows the evolution in educational field with the application and integration of internet technology and myriads of devices such as tablet and smartphone in the classroom at all levels of education (Domingo and Garganté, 2016, Dhir et al., 2013, Kinash et al., 2012).

Prior research on educational innovations suggests that technology integration can only be fully understood when the educators' beliefs and perception are taken into account (Ertmer, 2005, Lim and Chan, 2007, Liu, 2011, Sang et al., 2010) cited in (Tondeur et al., 2016a). The individual feeling or perception of something tend to be related to his/her favorableness or unfavorableness of the behaviour performed (Lam et al., 2007). Thus, the individual characteristic of favorable perception

will encourage technology adoption; it will indicate otherwise if the individual does not favor technology adoption (Quazi and Talukder, 2011).

In addition, the successful implementation of educational technology also depends on the competencies of educators to know why, when and how best for such technologies could be implemented (Englund et al., 2016, Krumsvik, 2014, Lindberg and Olofsson, 2012). Prior research identified that an educator's competence and knowledge were major predictor for the adoption of educational technology (Buabeng-Andoh, 2012). According to Tondeur et al. (2016b), educators claimed that additional planning and preparation were required since they had no prior knowledge or experience regarding the use of educational technology in supporting the teaching and learning process. Meanwhile, Montrieux et al. (2015) stated that educators' characteristics such as their attitude, beliefs and willpower are crucial predictor for the success, speed and integration of educational technology in the classroom.

In the meantime, technology integration in education will not be possible if there is no accessibility to ICT infrastructure or sources, such as software, hardware, internet network, devices and so forth (Abdul Wahab et al., 2017, Buabeng-Andoh, 2012, Domingo and Garganté, 2016). A number of studies propose that circumstances such as access to ICT infrastructure, time availability, and flexible curriculum influence the adoption of technology in education (Albion et al., 2015). Several scholar also claimed that ICT infrastructure is a key element for a successful implementation and integration of technology in education, therefore, lacking in this element will restrict the technology and hinder the effort for changes (Lu et al., 2015).

Although educators are encouraged to integrate technologies in their instructional practice, the ICT adoption in classroom activities or teaching and learning process is still rather limited (Mirzajani et al., 2016). Mioduser et al. (2017) suggested four underlying issues for this outcome: 1) the relationship between technology and literacy; 2) transformation pace of both the technology and its related literacies; 3) different perception and perspectives towards technology; and 4) the rationalization for the adoption of technology in education. Furthermore, some educators may be oblivious to the benefits of ICT and how to manipulate it in the classroom (Prasad et al., 2015, Mirzajani et al., 2016).

Therefore, it is crucial to identify potential factors that could influence educators to adopt or not to adopt technology in their teaching practice. As discussed in numerous studies, the most common influential factors are often related to resources, institutional support, subject culture, attitudes or beliefs, knowledge and skills, and the assessment (Delgado et al., 2015). The majority of the previous studies often focused on the obstacles and limitations inhibiting the integration of educational technology by educators, but there has been little research on the educators' perspectives of how to further increase the integration of technology in classroom lessons (Mirzajani et al., 2016). Thus, the search for a combination of different approaches and strategies to illustrate new perspective on influential factors for technology integration is timely (Baran, 2014).

Research Methodology

This study employed the qualitative analysis and purposive sampling technique was used targeting accounting educators as the sample. Qualitative approach was selected since the exploratory nature of qualitative method qualifies the gathering of data in a wider scope (Creswell, 2003). This approach also allows researchers to gain a deeper understanding of the phenomenon being studied. Therefore, qualitative approach is deemed appropriate as this study emphasizes on the perceptions and opinion of accounting educators regarding the adoption and integration of educational technology in the classroom. A series of semi-structured in-depth interviews were undertaken with six accounting educators from selected university who had less or more experience in applying various educational technology in their teaching and learning. Given that with small sample size, the selection of these six educators are deemed sufficient to reflect the real situation as they representing three out of a total eighteen public universities in Malaysia. The sample were chosen purposely according to three different age groups, for example 27 to 39 years old; 40 to 50 years old; and 51 to 60 years old. The

reason for this age variance is because this study intended to gather the perception and opinion regarding educational technology acceptance and implementation from different angle. Each interview took approximately 40 minutes to one hour to complete. The idea to establish the interview questions was adopted from Montrieux et al. (2014) and Montrieux et al. (2015) with some modification to suit with the context of this research.

The focus of the interview questions was mainly centered on gathering the perceptions and opinions of the respondent in regards to the adoption and integration of educational technology in the classroom. Within this context, the interview questions were guided by five unit analysis, namely respondent's description and experience using educational technology; perception of accounting educators towards the integration of educational technology; perception on educational technology ecosystem condition; issues on the adoption and integration of educational technology in accounting education; and, factors influencing the adoption of educational technology.

Some of the interview sessions were conducted at the respondents' respective office in the university at Selangor, Malaysia and some of them were conducted through video call. All responses were recorded using digital platform and devices with the respondents' consent. The interviews were then transcribed. The respondents reported in this paper is denoted as "R" from R1 to R6. Data were analyzed to identify and examine the information, while the patterns from the interview were divided according to the four unit analysis and only relevant information were extracted. In addition, the analysis of data was based on extensive reading from all sources of literatures to identify common patterns. Hence, important key points from the information were retrieved and only reliable information were presented in this study.

Result of the Study

All respondents were from a public university who taught accounting subject and currently attached to the accounting faculty or department. As stated in the research methodology section, there are three different age group represented by two respondents each; four female respondents and two male respondents took part in this study. The findings of this study reveal all respondents have integrated educational technology at a satisfactory level in their teaching and learning process, and some of them used more than one platform other than the learning management system provided by their university. The majority of the respondents learned about educational technology from the news, accounting education conference that focused on technology theme, the university's vice chancellor mandate, magazine, Malaysian Institute of Accountant (MIA) conference, professional bodies' event, self-exploration, and from friends. Furthermore, this study also discovered that some of the accounting educators utilized a few educational technology platforms in their classroom settings, such as i-learn (LMS), quick response (QR) code application, applications downloaded from store, Trello, Google classroom, video tab, online quiz, massive open online courses (MOOCs), and etc. Thus, to explore the respondents' views further, the following section discusses their responses in detail based on the four unit analysis.

Perceptions on Educational Technology Integration in the Classroom

The respondents of this study had different perceptions about the integration and adoption of educational technology in the classroom. In general, the majority of them agreed that educational technology is an excellent initiative for accounting educators to embrace and integrate in the classroom settings. Moreover, the upsurge of new generation of students already exposed to technology in their daily lives makes this changes obligatory (R1, R2). The respondents also described that technology integration is a novel and an incredible experience to apply in the classroom as it could upgrade their skills as well (R2, R5), and the learning process became easier and more convenient (R6). In this regard, applying technology not only help educators in their pedagogical practice, but it can also assist students in their learning and skills (Lawrence and Tar, 2018). Moreover, if the educators' percept educational technology positively, there is a great chance for such technologies to be incorporated into their classroom practices (Khlaif, 2018, Mat Dangi and Mohamed Saat, 2018). This notion was indicated by some of the following responses:

"For me, it is a good idea for myself and other lecturers. The application of educational technology is good as it would reduce paper usage and this change is able to cater for the Gen Y students who were born with gadgets. While for the accounting education landscape, using educational technology will enhance the knowledge professionally and prepare the students for Industry Revolution 4.0 (IR 4.0)" – [R1]

"Definitely, it is an excellent initiative that will help every accounting educators to upgrade their skills such as technical skills and technology skills. This will attract students to the learning process and encourage them to focus" – [R2]

"It is a new and overwhelming experience for accounting lecturers to teach educational technology and techniques differently from usual" – [R5]

Conversely, some of the respondent contended that the integration and adoption of educational technology in classroom is difficult to comprehend, costly to educators and students, and it requires specific trainings to master its usage [R3]. Indeed, using technology can be costly not only in terms of monetary required to spend on the infrastructure, equipment and support staff, but it also demand personal involvement of the students and educators (Kirkwood and Price, 2013). Although it necessitates time and cost to secure technical knowledge and to implement it in the classroom, it should be noted that the potential benefits outweigh the cost (Kearney et al., 2017). One of the respondent [R4] voiced the concern over the age factor since they have little knowledge about the application usage, for example the setting up of the application, software and hardware, either from the computer or mobile devices, when integrating the technology in their classroom. The older educators might encounter problems in integrating the technologies into the teaching and learning process due to their lack of exposure and still struggling to adapt with the changes [R4]. Quazi and Talukder (2011) suggest that age is a significant factor for a person to select their preferred technological innovation; while the younger individuals are the common adapters of technological innovation, the older people aged between 50 and above prefer to use innovation skills.

"…technology is good, but the technicalities made it difficult where not everyone can understand and use them. Furthermore, it is costly for educators and students as we need to spend not only for the devices, but also for the internet subscription and applications…" – [R3]

"For me, younger generation either students or educators are well adapt with technology, but for older generation like me may have trouble to use those kind of technologies whether software, hardware or other devices." – [R4]

Overall, all the respondents were aware about the changing landscape of accounting education due to the advancement of technology and its inevitable usage. However, some respondents asserted that in order to implement and integrate educational technology, specific training is required since it involve the technical know-how. This is in line with Tondeur et al. (2016a), who stated that many researchers emphasize on the importance of training as part of the professional development aimed to update the educators' professional knowledge and beliefs in preparing them to adopt technology in the teaching process.

Educational Technology Integration and Ecosystem Condition

The respondents were also asked about their view on ecosystem or conditions that could support the integration of educational technology in teaching and learning process. The majority of respondent indicates that resources, facilities and infrastructure are integral to realize the effort of integrating technology in the classroom [R1, R2, R3 and R4]. This is in line with Albion et al. (2015) and Buabeng-Andoh (2012) who stated that the adoption of educational technology is likely to be affected by the resources capacity, and infrastructure sustainability as well as the educators' attitude and skills. On the other hand, the respondents also suggested that other factors such as training and professional development on ICT for educators are necessary to equip them with knowledge and

skills required [R4]. Meanwhile, [R6] stated that fast internet network, widening the Wi-Fi system and classroom equipped with high technology are the desired condition to nurture the educational technology ecosystem. The following excerpted response supported the aforesaid arguments:

"…in order to encourage educators to employ technology in the classroom, training program and professional development on ICT is needed… "– [R4]

"I believe that a fast internet network, broadened Wi-Fi facilities and classroom with high technology tools and devices is suitable ecosystem for educational technology" – [R6]

Surprisingly, this study also revealed that most respondents often face technical hitches in their university, such as poor infrastructure and facilities, for example outdated software and hardware, uncooperative support staff (e.g. technicians) and lack of resources (e.g. internet access and technological devices).

"I find it a troublesome to apply educational technology in the classroom because of the outdated software and hardware. Even I am having difficulties when I need assistance from the technician if I have problems with the computer or network" – [R1]

"Facilities is the condition that will influence the implementation and integration of technology in class, but in reality, the network issue and human issue made me feel like educational technology integration is just a dream" – [R2]

"Good facilities and infrastructures are very important to transform the classroom with educational technology…however, the internet access is so disappointing, sometimes even the basic software like Microsoft Word is not available in class…"– [R4]

A supportive condition and ecosystem that functioned as the enabler is vital to transform the accounting education field with technology. Without such ecosystem, not only the educational technology cannot be implemented in the classroom, but it will also discourage the educators from carrying out the transformation (Abdul Wahab et al., 2017, Kirkwood and Price, 2013, Englund et al., 2016). Besides, certain conditions such as ICT infrastructure is deemed to be the absolute requirement since it is the foundation of educational technology environment establishment (Lu et al., 2015).

Educational Technology Integration and Common Issues

The response also addressed the issues or problems affecting the educators; whether or not to adopt and integrate the educational technology. Among the common issues stated by the respondents were poor facilities and lack of required infrastructure. Other important viewpoint is related to the lack of university support [R1], government support, financial ability, competencies, capabilities and attitude of the educator [R2, R3, and R4]. Integrating technology into the classroom demands educators to acquire new technological and pedagogical skills, hence, it requires all kind of support including financial investment, time, commitment and dedication (Montrieux et al., 2015). Evidently, government support, both financially and curriculum policy to integrate technology in the classroom is paramount to ensure its full incorporation (Kearney et al., 2017). However, one respondent [R6] argues that when technology is adopted in education field, it will distract students' attention from classroom activities as they tend to pay more attention to the devices instead of the actual learning. This skepticism and critiques are typical because it is part of nature that not everyone can accept new things or new environment immediately (Al-Htaybat et al., 2018). This notion is documented in the following extracted responses:

"…most of the time, poor facilities were always the main problem…besides, there was no support from the university, for example there was lack of appreciation when we adopted the technology, so why the hassle?"– [R1]

"Capabilities and attitudes will reflect the educators' decision to adopt or not to adopt the education technology. If educators attitude is displaying resistant towards technology, no matter how good the technology or the infrastructure, it will still remain unrealizable"– [R2]

"There is lack of full support from the university and government, especially in higher education sector...in addition, a lot of investment must be made by the university and educators to enforce the technology" – [R4]

"In my opinion, the new generation may not be paying attention as they are prone to the usage of technology. Another issue is perhaps that traditional approach are no longer suitable for the new generation" – [R6]

Given the myriads of issues revolving around the effort of educational technology, facilities and infrastructure remain the major challenges to incorporating technology in education (Mayes et al., 2015). This finding corroborate with finding by Buabeng-Andoh (2012) that factors such as funding, training and facilities can influence educators decision to integrate technology in their teaching.

Factors Influencing the Adoption of Educational Technology

Most respondent claimed that educators' characteristics and behavior are important predictor, and one respondent emphasized that the user-friendliness of educational applications with favorable internet speed may inspire educators to employ technology in the class [R5]. Although facilities can be an influential factor [R6], the educators should also have the belief and confidence to assimilate with the changes and not avoid it [R2, R4]. The key factor to ensure successful implementation of technology relies heavily on the educators' decision whether to adopt or not to adopt. Even with sufficient infrastructure and facilities, if the educators displays unfavorable attitude [R1] and choose not to be part of it, then educational technology become meaningless [R3]. Numerous studies reveal that the successful implementation of technology in education is not merely about the availability of technology in the university, but it also involve the readiness of educators and students to use such technology (Delgado et al., 2015). The following statements describe the respondents' view:

"…if there is a deficiencies of facilities and infrastructure, still it can be improved, but the main concern is the attitude of educators themselves who can't accept new things and view it as burdensome" – [R1]

"For me, the prime factor is the behavior of the educator…educators may sometimes feel uncomfortable and feel they are forced to implement such technology…" – [R2]

"…it is meaningless if the university has fully equipped and ready to embrace the educational technology, yet the educators themselves resist to change…" – [R3]

"The appropriate facilities e.g. internet connection, devices and training; provided by the university or faculty will be the most crucial factor that will influence the adoption of the technology in class" – [R6]

This finding supports the notion that although facilities and infrastructure are fundamental for the establishment of educational technology, the educators themselves are the prime enabler for making it happen. It was evidence that educators are powerful mediator in integrating technology for students' learning (Blackwell et al., 2014) and educators' behavior is one of the critical factors towards the successful adoption of a technology (Khlaif, 2018, Lawrence and Tar, 2018, Mat Dangi and Mohamed Saat, 2018). However, there is still more to learn and discover on how educators could effectively integrate educational technology in their classroom activities (Tarhini et al., 2015).

Conclusion

The ICT and advancement of technology has been extensively used in numerous industry sectors including the education field. Technology is anticipated to continuously developed and advanced and its usage is unavoidable. The transformation in the educational sector concurrent with the advancement of technology also means that the educators are held responsible for preparing students with relevant skills and knowledge; hence, changing their instructional strategies with the aid of technological tools. Firstly, educators must have the capacities to adopt and integrate technology in their teaching and learning practice in order to fulfill the mission. The findings of this study reveal the respondents varying opinions and perspective with some being most supportive and a few was rather skeptic about the adoption and integration of educational technology. The extent of facilities and infrastructure as well as the support from the university or faculty are deemed to be important tangible factor in encouraging educators to use technology. On the other hand, intangible factor such as educators' characteristics and behavior–attitudes, beliefs, and perceptions–play a major role in realizing the successful implementation of educational technology in the classroom.

This study is expected to provide insights about educators' perspective on the adoption and integration of educational technology in the classroom. The accounting profession and accounting education, especially in Malaysia need to reflect the needs for the new generations to be exposed to technology in their learning process. Students in the future is expected to experience the ever-changing and advancement of technology, thus it is crucial to equip them with job-related education incorporated with technologies as we are preparing them for their future job of Industry 4.0. Prior research works recognized the plethora of benefits brought by educational technology, which provide students with the 21st century highly-required skills such as creativity, collaborative problem-solving, and self-directed learning. Again, this cannot be applied in the classroom settings if there is no enabler, either intangible factor such as the willingness, belief and attitudes of educators or tangible factor such as appropriate infrastructure and facilities.

Since technological advancement and its application in the educational field is gaining momentum, there will be numerous opportunities to conduct research in this area. Therefore, it is recommended that future study should explore in-depth about this factors to gain a wider perspective. The current study focuses on qualitative aspect, thus, future research might be conducted using quantitative approach with more specific details relating to the extent of educators sentiment, characteristics and behaviour that could be the major factors to formulate educational technology adoption and integration. Accounting educators were the focus of this study, future studies may include other field of education background to gather more thoughtful perceptions. Additionally, it would be ideal if a similar study include students, employers or professional bodies in accounting education to gather more fruitful ideas and generate a robust outcome on what they want for future accounting educators.

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Peru: Assessing Its Strong Macroeconomic Performance through Labor Market Indicators [i]

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Abstract

This paper analyzes Peru's structural change in the last 16 years (2001-2016) through the labor market indicators' lenses. The paper's assessment of the past 16 years is somewhat bitter sweet. On the positive side, there has been a major reallocation of labor resources away from agriculture into the rest of the economy without any major disruption in wages, unemployment levels and inflation as it had been in previous resource booms. Yet, most employment created during that period—notably in commerce and transport and communication—has been in jobs paying wages that are roughly equal or below the economy's average. Wages in these sectors have been increasing broadly in line with productivity growth, thus keeping unit labor costs (ULCs) largely unchanged despite underlying inflation. The inertia of ULCs growth should have, in principle, spurred a tighter growth of households' real income, consumption and savings than otherwise.

The findings from this paper are consistent with the world trend towards precarious labor conditions, especially for those youngsters entering the labor force. In a way, the emerging *gig* economy in the United States and other industrialized countries has been the Peruvian labor market's reality for decades to date. From a cyclical condition, widespread underemployment has become a structural condition in the country's economic reality. Policies to secure adequate health care and pension benefits are a latent concern for the country authorities and will require bold decisions in devising and implementing lasting changes for the benefit of the society, overall.

Keywords: Peru, employment, underemployment, unit labor costs

1. Introduction, overall assessment & policymaking challenges

This paper reviews Peru's strong macroeconomic performance in the last 16 years (2001-2016) through the labor market indicators**.** The country's exceptional macroeconomic performance is usually measured by the all-times-high domestic investment/GDP ratios and very rapid economic growth against the background of a surge in external terms of trade and mineral exports in the early/mid 2000s (Table 1). The resource extraction boom was complemented by prudent fiscal and monetary policies that positioned the domestic economy in sound footing through the hardships of the 2008/09 financial crises and its aftermath. At the end of the day, however, references to macroeconomic indicators could be somewhat abstract for the average person, who is usually more concerned as to the nature of his/her work, the industries/sectors he/she is employed in, job security and average wages received.

Concerns over employment and wage issues have come to the front around the world in recent years, and are very much declared guiding posts for policy making together with standard macro indicators of inflation and growth performance. In particular, wage inflation is currently a preoccupation of many central banks around the world, as wage growth has remained subdued following the 2008/09 crisis, with precarious employment conditions multiplying across the economy. The latter refers mainly to the growth of the gig economy, in which employees have very limited social protection in

terms of health and unemployment insurance and other traditional job benefits. All in all, concerns over labor market conditions (wages and employment figures) have brought back a renewed emphasis on matters of unemployment and underemployment trends, which are now core policymaking challenges. There is abundant theoretical literature and empirical analysis on the topic. [ii]

In the case of Peru, much real-time information on standard macroeconomic indicators and labor market condition is readily available on the web. While local and international observers duly analyze GDP and inflation trends, data on labor market conditions and their linkages to the performance of the economy from a long-term perspective are seldom analyzed. [iii] It is in this context that this paper aims at contributing to a sounder economic debate nationwide.

The paper's main contents are as follows. Labor market developments during 2001-2016 are first analyzed using annual data published in the National Institute of Statistics and Information, INEI's 2017 Statistical Compendium. The note then briefly covers most recent labor market developments using higher frequency data published in INEI's monthly Employment Bulletin. A section on the macroeconomic effects of the labor resource reallocation of recent years and its resulting challenges for policymaking completes the note.

Table 1. Peru: Selected Macroeconomic Indicators, 2000-2017

(Annual averages)

	2000-2007	2008-2010	2011-2014	2015-2017
Real GDP growth rate 1/	4.6	6.2	5.2	3.3
Consumer price inflation rate 1/	2.3	3.4	3.3	3.3
Changes in terms of trade 1/	4.3	1.5	-1.4	0.1
Savings-Investment Identity 2/				
Investment	19.7	24.2	25.7	22.7
Savings	19.7	24.2	25.7	22.7
Domestic	19.1	22.0	22.3	19.8
o/w Public sector savings	***2.3***	***5.6***	***7.0***	***2.8***
External	0.6	2.2	3.4	2.9

Source: IMF
1/ In percent
2/ In percent of GDP

The assessment of the past 16 years is somewhat bitter sweet. On the positive side, there has been a major reallocation of labor resources away from agriculture into the rest of the economy without any major disruption in wages, unemployment levels and inflation as it had been in previous resource booms. Yet, excluding public administration and defense, most employment created during that period—notably in commerce and transport and communication—has been in jobs paying wages that are roughly equal or below the economy's average. Wages in these employment-booming sectors have been increasing broadly in line with productivity growth, thus keeping unit labor costs (ULCs) largely unchanged despite underlying inflation. The inertia of ULCs growth should have, in principle, spurred a tighter growth of households' real income, consumption and savings than otherwise. Also, the welfare and policy implications of such economic environment have not been insignificant.

Shortening our lenses to look at recent labor market developments highlights an increase in Lima Metropolitana unemployment rates to 8 percent by February 2018, a decline in "adequate employment" along increases in underemployment, a decline in working hours per-week and reductions in real wages across the economy. An indeed it is defiant economic environment for policymakers.

The challenges for macroeconomic policymaking are threefold. For one, the labor reallocation into

relatively low-productivity-low-wage commerce and services activities is a structural rather than a cyclical feature of the Peruvian economy. Also, assessing the degree of excess capacity of the economy demands looking beyond standard unemployment rate estimates to the extent that those underemployed are considered employed for official statistical compilation purposes, thus blurring the standard analysis of the degree of economic slack. A better indicator is the amount of hours worked per-week per-worker, complemented with a systematic monitoring of macroeconomic expectations about employment creation and the economy's performance three months ahead which have been highly synchronized with the actual behavior of the unemployment rate for Lima Metropolitana. Dissonance between expectations and actual events has been the exception to the rule rather than the observed pattern in the last 16 years. Finally, on top of the urgent need to raise labor productivity, an open policy question is how to address the lasting stagnation of unit labor costs in employment-booming sectors (despite underlying inflation) that puts a downward bias on the growth of households' disposable income. The problem appears magnified by the relative long-term real appreciation of the Peruvian sol compared to other Latin American currencies, which hampers, in principle, the potential growth of non-mineral export-led sectors and reduces the creation of formal/full-time/adequate employment in those sectors.

In sum, the structural changes occurred in the economy in the last 16 years--as measured by a changed composition of the GDP and the substantial reallocation of labor resources into underemployment in the tertiary sectors--call for a new complementarity between policies aimed at improving labor productivity and creating adequate employment opportunities nationwide. Such policies should support a less volatile share of household disposable income in GDP and higher household saving and consumption than otherwise.

The findings from this paper are consistent with the world trend towards precarious labor conditions, especially for those youngsters entering the labor force. In a way, the emerging *gig* economy in the United States and other industrialized countries has been the Peruvian labor market's reality for decades to date. From a cyclical condition, widespread underemployment has become a structural condition in the country's economic reality. Policies to secure adequate health care and pension benefits are a latent concern for the country authorities and will require bold decisions in devising and implementing lasting changes for the benefit of the society, overall.

2. Methodology and Data Description

Labor market developments during 2001-2016 are analyzed using annual data published in INEI's 2017 Statistical Compendium and its monthly Employment Bulletin. The period under review has been the longest sustain and high growth period of the Peruvian economy since independence in 1821. Review of the period has been facilitated by widespread data availability on the authorities' webpages. Local literature on labor market analysis and economic performance is however nonexistent, thus the paper's important contribution to Peru's economic history.

Variables, sources, period, and data frequency used in this research are listed below:

- Variables: Employment rate, unemployment rate, economically active population (EAP), economy-wide wages, wage index, relative monthly wage, minimum wages, productivity index, consumer price index, employment to working-age population
- Source of data: Peruvian National Institute of Statistics and Information (INEI) and Central Reserve Bank of Peru (BCRP)
- Period: 2001-2016
- Frequency: annual, Peruvian National Institute of Statistics and Information (INEI)'s 2017 Statistical Compendium.
- Monthly: INEI's monthly Employment Bulletin

Built indicators:

- Unit labor costs = the ratio of average wages to labor productivity
- Dispersion in employment growth rates= standard deviation of sectorial employment annual growth rates

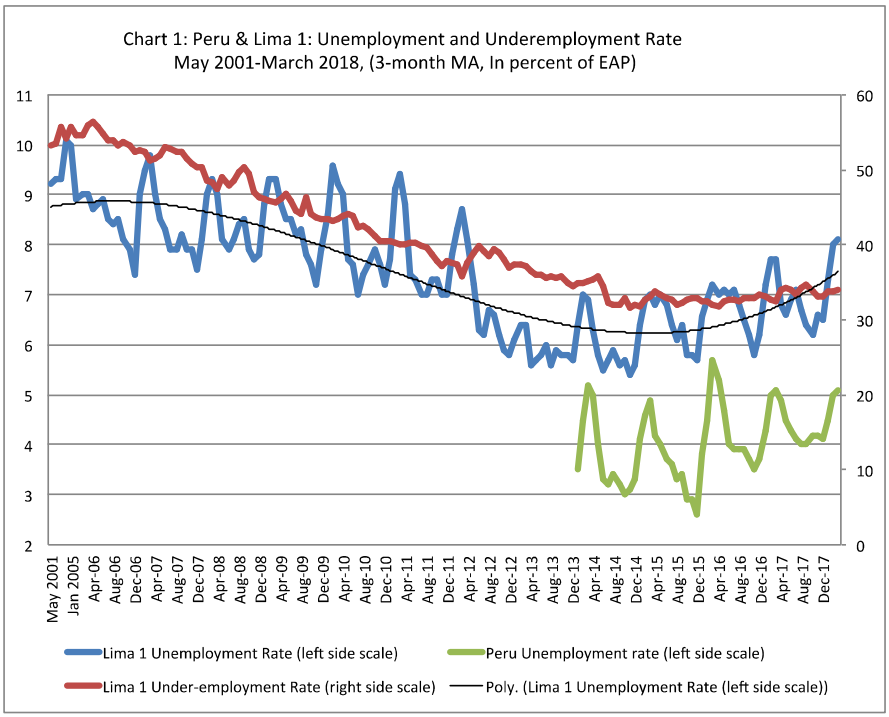
3. Discussion & Results

3.1 Looking over the past 16 years

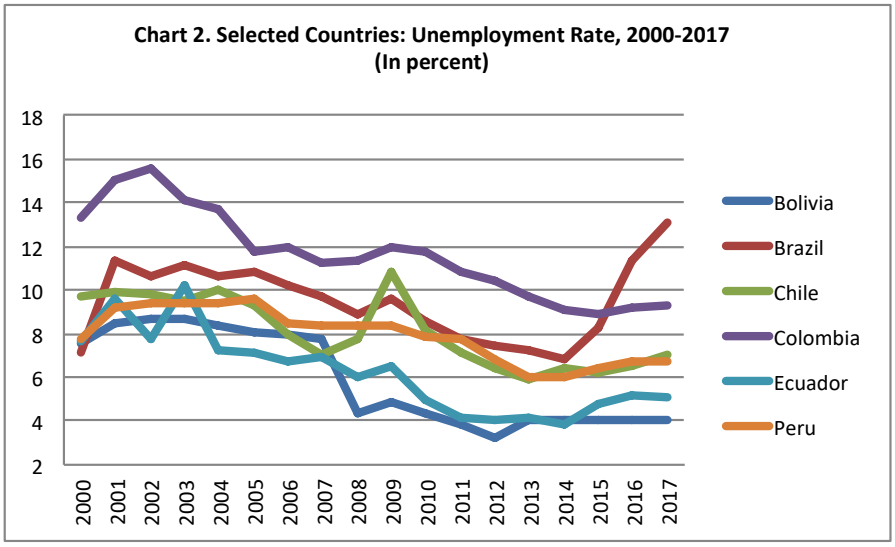
The unemployment rate of Lima Metropolitana (i.e., Lima 1) is INEI's leading labor market benchmark indicator, which is published on a monthly basis with much detail as of its underlying components. Lima 1 is the nation's largest center of economic activity and employment source. While mineral extraction takes place in coastal areas away from Lima and desolated sites in the highlands, Lima 1 produces about 75 percent of the national GDP and has an economic active population (EAP) of about 5.5 million people out of a total of 16 million people of working age nationwide. Labor indicators for Lima 1 have been compiled since 2001, while those for the country as a whole (compiled on a high frequency basis) date only from 2014 onwards. Historically, Lima 1 has had unemployment rates that are roughly 2.5 percentage points higher than the average for the rest of the country on account of internal migration and other economic and political factors affecting the relative size of this large urban center. Yet, changes in the unemployment rates for Lima 1 and the country as a whole are highly correlated (Chart 1).

During the last 16 years, there has been a significant decline in Lima 1 unemployment rate, with concurrent sharp declines in underemployment (Chart 1).[iv] The unemployment rate declined from around 9.5 percent of the EAP in the early 2000s to below 6 percent in late 2014, before starting to rise again and reach 6.5 percent in late-2017, as overall economic growth decelerated. These reductions in unemployment were unprecedented for Peru and represented a gain of 1.6 million employments posts in Lima 1, alone, between 2001 and 2017. At the same time, Lima 1 underemployment rate--covering those working less than 35 hours a week, but wishing to work more hours (*subempleo visible*), and those working 35 hours or more, but earning insufficient income to purchase the minimum consumption basket (*subempleo invisible*)-- dropped from about 55 percent of Lima's PEA in early 2001 to around 32 percent in the late 2014, before increasing again to 33.5 percent in late-2017. The decline in underemployment broadly mirrored an increase in "adequate employment," which, for INEI's statistical compilation purposes covers those working 35 hours or more per-week and earning incomes above the minimum consumption basket, as well as those working less than 35 hours per-week, but without wishing to work more hours per-week.

By international standards, Peru's (i.e., Lima 1's) employment gains during 2001-2016 were substantial and very much comparable to those occurred in neighboring countries (Figure 2). Same as Chile, another copper producing nation, the unemployment rate of Lima 1 declined from about 9.5 percent in early 2000s to 6.5 percent in recent years despite the outbreak of the global financial crisis in 2008/09 and the economic deceleration suffered by both countries during 2014-16. Other neighboring countries also managed to significantly reduce their unemployment rates during the last 16 years, although the employment situation in Brazil has deteriorated significantly since 2015/16 due to the economic recession. The resilience of Peru's relatively low unemployment rate despite the volatility of the external environment has been a welcome development in the eyes of domestic and foreign analysts.



Reductions in Lima 1 unemployment rate have been accompanied by a significant and successful reallocation of labor resources nationwide:

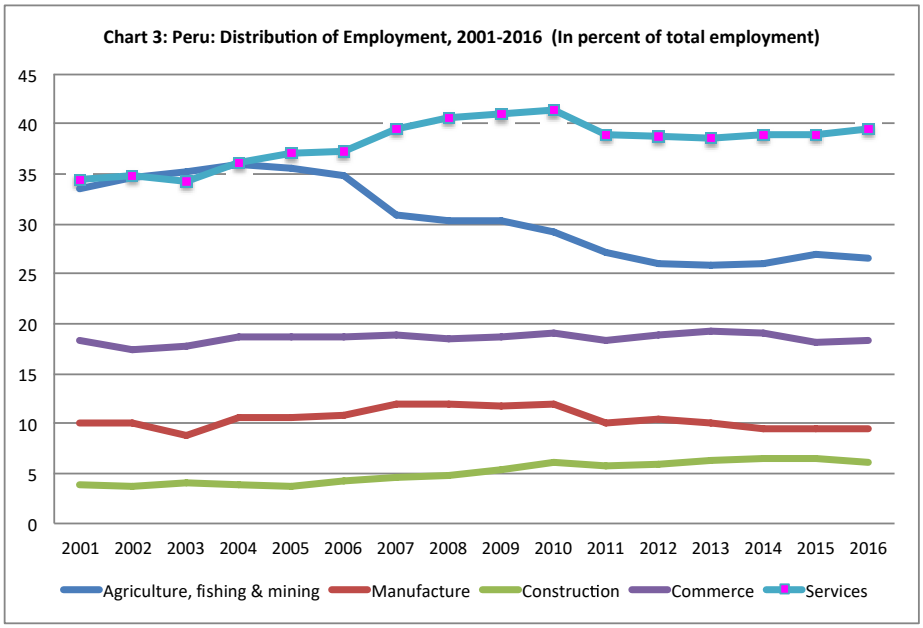


Source: IMF

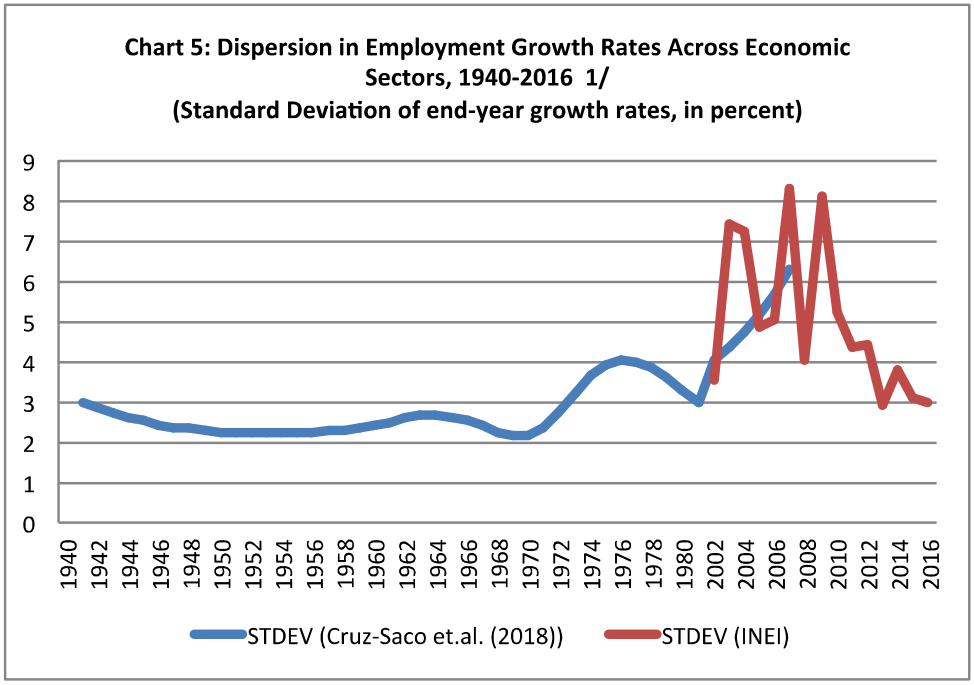
First, for the economy as a whole, there has been a surge in employment in the services sector, including public administration and defense, while employment in the primary sectors_(i.e., agriculture and fishing) and manufacture waned (Charts 3 & 4). Specifically, during 2001-2016, out

of total employment gains of about 4.3 million nationwide, about 815,000 jobs were created in the public administration and defense, while a total of 2.3 million jobs were created in commerce, transportation and communications, and other services. By contrast, there were around 500,000 job losses in the primary sectors between 2003 and 2013 that have been only partially reversed in recent years. According to some analysts (e.g., Webb (2017)) reverse migration in agriculture is related to the improved physical and digital infrastructure connecting rural and urban areas, which has improved living conditions in the countryside and the Andes. The manufacturing sector was also a weak performer during the period and, by end-2016, employment in the sector was some 85,000 people lower than in 2012, with job losses continuing to date. Employment in the construction has also been declining as of recent, although sector was an important source of occupation during the last 15/16 years due to booming residential and business construction in Lima and other urban centers on the coast.

***Second*,** the reallocation of labor resources across the economy was not smooth and, in fact, it was the bumpiest in the last century (Chart 5). This labor force reshuffle could be assessed by examining the historical dispersion (i.e., the standard deviation) in employment growth rates across the eight economic sectors, which shows that such dispersal has never been higher been than in 2002-2012. The strong economic growth of the early 2000s must have triggered a high rate of job turnover and opened an array of job opportunities in various sectors of the economy, while, at the same time, other jobs ceased to exist. In sum, while there is always a degree of structural change occurring, the evidence suggests that the labor market changes during that period have no historical precedent.

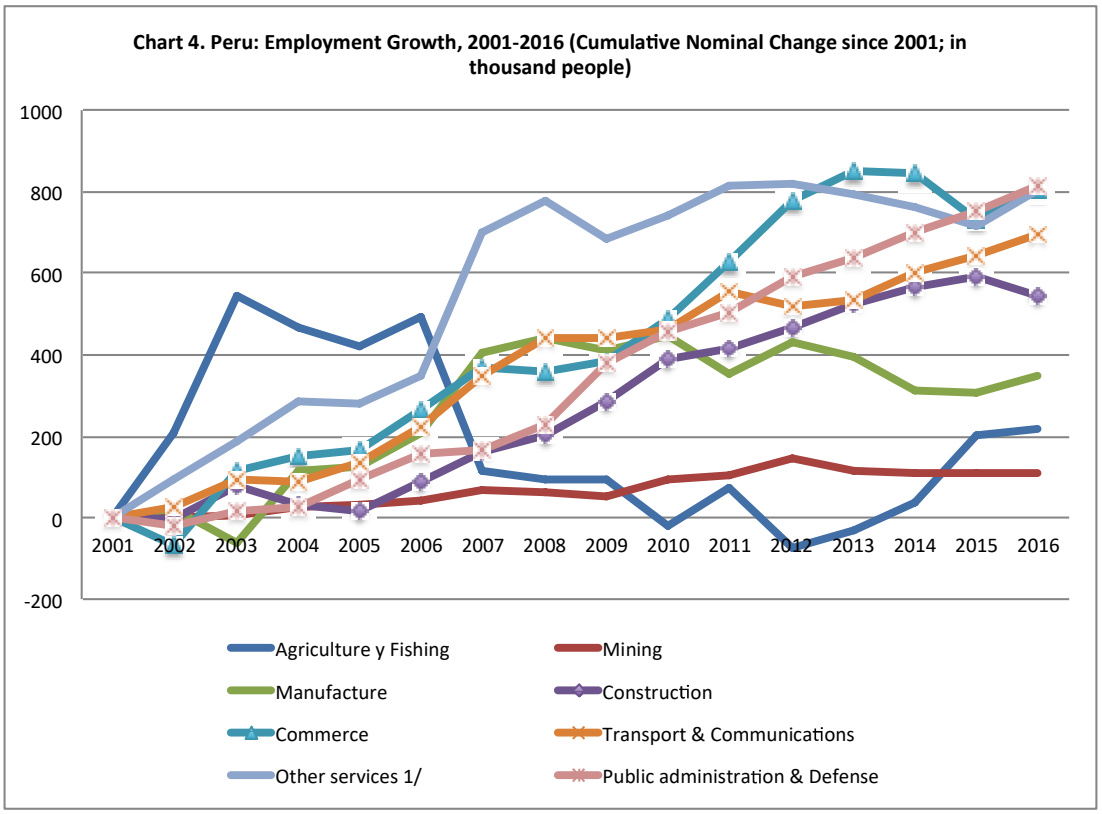


Source: INEI



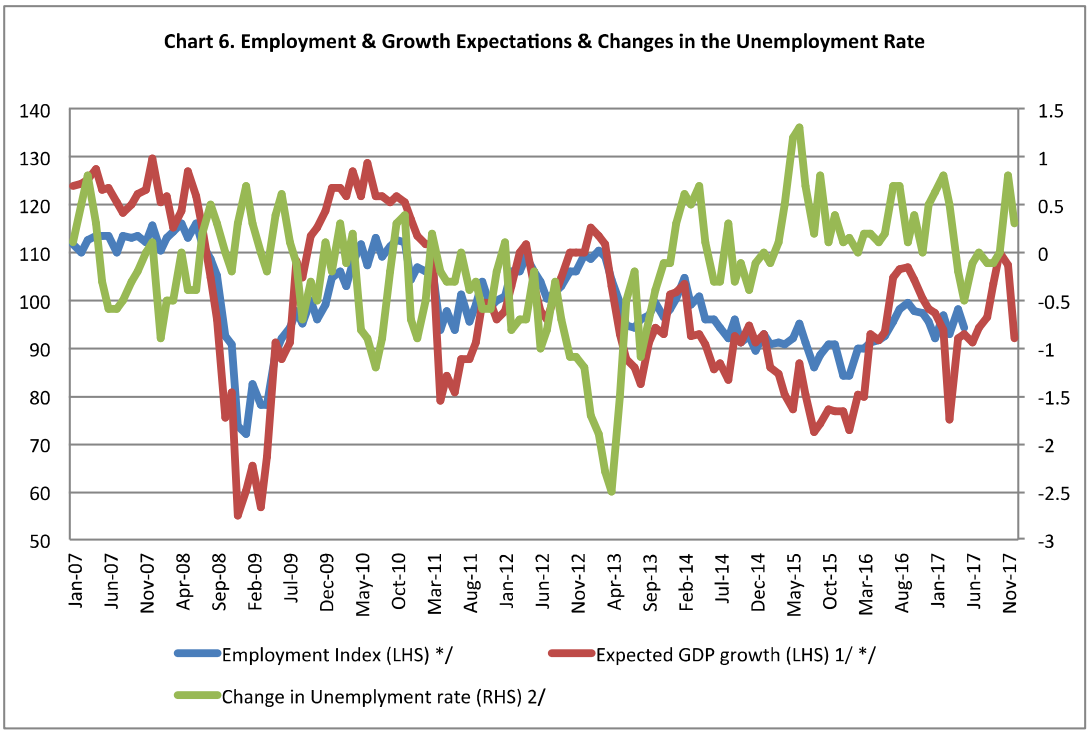
Source: Cruz-Saco et. al.; INEI and authors' estimates.

1/ Source data for 1940-2007 come from Cruz-Saco et. al. (2018). Data through 2016 come from the 2017 INEI Statistical Compendium.



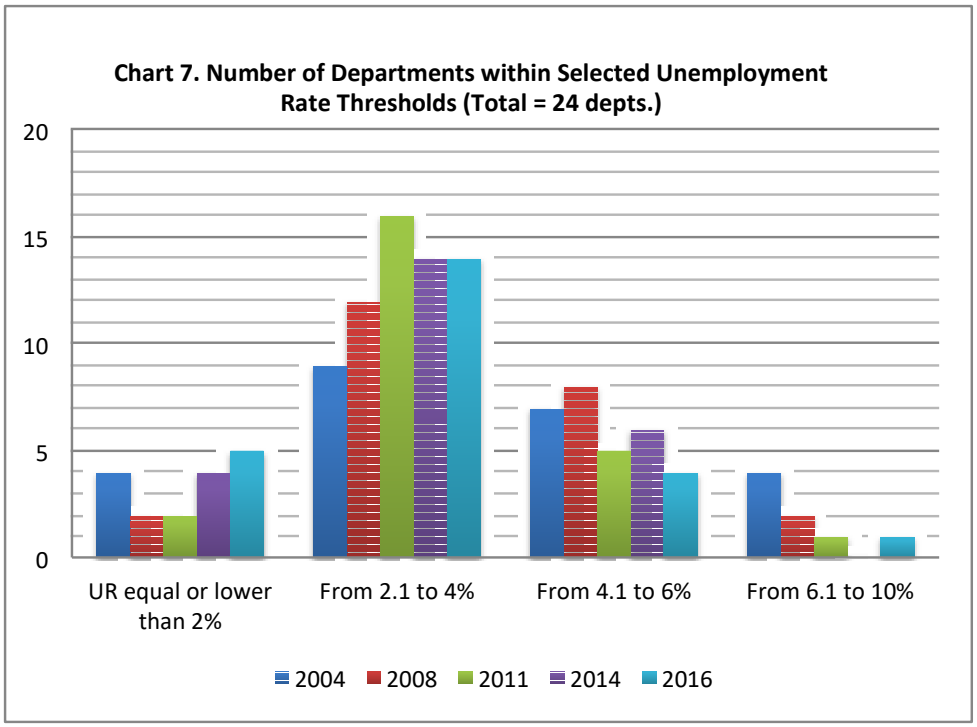
Source: INEI and authors' estimates.
1/ Includes electricity, social security, hotels & restaurants, real estate, teaching, gas & water services, financial sector activities, and social services, in general.

But the significant variation of employment growth across sectors did not add to pessimism and/or uncertainty among key economic players (Chart 6). In general, developments in the last 16 years showed strong synchronization between consumer expectations about employment and economic growth, and the actual behavior of the unemployment rate. Despite job losses in some quarters along sizable labor reallocation across the economy, expectations and actual events about (in) the labor market coincided. During 2017, though, there was the unusual transitory situation in which consumers' expectations about growth were on the rise, but the unemployment rate was also increasing; an event possibly connected with the businesses' optimism about the new incoming government of President Kuczynski. Such dissonance between business expectations and the unemployment rate has now largely disappeared, with looming concerns about economic growth now matching hikes in the unemployment and underemployment.



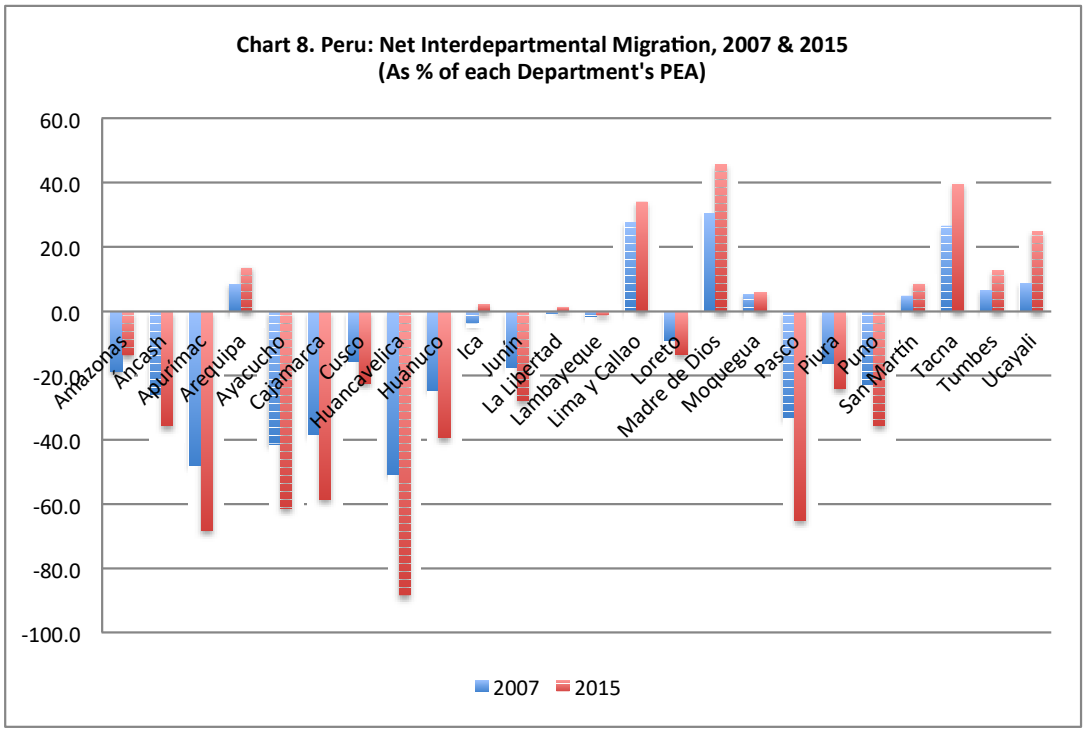
Source: BCRP, Encuesta de Expectativas Macroecónomicas, INEI Employment Bulletin & authors' estimates.
*/ Net balance expecting more employment (growth); average since January 2007 =100
1/ Consumer expectations on the economy's growth in three months.
2/ Change in unemployment rate over the past 12 months.

Also, the disparate employment growth across economic sectors did not lead to greater variation in the unemployment rates across the country.[v] Rather, by 2016, compared against 2004, the average unemployment rate across departments was lower and the variation across the country was also lower. There was a notable increase in the number of departments registering unemployment rates between 2 and 4 percent, while the number of departments with higher unemployment rates declined over time (Chart 7). Unemployment rates of less than 2 percent can be generally found in departments located in the Amazon basin (i.e., Amazonas, Madre de Dios) and small departments situated in the highlands (i.e., Apurimac and Huancavelica) with relatively small economic active populations. By contrast, by 2016, Lima remained as the only department registering an unemployment rate above 6 percent. A decade earlier, other high unemployment departments also included Moquegua, Arequipa and Tacna.

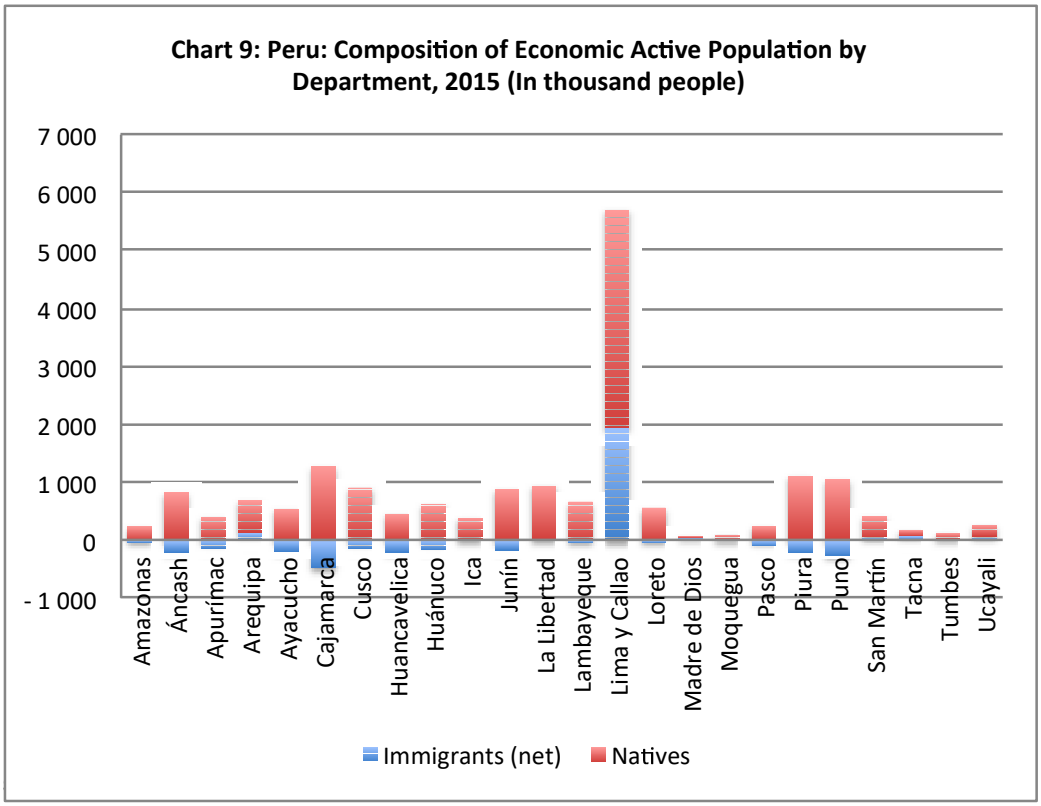


Source: INEI and authors' estimates.

***Third*,** internal migration is a factor that should have contributed to keep unemployment rates low across the national economy (Charts 8 & 9). In short, it has been the willingness of people to travel or relocate where the jobs are that has kept unemployment low, nationwide For example, by 2015, migrants represented about 35 percent of Lima Metropolitana economic active population (up from 28 percent in 2007), which in absolute numbers was equivalent to about 2 million people. While other departments (e.g., Arequipa, Madre de Dios, Tacna, Ucayali) have also witnessed net inflows of people, the sheer size of Lima's population makes those migration flows somewhat insignificant in nominal terms, however. Also, with the passing of time, earlier migrants become locals/natives for statistical purposes, thus blurring the marginal contribution of new migrant inflows to the size of the local PEA. [vi]



Source: INEI and authors' estimates.



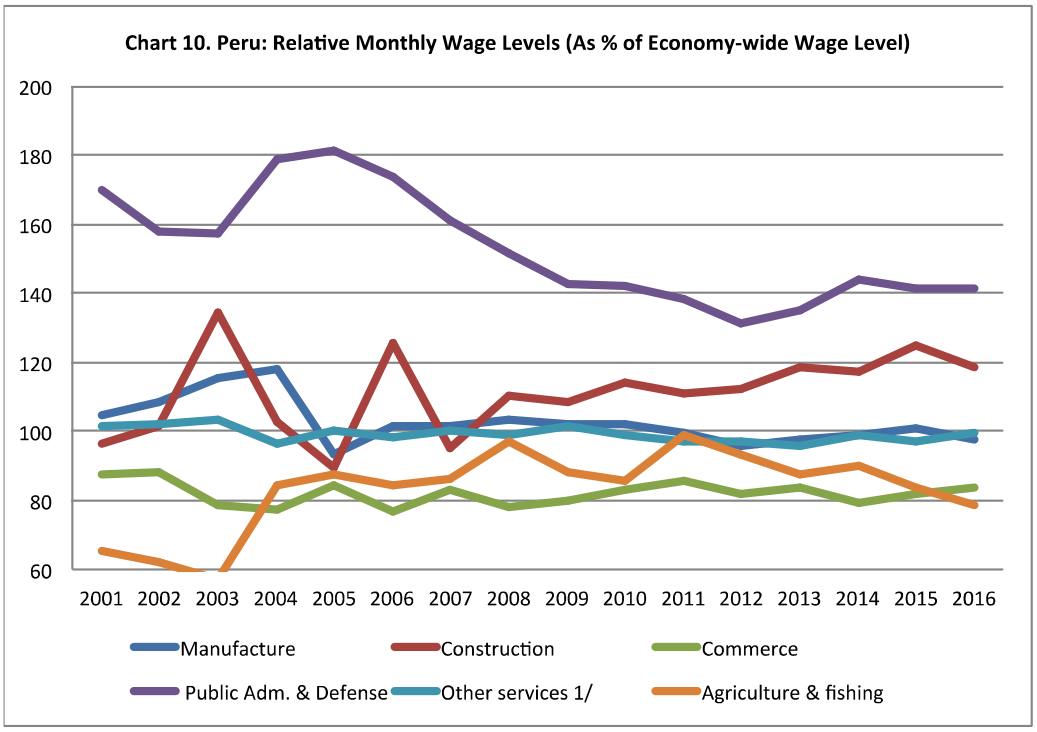
Source: INEI.

Of concern, however, is that most employment gains registered in the last 16 years have been in jobs paying monthly wages [vii] that were equal or below the economy's average wage, which is not much higher than the minimum wage (Chart 10 & Table 2).[viii] Wages in commerce (employing some 3 million people or about 18.5 percent of the country's working economic active population) have been 20 percent lower than the economy's average wage, and generally lower than relative wages in agriculture, from where most people migrated in recent years. Wages in other service businesses, such as transport and communications, hotels, restaurants, social security, and other service industries (totaling some 5 million workers), were just at the economy-wide average wage level, which in 2016 was about 1,550 soles per-month or 1.8 times the monthly minimum wage of 850 soles. Only those working in public administration and defense (some 1.4 million people), construction (1.0 million) and the rather few working directly in mining (some 175,000 people) have been paid higher wages than in other sectors of the economy.[ix]Relative wages in manufacturing have hovered around the economy's average in a context of a gradually shrinking sector's value added as a share of GDP.

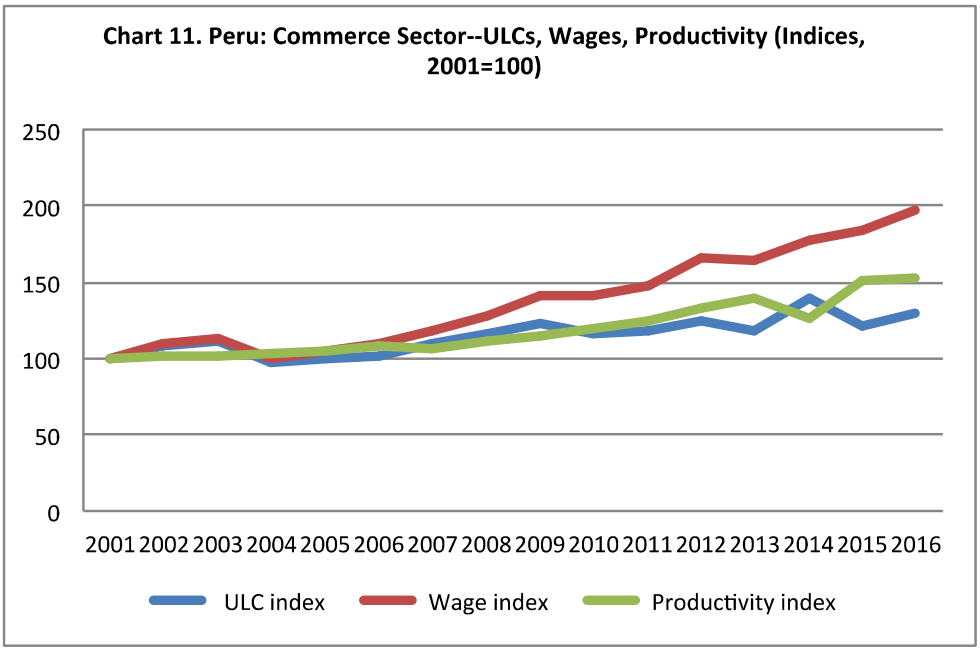
Also, wages in commerce and the services sector have increased broadly in line with productivity, with no adjustment for underlying inflation (Charts 11-13). The alignment of wages and productivity growth has kept unit labor costs (ULCs) unchanged.x However, the stagnation of ULCs despite underlying inflation (measured either by the average annual consumer price index (CPI) growth rate and/or the sector's implicit deflator annual growth rate) should have, in principle, kept the growth of household real disposable income, consumption and savings tighter than otherwise during the last 16 years. Indeed, survey data document a large number of households in the commerce and services sector engaged in several paid work activities to make ends meet during the month, albeit earning low wages and with no social benefits to speak about. In sum, there has not been "wage inflation" in the commerce and services sectors to speak off, while a large number of households reportedly

cobbled different jobs to try to generate necessary income in the absence of adequate employment opportunities.

All in all, the impression from the various facts and figures above is that Peru's labor market developments during the last 16 years leaves some things to be desired. On the positive side, workers have moved in large numbers across economic sectors, notably into commerce and services and away from agriculture and fishing. These movements of people have supported a decline in the number high-unemployment departments across the country (Moquegua, Arequipa and Tacna in the mid-2000s), while containing any sharper decline in unemployment rates in Lima 1 despite important employment gains in the capital city. Yet, relative wages for commerce and services (other than the public administration and defense) have remained contained at levels equal or below the economy's average wage. Also, there is no evidence of wage inflation, as the growth in nominal wages has tightly paralleled productivity growth.



Source: INEI and authors' estimates.
1/ Includes transport and communications, hotels, restaurants, social security, and other services.



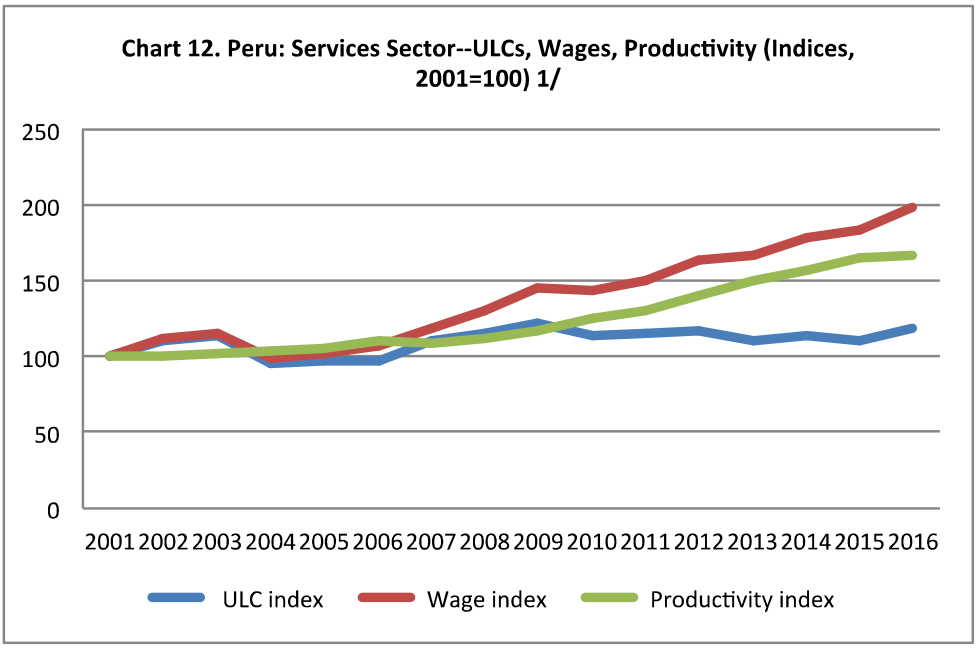
Source: INEI, BCRP, and authors' estimates.

Table 2. Peru: Working Economic Active Population (EAP), 2001-2016

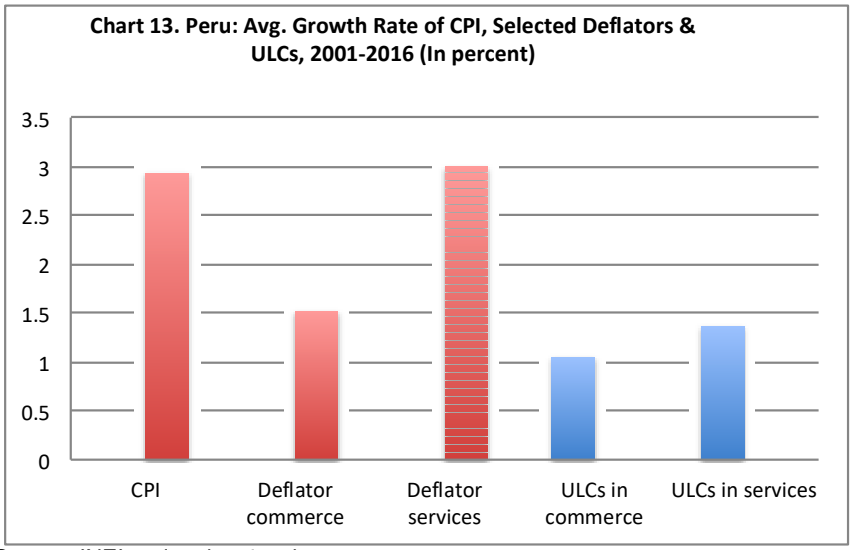
	2001	2011	2012	2015	2016	Increase 2001-2016
	(In thousands of people; stocks)					
Total EAP	**11862.2**	**15307.3**	**15542.7**	**15919.2**	**16197.1**	**4334.9**
Agriculture y Fishing	3902.1	3972.8	3827.2	4105.7	4118.4	216.3
Mining	66.9	169.8	214.1	177.5	174.1	107.3
Manufacture	1193.6	1548.2	1625.5	1501.7	1541.7	348.1
Construction	450.8	866.2	918.0	1043.6	997.3	546.5
Commerce	2159.8	2789.4	2938.0	2889.7	2965.0	805.2
Transport & Communications	669.1	1226.0	1190.2	1314.6	1361.7	692.6
Other services 1/	2818.5	3630.9	3639.3	3534.2	3624.8	806.3
Public Administration & Defense 2/	600.2	1101.1	1190.4	1352.3	1414.0	813.8
	(In percent of EAP)					
Total EAP	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	
Agriculture y Fishing	32.9	26.0	24.6	25.8	25.4	
Mining	0.6	1.1	1.4	1.1	1.1	
Manufacture	10.1	10.1	10.5	9.4	9.5	
Construction	3.8	5.7	5.9	6.6	6.2	
Commerce	18.2	18.2	18.9	18.2	18.3	
Transport & Communications	5.6	8.0	7.7	8.3	8.4	
Other services 1/	23.8	23.7	23.4	22.2	22.4	
Public Administration & Defense 2/	5.1	7.2	7.7	8.5	8.7	

Source: INEI (ENAHO) and authors' estimates.

1/ Includes electricity, social securitiy, hotels, restaurants & other services as per the national accounts sectorization.
2/ Authors' estimates.



Source: INEI, BCRP, and authors' estimates.
1/ Services sector excludes public administration and defense.



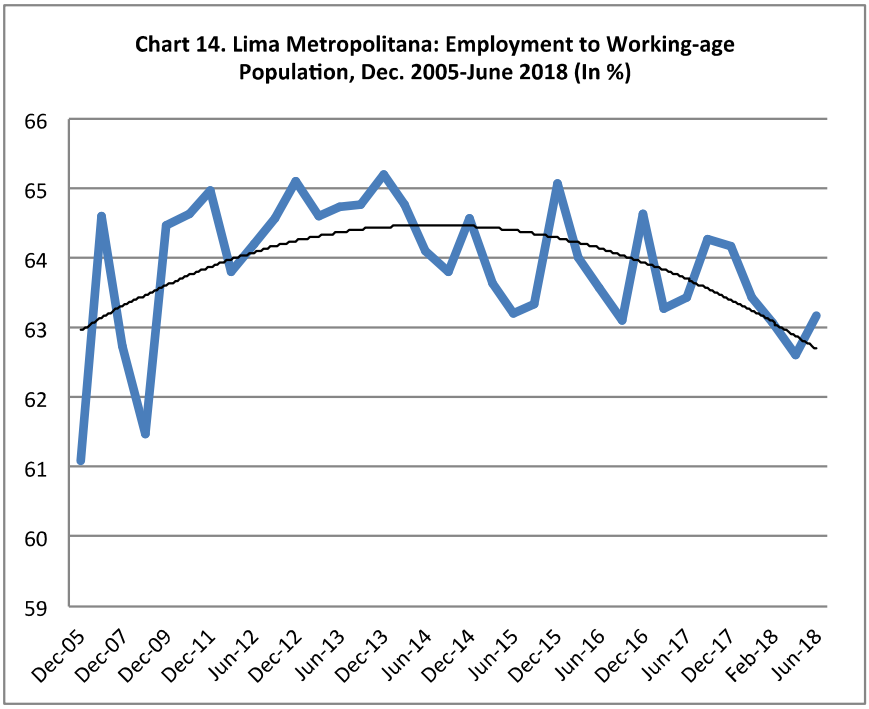
Source: INEI and authors' estimates.

3.2 Lima Metropolitana: Recent Labor Market Developments

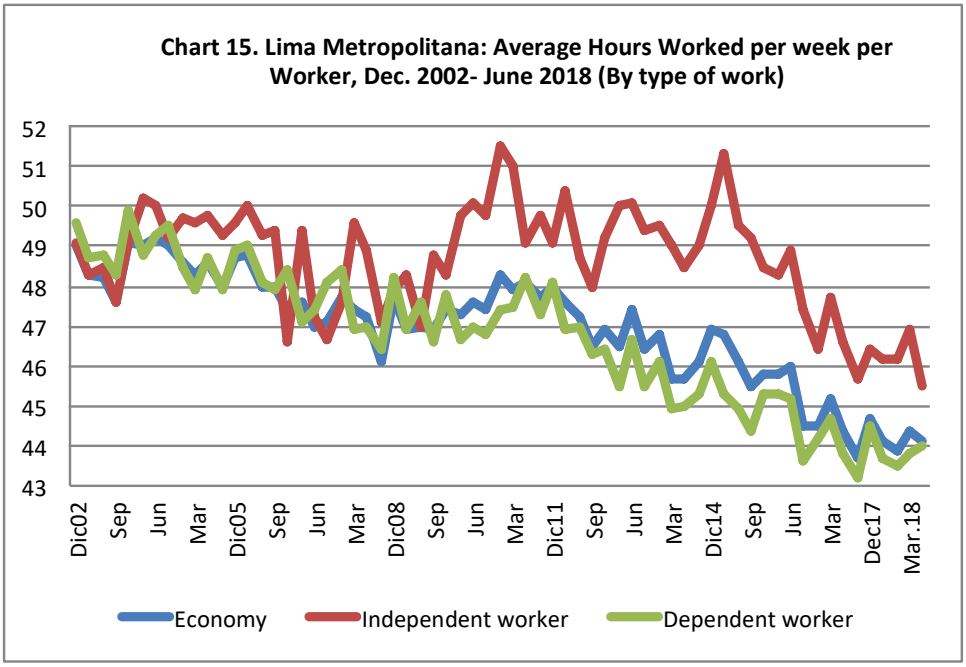
Recent labor market developments in Lima Metropolitana are quite challenging in terms of employment creation and wage trends (Figures 14 -16). As reported in INEI's February 2018 Employment Bulletin, the unemployment rate in Lima 1 has been increasing as of recent, reaching

8.0 percent for the three-month period ending February/March 2018 (up from 6.5 percent in the quarter ending December 2017), before averaging 6.7 percent in the second quarter of 2018, as mining investment began to recover along hike in international mineral prices. Recorded hikes in the unemployment rate paralleled simultaneous increases in underemployment with its precarious employment conditions, while many jobs in the formal economy evaporated. The softening of the labor market can also be summarized by a lasting decline in the average hours worked, particularly in construction and services, and a decline in the overall employment to working-age population ratio. The average growth of nominal wages, on the other hand, has generally been lower than the average inflation rate for all sectors in Lima 1. The erosion in real wages should have reduced the share of labor remunerations in total GDP, thus creating a drag on future growth of the economy.

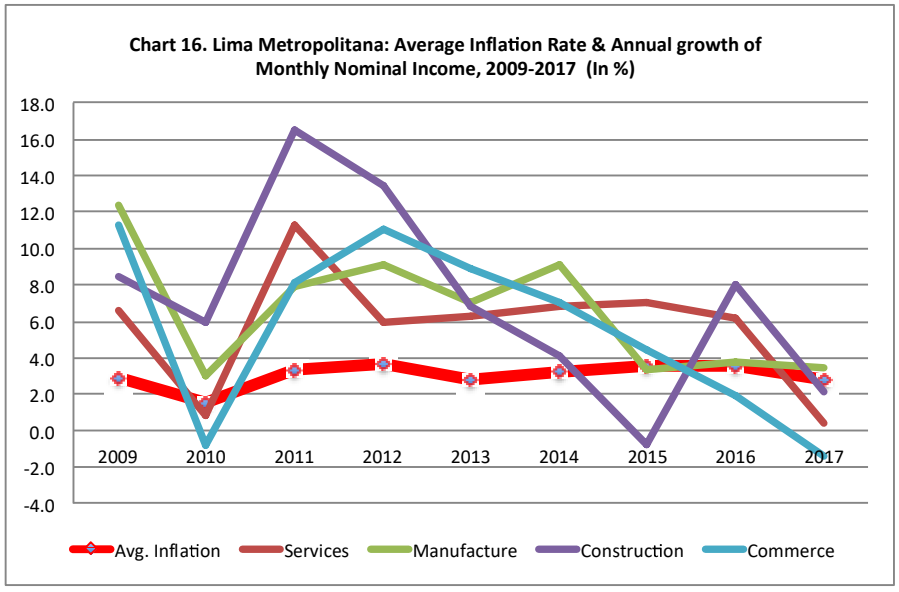
Sizeable unemployment and underemployment rates are unlikely to vanish in the near term (Charts 16 & 17). For one, the labor participation in Lima 1 has increased (albeit remaining volatile) as the economy has decelerated during the last three years, hence compounding the effect of weak job creation on the measurement of the unemployment rate. [xi]The increase in labor participation contrasts with current events in industrialized economies, where reductions in participation has kept unemployment rates low despite weak of employment conditions in the aftermath of the global financial crisis. In Peru, there is also a challenge in terms of employment "destruction" and employment "creation." Indeed, most of the employment that is being created in the services sector is underemployment, while most of the recent employment losses in the construction sector, in particular, are those previously classified as "adequate employment." On a net basis, the rate of underemployment is now higher than before.



Source: INEI



Source: INEI and authors' estimates.



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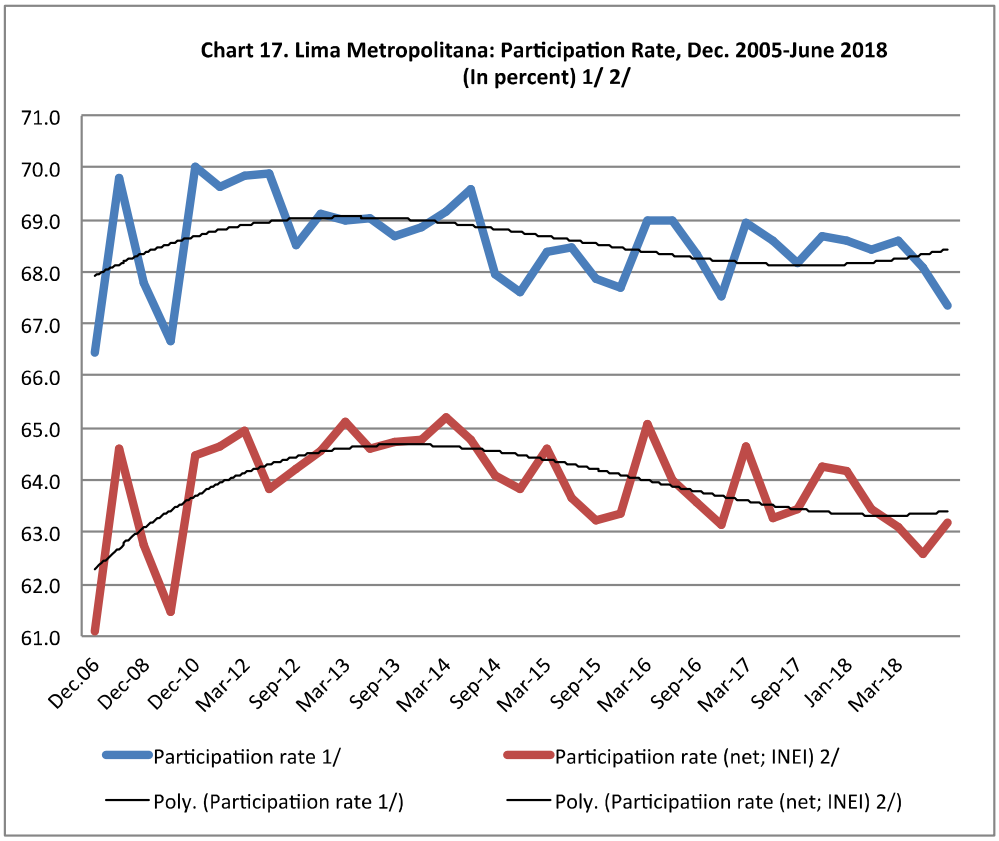
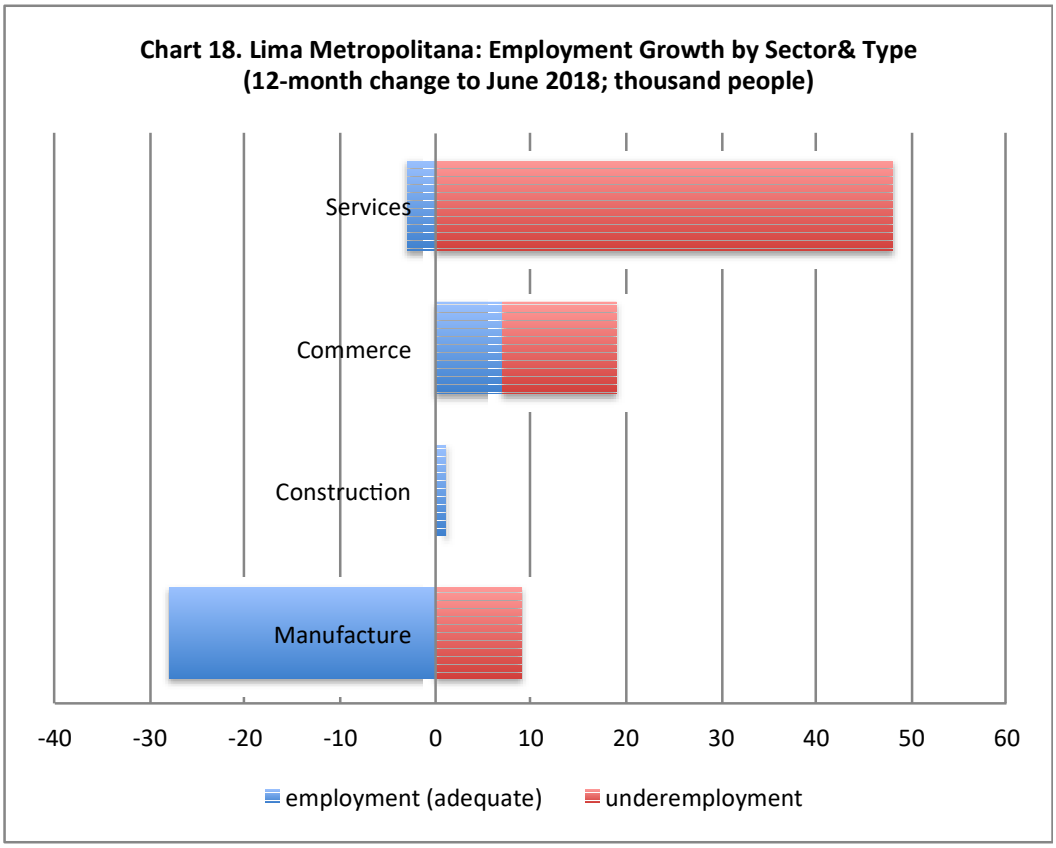


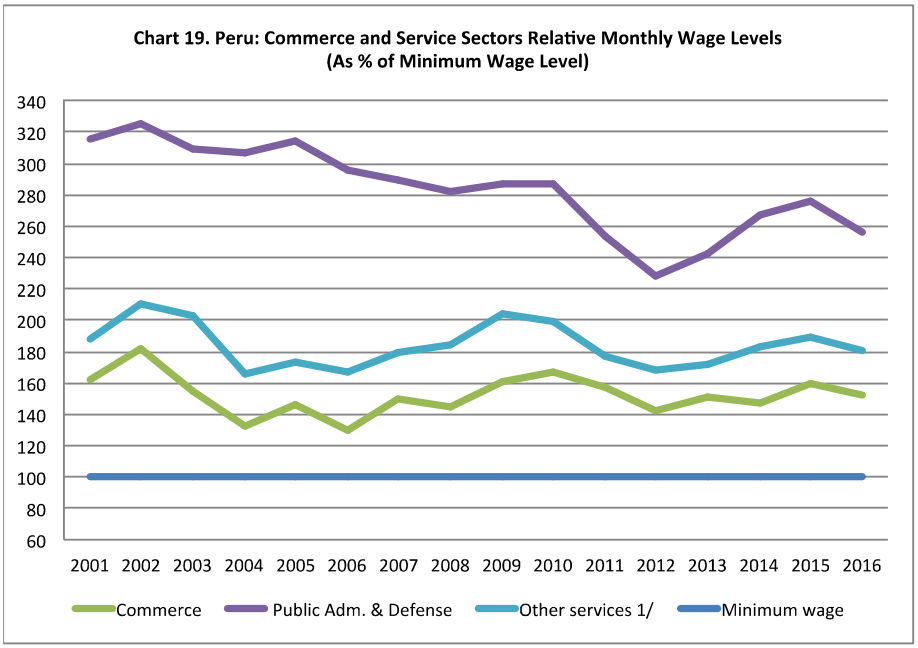
Source: INEI
1/ Share of working-age population looking for a job.
2/ Share of working-age population that is currently employed (INEI's tasa de participación neta).



3.3 **Macroeconomic and Policymaking Challenges**

A continuous reallocation of labor resources into the services sector, and away from the primary and secondary sectors, is here to stay. As in other emerging market economies around the world, the relative amount of labor resources in agriculture and manufacturing is likely to continue to decline in Peru. In short, such a resource allocation is a structural rather a cyclical phenomenon in of the economy. While better interconnectivity (physical and/or digital) between urban centers and the countryside could partially slowdown this labor reallocation, the sluggish growth of manufacturing activities and the established patterns of labor migration for decades, including the sheer size of Lima economically active population, generates a enduring excess supply of labor resources that is relegated to work in the services sector.

The macroeconomic effects of this labor resource allocation are significant in terms of labor productivity and wage levels. Labor productivity levels in commerce and the service sectors are relatively low, as those jobs demand lower investment in human capital and specialized skills and training than in traditional jobs. This economic reality affects some 6 million people or about 40 percent of the economy's economic active population. Also, the resulting average wage levels are not much higher than the economy's minimum wage, especially for services (other than public administration and defense), while these sectors are sources of unstable employment and family income (Chart 19). Anecdotic evidence suggests the proliferation of households cobbling different jobs to try to generate necessary income in the absence of adequate (i.e., full-time) employment opportunities.



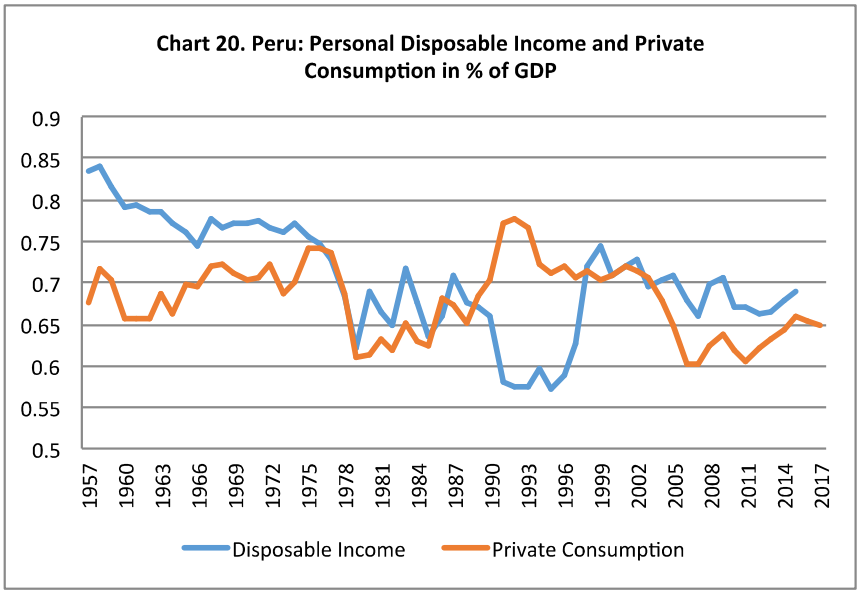
Source: INEI and authors' estimates.
1/ Includes transport and communications, hotels, restaurants, social security, and other services.

Finally, there are also implications for policymaking:

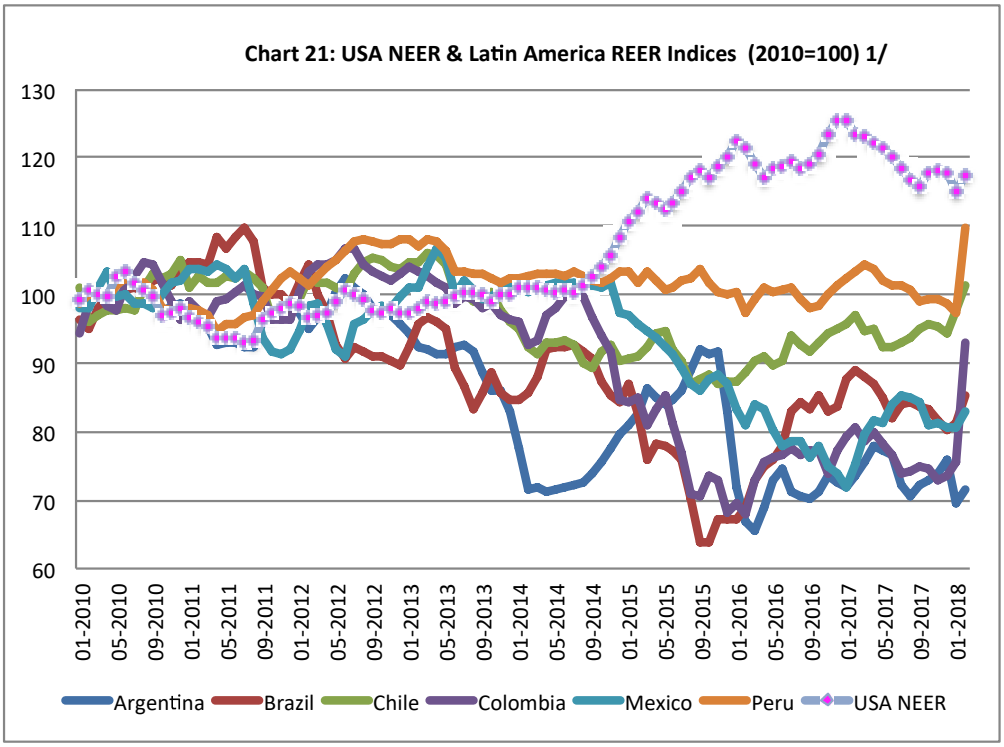
First, there is less to the unemployment rate estimate than meets the eye and thus a wide-ranging analysis of labor market indicators is warranted at all times. While historically there has been a broad degree of synchronization between the unemployment rate and macroeconomic expectations on employment and economic activity prospects, the information content of the unemployment rate is limited, if taken by itself. Indeed, the unemployment rate would rise by less or not change at all during recessions to the extent that those underemployed workers are counted as "employed" when computing the official unemployment rate estimates. However, it may well be that those individuals who are able to avoid unemployment by settling into underemployment-type jobs are significantly less productive and work less hours than in a full-time regular job. As a result, cyclical changes in resource utilization could be reflected less in changes in the unemployment rate and more in variations in worked-hours per worker. This has implications for how policymakers should assess the amount of excess capacity in the economy and the spectrum of labor indicators to take into account into the analysis. [xii]

Second, the policy implications of the labor force reallocation in a context of austere growth of ULCs are not insignificant (Chart 20). As noted above, the labor market in the commerce and services sectors appears to be highly competitive, with nominal wage increases tightly matching productivity increases, without accommodation for underlying inflation. However, a temporary, moderate, amount of (wage) inflation is not necessarily bad for the economy as it triggers consumption and investment and household indebtedness that accelerate economic growth, at least in the near-term. This could be particularly relevant in the current environment, in which total value added in commerce and the services sectors represents a high of 55 percent of GDP, employs about 40 percent of the economic active population, but grows little thus putting a drag on overall economic growth. Tight wage growth for such an import share of the total population puts downward bias on the growth of households' disposable income, consumption, savings and potential GDP growth.

With the problem being amplified by the relative long-run real appreciation of the Peruvian currency in international money markets that hampers the creation of adequate employment (Chart 21). Indeed, most of Peru's Latin American trading partners depreciated their currencies as the American economy rebounded from the 2008/09 global financial crisis and the dollar appreciated in international money markets, starting 2013. By contrast, the stability of the real and nominal effective exchange rate may have served well to a dollarized economy such as Peru, but missed an opportunity to give an (exchange rate) impulse to the local non-mineral export-led sectors, which are generally a source of formal/full-time/adequate employment creation. Most recently, the problem has heightened even further for Peru, as the depreciation of the American dollar under President Donald Trump has triggered a wide-ranging appreciation of most Latin American currencies, including the Peruvian sol. This event multiples the hurdles to address high underemployment rates and create formal jobs in the economy. In this context, revisiting the optimal policy combination to increase labor productivity in the tertiary sector of the local economy and sustain a strong--and lasting--growth of household disposable income is an open question for the Peruvian policymakers and a subject matter for future research.



Sources: Cruz-Saco et. al. (2018) and INEI.



Source: BIS
1/ An increase in the index is an appreciation. NEER is the nominal effective exchange rate index. REER is the real effective exchange rate index.

[i] An earlier version of this paper was presented at the 2018 Latin American Studies Association (LASA) conference in Barcelona in May 2018. The authors thanked Maria Amparo Cruz-Saco, Armando Morales, Bruno Seminario, Pedro Tuesta and other friends for the very useful comments on how to improve the note's analysis and policy prescription. All remaining errors are the authors'.

[ii] On this, see for example, Lael Brainard (2017a, 2017b, 2017c, 2016) and the literature referred by FED Governor Brainard. Other lead contributors to the analysis of productivity growth and long-term patterns of economic growth of the American economy include, notably, Summers (2018) and the literature surrounding the concept of "secular stagnation," and Gordon (2016) on his analysis of long-term trends with productivity growth in the US. The International Monetary Fund and the World Bank have also conducted extensive research on the topic of employment trends and growth in developing and emerging market economies. A reference for Peru on the gig economy is Barrantes (2018).

[iii] A notable exception is Cruz-Saco (et. al; 2018).

[iv] For statistical purposes, those underemployed are also counted as "employed" when computing the official unemployment rate produced by INEI.

[v] Most interesting, during the mineral extraction boom under President Odría (in the1950s; documented in Gilbert (2017) and Pastor (2014), for example) unemployment rates across departments were likely not very volatile either, but that happened in a context of very limited reallocation of people across sectors than in recent years (see Chart 5). This low dispersion in sectorial employment growth could be possibly attributed to Peru's enclave-type natural resources economy and/or the relative high price of labor, as documented by Kuramoto y Glave (2014) and Contreras (2009), respectively.

[vi] See Arellano and Burgos (2010) for a pioneering analysis of migrant flows into Lima Metropolitana and their impact on the local economy.

[vii] Referred as "*Ingreso promedio mensual*" in the INEI's Statistical Compendium.

[viii] Since 2001, the economy's average wage level has been around 1.8 times the monthly minimum wage. In 2016, the minimum wage was 850 soles per month.

[ix] Readily available information indicates that, as of 2008-2013, average wages for ground crew mining workers in the mines were about three times the economy's average wage level.

[x] ULCs are defined as the ratio of average wages to labor productivity.

[xi] Chart 17 plots labor force participation under two definitions: (i) the share of working-age population either with a job or looking for a job, and (ii) the share of working-age population with a job (i.e., INEI's definition of *tasa de participación neta*).

[xii] Other indicators, such as, for example, labor participation rates by gender and the turnover rate for those changing jobs (voluntary or involuntarily), could complement the labor market assessment. As noted by Bridgman, Duernecker, and Herrendorf (2018), issues of labor market participation are closely linked to the "marketization" of the hours worked. This means that, as GDP per capita increases, average total hours worked and average household hours per working–age population decrease while average market hours increase. The decrease in household hours is mostly due to changes in housework (cleaning, cooking etc.) and marketization is mostly due to changes in women's hours.

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Peculiarities of Public Administration Development in Ukraine in the Conditions of Democratic Transition: Status and Instruments

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Abstract

The state of democratic transit in Ukraine is considered to be lasting. The paper aims at determining the reasons for the country's delay in this state and the peculiarities of national democratic reforms, which are closely linked to the dynamics of domestic political events and global geopolitical challenges. The methodology of the study, in particular, the retrospective analysis, the systematic approach to assessing the main stages and results of the political process, and the generalization of the experience of democratic reforms, has made it possible to assert that the prospects of Ukraine moving from a state of democratic transition to real democracy directly depend on the quality and scale of the implementation of democratic instruments in the daily life of the society and administrative practices of the authorities. The strategy of strengthening the state's participation in solving complex socio-economic tasks is based on the tasks of association with civil society on the principles of delegation of powers and expansion of the competence of local authorities in the narrowing of the echelons of public administration at the regional level. The peculiarities of the public administration system development and the prolongation of the democratic transit of Ukraine were stipulated by the young democracy, the relative weakness of democratic traditions and political elite, the ineffectiveness of corrupt courts, the manually controlled economy, the political process, which was distorted by the influence of money and destructive forces, superseding rational argumentation by the mercantile compromises with the law. Democratic reforms, which are actively pursued by the Ukrainian authorities in the difficult conditions of the hybrid war, take place in a situation that has changed significantly. Institutional processes are gaining in the systemic character, civil society in Ukraine is developing an experience of interaction with the authorities at all stages of managerial activity. Democratic practices are spreading in Ukrainian society, which defines Ukraine as one of the most potential democratic countries of our time.

Introduction

Recently, the problems of democracy, democratic transition and improvement of democratic institutions in the global political space have gained considerable importance. The colored revolutions in post-Soviet countries clearly show that democratic institutions introduced at the local level, in real life can lead to the emergence of undemocratic practices and call for new research to find ways to prevent the return of authoritarian regimes, not only in the former Soviet Union but also worldwide.

The new era, characterized by the spread of information technologies and globalization leads to the emergence of new actors of the democratic process, change in its content, which requires new "recipes" for further democratization to reach prosperity and harmony in the society.

Even economically developed countries, members of EU with seemingly established democracies can experience certain backslides. Questions of D. Epstein (2006): “Why has mass democracy been durable in many Northern European countries and the USA, and why has it been so hard to

consolidate democratic institutions in countries of Eastern Europe?" – current concern. There have been no reversals in some states, while the recent history of many countries has been marked by oscillations in and out of democracy. For Ukraine, this problem is extremely acute and there a need for a more thorough research of democratic processes, as "partial democracies are an important and growing feature of the political landscape, more volatile than either pure democracies or autocracies'.

Scientists analyzing transformation processes of the late 70-ies of XX century introduced the term "democratic transition". The idea of transition is shared by the majority of authors who explore the Eastern European and former Soviet scenario, such as Brennan J. Buchanan J. (1985), Carothers, Th. (2002), Doorenspleet R., Pellikaan H. (2013), Huntington, Samuel P. (1991),. Sedelius, T., Berglund, S. (2012), Stepanova N. E. (2003), distinguish a number of public administration reforms a country has to go through. Important aspects of public administration reforms in the prolonged democratic transition have been developed by such researchers as Keating M. (1999), Kjellberg, F. (1988), McGarry, J. (2001), Novak-Kalyayeva (2017).

Although a number of countries, including those of Eastern Europe and the former Soviet Union, have been going their unique paths and have accordingly achieved mixed results, the basic approach to the study of the transition process has been a very general scheme: authoritarian regime - a transition - democratic regime, which, obviously, doesn't reflect all the peculiarities pertinent to the process. Ukraine became independent in 1991 and since then has passed a long way of political and socio-economic transformation, but its transition from totalitarianism to Western-style pluralistic democracy has been ambiguous.

The paper aims at revealing the reasons for the prolonged democratic transition of Ukraine and the prospects of reforming public administration for the passage of Ukraine from the transition state to real democracy.

The Prolonged Democratic Transition Of Ukraine: Reasons And Condition Status

In the early 1990s, many were convinced of the unconditional rightness of F. Fukuyama, who predicted "End of History" in connection with the collapse of communist regimes and the global triumph of liberal democracy and market economy. A new wave of democratization had to cover the whole post-soviet Eurasia and in the short term to solve the problem of civilized European expansion.

However, due to different challenges and threats, the former Soviet Union states developed various models of the political system, which can be matched with S.P.Huntington's (1991) methodology of transitology. In 1991 he introduced the term "wave of democratization" - "a group of transitions from nondemocratic to democratic regimes that occur within a specified period of time and that significantly outnumber transitions in the opposite direction during that period of time". S.P.Huntington (1991) concluded that in the modern world there have been three waves of democratization and each wave was followed by a reverse wave, during which a country moved in the undemocratic direction. Thus, the country of "transitional democracy" - is the country that has passed the way from the authoritarian model of state organization to the elements of pluralistic democracy through protests, toppling the regime and change of government.

Ukraine, as one of "transitional" states, has passed through a few distinct periods or phases:

1) 1991-1994 - establishing the state foundation, during which transition to a strong vertical executive branch, enhancing the role of the president with dominating elements of authoritarianism took place;

2) "neopatrimonialism" stage. The consequences of negative trends in the economy were rigid administrative and fiscal control, the establishment of bureaucratic- oligarchic economy and uncontrolled privatization which conditioned the social request for state paternalism. Using the definition of Th. Carothers (2002), in the middle of 1990s the wave of democratization produced

"dominant power systems" in Ukraine, Georgia, Kyrgyzstan.

3) "orange revolution" of 2004, which, instead of the transition to consolidated democracy and ensuring the irreversibility of the democratic process, brought Ukraine to "dysfunctional" democracy and dual power.

4) "dysfunctional" democracy (2005 - 2010), when confrontation down the line President – Government - Parliament became a vicious circle, which led in 2010 to the return to the Constitution of 1996 and strengthening of presidential power. T. Sedelius and S. Berglundwe (2012) wrote: "We consider Ukraine a hybrid regime moving along the continuum between democracy and authoritarianism"…. Since 1991, each Ukrainian government has stated that Ukraine is an integral part of the European family and declared its European choice. However, Ukraine's policy has suffered from inconsistency which can be explained by a huge number of challenges related to post-communist transformation and significant impact on the situation of foreign players - European Union, Russian Federation, the USA.

The countries of democratic transition, by Novak-Kalyayeva (2017), are understood as democratic countries, in particular, post-communist countries of Central and Eastern Europe, which were or still are, like Ukraine, on the way of forming democratic institutions and upgrading in this direction their national administration systems. Ukraine is located at the geopolitical crossroads, hence the dilemma "East-West" constantly reveals itself as a vector of tension in Ukraine history.

The Revolution of Dignity and Democratic Transition Status Quo

Even when all Ukrainian presidents have declared democratic views and life values, in reality, their declarations boiled down to the division of property between their affiliated financial and industrial groups. **The events in** Ukraine at the beginning of the "Euromaidan" seemed to follow the global pattern of mass protests, witnessed in other various countries, such as Egypt, Thailand, Tunisia, Turkey, Brazil, etc. However, Euromaidan had much larger numbers of protesters, acquired a different pattern of mobilisation and lasted longer. It also transformed dramatically from a peaceful demonstration to a fortified protest camp with its own paramilitary defence units. So, why did the Ukrainians from different parts of the country go to Maidan, bravely facing freezing temperatures, intimidation, violence and sniper fire? On December, 2013 protests were no longer just about integration with the EU, but about putting an end to the abuse of power by the state authorities. The overall Maidan agenda was about deep systemic reformation rather than simply a change of leadership. Hence, it was named the "Revolution of Dignity". In contrast to the Orange revolution, Euromaidan was not restricted to the capital but expanded to become a nation-wide phenomenon spreading to the regions. A number of smaller-scale "Maidans" evolved throughout the country with the exception of Donbas region.

Euromaidan has become a social and political phenomenon used to denote bottom-up civil activism and new modes of civil political participation. Euromaidan has caused a number of qualitative changes that led to the emergence of new actors and new patterns of social organization. It was a powerful volunteer movement that revealed an incredible potential and capacity for the organisation on the part of citizens which found expression in the increase in voluntary financial contributions for various civil initiatives. These recent new trends have become a far cry from the previous decades, during which most authors described Ukraine, as a grey zone, land of apathy and low civic participation. For the post-Soviet society with its paternalism, faith in the good king/tsar who will finally bring order was extremely important.

The accomplishments of Maidan also included: the enhanced defence capabilities of the country, the beginning of reforms in different areas, including the defence sector, education, prosecution office, judiciary branch, mass media, etc., renewal of political elites. However, the longevity of the incipient democratic transition was far from assured and many researchers see more betrayals and failures than achievements. These events brought to the surface longstanding tensions and downsides in relations between Kyiv and the regions and provoked the conflict in Eastern Ukraine.

The underlying fundamental cause of the conflict in the regions of Donetsk and Luhansk in the east of Ukraine was the failure to carry out decentralization of power in time. R.Doorenspleet and H.Pellikaan (2013) pointed out that decentralized systems are the best forms of government in heterogeneous countries.

The Ukrainian economy was going through the deep recession which caused the GDP to shrink significantly. The national currency, hryvnia, has devalued considerably, which has taken a toll on consumer purchasing power and social standard of living. The level of corruption, bureaucracy and abuse of power has not decreased, hence respect and trust in government have fallen critically. The violence, proliferation of paramilitary groups and the rise of radical organisations used to enjoy the marginal public support and have gained disproportionate leverage in all sorts of disputes throughout Ukraine and are all sources of grave concern.

Ukraine, as a post-Soviet Republic, inherited a cumbersome and ineffective, sometimes even counter-productive "legacy" from the Soviet Union, which had permeated practically all vital spheres of the society. One more challenge was that even though many Ukrainian laws and regulation were in compliance with democratic principles, in reality, they existed on paper only and many norms didn't work. N. Stepanova (2003) believes that characteristic feature of post-Soviet countries used to be a preferred use of the technology of imitation, borrowing the results or forms of political modernization (when certain principles were declared, but in fact what happened - it was their simulation) [15, p.602]. The excessive romanticization of the revolutionary movement on the part of Ukrainians also contributed to the current difficulties.

Thus, the adaptation of the latest European experience of public administration at the national and local levels has become an imperative for most of the countries of democratic transition, which have actively transformed the remnants of the command and control system of the government towards decentralization of power and strengthening the position of civil society in administrative processes.

The Priorities of the Modernization of Public Administration Systems and Passage of Ukraine from the State Of Transition to Real Democracy

The modernization of public administration systems in the countries of democratic transition causes the formation of new mechanisms for the implementation of power, characterized by transparency, accessibility and involvement of the widest spectrum of citizens in the administration process in order for them to become the most effective.

The stability, efficiency and legitimacy of the government, the quality of state policy, especially its economic and social component at the regional level in accordance with the set strategic goals, are ensured by democratic political institutions of public administration and local self-government which implement state policies on the basis of the rule of law and human rights. Therefore, the progress of the society depends directly on the quality of administrative actions at all levels of government involvement in the development and implementation of policies, which can be effective in responding to a society's demand for qualified and responsible governance. The diversity of organizational and legal forms of public administration is due to a wide range of functions performed by the state and its bodies, their complexity and spatiotemporal extent. Functions, forms, methods and means through which public administration can be done, can change or acquire specific characteristics of their essence, depending on the historical stage of state development and which political regime determines the nature of the state power.

The issue of decentralization of power in Ukraine is closely linked to the level of development of local self-government. The Constitution of Ukraine guarantees the development of local self-government as "the right of a territorial community to independently resolve issues of local importance within the Constitution and laws of Ukraine" (Part 1, Article 140). In the conditions of functioning of local self-government, each territorial group of people has the right to realize their ability to manage autonomously and be the subject of legal relationships.

The principles, forms and objectives of decentralization have been actively developed by many researchers. According to M. Keating and D. Mac-Gerry (2001), the main elements of decentralization are accountability, discretionary powers and security. According to G.Brennan (1985), most options for political decentralization are based on the devolution as a type of administrative decentralization, which implies the transfer of powers, rights, property and local resources from the center to the level of local self-government, regional communities or central government of the lower level within the limits of national legislation. Governments redistribute functions and transfer authority for decision-making, financing and administration to quasi-autonomous units of local self-government, for example, municipalities. **The latter** elect mayors and councils have their own income and the right to make investment decisions. Local self-governing bodies have clear legally recognized geographical boundaries and, within their jurisdiction, carry out public functions.

For Ukraine, it is important to realize that effective implementation of decentralized functions by local authorities and private organizations is possible only if sufficient funding is provided at the expense of funds received locally or transferred from the central government and powers to independently use these funds.

Different types of decentralization have different characteristics, political implications and conditions for successful implementation. A distinction is made between political, administrative, tax and market types of decentralization. The conceptual positions of each of them cover various aspects of the society functioning and condition the need for coordination between them to achieve positive results of decentralization, that is, the need for an integrated approach. Political, administrative, financial, and market decentralization can also be manifested in various forms and combinations, not only at the level of the country or region but also within individual communities.

The choice of the most appropriate form of decentralization depends on many conditions and circumstances. Under favourable conditions, all these forms of decentralization can play an important role in expanding the participation and role of the public in political, economic and social activities. In the best case, decentralization will stimulate the adoption of adequate administrative decisions, which are mainly related to central planning and control of important economic and social measures. Decentralization reduces complex bureaucratic procedures, increases the effectiveness of government officials' actions in relation to local conditions and needs. In addition, decentralization can increase the ability of ministries to influence the quality of administrative services at the regional and local levels; to provide greater political support for political, ethnic, religious and cultural groups in the decision-making process; to focus on the qualitative performance of its main political functions: coordination of national, regional, and local programs with the effective participation of local residents in decision-making on their creation and implementation. Innovative, creative, flexible programs in the status of local "experiments" can provide stability and national unity, allowing citizens to immediately monitor the implementation of state programs at the local level.

Decentralization, by Bailey, S. J. (1999), is not a panacea, because it also has potential disadvantages. Decentralization may not always be effective, especially for typical, standardized, network services. In the conditions of scant funding from the central government, weak administrative or technical capacity at the local level, it can lead to a loss of scale and control of administration actions, a decrease in coverage and quality, and loss of efficiency in selected areas of the country. So, as V. Zahorskyi (2017) defines, we are talking about the need to create or maintain favourable conditions for local administrations, self-governing structures and non-governmental organizations to assume more responsibility.

Decentralization is a fairly wide range of methods used in the transfer of authority, responsibility, accountability and decision-making power in the area of responsibility from the central to the lower administrative levels. It can be regarded as a transfer of power implemented through various forms or combinations thereof, depending on the circumstances and objectives of the process, under conditions where the central government has the advantage of retaining certain real instruments for controlling regional authorities. The central Government plays a key role in promoting and supporting decentralization by strengthening local organizational capacity - the ability of local elites to take

responsibility for implementing new functions. The success largely depends on the readiness of central and local authorities to function in a decentralized administration system. Local authorities, private enterprises and non-governmental organizations need technical assistance in the implementation of decentralized planning, financing and administration functions.

In general, the peculiarities of the public administration system development and the prolongation of the democratic transit of Ukraine are determined by the problems, in particular, regarding the reform of the strategic principles of the public administration: the lack of strong political leadership and the lack of coordination of the reform of public administration at the political level; insufficient capability of public authorities to conduct comprehensive reform of the public administration system; insufficient capability of the public administration system to strategic planning, in particular, at the horizontal non-hierarchical level;

Regarding the formation and coordination of the public/state policy - that is the following: improving the quality of state policy in various spheres, the adequacy of the legislative and regulatory framework that can provide institutional stability of government structures: the development of legislative acts on the basis of a thorough analysis, with the participation of the public, as well as the integrity and consistency of actions and Government decisions; the weakness of the medium-term budget planning system associated with strategic planning; concerning the civil service and human resources management: the lack of senior management and other positions in the civil service of highly skilled personnel, which determine the quality of development and ensure the implementation of national reforms in the context of modern challenges; high level of corruption in the civil service system, which constitutes an obstacle to the efficiency and effectiveness of public administration; gender imbalance;

Concerning the accountability of central executive bodies - absence of horizontal and vertical functional review in the system of public administration; the uncertainty of the mission (the main objective, for which the central executive body is established), the unclear definition of the areas of responsibility and tasks of the ministries and other central executive bodies; partial duplication of powers; ineffective organization of central executive bodies, activities of which are not directed or coordinated by the relevant ministers;

Regarding the provision of administrative services - the lack of orderly basic principles and guarantees of the protection of the rights of citizens and legal entities under the administrative procedure (lack of a law on administrative procedures); the necessity for further development of administrative service centers; excessive administrative burden on citizens and legal entities; low quality of work of basic electronic registers; the absence of an acceptable technical solution to ensure the interoperability of systems of public authorities, improper quality of electronic services for citizens and legal entities.

Despite all these problems, political commitment to reforming and leadership are recognized in Ukrainian society and government as crucial for the successful planning and implementation of public administration reform. The reform is cross-sectoral and is carried out in a holistic and coherent way, which cannot be achieved without strong government and public support. In this context, decentralization of power is a key tool.

For holding effective reforms in Ukraine, peace must be achieved in the south-eastern regions, the demilitarization of the occupied territories, the restoration of national borders and the transition to peacebuilding on the basis of democracy, the rule of law and respect for human rights. The implementation of the necessary measures to ensure a positive scenario for the development of events for Ukraine is a political process characterized by deep interconnectedness and interdependence of the prospects for the peaceful democratic development of Ukraine and the stability and security of the European countries, in particular, the Eastern part of Europe. The fate of Ukraine's democratic reforms on this background has rather ambiguous prospects, although reforms continue despite all the obstacles. The cornerstone of these reforms should be the observance of human rights, which, in the conditions of reformatting the political system and financial problems, requires titanic efforts of the state and the whole of Ukrainian society.

Priority directions of reforming the system of public administration in Ukraine, in which human rights take a fundamental position in political and institutional processes, will lead to human rights protection in the functioning of democratic social institutions, with the significant participation of the public in the development of state policies; providing administrative services on the basis of unconditional respect for human rights; ensuring the rule of law through legal reforms and raising public awareness of the national and international legal framework, creating the real potential of institutional reforms; combating corruption through the creation of formal and informal institutions and mechanisms for the exchange of information and monitoring of the use of public funds.

Conclusions

Particular features of the development of Ukrainian society and power during the last 5 years were, in particular, young democracy, relative weakness of democratic traditions and political elite, ineffective corrupt courts, manually driven economy, which aggravated the temptation of authoritarian practice of power, corruption and fraud, the political process distorted as a result of the influence of money and destructive forces that superseded rational argument by the mercantile compromises with the law. All these aspects greatly complicated the conditions for democratic reforms, reduced their chance for success, and, in general, determined the negative civilizational prospects of our country and conditioned the prolongation of the democratic transit of Ukraine.

The democratic reforms actively pursued by the modern Ukrainian authorities in the difficult conditions of the hybrid war aimed at building a democratic society based on the rule of law, equality before the law, and the observance and guarantee of human rights, are in a situation that has changed significantly. Institutional and other processes become systematic, civil society in Ukraine develops experience in interacting with authorities at all stages of managerial activity. Democratic practices are spreading in Ukrainian society, which defines Ukraine as one of the most potential European countries.

Two aspects of the reforms are also important for Ukraine: it is necessary to form the conceptual foundations of the state policy of decentralization, rather clearly defining not only the general purpose but also those tools that can ensure its implementation. Government programs must have a scientific basis and effective mechanisms for implementation with clear priorities for the society, both at the strategic and tactical levels. There is a certain algorithm, a certain sequence of government steps that eliminates the chaos of power impulsiveness. According to this algorithm, according to any scientifically grounded management concepts, the first ones to be implemented are those that will be aimed at increasing the welfare of the population.

Modernization may be Ukraine's best chance to reform its institutions and create stronger ties with the West since gaining independence. The people of Ukraine have finally stated their rights and declared their will to be governed in a democratic way, thus re-launching the democratic processes. The geopolitical location of Ukraine, the size of its territory and population, points to the fact that Ukraine is a major actor and of great significance to Euro-Atlantic security and prosperity.

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Attitudes of South Bohemian Employers to Hiring Roman People

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Abstract

The objective of our research was to analyze the attitudes of employers in the South Bohemian Region to hiring Romani, the willingness to hire members of this minority, and potential reasons why they are rejected on the labor market. The research was conducted in the form of an on-line questionnaire survey and it was distributed via e-mail. Managers of South Bohemian companies from various branches were targeted and constitute the research set. We had sent out 130 questionnaires and received 27 answers. The data was processed via descriptive statistics and statistic testing of correlations. 37% stated that as of right now they employ Romani; in all cases they constituted 5% of their employees. Reasons why companies do not employ Romani touched on several issues. The main reason was perceived as the unwillingness of Romani workers to be employed in the company (59% answered that it is a very common reason) or be legally employed in general (37%), insufficient education (59%), and wrong qualifications (37%). On the other hand, employers do not think explicitly that they would prefer non-Romani employees or that Romani would not fit into the team. The working characteristics of Romani, such as being on time, being reliable, or communicating, were also not rated negatively. Companies would primarily hire Romani based on good qualifications (70%) and good references (56%). On the other hand the offered system benefits, such as tax advantages, were not perceived positively.
Experiences with Romani employees were rated as slightly negative, primarily when it came to work attendance, performance, and behavior. The semantic differential aimed at evaluating the characteristics of Romani also presented a majority of slightly negative evaluations when it came to reliability, diligence, activity, education, and character. A surprising finding was that Romani were not attributed to misusing the system since this stereotype can often be found in the general public discourse in the Czech Republic. Statistical analyses uncovered a significant relationship between experience with hiring Romani and some characteristics, as well as between the experience items.

Keywords: Unemployment, Romani minority, Attitudes

Introduction

Currently, the unemployment rate in the Czech Republic is the lowest in 20 years. Many companies however struggle with a lack of employees. In the contrast to this situation, the largest ethno-national group in the Czech Republic, the Romani people, has continuously a high rate of unemployment and is untouched by the general changes on the labor market. While the nation-wide unemployment rate last year was around 3.9-3%, the unemployment rate in the Romani communities, which are often socially excluded, has been 70-85% since 2006 (GAC, 2006; Čada, 2015). According to available literature, Romani unemployment is connected to low levels of education and qualifications, discrimination, segregation, as well as a high rate of seizures that demotivate individuals to seek employment on the legal labor market and are in connection with alternative sources of livelihood. The objective of our research was to analyze the attitudes of employers in the South Bohemian Region to hiring Romani, the willingness to hire members of this minority, and potential reasons why they are rejected on the labor market.

Theoretical Basis

The Romani are the largest national-ethnic minority in the Czech Republic – with estimated 250,000-300,000 persons (Hlaváček, 2014). The Romani have been long-term facing marginalization and segregation, resulting in the Romani being concentrated in socially excluded locations. In these locations, different pathological behavior and social problems cumulate (Toušek, 2007).

Although social policy understands the fight against social exclusion from the open labor market (Čada, 2015) as one of its main pillars, many authors point out that Romani have a limited access to financial resources and mechanisms that distribute these resources (Mareš, 1999) against the backdrop of limited access of excluded persons to the labor market and subsequent unemployment, dependency on social welfare, and grey economy participation and other alternative livelihood sources (Steiner, 2004). Romani who enter the illegal market, often pursue short-term and seasonal work in construction (Davidová et al., 2010). Due to the character of the offered jobs in professions that do not require qualifications, Romani men are more easily employed than Romani women (Kajanová et al., 2015).

There are many reasons for Romani unemployment, one of the most important one is massive indebtedness (Gojová et al., 2008), primarily to companies providing loans at high interest rates (Davidová et al., 2010). Seizures act as demotivational factors of participating in the legal labor market because they deduct parts of the owed amount from wages and the amount that the debtor can keep is the same as the amount he/she would receive from social welfare (Moravec, 2006). Other factors influencing unemployment are low levels of education and qualification – most Romani only have primary education (Nekorjak, Souralová, Vomastková, 2011). Another problem is low motivation of the young Romani people to enter the labor market because their parents do not work and therefore they lack working habits. Unemployment is closely connected to other described factors, such as low level of education. Finally, we must also mention discrimination when applying for jobs. A typical example is calling to ask about a free position and then when visiting for a personal visit the position is suddenly full (Kajanová, 2017). Although Romani people have been living there for hundreds of years, they are the least tolerated minority in the Czech Republic with the most prejudices from the public (Červenka, 2015).

Methodology

The research was conducted via an online questionnaire survey via e-mail. The questionnaire included closed questions with answers mapping the experiences of employing Romani, and semantic differential questions measuring the attitudes towards hiring Romani.

The research sample consisted of managers of South Bohemian enterprises from various branches. 27 of the sent out 130 questionnaires were answered and sent back. Despite our attempts to raise the response rate by resending the questionnaire, we were unable to raise the number of respondents. Gathered data was processes via descriptive statistics and statistical testing using correlations in the SPSS program with the significance level of 95 % that is typical for social sciences.

Results

The results have shown that 37 % of the responding enterprises hire Romani. In all cases, Romani made up 5 % or less of all employees.

Why Do Enterprises Not Have Romani Employees?

In the cases of enterprises without Romani employees, we asked why they do not employ Romani. The answers included several areas (respondents could select more of them). The main reasons according to the respondents were the lack of working habits (66.7 %) and the unwillingness of Romani employees to participate in the enterprise (59 %) or to be legally employed (37 %). The same number of respondents (59 %) also stated insufficient education as a reason and the connected lack of qualifications (37 %). 55.6 % state that they would like to hire Romani but they do not fulfil the requirements for the positions.

The question if enterprises preferred non-Romani employees resulted in very contrasting answers – 51 % of the respondents stated that this reason is not at all applicable for their enterprise, while 37 % stated that it is one of the main reasons why they do not hire Romani. A similar contrast was also observed for the question if there are barriers for Romani to work with others – 37 % respondents thought that Romani employees would not fit in the team, 40.7 % clearly denied this statement, and 44.4 % claimed that communication is a strength of Romani employees.

Work Attributes and Experiences with Romani Employees

44.4 % of employers think that Romani are unreliable when it comes to work duties, 37 % think that they do not deliver quality work. Results of the processed semantic differential show that enterprises assess Romani attributes as rather negative. The most negatively perceived attributes are education (a 3.9 mean on a five-point scale), character (3.8), and reliability (3.9). A surprising result is that Romani were not perceived as misusing the system since this stereotype often surfaces in Czech public discourse. It was the most positively assessed "attribute" with a mean of 2.6.

Statistical analyses show a significant relation between experience with hiring Romani and some attributes but also between the experiences themselves. Work attendance and work performance correlated with p= 0.000; r= 0.999. Work attendance and work behavior with p= 0.000; r=0.769, and work performance with work behavior with p= 0.000; r= 0.912.

The following Table 1 shows the results that express the attitudes of the employers towards the Roma minority. Respondents - companies, which evaluated properties according to the Likert scale 1 -5, where 1 means: best, positive rating, 5 means: worst, negative rating.

Table 1: Attitudes of employers to the Roma minority

Scale	**1** best, positive rating		**2**		**3**		**4**		**5** worst, negative rating.	
Item	**Q**	**[%]**	**Q**	**[%]**	**Q**	**[%]**	**Q**	**[%]**	**Q**	**[%]**
active - passive	2	7,40	1	3,70	13	48,10	7	25,90	4	14,80
hardworking - lazy	1	3,70	0	0	14	51,90	7	25,90	5	18,50
reliable - unreliable	0	0	2	7,40	8	29,60	12	44,40	5	18,50
abusive system	9	33,30	4	14,80	7	25,90	4	14,80	3	11,10
educated-uneducated	0	0	1	3,70	6	22,20	11	40,70	9	33,30
person with a character - person without a character	0	0	1	3,70	11	40,70	8	29,60	7	25,90

Source: own survey

Potential of hiring Romani

Enterprises would hire Romani primarily based on good qualifications (70 %) and good work references (56 %). On the other hand, the offered potential option of system benefits, such as tax advantages were not seen as positive. Only 14.8 % of employers stated that this would motivate them.

72.7 % stated that they would not hire a Romani person even if they were not able to fill the position with a non-Romani person.

Discussion

Various studies in the field of attitudes of employers towards hiring Romani offer different and comparable results, including results in connection with analyzing attributes and relation to work duties of Romani people. While our study showed that the main reason is the absence of working habits and insufficient education of Romani people, the study by Černušáková (2017) points out that Romani in the Czech Republic (as well as in other European countries) are not interested in working and have a rather passive attitude towards word. Our results of the semantic differential discovered that companies assessed Romani to be rather lazy and not hardworking. Our study showed that this attribute was the worst evaluated attribute. Another negative attribute that our results confirmed is reliability. The authors Kertesi and Kézdi (2011) provided a survey that corroborated the connection between education and employment of Romani. In comparison to our study, their results pointed out that the main reasons for Romani unemployment are low levels of education and qualification. The study by Swietek (2013) provides results similar to ours and states that a significant reason but also key to solving the problem the Romani face is their education. All of these authors agree that the main factor that causes the unfavorable situation on the labor market according to employers is low education.

In our study, we also researched the experiences of employers with Romani employees in the areas of: work attendance, work performance, work behavior. Our findings were that employers have a rather neutral attitude. They evaluated their attitudes on a five-level scale; the level three was the most common. The issue of Romani behavior was also addressed by Šajgalíková, Copuš (2017) who provided results from researching the behavior of Romani students at selected schools and provide models of Romani behavior.

Our results from this study show that employers would hire Romani primarily based on their qualifications and good working references, although the majority of the questioned enterprises stated that they would not hire Romani even if they were unable to find a non-Romani employee for the position.

Conclusion

In this paper, we introduced the pilot study focusing on the topic of employment of the Romani minority from the untraditional perspective of the employers. The questioned employers assessed Romani based on an fundamental attribute error, in which they overvalued internal (that mean personal) factors but also based on their own negative experiences. However, we see as positive the lack of certain prejudices that are often present in society and that could influence the process of deciding whether to hire a Romani employee or not.

Despite all, we must conclude that the willingness of employers to hire Romani is not very high. Our research sample was too small, which is why we were not able to test specific work branches on their attitudes and willingness to hire Romani. This topic would be very interesting for further research. We also plan to extend the data by a qualitative angle that would allow to better analyze the motives of employers.

The employers see the low level of education as one of the biggest problems of Romani communities, an issue that predestines Romani for unqualified jobs such as construction assistance and digging activities, cleaning, assembling, etc. Another problem is the lack of work experience, which raises concerns about the potential employee's work habits. Employers also take into consideration the needs of their teams and fear that hiring a Romani person would not be accepted positively and that the Romani person might not fit in. These are the reasons why Romani are more often hired by companies with Romani owners or companies with the majority of Romani employees. Some companies are not willing to hire Romani under any circumstances, even if it meant tax or other reliefs and even if there were unable to fill the position with a non-Romani person. The main message of our results is that there is willingness to hire Romani if they have needed qualifications and work experience. These two requirements need to the fundaments of employment policy tools in general.

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Land Transport and Logistics Industry Innovation Activities in the Czech Republic between 2008 And 2014

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Abstract

This paper is aimed at land transport, logistics industry, and logistic innovation activities of enterprises in the Czech Republic between 2008 and 2014. The goal is to find and interpret possible determinants of logistics innovations and explain innovation activities of enterprises in the land transport and logistics industries in comparison to other industries. Czech Republic and thereby its economy are in the center of the European Union and thanks to its lower personnel and rental costs (in comparison to its neighbors Germany or Austria) remains a strategic choice of multinational enterprises. This paper uses standard econometrics modeling and deals with high endogeneity and selection bias issues given by the nature of limited data availability. The data from the Czech statistical office is mainly from the manufacturing, trade and service industries. The full sample of innovators and non-innovators consists of 22,232 observations of (10+ employees) enterprises from four Community innovation surveys (2008, 2010, 2012, and 2014). There are 7,087 observations about innovators, of which 58 % are new-to-the-market innovators, regardless of the type of innovation. Results suggest that there is a negative relationship between the decision to innovate and the land transport or logistics industry. Logistics innovation was a contributing factor across the industries in terms of higher sales of new-to-the-market goods and services per employee in the period 2008-2014. Land transport and urban transport industries are oriented at adaptation and new-to-the-market innovation activities and are predominant in this sector.

Keywords: transport, innovation, research, development, city, logistics.

Introduction

This paper focuses on the land transport and logistics industries and logistic innovations in the Czech Republic between 2008 and 2014, i.e. including the economic crisis of 2008. The aim of this paper is to analyze the benefit of logistics innovations for research and development activities of enterprises and its possible determinants, as well as to explain innovation activities of enterprises in the logistics industry. Logistics innovation is still a relatively new topic and authors are trying to develop a useful framework for empirical testing. This topic has received more attention in the academic literature after the economic crisis of 2008 (Grawe 2009), (Grawe, Chen and Daugherty 2009). The field of logistics innovation is not easy to analyze. Enterprises will more likely report a process innovation instead of logistics innovation in the questionnaire. For example, Hellström and Nilsson (2011) deal with the topic of logistics - driven packaging innovation in retail supply chains (IKEA Enterprise) which can be understood as the topic of marketing innovation rather than logistics innovation. Logistics innovations usually go hand in hand with other types of innovations. For example, the need for logistics innovation triggers organizational and process innovation activities, which are also oriented at total quality management methods (Lee, Lee and Schniederjans 2011).

Current literature deals with business processes of reverse logistics. Logistics innovations activities are focused on these processes and sometimes it is hard to distinguish the type of innovation activity. The size of the enterprise matters in the reverse logistics literature, as well as in the resource commitment approach (Richey, Genchev and Daugherty 2005). There are strong moderators of reverse logistics innovation. Clients (customers), government (regulations, standards etc.), and

competitors are key factors of reverse logistics innovations and have a strong impact on environmental and economic performance of enterprises (Huang and Yang 2014). These key factors are studied in detail - for example the behavior of boundary-spanning employees (BSEs) is a key link between customers and enterprises. BSEs provide contact with clients and their ability to capture feedback and transform the data to information and knowledge is crucial in enterprises that lack or cannot use direct or artificial intelligence-based automated business for customer information services and processes (Pedrosa, Blazevic and Jasmand 2015).

The land transport industry and urban transport industry deal with smart cities of the future and subsequent innovation activities that depend on the financial health of cities and their investment capabilities (Batty et al. 2012). There are studies dealing with benefits of "bus rapid transit" related innovation activities (Sengers and Raven 2015). This industry is characterized by a continuous innovation strategy (especially in urban areas); rapid changes are not easy to implement, and compromises are implemented (Ma, Jin and Lei 2014). Public policies shape urban transportation and logistics innovation activities. There are many approaches and we can expect more electrification and ecological approaches to ensure healthier urban space (Marletto 2014).

The logistics industry is based on cooperation and external partnerships (Soosay, Hyland and Ferrer 2008). Information, ideas and suggestions about possible innovation activities come from both customers and suppliers. However, logistics innovation activities are more likely to be just new-to-the-firm innovations. It means that certain logistics innovation has been already on the relevant market but newly adopted by an enterprise in terms of using the same standard, method, technique, information system, or communication technologies. Due to this path dependence, there are going to be less new-to-the-market logistics innovations, which are more radical. It does not mean that enterprises will not be new-to-the-market innovators in other types of innovation, such as product or marketing innovations.

The logistics industry in terms of logistics service providers (LSPs) is a great source of material, waste, and energy cost reducing process innovations that can be adopted by cooperating and contractual enterprises. For example, Rossi et al. (2013) analyzed the positive link between eco-efficiency and subsequent learning capabilities; however, there are inhibitors of major innovation projects and other hampering factors. The process of cooperation and negotiation in logistics is not always easy. There are naturally conflicts and legal disputes (returns of goods, claims, damaged goods, etc.) that can harm the relationship and slow the innovation activities of enterprises. The ability of internal stakeholders to manage the relationship with external parties is crucial to logistics innovation activities (Su Shong, Gammelgaard and Yang Su 2011).

This paper follows the work of Daugherty, Chen and Ferrin (2011) and Daugherty (2011) and strives to enrich the logistics innovation literature, as well as to find a link between logistics service innovation capability and market performance. The research about logistics service providers and land transport enterprises is limited as well Busse and Wallenburg (2011), but in this paper we study all the enterprises across the industries to discover more about logistics innovation, which will be analyzed as one of the control variables.

Materials and Methods

The sample consists of Czech enterprises mainly from the manufacturing, trade and service industries. The full sample of innovators and non-innovators has 22,232 observations about enterprises from four innovation surveys (2008, 2010, 2012, and 2014). There are 7,087 observations about innovators, of which 58 % are new-to-the-market innovators in all kind of types of innovations. Almost one third of observations focuses on multinational enterprises. The Czech economy is manufacturing industry oriented and product innovation seems on average the prevailing type, but the standard deviation in all three analyzed types of innovations (logistics, product, and process) is quite high. This higher volatility indicates that there are various determinants of innovation activities.

Table 1: Summary statistics of innovation survey waves of 2008, 2010, 2012, and 2014.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Logistic innovation	22232	0.13	0.33	0	1
Product innovation	22232	0.25	0.43	0	1
Processinnovation	22232	0.15	0.36	0	1
New to the market	7087	0.58	0.49	0	1
New to the firm	7087	0.76	0.43	0	1
R&D Expenditures	9169	3.31E+04	2.80E+05	0	1.51E+07
Cooperation	9715	0.44	0.50	0	1
Sales	22232	9.37E+05	6.60E+06	2	3.62E+08
Employees	22232	193.37	799.33	10	36332
Foreign ownership	22232	0.31	0.46	0	1

Source: Calculations based on data from Czech Statistical Office (2017)

The full sample of innovators and non-innovators has more than 20 thousand observations about enterprises from four Czech innovation surveys (2008, 2010, 2012 and 2014). There are 3,875 observations about new-to-the-market innovators that make up 58 % of all the observations about innovators and 18.5 % of all the observation about enterprises. Almost one third of observations are about multinational enterprises. It seems that enterprises are on average product innovators, but the standard deviation in all three types of innovation is quite high. This volatility indicates that there are various determinants of innovation activities. This sample does not contain micro enterprises with 9 or less employees. The dynamic component of micro enterprises is not present in the analysis. The results will deal with the behavior of small (10 or more employees), medium-sized, and large enterprises.

The estimation method is based on Castellacci (2009) and Crepon, Duguet and Mairesse (1998). The first step is a Heckman procedure, i.e. we selected only innovators for the second step and we must account for selection bias. Mill's ratio (non-selection hazard variable) is used in subsequent steps to correct this bias. The determinants of product, process, and logistic innovation are analyzed in the second step. The innovation appropriability condition (ability to capture profits of innovated products and services) is analyzed in the third step. Due to the data availability (lack of instruments), most of the coefficients will be biased. The endogeneity is quite problematic in the model (Table 2). Therefore, the coefficients will be interpreted very cautiously. There is also attenuation bias, due to the omitted variables that are not reported by enterprises, for example, variables that define their innovation potential, risk appetite, and innovation project capabilities.

Table 1: The CDM and model as a recursive system of four econometric equations

Heckman procedure	$r_{it}^{*}\begin{cases}1\ if\ r_{it}=\left(X_{1it}\beta_1+\rho_i+\varepsilon_{it_1}\right)>0\\ 0\ otherwise\ \ (r_{it}\le 0)\end{cases}$
Innovation decision and intensity	$k_{it}^{*}=\ln(k_{it})\,\vert(r_{it}>0)=X_{2it}\beta_2+\rho_i+\varepsilon_{it_2}\ with\ Df(k_{it})=(0,\infty)$
Logistics innovation	$LI_{it}^{*}\begin{cases}1\ if\ LI_{it}=\left(X_{3it}\beta_3+\rho_i+\varepsilon_{it_3}\right)>0\\ 0\ otherwise\ \ (ppl_{it}\le 0)\end{cases}$
Appropriability	$t_{it}^{*}=\ln(t_{it})\vert(k_{it}>0)=X_{4it}\beta_4+\rho_i+\alpha k_{it}^{*}+\varepsilon_{it_4}\ with\ Df(t_{it})=(0,\infty)$

The term $Xn_{it}\beta_n$'s (with n = 1, 2, 3, and 4) expresses vectors of explanatory variables; ε_{itn}'s (with n = 1, 2, 3, and 4) are random-error terms which can be estimated with fixed effects ρ_i. The error terms are assumed to be independent of the exogenous variables, but there is a bias from omitted variables and the endogeneity. In the Heckmann procedure, the error term is estimated as a system (Heckman 1976). The vector of parameters to be estimated is denoted by β_n (with n = 1, 2, 3, and 4) and the single parameters to be estimated are α in the last equation (innovation input-output elasticity). The first equation (r_{it}^*) accounts for selection into R&D activities, and it deals with the probability of an enterprise *i* to engage in R&D new-to-the-market activities in a year *t*. This is specified as a panel Probit model, i.e. $P(r_{it}^*>0) = \Phi(X_{1it}\beta_1)$, where r_{it}^* equals1 if enterprise *i* is an innovator. The second linear equation (k_i^*) describes innovation input (the log of internal and external R&D expenditures to the number of employees in an enterprise *i*). In all the equations, there is a number of potential determinants ($Xn_{it}\beta_n$'s), such as an enterprise's size, foreign ownership (a multinational firm), being part of a group of enterprises, cooperation, etc. Some of them are used uniquely to identify each equation in a simultaneous estimation (i.e. hampering factors).

The second step (LI_{it}^*) deals with the probability of an enterprise *i* to engage in logistics innovation in a year *t*. This is specified as a panel Probit model, i.e. $P(LI_{it}^*>0) = \Phi(X_{1it}\beta_1)$, where LI_{it}^* equals1 if enterprise *i* is a product, process, and logistic innovator respectively. The fourth equation (t_{it}^*) models the innovation log of sales of goods and services to the number of employees. Here the aim is at the input-output elasticity (α) and other explanatory variables ($Xn_{it}\beta_n$s) describing the behavior and market determinants of process innovators. The fourth linear equation usually describes labor productivity, but due to the Czech Statistical Office data restrictions, it is not employed.

Results

The decision to introduce a new-to-the-market innovation in the sample of enterprises with 10 or more employees depends on the size of the enterprise, market orientation, certain year to year fluctuations (Table 3) and some hampering factors (Table 4). The survey is being conducted every two years, the questionnaire is aimed at the innovation activities of enterprises that they did in the last three years from the survey year.

Larger enterprises are more likely to introduce new-to-the-market innovations every two or three years. Their innovation portfolio is larger and secures a continuous innovation process in the organization. Smaller and medium-sized enterprises (10-249) have on average lower probability to innovate. The estimated equation checks for hampering factors. Lower probability to introduce new-to the-market innovation of small and medium-sized enterprises (10-249) can be only explained by their different strategic behavior, and orientation to new-to-the-firm innovation activities. Small enterprises (less than 10 employees) are not in the sample, their variability and volatility is essential for market and technological change. Their evolutionary importance is rooted in the economic theory.

Market orientation plays a dominant role. Further market orientation contributes to higher probability of new-to-the-market innovation. The year-to-year fluctuations are between 2012 and 2014. In comparison to the crisis year 2008, there was an ascending trend which ended in 2014 with a general decrease of new-to-the-market innovation activities. Land transport industry and logistics industry have significantly lower probability of introducing new-to-the-market innovations. Both industries are very competitive, and the strategical behavior is expected. Innovation activities are mostly new-to-the-firm (83 % vs. 32 % in logistics industry and 80 % vs. 37 % in land transport industry) and oriented at processes to reduce costs.

Table 3: Decision to innovate and innovation intensity, Czech economy 2008-2014

Czech Innovation Survey (2008, 2010, 2012, 2014)	**(1a)**	**(2)**
	New-to-the-market innovator (0/1)	**Total R&D expenditures per employee (ln)**
Number of employees (ln)	0.251***	-0.184
	(0.02)	(0.23)
Being part of a group	0.316***	-0.043
	(0.04)	(0.19)
Foreign ownership	-0.140	0.450*
	(0.05)	(0.24)
Logistic industry (NACE 52)	-1.101***	
	(0.15)	
Land transport (NACE 491-494)	-1.342***	
	(0.15)	
Market orientation - National	0.667***	
	(0.08)	
Market orientation – Europe	0.672***	
	(0.09)	
Market orientation - World	1.026***	
	(0.16)	
Year 2010	0.062	-0.025
	(0.07)	(0.11)
Year 2012	0.408***	0.220*
	(0.10)	(0.12)
Year 2014	-0.609***	0.267**
	(0.14)	(0.12)
Product innovation		-0.132
		(0.26)
Service innovation		-0.172
		(0.12)
Logistic innovation		0.306***
		(0.12)
Cooperation – within group		0.513***
		(0.19)
Cooperation - Other partners		All are not significant
Constant	-3.483***	4.890***
	(0.23)	(1.21)
Panel-level variance component	0.159*	
	(0.09)	
Non-selection hazard		-0.589***
		(0.21)
Observations	21951	3875
Adjusted within R^2		0.032

*Robust (Bootstrapped) standard errors in parentheses, * p< 0.10, ** p< 0.05, *** p< 0.01,*

The R&D intensity equation (model 2, Table 3) explains the amount of total R&D expenditures per employee. On average, we can observe very low "within variation" in the enterprises. Better insight would be provided by using random effects estimation. But the Sargan-Hansen test rejected the null hypothesis of unbiasedness of the random effect model. There are only few variables with the

significance level at 5 % and lower. The innovation intensity is not dependent on the characteristics of an enterprise such as size, foreign ownership, and introduction of product and service innovations. On average, enterprises had spent a similar amount of resources on R&D expenditures throughout the years 2008-2012 but spent a higher amount in 2014.

Table 4: Decision to innovate – continuation - hampering factors, Czech economy 2008-2014

Czech Innovation Survey (2008, 2010, 2012, 2014) Hampering factors of innovation activities	(1b) New-to-the-market innovator (0/1)
Insufficient finances	0.236**
	(0.10)
Innovation was not required	-0.555***
	(0.08)
Prior innovations	0.259***
	(0.08)
Uncertain demand for innovations	0.077
	(0.10)
Market is dominated by incumbents	0.251***
	(0.08)
Lack of cooperation partners	-0.162*
	(0.09)
Lack of information about markets	0.810***
	(0.09)
Lack of qualified personnel	0.251***
	(0.09)
Lack of credit (external sources)	0.008
	(0.11)

*Robust (Bootstrapped) standard errors in parentheses, * p< 0.10, ** p< 0.05, *** p< 0.01*

There are hampering factors of innovation activities (Tab. 4). The most common reasons not to innovate were the fact that it was not required or demanded and the lack of cooperation partners. Enterprises that recognized the importance of skilled labor force and the need of information about markets had higher probability to engage in new-to-the-market innovation activities. Lack of finances or credit was not a factor of lower probability of innovation activities, and neither was the fact that the enterprises had prior innovations.

Table 5: Logistic innovation determinants and appropriability condition

	(4)	(5)
	Logistic innovation (0/1)	Sales of new-to-the-market goods and services per employee (ln)
Number of employees (ln)		-0.441***
		(0.15)
Logistic industry (NACE 52)	0.967	
	(1.26)	
Land transport (NACE 491-494)	0.154	
	(0.84)	
Market orientation - National	-0.297	
	(0.29)	
Market orientation – Europe	-0.273	

	(0.31)	
Market orientation - World	-0.541	
	(0.42)	
Foreign ownership	0.270	-0.261*
	(0.15)	(0.15)
Year 2010	-0.373*	-0.143**
	(0.15)	(0.06)
Year 2012	-0.327	-0.087
	(0.18)	(0.07)
Year 2014	-0.487***	-0.044
	(0.17)	(0.08)
Product innovation		0.143
		(0.17)
Service innovation		-0.009
		(0.08)
Logistic innovation		0.160**
		(0.07)
Non-selection hazard	-0.717**	0.011
	(0.27)	(0.14)
Total R&D exp. per empl.(ln)	0.062	-0.016
	(0.04)	(0.02)
Constant	0.587	7.656***
	(0.64)	(0.76)
Panel-level variance component	-0.262	
	(0.21)	
Observations	3875	3871
Adjusted within R^2		0.022

*Robust (Bootstrapped) standard errors in parentheses, * p< 0.10, ** p< 0.05, *** p< 0.01*

The last analysis showed that the land transport industry and even the logistics industry are not introducing new to the market logistics innovations (Model 4, Table 5). This type of activity is, according to our results, very heterogeneous and depends on other factors than market orientation, the amount of R&D expenditures or foreign ownership. Model 5 (Table 5) was aimed at the ability of an enterprise to appropriate sales from innovated goods and services. Again, we could not use random effects model because the null hypotheses of unbiasedness of random effects model was rejected by Sargant Hansen test. That is why there is no industry dummy for land transport or logistics industry. On average, smaller enterprises were more successful, also domestic enterprises and enterprises which engaged in logistics innovation.

Conclusion

Land and urban transport industries are aimed at new-to-the enterprise innovations, which are lower level types of innovation. Only a fraction of land and urban transportation enterprises engage in new-to-the market innovations. Enterprises from other sectors engage more frequently in new to the market innovation activities. In general, logistics innovations contributed to higher R&D expenditures and higher sales from innovated goods and services. Other models were unable to capture the effects of land transport and logistics enterprises due to the heterogeneous nature of such enterprises. There are no "between effects" and enterprises inside the logistics and land transport industries in terms of innovation output and innovation input. Our results support recent results in the literature. Enterprises in the land transport industry seem to rely on an adaptation strategy. They are also not enterprises with distinctive approach to logistics innovations. They are more likely to engage in incremental innovation strategies (new-to-the-firm innovations). It is because their services depend on the quality of infrastructure and public policy decisions about smart city concepts. There is only a

limited space for radical and new to the market innovations because such investments in new technologies are too risky given the uncertain nature of public and urban planning policies.

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Tourism Development and Economic Growth In Eastern European Economies

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Abstract

The main objective of this study is to investigate the causal relationship between tourism infrastructure, economic growth and tourism development in the Eastern European countries in a multivariate model, using the data for the period 2005-2016. The chosen research model is based on the multivariate comparative analysis of influence factors evolution, using data for the chosen period. The study uses the regression method to assess the contribution of tourism to the economic growth in Eastern European countries. For Estonia and Romania, the hypothesis of economic growth influenced by the tourism industry is confirmed, as evidenced by the evolution of the factors considered. As for Latvia, the economic growth is not dependent on the two factors considered, but only on tourism infrastructure, while in Lithuania and Poland, the factor with direct influence on economic growth is the receipts from tourism. In the case of Slovakia, the results show that tourism development and economic growth do not seem to be sensitive to each other, even if the statistical data indicate a better position in terms of the weight of tourism receipts in GDP over 2005-2016, an average of 2,7% compared to 1,2% for Romania and 2,2% for Latvia. One possible explanation could be the economic structure and contribution of the tourism industry to the GDP of these countries. Thus, a favorable development is indicated for Estonia (7,2%) and Lithuania (10%).

Keywords: economic growth, tourism, revenues, regression

1. Introduction

The tourism sector may already be considered a key factor for sustainable socio-economic development at national and regional level. Tourism has become an increasingly important source of income and jobs for many developing countries.

Despite all the negative economic and social events of the last decades, the tourism sector continued its upward trend, reaching in 2016 a peak contribution to direct GDP growth of 3,1%, to 6 million more jobs in the sector. All in all, in 2016, tourism generated $ 7,6 trillion (10,2% of global GDP) and 292 million jobs (including support industries) equivalent to 1 in 10 jobs in the global economy. The sector accounted for 6,6% of total global exports and nearly 30% of total exports of global services. For the sixth consecutive year, tourism growth exceeded that of the global economy (2,5%). *The direct contribution* of tourism to the GDP was USD 2,306 billion (2,1% of total GDP) in 2016 and it is forecasted to grow by 3,8% in 2017 and by 4,0% per annum in 2017-2027, to 3537 USD bn (3,5% of total GDP) in 2027.

The total contribution of tourism to the GDP was USD 7,613 billion (10,2% of GDP) in 2016 and it is expected to increase by 3,6% in 2017 and by 3,9% to USD 11,512.9 billion (11,4% of GDP) in 2027.

In 2016, 108 741 000 *jobs* were registered in tourism (3,6% of all employees) and it is likely to increase by 2,1% in 2017 and by 2,2%, or 381,7 million jobs in 2017 (11,1% of the total).
Tourism exports generated USD 1401,5 billion (6,6% of total exports) in 2016. It is estimated to increase by 4,5% in 2017, an increase of 4,3% per year between 2017-2027, up to $ 222,22 billion in 2027 (7,2% of the total). In 2016 *tourism investment* was USD 806,5 billion, or 4,4% of total investment. A growth of 4,1% is expected in 2017 and of 4,5% over the next ten years up to USD 1,307.1 billion in 2027 – 5,0% of the total (World Travel & Tourism Council /WTTC, 2017).

Considering the efforts to eliminate the development gaps between regions, including among the regions of Europe, tourism can be a lever of development available to states, being also a way of diversifying the economic sectors and of solving one-off problems.
The objective of this study is to analyze the relationship between tourism development, tourism infrastructure and economic growth in the countries of Eastern Europe, with a multivariate causality model on the panel for the period 1996-2016.

The paper includes:

- Section 2 summarizes the history of tourism development in Eastern European countries,
- Section 3 provides a summary of the literature,
- Section 4 describes the estimation methodology and empirical results,
- Section 5 provides the findings of the study.

2. Tourism Development in Eastern Europe

In 2016, Europe recorded the highest percentages on the international market in the number of international tourist arrivals with 619 million arrivals in 2016 or 50% of the world total, with a 2% increase compared to 2015. At the same time, Europe is the largest region in terms of international tourism receipts (406 billion euros in 2016) or 37% of world's receipts at destinations, ie a 1% increase compared to 2015. The Southern and Mediterranean European countries saw an 8% increase in arrivals getting to 193 million and a 5% increase in international tourism receipts up to 132 billion euros while destinations in Central and Eastern Europe also recorded an increase of 7%, to a total of 71 million and revenue of 31 billion. Arrivals to the five EU destinations in Northern Europe increased by 5% to 66 million, while revenues reached € 62 billion (+ 5%). At the same time, Western Europe's destinations remained constant (+ 0%) to 171 million, and receipts fell 1% to 117 billion euros.

In terms of arrivals to the five emerging countries - Bulgaria, Poland, Hungary, Romania, Hungary and Croatia, they grew by 8% and the receipts by 10%, reaching 29 billion euros.
On the international tourism market, eastern European countries (Romania, Poland, Slovakia, Baltic countries - Estonia, Latvia, Lithuania) can be classified as newcomers, especially in terms of attracting modern tourism, such as leisure, meetings, incentives, exhibitions, sports and adventure tourism activities. These countries are considered among the most promising emerging markets in Eastern Europe. Poland hosts a large volume of potential travelers. The Baltic States have a relatively high disposable income. Romania and Slovakia show excellent economic growth (Centre for the Promotion of Imports from developing countries / CBI, 2018) – *Figure 1, Figure 2, Figure 3.*

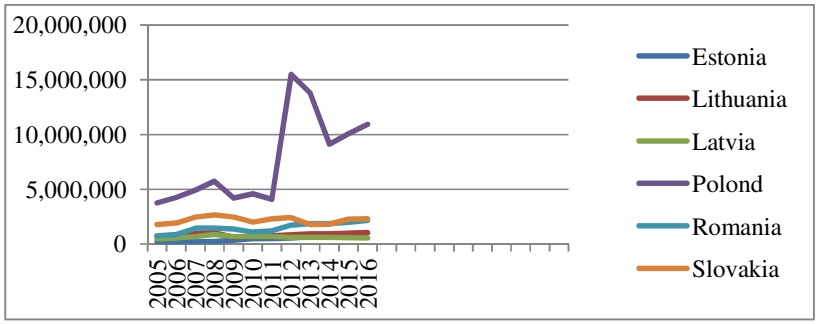

Fig. 1: The evolution of tourism receipts, 2005 – 2016

Source: WTO, http://statistics.unwto.org/news

Slovakia recorded an increase in arrivals and receipts by 17%, arrivals in accommodation establishments reached 2 million and revenues of 2 315 696 euros. Both Romania and Lithuania received 2 million tourists each (both + 11%). Revenues from international tourism earned by Romania increased by 2% to EUR 2 167 535, while Lithuania earned EUR 1 048 712 (+ 5%) from receipts. Estonia reached 3 million tourists (+ 5%) in 2016 and earned 1 007 512 euros. International arrivals in Poland increased by 4% to 17 million, while tourism earnings increased by 10% to 10 939 430 euros. On the other hand, Latvia recorded the only decrease in arrivals (-11%), to a total of 2 million tourists and receipts of 3% less, 537 344 euros.

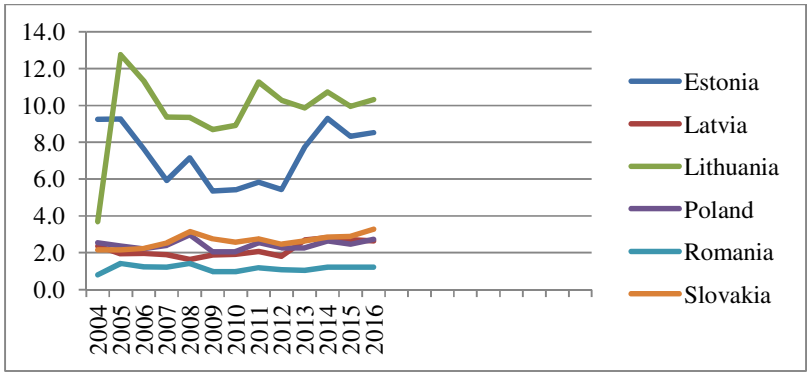

Fig. 2: The weight of tourism receipts in GDP (%) 2005-2016

Source: WTO, http://statistics.unwto.org/news

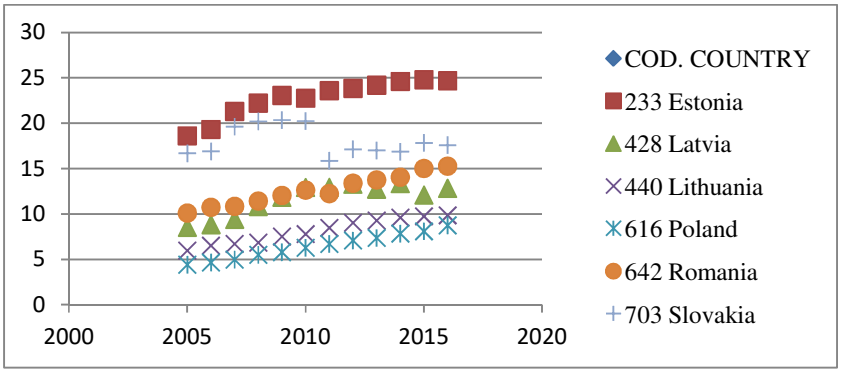

Fig. 3 : Tourist infrastructure (available capacity)

Source: WTO, http://statistics.unwto.org/new

3. Literature Review

All specialized literature urges governments around the world to take measures to develop tourism as one of the factors for sustainable growth and development. This long-term influence of tourism on economic growth is known as the tourism-led growth hypothesis. In a more traditional sense, it is argued that tourism brings export earnings, sums of money that can be used to import capital goods to produce goods and services, leading in turn to economic growth (McKinnon, 1964). The consensus in literature refers to the following aspects: tourism generates currency gains; it also contributes to the development of other related economic sectors (eg agriculture, transport, manufacturing etc.), it improves the infrastructure of a country (with benefits for tourists and residents), it creates opportunities for the development of some areas through the emergence of new tourist destinations, perhaps it may be a channel for the transfer of new technological and managerial skills in an economy etc.

On the other hand, the economic growth would be generated by the increased competition between firms operating in tourism and some related industries, as well as by the emergence of new tourist destinations (Bhagwati and Srinivasan, 1979; Krueger, 1980). Another opinion puts into question the relationship between economic growth and the effects of economies of scale on local firms (Helpman and Krugman, 1985). Hazari and Sgro (1995) argue that, in the long run, the impact of an increase in world tourism demand would be particularly positive for small economies. Balaguer and Cantavella-Jordá (2002) were the first authors to mention the concept of the TLG hypothesis. Subsequent studies have focused on analyzes of the TLG by countries or regions of the world: Dritsakis (2004) demonstrated the two-way causality between tourism and economic growth in the case of Greece; Ongan and Demiroz (2005) examined the impact of tourism revenue on Turkey's economic growth, Kim; Chen and Jan (2006) identified a bidirectional causal link between tourism and economic growth in Taiwan; Belloumi (2010) analyzed the relationship between tourism receipts and economic growth for the 1970-2007 period in Tunisia. Kreishan (2011) for the period 1970-2009 in Jordan; Tang and Abosedra (2014) uncovered a unidirectional causality between the number of tourists and economic growth in Lebanon from 1995 to 2010.

An important study targeting seven Mediterranean countries is conducted by Dritsakis (2012) using the heterogeneous panel cointegration and fully modified ordinary least squares (FMOLS) techniques, demonstrating a unidirectional causality of tourism revenue to economic growth.

Using the newly developed panel Granger causality tests, Aslan (2014) examined the relationship between tourism development and economic growth in the Mediterranean countries for the period 1995-2010. He finds a unidirectional causality from economic growth to tourism development for Spain, Italy, Tunisia, Cyprus, Croatia, Bulgaria, Greece, still in the case of Portugal there appears to be a unidirectional causal link from economic growth to tourism development, whereas in the case of Malta and Egypt he did not find any causality.

A more complex study is conducted by Ozturk (2016), who analyzes several factors (energy consumption, air pollution, health spending and economic growth) affecting tourism development in 34 developed and developing countries between 2005 and 2013.

Following the study of 21 Latin American countries for the period 1985-1998, Eugenio-Martin, Morales and Scarpa (2004) concluded that the development of infrastructure education and safety would lead to positive evolution in the tourism industry, and implicitly on economic growth. Moreover, following the analysis of 159 countries between 1989-2008, Chang, Khamkaev and McAleer (2010) demonstrated, that the tourism industry has a greater impact on economic growth in countries with lower development and reduced commercial investment.

Given that the Eastern European countries are new destinations on the international market, where tourism-oriented development projects are in their early stages, it is interesting to analyze how economic growth (as a macroeconomic factor) and tourism infrastructure (in point of accommodation units) influence the development of tourism. We considered it important that the second independent

variable was tourism infrastructure to determine the way national authorities will further act in the case of countries that are new on the international tourism market. Given that the countries under consideration have similar climate and natural resources, attracting tourists may require some investment in basic tourism infrastructure (accommodation units) and, consequently, the emergence of new tourist destinations.

4. Methodology and Results

4.1. Methodology

Following the use of time-based research methodologies and / or panel analysis techniques in literature, the paper will analyze the situation of Eastern European countries in terms of tourism development and growth support starting with data statistics in the form of series and using modern methods of research.

Using the method, we will test the research hypothesis: the extent to which the economic growth is influenced by the level of development of the tourism industry.
The *method* used is linear regression. Linear regression is calculated when one variable can be due to other/more variables. This method is based on objective causal relationships between different variables - several independent variables can explain the behaviour of a dependent variable. Therefore the use of regression models with several variables is justified for the proposed approach. The generalized linear regression model with *n* independent variables can be presented as an equation:

$$X_i = \beta_0 + \beta_1 y_{1i} + \beta_2 y_{2i} + ... + \beta_n y_{ni} + \beta\varepsilon_i,$$

where β_i indicates the number of observations, y_{ni} indicates the observation *i* of variable y_n, *n* - the number of independent variables, ε the statistical error.

Working *tool* is the statistical software Excel. The table *Output Summary* provides the value of the regression coefficient, *Multiple R*, which is identical to the correlation coefficient between variables. The interpretation is similar to the simple correlation coefficient, the same as for *R Square*, the determination coefficient of R, which is the determination coefficient of R, the correlation coefficient between the observed values and the values adjusted by the regression equation. *Adjusted R-Square* is a correction value for *R Square*, determined by the predictor number and the number of subjects. The closer *R Square* and *Adjusted R-Square* are to 1, the better the regression.

Variation analysis *ANOVA* is a statistical measure used to test the model quality; is based on decomposition of the total variation of the dependent variable (SST) in: the variation due regression factor (SSR) and the variation due residual factor (SSU). The decomposition of the total variation of the dependent variable indicates the degrees of freedom (*df*) associated to decomposition, given that the model used *k* repressors and *n* observations, so the equality between (n-1) and (n-k) + (k-1) to be valid. The table *ANOVA* includes corrected dispersion (*MS*) and the results of the significance test for R. The values *F* and *Significance F* are important elements as basis for the validation of the regression model (in its entirety) and provides information on the calculated value of *F* test statistics and of the error that we could do when we reject the regression model as being inappropriate. The deciding rule on accepting the model is: high values for the *F* test statistic F and low values for *Significance F*. Testing the significance of R is in relation to the distribution of Fisher; if *Significance F* is equal to or less than 0,05 (alpha) we accept the hypothesis that there is statistical significance for the link between variables and criterion; if *Significance F* is greater than 0,05 there cannot be a significant relationship between predictor and criterion variables. *Significance F* stands for the value of the error that we do by rejecting the null hypothesis when in fact it is true. The table *Coefficients* contains coefficients β (unstandardized, expressed by predictor variable values) and beta coefficient (standardized, expressed in values), which can be used to choose the prediction equation.

This empirical study uses annual data for six countries (Romania, Poland, Slovakia, the Baltic countries - Estonia, Latvia, Lithuania) for the period 2005-2016. The variables used in this analysis are revenues from international tourism (receipts), real gross domestic product and basic tourist infrastructure (expressed in number of available capacity - accommodation places per 1000 inhabitants) – Units Income from tourism and GDP is expressed in billions / million euro, and Available capacity in units. The data source for the indicators used is the UNWTO and EUROSTAT Economic Database. Tourism revenue is used to measure tourism development, and gross domestic product (GDP) is used as an indicator of the economic growth
This empirical study uses annual data for six countries (Romania, Poland, Slovakia, the Baltic countries - Estonia, Latvia, Lithuania) for the period 2005-2016. The variables used in this analysis are revenues from international tourism (receipts), real gross domestic product and basic tourist infrastructure (expressed in number of available capacity per 1000 inhabitants) – Units Income from international tourism and GDP is expressed in billions / million euro, and Available capacity in units. The data source for the indicators used is the UNWTO and EUROSTAT Economic Database. Tourism revenue is used to measure tourism development, and gross domestic product is used as an indicator of the economic growth.

4.2 Results

Taking into account the statistical regression methodology, the way of grouping the quantitative data, the information content of the quantitative data resulting from the application of the above-mentioned methodology, the following aspects can be highlighted:

a. The area approached in the study is the eastern European one (part of the European Union) materialised in six countries with their economies: Estonia, Latvia, Lithuania, Poland, Romania and Slovakia, which of course have economic, social, cultural- natural etc. particularities, but which also share common points:
   - they were part of the former communist bloc from which they separated from with a different specificity, but which influenced their development during and after leaving the area of centralized economies;
   - they have a tremendous tourist potential, more or less capitalized, depending on the economic policy of each of the six countries, and which has certainly influenced and influences the economic (and tourism) development of each country, but also the area they are part of.

These premises have led to the approach and the study of a possible dependency relationship between the factors considered: GDP, tourism receipts and accommodation infrastructure.

Table 1: Evolution of dependences factors in GDP in Eastern Europe countries in the period 2005-2016

	Estonia	**Lithuania**	**Latvia**	**Poland**	**Romania**	**Slovakia**
SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.9116	0.7081	0.5159	0.6726	0.9215	0.2480
R Square	0.8311	0.5014	0.2662	0.4524	0.8492	0.0615
Adjusted R Square	0.7936	0.4515	0.1928	0.3976	0.8157	-0.0323
Observations	12	12	12	12	12	12
ANOVA						
Significance F	0.0003	0.0099	0.0459	0.0165	0.0002	0.4370
Dependent factor: GDP						
Independent factors:	*Coefficients*					
Intercept	-2615.62	5751.69	9273.15	286562.80	34739.88	43514.13
Tourism revenues	0.0045	0.0292	-	0.0095	0.0410	0.0103

Available capacity		746,68	-	1011.29	-	2935.54	-
Df		2	1	1	1	2	1
		9	10	10	10	9	10
		11	11	11	11	11	11
SS	$SSR = \sum_i (\hat{y}_i - \bar{y})^2$	8.2	1.6	0.3	1.7	5.8	0.1
	$SSU = \sum_i (y_i - \hat{y}_i)^2$	1.7	1.6	0.9	2.1	1.0	1.7
	$SST = \sum_i (y_i - \bar{y})^2$	9.9	3.3	1.2	3.8	6.8	1.8
MS	*MSR=SSR/(k-1)*	4	1.7	0.4	1.75	2.9	0.1
	MSU=SSU/(n-k)	0.2	0.1	0.1	0.2	0.1	0.1
Fcalc	F_{calc}*=MSR/MSU*	20	17	4	8.75	29	1

Source: accomplished by processing the data from Eurostat, http://appsso.eurostat.ec.europa.eu/nui/show.do, WTO, http://statistics.unwto.org/news.

b. The study was based on the collection of data specific to those indicators for the period 2005-2016. The methodology of statistical regression leads to the following important conclusions:
   - both on the whole area and on each economy, there is a direct link between the GDP and tourism receipts within the limits of F semnificance, the partial regression coefficient ranging from 0,2480 to 0,9215;
   - for two countries (Estonia and Romania), the same conclusion is verified, and additionally, for the regression coefficient multiple R (multiple R), the F semnificance is valid;
   - for the other countries, the multiple correlation approach (df - the number of independent factors is 2), for tourism receipts and available capacity, has led to the ecxeed of the limits of F semnificance, whereas, in the case of simple correlation, for tourism receipts, the limit of F semnificance is valid for Lithuania and Poland, but not for Latvia where the simple correlation for available capacity follows within the limit of F significance. For these reasons, it follows that the dependence of these factors is much stronger for these countries; therefore, tourism recepits are highly dependent on the available capacity to the detriment of other income-earning opportunities (promotional packages, natural attractions, engagement in the creative spending of leisure time, gastronomy, theme competitions, tourist explorations, medical tourism etc.).

c. The case of Slovakia is atypical to the other considered countries: the lowest intensity of the correlation (0,2480) indicates the exceedance of the limit of F semnificance, regardless of the number of independent factors considered (the situation considered in the was that where F semnificance is the smallest - when the two factors are considered). This means that in this case tourism receipts and available capacity are interdependent, and GDP growth is less influenced by these factors.

d. The residual variation of SSU is the highest for Poland and Latvia, which means that there are other (more important) factors in these countries that ensure the GDP growth to a greater extent than tourism receipts and available capacity (2,1 compared to 1,7 for Poland and 0,9 for 0,3 for Latvia). Estonia is at the very opposite side where the residual variation is well below the explicit variation determined by tourism receipts and available capacity (1,7 versus 8,2), as well as Romania where the residual variation is 1 and it is coincident with the explicit variation of 5,8. For these two economies, there are still unmanaged resources in the field of tourism that could generate positive GDP growth. The case of Slovakia is atypical compared to the other five economies in Eastern Europe: the explicit variance is almost null (0,1) and the residual variation is 1,7, which indicates the need to identify in order to make use of the factors that have not been considered in this study, still factors that have the biggest influence on GDP growth, according to the results obtained from the calculations made in this study.

e. The evolution of the correlation on the area considered and for each year is relatively constant, the coefficient of regression varies between 0.9354 in 2005 and 0.9808 in 2014, with small oscillations from one year to the other, so the tourism receipts and the available capacity should be considered as essential factors for the economic growth and the GDP.

Table 2: Evolution of dependences factors in GDP in Eastern Europe region in the period 2005-2016

(a. 2005-2010; b. 2011-2016)

a.		**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
SUMMARY OUTPUT							
Regression Statistics							
Multiple R		0.9354	0.9287	0.9312	0.9340	0.9363	0.9583
R Square		0.8750	0.8626	0.8673	0.8723	0.8767	0.9183
Adjusted R Square		0.7916	0.7710	0.7788	0.7872	0.7945	0.8639
Observations		6	6	6	6	6	6
ANOVA							
Significance F		0.0441	0.0509	0.0483	0.0456	0.0432	0.0233
Dependent factor: GDP							
Independent factors:		*Coefficients*					
Intercept		24622.81	24784.02	32657.01	34825.02	47795,59	29909,18
Tourism receipts		0.0578	0.0575	0.0561	0.0573	0,0642	0,0748
Available capacity		-2828.52	-2583.05	-3160.21	-3210.88	-4272,98	-3398,53
Df	*k-1*	2	2	2	2	2	2
	n-k	3	3	3	3	3	3
	n-1	5	5	5	5	5	5
SS	$SSR=\sum_i(\hat{y}_i-\bar{y})^2$	3.5	4.3	5.7	7.9	5.9	8.2
	$SSU=\sum_i(y_i-\hat{y}_i)^2$	0.5	0.6	0.8	1.1	0.8	0.7
	$SST=\sum_i(y_i-\bar{y})^2$	4.0	4.9	6.5	9.0	6.7	8.9
MS	*MSR=SSR/(k-1)*	1.8	2.1	2.8	3.9	2.9	4.1
	MSU=SSU/(n-k)	0.1	0.2	0.2	0.3	0.2	0.2
Fcalc	$F_{calc}=MSR/MSU$	18	10.5	14	13	14.5	20.5

b.	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.9248	0.9742	0.9723	0.9808	0.9759	0.9691
R Square	0.8552	0.9490	0.9454	0.9621	0.9524	0.9391
Adjusted R Square	0.7587	0.9151	0.9090	0.9368	0.9207	0.8985
Observations	6	6	6	6	6	6
ANOVA						
Significance F	0.0550	0.0114	0.0127	0.0073	0.0103	0.0150
Dependent factor: GDP						
Independent factors:	*Coefficients*					
Intercept	22859.98	49064.42	43036.28	31334.38	31580.93	31243.48
Tourism receipt	0,0846	0.0228	0.0264	0.0436	0.0413	0.0375
Available capacity	-3691.13	-1432.03	-1041.42	-1546.02	-1505.00	-1156.82
Df	2	2	2	2	2	2

		3	3	3	3	3	3
		5	5	5	5	5	5
SS	$SSR=\sum_i(\bar{y}_i-\bar{\bar{y}})^2$	8.3	9.7	9.9	10.9	11.9	11.5
	$SSU=\sum_i(y_i-\bar{y}_i)^2$	1.4	0.5	0.5	0.4	0.5	0.7
	$SST=\sum_i(y_i-\bar{\bar{y}})^2$	9.7	10.2	10.5	11.3	12.5	12.3
MS	*MSR=SSR/(k-1)*	4.1	4.8	4.9	5.4	5.9	57.6
	MSU=SSU/(n-k)	0.4	0.1	0.1	0.1	0.1	0.2
Fcalc	$F_{calc}=MSR/MSU$	10.25	48	49	54	59	288

Source: accomplished by processing the data from Eurostat, http://appsso.eurostat.ec.europa.eu/nui/show.do, WTO, http://statistics.unwto.org/news.

Following the results obtained, the working hypothesis from which it started is confirmed for the area considered, whereas for each country some recommendations can be made considering the specific possibilities:

- tourism receipts are an important means of economic growth;
- various ways should be approached to increase tourism receipts considering the specific conditions and natural resources, the particularities of the area, the human, cultural, religious factor etc.;
- the state should get involved through specific institutions and public-private partnerships to maximize the potential of tourism in each country and abroad by internationalizing tourism services.

For Estonia and Romania, the hypothesis of economic growth influenced by the tourism industry is confirmed, as evidenced by the evolution of the factors considered. As for Latvia, the economic growth is not dependent on the two factors considered, but only on tourism infrastructure, while in Lithuania and Poland, the factor with direct influence on economic growth is the receipts from tourism. In the case of Slovakia, the results show that tourism development and economic growth do not seem to be sensitive to each other, even if the statistical data indicate a better position in terms of the weight of tourism receipts in GDP over 2005-2016, an average of 2,7% compared to 1,2% for Romania and 2,2% for Latvia. One possible explanation could be the economic structure and contribution of the tourism industry to the GDP of these countries. Thus, a favorable development is indicated for Estonia (7,2%) and Lithuania (10%).

5. Conclusions

Although, from the point of view of the economic development, the countries considered are similar, the influence of the factors is heterogeneous. If for both Romania and Estonia both factors considered have a direct influence on the GDP, only one of the factors considered in the case of Lithuania, Latvia and Poland verifies the research hypothesis. In the case of Slovakia, considering that the *Significance F* is greater than 0.005, regardless of the number of factors considered in the mathematical model, the correlation is not verified. Therefore, decision-makers in Slovakia need to develop tourism policies and strategies that do not require support and are not conditioned by other economic activities. In the case of the countries considered, the results indicate a direct connection between economic growth and tourism development, except for Slovakia. In the situation of Estonia and Romania, the research hypothesis is confirmed by both factors considered, and in the case of Poland, Lithuania and Latvia, only one factor directly influences the level of economic growth.

In what the recommendations for economic policy are concerned, we consider that Eastern European countries should continue to develop tourism infrastructure while promoting new tourist destinations and, at the same time, strengthen the link between the tourism industry and the rest of the economy. To this end, the development of tourism and the newly designed tourist destinations must be based on a long-term national development strategy based on the notion of sustainable tourism in the region. For the analyzed period, we note a positive evolution of the indicators considered, which can be the

starting point for conceiving a regional development agenda for tourism. This is all the more so since specialty studies point out that well-managed and integrated tourist countries with long-term tourism will generate long-term income from tourism, which will promote sustainable economic growth.

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The Influence Exerted By the Country of Origin on Consumers' Decisions to Purchase Education Services

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Abstract

The aim of the article is to indicate a relation between the COO effect of a particular country in the evaluation of education services and customers' readiness to purchase them. The data have been collected from 264 students from Poland, Lithuania and Germany. The results shows that the image of a country significantly affects consumers' purchase decisions and the strength of such influence differs, depending on the country of origin of education services. In the research a new rate has been introduced, namely: a COO power rate, which allows the authors to provide a more accurate measurement of the effect.

Keywords: Country-of-origin (COO) effect; Educational services; Services marketing; Purchase intentions; Country-of-origin (COO) dimensions

Introduction

The influence exerted by the image of a country on the evaluation processes referring to products or brands from that country (Figiel, 2004) along with consumers' attitudes and behaviour (Sikora, 2008; Balabanis and Diamantopoulos, 2011) is referred to as the COO (country of origin) effect. The term was introduced into scientific literature by Schooler in 1965 when he provided an analysis of the perception of products exported from the countries of Central America. Since then the problem has already become one of the most frequently analysed subjects in the field of international marketing and consumers' behaviour (for relevant literature reviews, see eg: Bilkey and Nes, 1982, Al-Sulaiti and Baker, 1998; Peterson and Jolibert 1995; Javalgi *et al.*, 2001; Pharr 2005; Rezvani *et al.*, 2012; Saran and Gupta, 2012). In comparison to the number of research studies on the impact of the COO in the field of material goods, scientists have paid relatively scarce attention to that phenomenon in the field of services. As a result, the subject has not been sufficiently analysed so far (Javalgi *et al.*, 2001, Ahmed et al, 2002; Chattalas at al., 2008; d'Astous *et al.*, 2008). The reason for such a situation is the fact that the value of international trade of services has been considerably lower than the value of international trade of goods (e.g.: it is two or three times lower in the countries of the European Union; Eurostat, 2013).

Considering the COO effect in the field of higher education services, scientific achievements also seem to be scarce (Sze Yin Ho and Sok Foon, 2012; Morrish and Lee, 2011). However, as Javalgi *et al.* (2009) indicate, the observation of the market allows us to notice that numerous students and

employers associate the best business universities with some particular countries, first of all, with the USA and some European countries. The COO effect can be also proved by the fact that strong universities from emerging markets often enter partnership alliances with leading American and European universities in order to obtain access to new sources of funding and acquiring best students in the particular countries (Javalgi *et al.*, 2009). In their extensive and comprehensive review of factors which affect the selection of studies, Hemsley-Brown and Oplatka (2015) express their surprise at a relatively low number of research studies on the choice of universities made by international students. They also indicate that, practically, there have not been any research on international geographical choice factors, which would prove to be highly advisable in the face of globalisation and growing competition for acquiring international students. Considering the fact that "*for many students and their families, the decision to study overseas is one of the most significant and expensive initiatives they will have ever undertaken"* (Mazzarol, 1998, p. 166), they could treat the COO as an alternative quality rate helpful in minimization of the perceived purchase risk, which, however, might be tinted with some positive or negative stereotypes and consumers' ethnocentrism.

Growing dynamics and intensity of the significance of international trade in the field of higher education services both require thorough understanding of consumers' behaviour in that market. Apart from cognitive values, the knowledge turns out to be significant for education institutions and for countries which compete for students in the global scale. It is worth noticing that most of the current research studies refer to students who learn in developed countries, despite the fact that their numbers in developing countries are growing (Cantwell *et al.*, 2009).

The aim of the article is to present theoretical and academic achievements in the field of the COO in international higher education services, based on scientific literature. It is also to define a relation between the COO effect of a particular country in the evaluation of education services and consumers' readiness to purchase them. The article presents an attempt at the verification of the following hypotheses:

1. The COO power affects consumers' readiness to purchase education services.
2. The readiness to purchase education services differs, depending on the country of origin of services.
3. The strength of the influence exerted by the COO power on the readiness to purchase education services depends on the country of origin of services.

The survey research has been conducted among students from three European countries, including two developing ones. Hence, considering this regard, the research gap has been filled in.

The content of the article is ordered in the following way. At the beginning the significance and trends of international trade of specialised services are discussed in order to indicate the importance of that problem in modern economy and the necessity of the research. Next, a review of literature is presented, referring to the COO effect and factors which affect the COO effect, the COO effect in services with particular consideration of education services and issues of the multi-dimensional character of the discussed category. After the analysis of theoretical achievements, the applied research method is presented along with the obtained results and conclusions. At the end of the article the limitations and directions for further research are indicated.

International Market of Education Services: The Research Context

In 2014 the number of people studying at foreign universities reached the level of 6% of all students in the world (OECD, 2016), exceeding the number of 4.5 million. In the years 2000-2012 the number of people studying abroad was more than doubled, having reached its annual growth rate at the level of almost 7% (OECD, 2014). It is estimated that in 2025 there shall be 8 million people studying abroad (Farrugia, 2014). One of the key reasons for such development is a growing number of private and public investments in education in numerous developing countries (Abella, 2015). They come as a result of growing revenues of their citizens which enable them to start studies abroad. Foreign studies are often perceived as a better offer in the field of higher education which is more attractive

than an offer from students' home country. A diploma of a foreign university may facilitate a professional career at one's home country as well as it can facilitate a permanent stay in the host country. Furthermore, such a diploma provides better chances for employment on the international labour market.

Over the last decades, host countries have also changed their attitude towards foreign students (Cantwell *et al.*, 2009). For many years they have been perceived as recipients of development aid. At present, the inflow of foreign students comes, first of all, as a source of financial benefits (it is estimated that in 2014 tuition fees, accommodation and other expenses incurred by foreign students were not less than $ 50 billion (Abella, 2015) and a source of social advantages such as possibilities of acquiring young, talented and creative employees. Hence, in response to the growing demand for higher education services, host countries facilitate admittance to their universities, and they ease their immigration policies (Abella, 2015).

Social and financial benefits related to export of education services trigger growing competition. As a result, a number of countries have already undertaken considerable marketing operations oriented towards the acquisition of customers. Such activities are fostered not only by education institutions themselves but also by governments of those countries (e.g. Great Britain, the USA, Australia) (Binsardi and Ekwulugo, 2003).

Countries, which take some lower positions in the rankings of international trade of education services, also try to compete for foreign students. As a result, the number of student and academic staff exchange programmes have been also increased (Kondakci, 2011; Cantwell et al., 2009). They are facilitated by political operations which are aimed at the support of student mobility programmes (e.g. the Bologna process, EUROSTAT, 2009).

Theoretical Background

The COO Effect in Marketing

The impact exerted by an image of a particular country on the assessment of an offer is of subjective and involuntary nature (as cited in Rezvani *et al.*, 2012). Moreover, the identification of the COO of a particular product or service is not always accurate (Balabanis and Diamantopoulos, 2008, 2011; Lianxi *et al.*, 2010; Melnyk *et al.*, 2012; Martin Martin and Cerviño, 2011). It comes as a result of the fact that offerors provide their products with names which should suggest that the offer comes from the countries of a favourable image. It also results from the fact that there are numerous hybrid products whose particular production stages take place in various countries.

So far, research considerations have been focused, first of all, on the impact of the COO on consumers' beliefs referring to quality and its evaluation, the perception of purchase risk and the value of an offer, purchase intentions and decisions and consumers' readiness to pay a particular price (for relevant literature reviews, see eg: Peterson and Jolibert, 1995; Pharr, 2005; Rezvani *et al.*, 2012; Koschate-Fischer *et al.*, 2012). In these research studies various methods have been applied, various products and variables have been analysed (Peterson and Jolibert, 1995).

Ahmed *et al.* (2002) divide factors affecting the COO into two groups: informational factors, which refer to products and factors resulting from the affiliation of purchasers. An extensive analysis of the current research allows Pharr (2005) to construct a model in which the author presents a more profound systemisation of those elements. Thus, among informational factors there are intrinsic cues which are connected with the functionality of products (e.g. the type of a product and its extensiveness) and extrinsic cues, which are factors that do not directly affect functionality. Next to the country of origin, they also include: prices, promotion announcements, brand and seller's reputation and guarantees. The affiliation factors in the above-mentioned model are also divided in to two groups: endogenous factors – measurable consumers' features (cultural factors: aversion towards a particular country, ethnocentrism, stereotypes, dimensions of national cultures according to Hofstede, personal cultural dimensions (Sharma 2011) and demographical factors) and exogenous

factors (the level of economic development in the consumer's country). The model also indicates the moderators of the COO effect. They include the above-mentioned factors which refer to products and individual factors which refer to consumers: the level and type of their involvement, importance and familiarity with products. It is also possible to complete the list with the context of consumption (Sharma 2011).

The research confirms that the COO affects consumers' evaluation and decisions (as cited in Rezvani *et al.*, 2012; Garrett *et al.*, 2017). Consumers use it more willingly as an extrinsic cue in a situation where internal features of an offer are difficult to be evaluated or unavailable, and these are some circumstances which may refer to foreign or new products (as cited in Berentzen *et al.*, 2008).

Factors Which Affect Opinions about a Country and Its Products

Scientific literature indicates a stereotypisation mechanism of the country of origin which refers products to some positive or negative associations connected with a particular country and its inhabitants (Verlegh and Steenkamp, 1999; Chattalas *et al.*, 2008, Kim *et al.*, 2017). Such stereotypes are activated independently, and they are used during the formulation of opinions on particular products in an unintentional way (Liu and Johnson, 2005).

The research indicates that there are differences in the perception of the country of origin reported by consumers coming from particular countries (Nagashima, 1970; Narayana, 1981; Sharma, 2011); an in-depth analysis indicates the relations between the COO and cultural orientation of the discussed countries (Gurhan-Canli and Maheswaran, 2000; Lee *et al.*, 2007; Sharma, 2011).

The research indicates that the higher economic development of a country is, the lower purchase risk is perceived by consumers in relation to products and services which come from that country, and the better guarantee of their quality is provided (Al-Sulaiti and Baker, 1998). Considering the above-mentioned facts, in many developing countries their inhabitants assess products which come from more developed countries as better products. Products from developing countries are assessed as worse in relation to their stereotypical perception (Liu and Johnson, 2005), and it may create a significant psychological barrier for international trade.

The COO in Services

So far, the research studies on the COO effect in services indicate that it comes as significant information for consumers (Ahmed *et al.*, 2002) and an important category in the process of quality evaluation (Wong and Folkes, 2008), which affects purchase intentions (Harrison-Walker, 1995; Berentzen *et al.*, 2008; Khare and Popovich, 2010; Bose and Ponnam, 2011; Morrish and Lee, 2011) and perception of purchase risk (Michaelis *et al.*, 2008). Similarly to the case involving material goods, consumers prefer services from their home country or from the countries of a close cultural distance (d'Astous *et al.*, 2008; Bruning and Saqib, 2013) and from countries which are more developed in terms of economy (Javalgi *et al.*,2001). The research studies confirm that stereotypes have influence on the COO effect (Chattalas *et al.*, 2008), and the fact that the actual familiarity with the particular country (that weakens the power of influence exerted by stereotypes) also affects the discussed phenomenon (d'Astous *et al.*, 2008). Also in the case of services there might appear a problem referring to proper identification of the country of origin (Paswan and Sharma, 2004; Sharma *et al.*, 2009; Nicolescu, 2012).

The Research on the COO in the Field Of International Higher Education Services

International marketing of education services started to attract scientists' attention in the mid-1990s, and since the half of the first decade of the current millennium it has been considerably intensified. It has referred to a growing number of people studying abroad, particularly to a growing number of students who come from various regions of Asia (Hemsley-Brown and Oplatka, 2015). Nevertheless,

measured by the number of publications, scientific achievements in that field are rather limited, and scientific literature on the COO effect in the field of higher education services is also scarce.

The research problems analysed by scientists refer to the motives of a decision about studying abroad (Bourke, 2000), factors which influence such a decision (including the image of the country of origin), their mutual relations (Srikatanyoo and Gnoth, 2002; Cubillo *et al.*, 2006; Raharjo, 2012; Kamal Basha, Sweeney and Soutar, 2016), the impact exerted by the COO of a university (Morrish and Lee, 2011; Sze Yin Ho and Sok Foon, 2012) and by the COO of students (Arambewela and Hall, 2006) on the perceived quality of services, evaluation of foreign teachers (McCalman, 2007; Devasagayam and Stark, 2014) and the influence of the COO on the perception of a brand of education services (Grace and O'Cass, 2002).

The research confirms the impact exerted by the image of a country on consumers' perception (Raharjo, 2012; Kamal Basha *et al.*, 2016), selection of a destination to study – first, the respondents have selected a country, then a university at which they wish to study (Bourke, 2000) and quality evaluation (Morrish and Lee, 2011). The research refers mainly to students who come from Asian states and from America. However, there has not been any survey conducted among European students. Furthermore, there have not been any publications which refer to the dimensions of the COO.

Measuring COO Dimensions in Educational Services

At first, the COO was perceived as a single-dimensional category (e.g. Hong and Wyer, 1989). However, in the course of time some concepts on various components of that phenomenon started to appear, and some analyses were provided on the importance and strength of their impact exerted on the perception of the image of a country of origin of products (e.g. Johansson *et al.*, 1985, Parameswaran and Pisharodi, 1994). Since then, scientific considerations have been focused not only on the COO effect but also on *the reasons* for which there are some differences in the evaluation and preferences of products from various countries.

Roth and Romeo (1992) present a review of COO attributes which appear in the current research most frequently. On such a basis, they provide a model referring to material products. The model is composed of four dimensions: Innovativeness, Design, Prestige and Workmanship. (A review of the research methods applied in the research studies on the COE can be found in: Bose and Ponnam, 2011; Meng et al., 2007).

The following article refers to the above-mentioned model, after its modification made for the requirements of the research on services. Bose and Ponnam (2011) have already made such an effort, and as a result, they have provided an analysis of the evaluation of entertainment services (music, dance, circus, theatre, film) given by young citizens of India. Considering inadequacy of some evaluation criteria applied in the model provided by Roth and Romeo, the authors assume the following dimensions in their research on services: Innovativeness, Diversity, Exclusiveness and Quality.

In their attempt at the development of a universal model for the analysis of the COO in the field of broadly understood services, the authors of the following article have decided to make further modifications, however, trying to maintain their consistency with the Roth and Romeo's prototypic model, in order to retain a possibility of comparing the results of the research with other analyses and a possibility of providing their generalisation. As a result, the following dimensions of the country image have been assumed:

1. Innovativeness – understood as the use of state-of-the-art knowledge and technology,
2. Diversity – that is namely: variety, the range and attractiveness of an offer,
3. Prestige – exclusiveness, status and reputation,
4. Quality – effectiveness, durability, professionalism.

Considering the fact that so far the multi-dimensional character of the COO effect has not been confirmed, the authors of the article present their attempt at the analysis of the discussed problem, applying the above-mentioned dimensions of the country image. Based on the results of the survey research carried out among Polish and Lithuanian respondents, the authors state that there are statistically significant differences in the evaluation of the COO dimensions in services, hence, the use of such dimensions in the research studies on the COO effect can be considered as well justified.

Methodology and Results

The survey research was conducted in 2015 in Germany, Poland and Lithuania, among 264 respondents who were studying at major courses in economics in their home countries. The data were collected with the use of an auditorium survey technique. The participation in the survey was voluntary and anonymous. Table 1 presents the characteristics of the respondents.

Table 1: Characteristics of respondents participating in the research

Respondents	N	age		Gender*	
		M	SD	Women	Men
Polish	127	23,43	6,51	72	53
Lithuanian	65	23,02	6,60	33	31
German	72	22,53	2,75	45	27
Sum	264	23,09	5,70	150	111

**The sum of men and women does not correspond to the general number of participants due to the lack of gender information in several questionnaire forms.*

Source: the authors' own study.

The survey research is based on a questionnaire form which is composed of three parts. The first part contains questions referring to the evaluation of the image of Germany, Lithuania and Poland in terms of their innovativeness, diversity, quality and prestige. Each of the COO dimensions is evaluated with the use of a 6-point scale, where 1 means *very low* and 6 means *very high*. In this part, the respondents are asked to evaluate the importance of the above-mentioned features in education services with the use of another 6-point scale where 1 means *definitely unimportant* and 6 means *definitely important*.

The next part of the survey questionnaire form refers to the evaluation of the respondents' readiness to purchase education services in one of the three analysed countries, with the use of a scale where 1 means *definitely no* and 6 means *definitely yes*. The last part includes questions which refer to the respondents' stay and familiarity with the analysed countries and a part with the respondents' personal details. It is possible to state that on average the German students have gone to 20.1 foreign trips (SD=1,66), the Polish students: 12.54 (SD=1,44), and the Lithuanian students: 7.74 (SD=0,85). It indicates that the respondents have had some experience in terms of staying abroad.

The evaluation of the education service has been measured three times for each consumer (as the person has provided his/her evaluation to the services offered by three countries); hence, it has been necessary to consider similarity in the measurements coming from the same respondent. Therefore, the analysis of the data is conducted with the use of the linear mixed-effects model (LMM), where the consumer effect is considered as the random effect. More information on mixed models can be found in research studies by West,, Welch, Galecki (2007). The structural parameters of the model are estimated with the use of the method of maximum likelihood (ML) and the use of the IBM SPSS STATISTICS software.

Considering the fact that while providing their evaluation, each consumer may give various weights to the four above-mentioned COO dimensions (Innovativeness, Diversity, Quality and Prestige), a weighted rate has been developed, namely: the COO power, which is defined as *the global perception*

of the COO of the service weighted by the significance of the particular dimensions in the particular service. The rate has been used to verify whether the global perception of the COO affects the declared readiness to purchase education services. The use of the discussed dimensions allows the authors to divide the COO effect into the factors, and in this way, to provide its more accurate measurement, whereas the provided weights allow the authors to consider the fact that the dimensions may be of various importance in a particular service for each consumer.

The COO power of the particular country of origin of a service k (k=1,2,3) in the evaluation of education services provided by the j[th] respondent (j=1,…,264) can be expressed with the following equation:

$$U_{k,j} = innov_{k,j} \cdot w_{innov,j} + diver_{k,j} \cdot w_{diver,j} + qual_{k,j} \cdot w_{qual,j} + pres_{k,j} \cdot w_{pres,j},$$

where:

$w_{inn,j}; w_{div,j}; w_{qual,j}; w_{pres,j}$ - weights, namely: the importance of the particular dimension (respectively: Innovativeness, Diversity, Quality and Prestige) for the j[th] respondent in the selection of education services. The weights come as a result of a task completed by the respondents: "Please, evaluate the importance of the following features in education services, using the scale from 1 to 6 (1 – *definitely no*, 6 – *definitely yes*)".

$inn_{k,j}; div_{k,j}; qual_{k,j}; pres_{k,j}$ - the j[th] respondent's perception of the particular dimension in the k country. It comes as an answer provided by the respondents to the following question: "Please, evaluate the Innovativeness (and then respectively: Diversity, Quality and Prestige) of products and services offered by the particular country, using the scale from 1 to 6 (1 – *very low*, 6 – *very high*)".

H1. The COO power affects the readiness to purchase education services declared by consumers.

In order to verify the above-presented hypothesis, a regression has been conducted, where the *COO power* is the independent variable and the *readiness to purchase education services* is the dependent variable. It has been obtained as a result of a task completed by the respondents: "Using the scale from 1 to 6 (1 – *definitely no*, 6 – *definitely yes*), please, state whether you would purchase a particular education service, depending on its country of origin."

In order to evaluate the extent to which the models presented in the article explain the variance of the readiness to purchase variable, first Model 0 has been estimated. It contains only a constant, and it is used for comparisons at the further stages. The variance of the results has been divided into two components: an interpersonal component (the random effect for the slope in the regression) and intrapersonal (residuals). The obtained variances are used to calculate the intraclass correlation rate.

$$ICC = \frac{\hat{\sigma}^2_{kons(MLMODEL0)}}{\hat{\sigma}^2_{kons(MLMODEL0)} + \hat{\sigma}^2_{0(MLMODEL0)}} = \frac{0{,}009985}{0{,}009985 + 2{,}287000} = 0{,}004347 \approx 0{,}43\%$$

The obtained ICC value indicates that only 0.43% of the total variance of the results generate differences among the respondents, however, in the case of the repeated measurements the interpersonal variance may be low.

Next, Model 1 has been estimated, where the *COO power* is the independent variable. Model 1 takes the following theoretical form:

$$G_{k_{ij}} = \alpha_0 + \alpha_1 U_{C\,ij} + b_{0\,j} + \varepsilon_{ij}$$

The symbols applied in the above-presented equation refer to the following variables:

$G_{k_{ij}}$ - i[th] readiness to purchase education services ($i = 1,...,792$, i – the number of measurements) in the k[th] country ($k = 1,2,3$) declared by the j[th] consumer ($j = 1,...,264$).

$U_{C\,ij}$ - the centered COO power. The values of that variable are obtained by deduction of the average COO power from *the COO power* variable, where the average COO power has been calculated from all the observations, without consideration of division into the analysed countries and the consumers' origin. The *centered COO power* variable has been applied instead of *the COO power* variable because *the COO power* variable does not take 0 value. In this case the interpretation of the α_0 parameter – which is performed with an assumption that *the COO power* variable does not take 0 value – would not make any sense. Centering *the COO power* variable results in the fact that the estimate of the α_0 parameter equals the arithmetic average of the dependent variable.

ε_{ij} - random error, $\varepsilon_{ij} \sim N(0, \sigma_0^2)$

$b_{0\,j}$ - random effect, $b_{0\,j} \sim N(0, \sigma_{kons}^2)$

Table 2 : Estimates of the fixed effects and the covariance parameters for model 1

Model 1[a]				
Estimates of Fixed effects				
Parameter	estimate	Std. error	t [Wald z for cov. param.]	sig
Intercept	3,820707	,048858	78,200	,000
Centered power of the COO	,031845	,001392	22,880	,000
Estimates of covariance parameters				
Residual variance $\hat{\sigma}_0^2$	1,291759	,080318	16,083	,000
Intercept [subject=person id] Variance $\hat{\sigma}_{consumer}^2$	,199615	,062724	3,182	,001
$-2\log L$	2550,910			
AIC	2558,910			

a. Dependent variable: readiness for the purchase

Source: the authors' own study.

Based on the result of the Type III test of the fixed effect for Model 1, it is possible to state that the *centered COO power* significantly affects the *readiness to purchase education services* (F(1; 774.885) = 523.494, p<0,001). The strength of that effect is calculated below and it is **43.52 %**:

$$R_1^2 = \frac{\hat{\sigma}_{0\,basic\ \mathrm{mod}\,el\,(ML\ MODEL\ 0)}^2 - \hat{\sigma}_{0\,evaluated\ \mathrm{mod}\,el\,(ML\ MODEL\ 1)}^2}{\hat{\sigma}_{0\,basic\ \mathrm{mod}\,el\ (ML\ MODEL\ 0)}^2} = \frac{2{,}287000\ -1{,}291759}{2{,}287000} = 0{,}435173$$

It means that the model, in which the *readiness to purchase education services* is linearly dependent on the *centered COO power*, explains 43.43 % of the intrapersonal variability of the results. Hence, the differences in the readiness to purchase education services declared by a particular respondent for services offered by Lithuania, Poland and Germany are related to the various level of the COO power

for that respondent, resulting from various evaluation of the COO dimensions given to the particular countries.

It is also possible to observe an increase in the interpersonal variance in comparison to Model 0, and it is now $\hat{\sigma}^2_{kons}$=0.199615. It means that the share of the interpersonal variance (the variance with results from the differences among the respondents) in the total variance of the dependent variable is 13.38 %:

$$ICC = \frac{\hat{\sigma}^2_{kons(MLMODEL1)}}{\hat{\sigma}^2_{kons(MLMODEL1)} + \hat{\sigma}^2_{0(MLMODEL1)}} = \frac{0,199615}{0,199615 + 1,291759} = 0,13384637 \approx 13,38\%$$

Based on the estimates of the Model 1 parameters presented in Table 2, it is possible to state that the declared average readiness to purchase education services, without consideration of the country of origin of services and of the respondents, is $\hat{\alpha}_0 = 3,82$. The estimate of the parameter next to the $U_{C\,ij}$ variable means that the increase in the COO power by one unit will result in an increase in the readiness to purchase by $\hat{\alpha}_1 = 0,03184$ units. However, while interpreting the obtained results, we should also consider the fact that the highest value of the COO power that can be obtained is 6x6x4=144, and the lowest value is 4. The unit change in the value of that effect does not result in a large change in the perception of a particular country in terms of the offered services, hence it should not have any large influence on the change in the readiness to purchase such services in that country. The increase in the COO power by 100 units, for example from 44 units to 144 units, would result in an increase in the readiness to purchase by approximately 3 units. Hence, considering the fact that the readiness to purchase has been measured with the use of a 6-point scale, the obtained result is high.

Next, it has been decided to analyse whether the country of origin of services affects the strength of the influence exerted by the COO power on the readiness to purchase education services. As a result, the following hypothesis has been formulated:

H2. The readiness to purchase education services differs, depending on the country of origin of such services.

H3. The strength of the impact exerted by the COO power on the readiness to purchase education services declared by consumers differs, depending on the country of origin of such services.

In order to verify the above-presented hypothesis, Model 2 has been developed in which – apart from the *COO power* independent variable – there is also a zero-one variable that represents a country whose education services are evaluated and an interaction of these variables.

$$G_{k_{ij}} = \alpha_0 + \alpha_1 U_{C\ kraj\ ij} + \beta_1 eduGer_{ij} + \beta_2 eduPol_{ij} + \gamma_{11} U_{C\ kraj\ ij} eduGer_{ij} +$$
$$+\gamma_{12} U_{C\ kraj\ ij} eduPol_{ij} + b_{0j} + \varepsilon_{ij}$$

$$(i = 1,...,792,\ j = 1,...,264)$$

$eduGer_{ij}$ - a 0-1 variable which takes the value of 1 when the j[th] respondent evaluates his/her readiness to purchase education services in Germany and the value of 0 in all other cases (namely: when the respondent evaluates his/her readiness to purchase education services in Lithuania and in Poland); the $eduPol_{ij}$ variable has been constructed in a similar way.

In order to avoid the linear dependence of the variables, the model contains only 2 variables which indicate the countries for which the readiness to purchase education services is evaluated. The omitted variable forms a reference group. In order to obtain the estimates of the model parameters for that group, it is necessary to replace the 0-1 variables which represent the countries with the 0 value. The authors have selected Lithuania to form a reference group because the average readiness to purchase education services in that country is lower than the average readiness to purchase such services in Germany and Poland.

$U_{C\,kraj_{ij}}$ - *the centered COO power (by the country of origin of services);* its values are obtained by the deduction of the value of the average, which has been separately calculated for each country of origin of services, from the *COO power* variable.

Based on the result of the Type III test of the fixed effects, it is possible to state that the *centered COO power* (*by the country of origin of services*) variable *(***F=**206,712 **p<0,001)** and *the country of origin of services* variable (F=167,435, **p<0,001)** significantly affect the readiness to purchase education services**;** the influence exerted by the interaction of these variables is also significant **(F=**7,325, **p=0,001).**

Table 4 presents the estimates of the fixed and random effects for Model 2.

Table 4: Estimates of the fixed effects and the covariance parameters for Model 2

Model 2[a]				
Estimates of Fixed effects				
Parameter	estimate	Std. error	t [Wald z for cov. param.]	sig
Intercept[b]	3,162878	,074100	42,684	,000
Centered power of the COO by the country of origin of services	,032197	,003339	9,642	,000
[evaluated country_Germany][c]	1,681818	,098223	17,122	,000
[evaluated country _ Poland][d]	,291666	,098223	2,969	,003
[evaluated country _ Lithuania]	0[g]	0	.	.
[evaluated country _ Germany]* Centered power of the COO by the country of origin of services [e]	-,013218	,004479	-2,951	,003
[evaluated country _ Poland]* Centered power of the COO by the country of origin of services [f]	,002627	,004580	,574	,566
[evaluated country _ Lithuania]* Centered power of the COO by the country of origin of services	0[g]	0	.	.
Estimates of covariance parameters				
Residual variance $\hat{\sigma}_0^2$	1,273502	,079336	16,052	,000
Intercept [subject=person id] Variance $\hat{\sigma}^2_{consumer}$	,176057	,060506	2,910	,004
$-2\log L$	2530,675			
AIC	2546,675			

[a.] Dependent variable: readiness to purchase
[b.] the readiness to purchase education services in Lithuania
[c.] the difference between the readiness to purchase education services in Lithuania and in Germany
[d.] the difference between the readiness to purchase education services in Lithuania and in Poland
[e.] the difference in the influence of the power of the country on the readiness to purchase between services coming from Germany and Lithuania
[f.] the difference in the influence of the power of the country on the readiness to purchase between services coming from Poland and Lithuania.
[g.] This parameter is set to zero because it is redundant.
Source: the authors' own study.

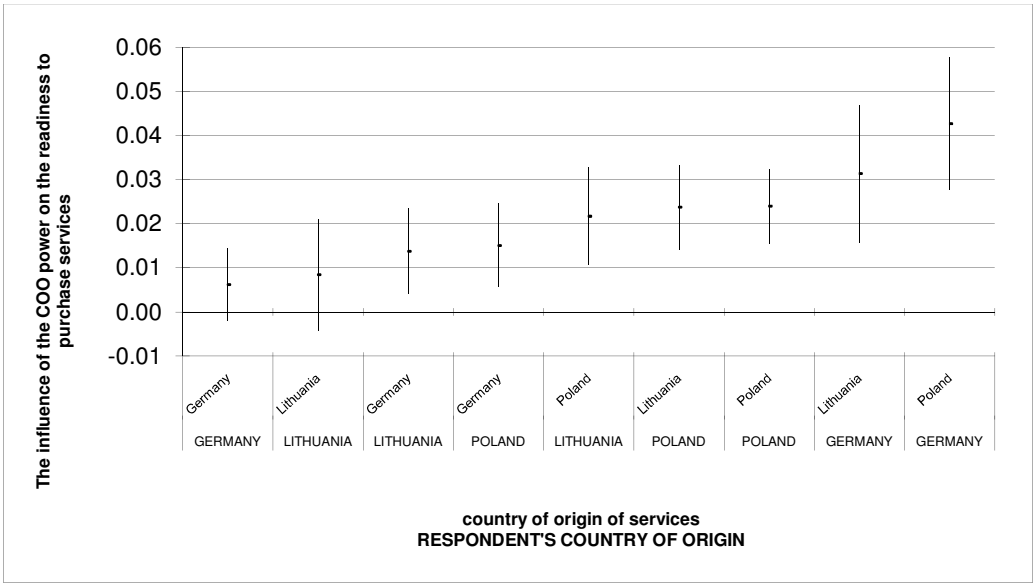
Based on the estimates of the random effects, it is possible to state that the introduction of the *evaluated country* variable to the model with the *centered COO power (by the country of origin of services)* independent variable decreases the intrapersonal variability of the results by 47.09%,

whereas the interpersonal variability is increased by 6%. The introduction of the interaction effect causes an additional decrease in the intrapersonal variability of the results by 2.18 % and a slight increase in the interpersonal variability (by 1.69%).

The results referring to the fixed effects of the model indicate that the average readiness to purchase education services in Lithuania is $\hat{\alpha}_0$ = 3.162878, whereas the difference between the average readiness to purchase education services in Germany and in Lithuania is $\hat{\beta}_1$=1.681818, and the difference between the average readiness to purchase such services in Poland and in Lithuania is $\hat{\beta}_2$ = 0.291666. In both cases the differences prove to be significant (for Germany: p<0,001, for Poland p=0,003). The strength of the impact exerted by the COO power unit growth on the readiness to purchase education services in Lithuania is $\hat{\alpha}_1$=,032197. The differences between the strength of the impact exerted by the COO on the readiness to purchase education services in Lithuania and respectively in Germany and in Poland are indicated by the estimates of the parameters $\hat{\gamma}_{11}$ =-,013218 and $\hat{\gamma}_{12}$ =,002627. In the case of Germany the difference is significantly lower (p=,003), and in the case of Poland it is insignificant (p=,566). It means that the influence exerted by the COO power on the readiness to purchase education services in Germany is weaker than it is in Poland and in Lithuania.

The above model allowed for a positive verification of the second research hypothesis.

Next, in order to provide more details to the obtained conclusions, there have been nine linear regressions conducted, with the *readiness to purchase education services* dependent variable and the *COO power* independent variable, separately for each country of origin of services and each country of origin of the respondents. Considering editorial requirements for the article referring to its size, only some general conclusions and graphs containing slope coefficients (Chart 1) and the intercepts (Chart 2) for these regressions together with confidence intervals (α=0,05) are presented below.



Source: the authors' own study.

Chart 1: The influence of the COO power on the readiness to purchase education services with the regression confidence intervals

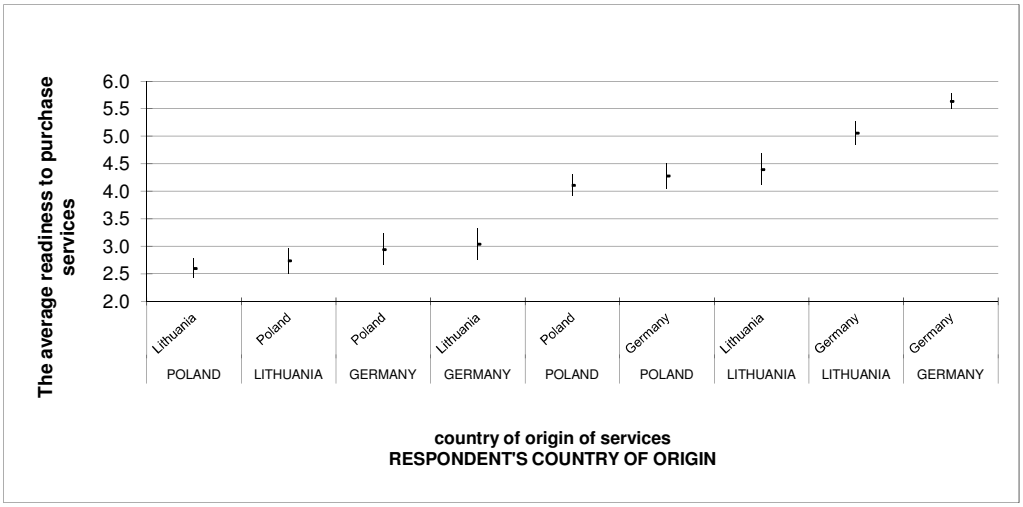


Chart 2: The average readiness to purchase education services with the regression confidence intervals

Source: the authors' own study.

On the basis of Chart 1, it can be seen that in the case of German consumers assessing German services and Lithuanian consumers assessing Lithuanian services, the impact of COO's power on readiness to purchase educational services is insignificant. The strongest influence of COO power was observed for German consumers assessing Polish and Lithuanian services. The analysis of chart 2 allows us to state that the highest declared willingness to buy occurred for educational services coming from Germany, the lowest was declared by Polish consumers for services coming from Lithuania and by Lithuanian consumers for services originating from Poland. The readiness to buy services from these countries was also low for people coming from Germany.

Discussion

The research study indicates that the COO effect appears in education services because the image of a country which offers such services significantly affects the readiness to purchase them declared by the respondents.

Generally, regardless of the respondents' country of origin, the highest readiness to purchase education services is declared for German services. The Polish respondents declare their lowest readiness to purchase Lithuanian education services and vice versa: the Lithuanian respondents' readiness to purchase Polish education services is the lowest. So far, the research studies have indicated that consumers prefer services coming from their home countries and services offered by the countries of a higher level of economic development. Such a result is not surprising because Germany is characterised by a significantly higher level of economic development than two other analysed countries. Hence, the perceived risk of purchasing products and services is lower and the guarantee of their quality is perceived as higher. The low readiness to purchase education services mutually declared by the Polish and Lithuanian respondents may be connected with a certain stereotype of a post-communist country the offer of which is of inferior quality in comparison to the offer of Western countries. Interestingly, the German respondents declare their higher readiness to purchase education services in Poland and in Lithuania in comparison to the Lithuanian and Polish respondents who declare their readiness to purchase such services respectively in Poland and in Lithuania.

Considering services offered in Germany, the influence exerted by the COO power on the readiness to purchase education services is significantly lower than in the case of such services coming from Poland and from Lithuania. Considering countries which have already had well established reputation in terms of their product offer – and Germany undoubtedly belongs to that group - it is possible to assume that consumers' perception of the particular COO dimensions is not as strongly correlated with purchase decisions as in the countries whose education services are evaluated lower.

The strongest influence of the COO power on the readiness to purchase education services is reported by the German respondents towards the offers coming from Lithuania and from Poland. Analogically to the situation discussed above, it may be interpreted in the following way: the German respondents attach more weight to the particular COO dimensions during their purchases in the countries which are perceived as offerors whose reputation is weaker.

Summing up, the survey research confirms the results which have already been achieved by other authors in their research studies on products, namely: in their choices, consumers prefer services offered in their home countries, however, only to a certain extent. When they are presented an offer from a country of high reputation, consumers prefer such an offer to an offer from their own country. It is also stated that the readiness to purchase education services from the countries of inferior reputation is low.

As it is indicated by Cantwell *et al.* (2009), there is a common opinion stating that studying abroad is usually started in order to increase one's education and economic opportunities. It results in the fact that scientists' attention is, first of all, focused on the analysis of the countries characterised by the highest level of development, which become destinations selected by foreign students. Thus, the decision process, expectations and experience of a growing group of people who study in other countries have not been properly recognised yet. Furthermore, most research studies refer to Asian and North American markets, and there are very few of them which refer to Europe.

The main advantage of the above-presented survey research is the fact that it refers to the European countries, and moreover, it is focused not only on an offer of education services presented by a country which takes a high, fifth position on the list of destinations selected by foreign students, namely: by Germany, but it also refers to education services offered by the countries which take lower positions in the ranking: Lithuania (the 37th position) and Poland (25th position).

Limitations. Nevertheless, the obtained results should be approached with caution, because they are obtained from a relatively small sample of students, who come only from one university in each of the three analysed countries. Therefore, the results cannot be generalised. Additionally, the authors' intention has been to develop a universal measurement instrument which would allow them to provide comparison between various categories of products perceived by consumers from various countries. However, the specific character of education services might require a separate set of dimensions developed especially for them, which would be adjusted to their specificity.

Directions for further research. Despite the above-presented limitations, the survey research indicates that the readiness to purchase education services is affected both by the image of the country of origin of services and by the image of the country of origin of their potential consumers. The obtained results also indicate that the strength of such influence is different, and it depends on the country of origin of services and of consumers. In order to draw some general conclusions referring to the reasons for the observed differences, it would be necessary to conduct research in a larger number of respondents coming from a larger number of countries.

Considering the fact that depending on the students' country of origin and the country of destination, students select various major study courses (e.g.: 53% of foreign students in Slovakia study health sciences, 40% of students in Island choose humanities and arts and in Chile 23% of foreign students study education (OECD 2015, p.355), it would be advisable to analyse to what extent the COO effect appears in education services, depending on the field of study.

Moreover, as the percentage of foreign students at the higher education level– e.g. doctoral courses – is higher (e.g. it is 24% on average in all the OECD countries) than the percentage of foreign students at all the levels of education (9% on average) (OECD 2015, p. 352), it would be also advisable to verify whether the COO effect varies depending on the level of study courses.

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Comparative Analysis of and Ways of Improving Motor Fuel Taxes in Russia and the European Union

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Abstract

The article presents a comparative analysis of the existing system of excise duties on energy in the European Union and the system of excise taxes on motor fuel in Russia. The subject of the study is the structure and dynamics of excise duty revenues in Russia by type of energy product, depending on the volume of consumption and tax rates. A conclusion is drawn that the mechanism of taxing motor fuel is based on the volume of the consumed resources and does not take into account their environmental damage and energy content. The author argues that tax rates on motor fuel need to take into account its energy efficiency characteristics and the level of carbon dioxide emissions. The author concludes that by implementing the proposed changes it would be possible to have a considerable fiscal effect in terms of public revenue and to tackle the existing distortions the existing distortions for two competing sources of energy (petrol versus diesel fuel). The new approach would also encourage a transition to environmentally friendly types of fuel, the adoption of new technologies in car making and a reduction in pollutant emissions.

Keywords: Excise tax, petrol, diesel fuel, tax rates, CO_2 emissions, fuel efficiency.

Introduction

Economic development has resulted in transport becoming an indispensable element of any economy in today's world as it fulfills production needs and provides services to households (Mayburov et al, 2018). Cars play the most important role in the transportation system of modern cities. Today, Russia has an intermediate level of auto ownership. Russia has three times fewer vehicles than the US and almost half as many cars as France, Germany, Great Britain and Japan (Mayburov and Leontyeva, 2015). Between 2000 and 2016, the vehicle fleet in Russia has grown by 110%, predominately thanks to an increase in the number of cars (Iadrennikova, 2018). In 2016, for example, cars accounted for 87.5% of the entire number of vehicles. As much as 95.6% of them are privately owned. As a result, 90% of road traffic in Russia consists are private cars. The share of public transport and commercial vehicles is below 10% (Mayburov and Leontyeva, 2015).

The growing car ownership rates bring about negative external effects. The quality of atmospheric air has deteriorated considerably in cities, aggravating public health problems and driving up mortality (Golubeva and Magaril, 2013; Magaril et al, 2014). Motor vehicles are one of the main sources of toxic pollutants and greenhouse gases (including CO_2) that harmful to health. Cities are more prone to higher concentrations of pollutants because of motor vehicles (Magaril et al, 2017). Carbon dioxide (CO_2) is the main constituent of the exhaust gases from internal combustion engines. Growing atmospheric concentrations of carbon dioxide causes climate change (Magaril and Golubeva, 2016). Pallavidino et al (Pallavidino et al, 2014) consider cars to be the main source of CO_2 emissions.

Some economic studies (Baumol and Oates, 1971; Baumol, 1972) have proved the effectiveness of indirect taxes as a regulatory tool for decreasing the emissions of CO_2 and other pollutants. Indirect taxes create pricing stimuli that force consumers to change their "polluting" behavior and act in a more eco-friendly and energy efficient way. Tax policy facilitates the implementation of resources conservation programs and the enforcement of tougher eco-standards for automobiles, encourages the

development and adoption of alternative fuels and enables an increase in environmental expenditures (Palaiodimos, 2017). Growing public revenues boosted by environmental taxes enable to tackle environmental as well as social problems, making it possible to reduce the rates of social contributions and income taxes (Mayburov and Leontyeva, 2015; Zimmer and Koch, 2017).

The excise tax on energy products (petrol, diesel fuel, motor oils) is included in the price of motor fuel and affect the cost of the journey. Today, the fuel tax rates in Russia do not factor in fuel efficiency and CO_2 emissions. The mechanism of tax collection should enable not only the fulfillment of the fiscal function of the tax, but also its potential. The hypothesis of the study is that the findings of the investigation into the peculiarities of motor fuel taxes in the European Union and Russia could serve as the groundwork for improving the mechanism of computing tax rates for petrol and diesel fuel. Changing the mechanism of computing fuel tax rates by taking into account energy efficiency and CO2 emissions would increase the tax rates and the price of motor fuels and, consequently, provide an incentive for lower car ownership levels, tougher emission standards for cars and the use of "greener" fuels. As a result, one should expect a substantial increase in government revenues, lower levels of air pollutants emissions, and improvements in public health.

Methodology

The analysis of excise taxes on motor fuel in the European Union and in Russia was performed for the period from 2012 to 2016. The research method included a study of the percentage of revenues from excise taxes in the GDP of Russia and the EU member states, and a study of the structure and dynamics of excise tax revenues in Russia by type of energy product. In the EU member states, the list of taxable fuels and energy products includes petrol, gas oil, kerosene, liquefied petroleum gas (LPG), natural gas, heavy fuel oil, coal and coke, and electricity. In Russia, the following petroleum products are subject to tax: petrol, diesel; motor oils; straight-run gasoline; medium distillates; benzene; paraxylene; ortho-xylene; aircraft fuel. Special attention was paid to tax rates on petrol and gas oil because revenues from excise tax on these products make over 90% of total fuel tax revenues both in Russia and the EU countries.

Data on government revenues, tax revenues by type of petroleum product, tax rates and motor fuel consumption were retrieved from the websites of the Federal State Statistics Service (gks.ru), the Federal Tax Service (nalog.ru) and the European Commission (ec.europa.eu).

The main outcome is an argument in favor of changing the way the excise tax on petrol and diesel is collected so that the tax rate varies in line with the CO_2 emissions generated by the fuel and its energy efficiency. Another outcome is an estimated fiscal effect in terms of government revenues thanks to the implementation of the proposed tax collection mechanism.

Works by Russian and foreign scholars served as the methodological and theoretical background for the study. The list of data sources for the study included statutes and regulations, data of the Federal State Statistics Service (gks.ru) and the European Commission (ec.europa.eu), the press, online resources and the author's own research findings.

Results and Discussions

2.1 Excise taxes on fuel and energy products in the EU member states at present

In the EU, the taxation of fuels, energy products and electricity is governed by the provisions of Council Directive 2003/96/EC of 27 October 2003. The Directive establishes a list of products that are subject to tax, the minimum excise duty rates that member states must apply to fuels, energy products and electricity, and possible exemptions.

Under the Directive, the following fuels and energy products are subject to excise tax: petrol, gas oil, kerosene, liquefied petroleum gas (LPG), natural gas, heavy fuel oil, coal and coke, and electricity. The minimum tax rates depend on the use of the product: the rates are higher in case of motor fuels

and much lower for motor fuels used for commercial and industrial use and for heating. The minimum tax rates for energy products and electricity in the EU are given in table 1.

Table 1: Minimum rates of excise taxes on fuel, energy products and electricity in the EU

Taxable energy products	Minimum tax rates			
	for motor fuels	energy products used for commercial and industrial use	for heating and electricity consumed by	
			non-business	business
1. Leaded petrol, €/1000 litres	421	x	x	x
2. Unleaded petrol, €/1000 litres	359	x	x	x
3. Gas Oil, €/1000 litres	330	21	21	21
4. Kerosene, €/1000 litres	330	21	0	0
5. LPG, €/1000 kg	125	41	0	0
6. Natural Gas, €/GJ	2.6	0.3	0.3	0.15
7. Heavy fuel oil, €/1000 kg	x	x	15	15
8. Coal and Coke, €/GJ	x	x	0.3	0.15
9. Electricity, €/MW	x	x	1.0	0.5

Source: European Commission. Taxation and customs union. (2018). Tax information Communication database. Retrieved from https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-energy_en., author's calculations

Member states are free to apply excise duty rates above these minima, according to their own national needs. As of today, Bulgaria, Hungary, Poland, Lithuania, Luxemburg, Spain and Cyprus have taxes on petrol and diesel that are slightly above the minimum rates. In the Netherlands, Italy, Portugal, Great Britain, Sweden, Finland, France, Germany, Denmark, and Belgium, the tax is substantially higher (by around 50%) than the minimum rates.

Both the minimum and the actual tax rates for fuels and energy products depend on how much resources are consumed, but do not take into account environmental harm or the energy content of the products. This leads to distortions between competing sources of energy, for example, between petrol and diesel, or bio-diesel and regular diesel (as the existing tax rate depends on consumption volumes, rather than on energy content, renewable energy sources, such as bio-diesel, that have a lower energy content have to carry a heavier tax burden compared to conventional fuels.

When considering the peculiarities of taxes applied to natural gas, coal and electricity, it has to be noted that the tax rates depend on the use of the energy sources. For example, the minimum levels of excise duty for electricity amount to 0.5 Euro/MWh and 1 Euro/MWh for business and non-business use respectively. Such difference in the tax rates is due to the considerations of international competitiveness and energy conservation.

There is, therefore, an environmental element in excise taxes on fuel in the EU that shows in variability in tax rates by type of fuel. The rates may vary further depending on sulfur content, for example (as is the case in the Netherlands, Denmark and Germany). However, the existing mechanism of taxation does not fully take into account the polluting effect of fuels and energy products.

2.2 Excise Taxes on Motor Fuels in Russia at Present

Under Article 22 of the Tax Code of the Russian Federation, the list of excisable goods includes the following types of petroleum products: petrol, diesel fuel, motor oils, straight-run petrol, middle

distillates, benzene, paraxylene; ortho-xylene; aircraft fuel. Petrol was added to the list of excisable goods in 1996. Originally, the tax was levied as a percentage of the selling price. Starting from 1998, the tax is collected as a lump-sum tax and varies based on octane levels. In 2001, diesel fuel was placed on the list of excisable products, and the tax rates grew considerably.

The most significant changes in fuel taxes occurred in 2011 when a transition was made from tax rates pinned to octane ratings to tax rates varying by emissions standard type. Additionally, motor oils, straight-run gasoline, and other fuels were included in the list of excisable energy products in 2011. Between 2015 and 2018, the list of excisable energy products has not changed much (table 2).

Table 2: Fuel tax rates in Russia, RUB per tonne

Excisable goods	2015	2016	2017	2018	% of growth 2018 on 2015.
Petrol:					
✓ below Euro 5 standard	7300	10500	13100	13100	179.5
✓ Euro 5	5530	7530	10130	11213/8213*	202.8
Diesel fuel	3450	4150	6800	7665/5665*	222.2
Motor oils	6500	6000	5400	5400	83.1
Straight-run gasoline	11300	10500	13100	13100	115.9
Benzene, paraxylene, ortho-xylene, aircraft fuel	2300	3000	2800	2800	121.7
Middle distillates	x	4150	7800	8662	x

** - effective as of 1 July 2018*

Source: Federal Tax Service of the Russian Federation. Official site (2018). Retrieved from: https://www.nalog.ru/rn66/related_activities/statistics_and_analytics/forms/, author's calculations

In Russia, like in European countries, fuel taxes are charged on a per unit volume of the consumed fuel that is used as the tax base. The tax base does not reflect the amount of pollutants that the fuel contains, but the tax rates vary by fuel environmental class. The rates are lower for greener fuels (Euro 5 petrol) and higher for the types of petrol that are below the Euro 5 standard.

2.3 Fiscal importance of fuel taxes in the EU

Between 2012 and 2016, government revenues from environmental taxes across the EU-28 varied from 2.4 to 2.4% of GDP and account for 6.3 to 6.4% of total tax revenues. In 2016, the share of environmental taxes in GDP was at the highest in Denmark (4%), Slovenia (3.9%) and Greece (3.8%). Table 3 shows the share of fuel taxes in the GDP of EU member states in 2012-16.

Table 3: Revenue from fuel taxes as share of GDP in EU member states in 2012-16

EU countries	2012	2013	2014	2015	2016	% of growth 2016 on 2012	Country ranking (2016)
Belgium	1.1	1.1	1.1	1.1	1.2	0.1	20
Bulgaria	2.3	2.4	2.3	2.4	2.3	0.0	3
Czech Republic	1.8	1.8	1.8	1.7	1.7	-0.1	12
Denmark	0.9	0.9	0.9	0.9	0.9	0.0	27
Germany	1.3	1.2	1.2	1.2	1.2	-0.1	23
Estonia	2.0	1.9	1.9	2.1	2.2	0.2	4
Ireland	1.1	1.1	1.0	0.8	0.8	-0.3	28
Greece	1.9	1.8	1.9	1.8	1.9	0.0	8
Spain	1.0	1.2	1.1	1.1	1.1	0.1	24
France	1.1	1.1	1.1	1.2	1.2	0.1	19
Croatia	1.7	2.0	2.1	2.3	2.3	0.6	2

Italy	1.6	1.6	1.6	1.6	1.5	-0.1	15
Cyprus	1.5	1.8	2.0	2.1	2.1	0.6	5
Latvia	1.7	1.7	1.7	1.8	1.9	0.2	7
Lithuania	1.5	1.5	1.6	1.7	1.7	0.2	10
Luxembourg	2.2	2.0	1.8	1.6	1.6	-0.6	14
Hungary	1.7	1.7	1.7	1.7	1.8	0.1	9
Malta	1.3	1.2	1.2	1.2	1.2	-0.1	22
Netherlands	1.1	1.1	1.1	1.1	1.1	0.0	25
Austria	1.3	1.2	1.2	1.2	1.2	-0.1	21
Poland	1.9	1.9	1.9	2.0	2.1	0.2	6
Portugal	1.6	1.5	1.5	1.6	1.7	0.1	11
Romania	1.3	1.4	1.7	1.7	1.7	0.4	13
Slovenia	2.8	2.7	2.6	2.6	2.6	-0.2	1
Slovakia	1.4	1.4	1.4	1.4	1.5	0.1	16
Finland	1.3	1.3	1.3	1.2	1.3	0.0	18
Sweden	1.1	1.0	1.0	1.0	1.0	-0.1	26
United Kingdom	1.5	1.4	1.4	1.3	1.3	-0.2	17
EU-28 average	1.3	1.3	1.3	1.3	1.3	0.0	

Source: European Commission. Taxation and customs union. (2018). Tax information Communication database. Retrieved from ttps://ec.europa.eu/taxation_customs/sites/taxation/files/ resources/documents/taxation/excise_duties/energy_products/rates/excise_duties_energy_products_en.pdf, author's calculations

Over the period of observation, the share of fuel taxes in GDP remained unchanged at 1.9% across the EU-28. The highest growth was observed in Croatia and in Cyprus (+0.6%), in Romania (+0.4%), and in Estonia, Latvia, Lithuania and Poland (+0.2%). The share of fuel taxes in GDP decreased considerably in Luxemburg (- 0.6%), Ireland (-0.3%), Slovenia and Great Britain (-0.2%). In 13 EU member states, the share of fuel taxes in GDP increased over the five-year-period, while remaining unchanged in five states and going down in only 10 countries. The dynamics is largely due to competition for fuel taxes that is typical of the EU member states. Smaller states use lower tax rates to collect disproportionately large revenue from fuel taxes (the so-called "fuel tourism" issue). For example, Poland and Romania apply lower tax rates to petrol and diesel fuel compared with the neighboring states, which results in considerably higher per-capital sales of fuel and, consequently, higher per-capita fuel tax revenues than in Germany, Belgium, and the Netherlands (Mayburov et al, 2018).

The EU member states earn considerable revenues from energy taxes and other environmental levies that have been growing in absolute terms.

2.4 *Fiscal Importance of Fuel Taxes in the Russian Federation*

Table 4 depicts the role and importance of excise taxes on fuel in the system of government revenues in Russia.

Table 4: Environmental tax revenues (excluding VAT and customs duties) in Russia

Indicators \ Years	2012	2013	2014	2015	2016	% of growth 2016 on 2012.
Environmental taxes (excl. VAT and customs duties), % of GDP	4.9	5.1	4.7	4.8	4.5	-0.4
Excise taxes on fuel, % of GDP	0.6	0.6	0.5	0.4	0.6	-
Excise taxes on fuel, billion RUB.	358.8	412.9	395.3	314.5	485.6	135.3
incl.:						
- petrol	219.9	224.6	239.0	201.1	319.2	145.2
- diesel fuel	126.2	173.0	139.5	102.1	154.8	122.7

Source: Statistics Russia (2018). Russian Statistics Annual Report. Retrieved from: http:// www.gks.ru/bgd/regl/b17_13/Main.htm; author's calculations

Over the period of observation, government revenues from environmental taxes (excluding VAT and customs duties) as a share of GDP varied from 4.5% to 5.1%. Over the five-year period, the figure was down 0.4%, but it still considerably higher than in the EU member states (2.3% to 2.5% of GDP). The mineral extraction tax contributes the biggest share to government revenues from environmental taxes, accounting for an average of 3.8% of GDP. Indirect environmental taxes generate much smaller revenue. For example, fuel tax revenues as a share of GDP vary from 0.4% to 0.6%, which is much lower than in the EU. It possible to conclude that the potential of environmental excise taxes is not fully utilized in the Russian Federation.

The primary taxable energy products that account for over 95% of fuel tax revenues in Russia are petrol and diesel fuel. In 2016, revenues from the excise tax on petrol made up 65.7%, or two thirds of total government revenues from fuel taxes. Meanwhile, the consumption of diesel fuel by all types of motor vehicles is four times higher than the consumption of petrol (18.5m tonnes versus 4.6m tonnes). This indicates a competitive distortion between the two main types of motor fuel.

Revenues from the excise tax on petrol grew the fastest (145.2%). Revenue from an excise tax is usually a function of the consumption of the taxable product and changes in the tax rates. From 2012 to 2016, the actual volume of petrol consumption did not change considerably. In 2013, for example, petrol consumption increased 3.6%, but then decreased annually by 0.2 to 0.8%. The tax rate for petrol increased by 48.5% to 80% (Table 2) depending on the type of petrol. The slower growth in revenues from petrol tax, by contrast with the tax rate dynamics, is due to a transition to production of better-quality petrol that is taxed at a lower rate. Consequently, there has been an environmental effect of the tax because the consumption of greener petrol reduces the harmful impact on the environment.

2.5 The Problem of the Ratio of the Tax Rates for Petrol and Diesel Fuel

One has to pay attention to the ratio of the tax rates for petrol and diesel fuel. Today diesel fuel is taxed at a lower rate than petrol in all EU member states except Great Britain where a universal tax rate of 654.06 Euros per 1,000 liters is applied. Diesel fuel, however, is far more efficient than petrol and causes a lot more damage to the environment. Some expert assessments find that petrol for road use generates 5.9 euro worth of negative environmental impacts per km, compared to 7.7 euro cents worth of environmental damage per km generated by diesel.

The disproportion can be attributed to the fact that petrol is primarily consumed by individuals using cars, while diesel fuel is primarily consumed by transportation businesses (most of freight vehicles and buses are powered by diesel fuel). A lower tax rate for diesel fuel and, consequently, a smaller

share of the tax in the selling price work as an incentive for road freight transport and alleviates the tax burden for the cargo industry. At the same time, non-commercial consumption of diesel fuel has been growing. Higher demand for diesel fuel has been pushing prices up in comparison with petrol prices.

Both in Russia and the EU member states diesel fuel is taxed at a lower rate than petrol despite the former's higher energy efficiency and environmental hazard. In Russia, however, the tax rate for petrol and that for diesel fuel vary at a wider margin. In 2018, the tax rate charged on petrol that is below the Euro 5 emissions standard was 70% higher than the tax rate for diesel fuel, whereas in the EU the minimum tax rate for petrol is 27.6% higher than that for diesel fuel. The actual tax rate difference in most EU countries is even narrower.

The cost of producing diesel fuel is much lower than the cost of refining oil into petrol. The reason lies in the technology that apart from straight distillation incorporates such costly processes as isomerization, reforming, catalytic cracking with hydrotreatment, and alkylation. The diesel fuel production process only includes fractional distillation and hydrotreatment (Magaril and Golubeva, 2016). The selling prices of diesel fuel and petrol and the narrow gap between them do not match the cost of production and are largely due to growing demand for diesel fuel in the market. At present, petrol stations sell petrol and diesel fuel at the same price despite the fact that the cost of diesel fuel production and the excise tax on diesel fuel are much lower than that of petrol. Consequently, it is oil refineries, middlemen and petrol stations who get to keep the additional revenues generated by the higher demand for diesel fuel, whereas the government is losing on the inadequately low tax rate.

The excise tax makes up a fairly large part of the selling price of petrol and diesel fuel in European countries – from 30.5% in Hungary to 46.4% in the UK for diesel fuel, and 33.6% in Hungary to 50% in the Netherlands for petrol. In Russia, the excise tax accounts for an average of 24% of the selling price of petrol and 16% of the selling price of diesel fuel. Given the considerably lower tax rates on main fuels in Russia than in Europe, there is enough room for an increase. In general, the motor fuel taxation mechanism does not appear to be optimal and needs improving.

2.6 *Ways of improving excise taxes on motor fuel in Russia*

The mechanism of charging environmental taxes in Russia and the EU countries is based on fuel consumption and does not take into account negative environmental impacts and the energy content of the products being consumed. In the Russian Federation, the environmental damage caused by the combustion of fuels is reflected in tax rates that vary by fuel eco-class and fuel use. Consequently, both in Russia and the EU, motor fuels and other energy products are taxed on the basis of their environmental impacts that are, however, not entirely reflected in the taxes. As a result, there are distortions in the taxation of competing fuels (petrol versus diesel fuel) that show in unreasonably low tax rates on diesel fuel compared with petrol and a shortfall in tax revenues collected by the government.

Designing fuel excise tax so that it factors in the environmental impacts of fuel consumption should help strike a match between the tax burden and the environmental pollution caused by the excisable product, and therefore make taxation fairer and equitable. The implementation of such an approach calls for a change to the mechanism of motor fuel taxation. It is necessary to eliminate distortions between competing fuels and create incentives for higher energy efficiency and emissions reduction. One can therefore consider it a proven hypothesis that the analysis of the peculiarities of motor fuel taxes in the European Union and Russia makes it possible to define directions for improving the mechanism of computing specific rates of excide duty on petrol and diesel fuel.

The author believes that taxes on motor fuels must take into account their energy content and environmental impacts. Some authors (Golubeva and Magaril, 2013; Magaril and Golubeva, 2016) propose introducing a carbon tax. Today, a tax on CO_2 emissions is used in Denmark, Ireland, Finland and Sweden, but it is not harmonized at EU level. It is worth taking a look at the European

Commission's proposal to revise the Energy Tax Directive and adopt energy taxes that would be split into two components:

- one component would be based on the emissions of CO_2 from the energy product and would be charged on a per-ton basis;
- the other component would be based on the energy content of the product, rather than its use. The minimum rate was proposed to be set at a euro-per- GJ basis.

In practice, though, it might be difficult for the taxpayer to determine the tax base (to measure CO_2 emissions and the amount of generated energy) in compliance with the proposed mechanism.
That being said, the system of fuel taxation in the Russian Federation should be designed with the following considerations in mind (Iadrennikova, 2018):

1. The tax base remains the same: the volume of consumed fuel expressed in tons.
2. When computing the tax rate it is necessary to factor in CO_2 emissions and energy content.
3. CO_2 emissions from the combustion of fuel depends on its density. The average density of petrol is around 0.75 g/cm^3; the density of diesel fuel is around 0.84 g/cm^3. Carbon dioxide emissions of petrol-powered cars amount to 3.134 tons-per-ton, and 3.174 tons-per-ton in diesel-powered cars. The calorific value of petrol is 41.06 GJ/t. The calorific value of diesel fuel is 43.22 GJ/t. The per-ton charge for CO_2 emissions is set at 575.6 RUB; the per-GJ charge for emitted energy is set at 275.4 RUB.
4. The tax rate for petrol remains unchanged.
5. The tax rate for diesel fuel will be 13,730 RUB per ton (3.174×575.6 + 43.22×275.4).

The fiscal impact of the revised tax will be significant provided that the production and consumption of diesel fuel in Russia remain unchanged and the tax rate is set at 13,730 RUB per ton of diesel fuel (an equivalent of 205 dollars per ton at the current exchange rate). In that case, annual revenue from the excise tax is projected to grow by 122.5bn RUB (an equivalent of 1,828.4m dollars).

If implemented, the proposal would spur the consumption of energy from sources which produce less CO_2. The energy component of the tax rate would make it possible to eliminate the existing distortion of competition between petrol and diesel fuel. Taxation of fuel and energy products tied to energy content and CO_2 emissions would encourage a more effective use of energy resources and reduce carbon dioxide emissions because the proposed mechanism sends a clear price signal to the consumer about the real energy value of the product being consumed. It would also make unnecessary to introduce a separate tax on carbon dioxide emissions.

The downside of a higher excise tax on diesel fuel is that it would drive up selling prices and, consequently, the expenditures of individuals and transportation companies and transportation costs in other industries, including agriculture. The price growth would be less drastic compared to the hike in the excise tax rate if oil refineries and petrol stations reduced their profit margin. Higher transportation costs incurred by agricultural producers could be smoothed out with subsidies for agriculture businesses in order to keep agricultural commodity prices down.

The higher cost of motor fuel would spur a transition to more efficient and environmentally friendly vehicles and alternative fuels (natural gas, electricity). Motorists would get motivation to use public transport. Haulage businesses would have to streamline logistics. All of this would reduce car ownership rates and motor traffic in big cities, improve the environmental situation and public health.

Conclusion

The analysis of the system of excise taxes on motor fuel in Russia shows that the taxation mechanism is based on consumption and does not take into account negative environmental impacts and energy content. Moreover, there is distortion of competition between the two main types of motor fuel – petrol and diesel fuel – that shows in unreasonably low tax rates charged on diesel fuel compared with petrol and a shortfall in the government's tax revenues. The existing motor fuel tax system

fulfills the fiscal and regulatory functions of taxation quite effectively, but is not optimal and needs improvement.

Given the current volume of production and consumption of diesel fuel in Russia, an excise tax tied to the energy efficiency and carbon dioxide emissions of fuel could generate additional public revenue to an amount of 122.5bn RUB (an equivalent of 1,828.4m dollars) annually. Taxes are a powerful instrument for influencing taxpayers' behavior with economic means and encouraging them to use "green" fuel and environmentally friendly vehicles. The implementation of the proposed novelties will drive up tax rates and the selling prices of diesel fuel, thus reducing its consumption and spurring a transition to more efficient and environmentally friendly vehicles and alternative fuels. One should, therefore, expect a substantial increase in public revenue, a decrease in pollutant emissions, a reduction in car traffic, improvements in the environmental situation and public health in cities.

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Big Data Analytics Adoption in Malaysia Warehousing Industry

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Abstract

The purpose of this paper is to investigate the key determinants that affect the intention on adoption of Big Data Analytics (BDA) in Malaysian warehousing industry. Technology-Organization-Environment (TOE) framework has been adopted as the main theory to support the conceptual framework. The determinants of BDA adoption potential within Malaysian warehousing industry was explored using this conceptual paper. The theoretical gap was identified in this study by exploring the factors of BDA adoption potentials. Findings suggest five determinants that might have essential effects on the BDA adoption potentials within warehousing industry. This study will serve as a facilitator for warehousing firms to implement the most attractive and appropriate strategies in adopting BDA thus boost Malaysian sustainable supply chain and logistics system. This research paper enables warehousing industry to understand clearly the possible determinants that need to be considered for BDA adoption in warehouse operations. Previous studies explored the adoption of BDA in emerging economies as well as at the organizational level by using TOE framework. However, TOE framework has not been integrated in examining the BDA adoption intentions in warehousing industry. This study is an extension of the existing literature for future empirical study in this area.

Keywords: Big Data Analytics (BDA), Warehouse, TOE framework, Sustainable supply chain

1. Introduction

The term '*Big Data'* was first introduced by Roger Magoulas from O' Reilly Media in 2005 which implies that traditional data management tools are almost impossible to manage and process a wide range of data due to the size and complexity of the data (Gali et al., 2012). When meaningful insights of the underlying data cannot be uncovered by traditional data mining and handling techniques, big data becomes the most viable option as the data sets are so voluminous and complex for conventional data-processing software (Oracle, 2018). BDA has the capability of extracting different meanings from big data. In IBM's words, BDA is the use of advanced analytic techniques and software such as Hadoop and MapReduce that can cope with very large, diverse data sets (Big Data sets) that include structured, semi-structured and unstructured data from various sources and different sizes from terabytes to zettabytes (IBM, 2018). In addition, the BDA can examine large amounts of data to uncover hidden patterns, correlations and other insights (SAS, 2018).

Basically, big data comprises five characteristics which are known as the 5Vs. This means high volume, high value, high velocity, high veracity and more variety (Ishwarappa and Anuradha, 2015). The big data always accompanied by a large amount (volume) of data sets. Many companies have high volume of data

in their database but they do not have the capacity to process the data. Hence, it makes no sense focusing on minimum storage units since the total amount of data or information is growing exponentially every year (Williamson, 2015). Veracity of big data is related to the accuracy of the result from the data set being analyzed. Veracity is a function of the data source. It may refer to as the integrity, trustworthiness and data authenticity as being a true representation for the data sampling frame (as it is not possible that all the data is going to be 100% correct) (Paryani, 2012). Veracity of big data is the hardest thing to achieve due to the fact that the volume and variety of data is difficult to identify as well as the usefulness and accuracy of the big data (Trifu and Ivan, 2014).

Velocity of big data refers to the frequency or the speed on how the data can be addressed, processed, stored and analyzed in a given time frame. It is a measure of the speed of data generation, data transformation and data algorithm (Walunj et al., 2016). It requires real time storage and processing models to analyze the big data (Kumar and Kumar, 2015). Variety of big data refers to the types of big data set that is needed to be addressed. These data set usually encompass structured data, semi-structured data and unstructured data. Unstructured data occupy 80% of the storage space whereas structured data only occupy 20% of the storage space inside the big data (Hurwitz et al., 2013). Value of big data is the most important aspect because big data are having a high potential value as all businesses hope to have high Return on Investment (ROI). It includes large volume and variety of data that could be easy to accessed, analyzed and delivered with expected reliable results. It is useless for us to only access the big data without extracting the important value from the big data (Elgendy and Elragal, 2014).

Big data differ significantly from small data or traditional data. First of all, it has changed from random sampling analysis to analysis of all the data. In small data era, it only can collect small amount of data from the sampling frame to analyze because the tools to store, record and analyze the data are insufficiently developed. In big data era, as the data analytics technique become advanced, the volume of data that can be addressed also increase. Hence, it has the capability to analyze all the data easily without relying on random sampling analysis (Chai, 2016). Furthermore, it has changed from pursuing the accuracy of data to accepting complexity of data. Small data is mainly concern on the accuracy of structured data because the basic requirement is to reduce error in order to ensure the quality of the data. For big data, it emphasizes on integrity and complexity of the data, so as to make the fact of things more legible (Zhang, 2014). Moreover, it has changed from emphasizing on causality to correlational relationship (Zhou and Li, 2016). Causality played a key role in the development of things during the era of small data. In big data, analysis of things can be easier, clearer and speedier through correlation relationship. Big data era is seeking for the fact of things but not the reason of the things, therefore correlation relationship enable the fact of things to be presented in a clearer and concisely (Wang, 2015).

BDA and Logistics can be closely related as logistics sector can gain different kind of benefits from the advancement of big data. This is because logistics providers today need to manage massive flow of goods that create large amount of data. The data tracked are not fully exploited to create useful value for the logistics company and there is still untapped potential for improving the operations flow, customer experience and creating new business model in overall logistics activities (DHL, 2013). Therefore, BDA is important to solve these problem and can create useful business value to the logistics sector.

According to Jacqueline Bloemhof, there are some potential usage of BDA in logistics such as strategic sourcing, supply chain network design, demand planning, procurement and routing optimization (Big Data Alliance, 2016). Logistics companies which invest in BDA solutions can gain competitive advantage over their competitors (Marshall, Mueck and Shockley, 2015). BDA can help logistics companies to conduct high performance analysis and improve the productivity and competitiveness (Kott et al., 2015). BDA allows the logistics provider to match their demand accurately and secure customer operations. DHL believe that BDA will improve efficiency of logistics operation and experience of customer through the creation of new business models (Hopkins and Hawking, 2018). For delivery

services in logistics activities, BDA can help the courier companies or logistics companies to monitor the delivery route and use BDA application to find out the shortest route to the destination (KPMG, 2017). In addition, it also can provide real-time traffic data and also the weather data to optimize the delivery process.

In Malaysia, BDA is still in gradually emerging and many companies have started to adopt this technology (Ng, 2017). Malaysia is on track to becoming the hub of BDA with leading technology in Southeast Asia. Malaysian Digital Economy Corporation (MDEC) which is an agency under the government of Malaysia aim to work hard in encouraging and increasing BDA adoption across all sectors (MDEC, 2018).

According to the report from MDEC, there are about 22 multinational BDA companies from six countries currently setup in Malaysia as of August 2016. Furthermore, there are about 32 BDA companies whose services are exported to Malaysia. About 47 BDA start-ups have made themself to be fully immersed in BDA sector. Market research from International Data Corporation (IDC) found that the BDA market for software solutions in Malaysia is forecasted to reach RM595 million (USD144 Million) by 2021 (Ng, 2017). A study found that Malaysia has progressed within the ad-hoc stage (experimental proof of concept and undefined processes) in the BDA maturity-landscape which is in stage 1 and already progressing up the maturity curve since 2015 (Kua, 2015). This indicates that many organizations in Malaysia have recently started adopting BDA or deploying BDA solutions.

There are some challenges that influence the intent to adopt BDA by firms in the global perspective and also in Malaysia perspective. In the global perspective, one of the main challenges is the data transparency issue among the firms. Lack of transparency of data means that all the process on how the data are managed, analyzed and addressed are confidential and will not be available for public consumption. Lack of transparency of data in part of businesses and government constitute a source of concern to the customers. This will create imbalance in society's information flow as the businesses and government are getting to know people better but people do not know how they operate (Klous and Wielaard, 2016). Facebook-Cambridge Analytical data scandal is one of the well-known scandal which is a typical example of lack of transparency among the personally identifiable data (Meredith, 2018).

In addition, a lot of firms do not have sufficient resources for adopting and practicing BDA as the costs of implementation is very high (Balachandran and Prasad, 2017). If an organization does not have adequate resources for implementing BDA in its business operations, then the data and information for making decisions will be inaccurate and this will lead to ill-advised decisions which would be harmful to the future of organization. Insufficient resources in implementing BDA is also a problem in global Supply Chain Management (SCM) perspective. Data and analytics resource capacities vary among the firms in supply chain networks. If there are any inadequacies in supply chain partners' data and analytics resources, discrepancies in sharing real-time data and information might be generated.

Insufficient resources can also be referred to as lack of big data expertise. This is one of the current problems being faced by firms in adopting big data analytics in Malaysia. More data experts are needed to fill up the positions in big data sector because the demand for BDA solutions by the firms are growing from infancy stage. If the supply of data experts cannot fulfill the demand of the firms who adopted big data analytics solutions, then the growth in adoption of BDA in Malaysia will be inhibited. Therefore, only the firms which have sufficient human capital that seek for foreign big data expertise are willing to adopt big data analytics in Malaysia (Shah, 2017). Lack of big data expertise will have a direct impact to the level of BDA adoption among the firms in Malaysia.

Lack of awareness towards the benefits of BDA, insufficient investment, unwillingness for firms to share their data and lack of success testimony are among the main factors that cause low level of BDA adoption

among the firms in Malaysia (Goh, 2015). Firms that are uncertain over BDA and its capabilities to perform will delay the adoption of this new technology (Shah, 2017).

Lastly, Technology-Organization-Environment (TOE) framework which is the theory being applied in this study has not been integrated in examining the BDA adoption in warehousing. There are dearth of research related to the BDA adoption in warehouse. Previous studies like Lai, Sun and Ren (2018) and Chen, Preston and Swink (2015) have done their research related to the adoption of BDA by using TOE framework as their theoretical foundation but they tend to focus more on the broader area of Logistics and Supply Chain Management (LSCM).

Lai et al. (2018) applied TOE framework to study specific research context of SCM which is a wider area as there are many elements or activities encompassed in the entire supply chain. They have identified four categories of factors that will affect the adoption of BDA in their conceptual framework which include technological context, organizational context, environmental context, and Supply Chain characteristics. Supply chain characteristics act as a moderator in their study which will affect the strength of the relationship between the variables in TOE framework (independent variables) and the intention to adopt BDA (dependent variable). Chen et al. (2015) use TOE framework to study on the value creation driven by the actual usage of BDA on the organizational level throughout the supply chain. They adopted the variables from TOE framework as the independent variables and actual usage of BDA as the dependent variables in their conceptual framework. Thus, our study will only focus on the adoption of BDA in warehousing. Warehousing is an important key component of LSCM. Focusing on warehousing narrows down the study scope, hence tend to find out the factors that will affect the intention of warehousing firms in Malaysia to adopt BDA in their businesses by using TOE framework as theoretical foundation.

2. Literature Review and Proposition Development

2.1 The current state of BDA in Malaysia warehouse

In 2017, one of the world largest e-commerce company Alibaba Group came to Malaysia and established the world's first Digital Free Trade Zone (DFTZ) in Malaysia. The founder of Alibaba Group, Jack Ma said he wanted to build the electronic world trade platform (eWTP) in Malaysia (Naidu, 2017). Therefore, he has set up a regional logistics hub in Malaysia to support the DFTZ and increase the logistics system (Xin Hua Net, 2017). The first phase of the DFTZ on the logistics hub is a warehousing facility that operated by POS Laju Malaysia, National Courier of Malaysia. This warehousing facility is basically transformed from an old terminal cargo to full-fledged warehouse with sorting, shelving, distribution, temperature control storage, custom clearance and pick-pack facilities that deploy automated material handling equipment (AMHE) (Alibaba, 2017). Malaysia Airports Holdings Berhad and Cainiao Smart Logistics Network, Alibaba's logistics arm (Leong, 2017) have jointly developed the second phase of warehousing facility in the logistics hub. The cooperation between these two companies has greatly increased the importance of warehousing facility in the logistics hub of Malaysia (Alias, 2018).

Alibaba Group logistics platform, Cainiao Smart Logistics Network has brought the technologies and professionals in BDA to their system along with the cloud computing into the warehousing facility of the logistics hub in Malaysia (Xinhua, 2017). Along with the linkage between BDA and logistics cloud of Cainiao Logistics Network that implemented in the warehouse, they can ease the process of activities in warehouse such as procurement, storage, custom clearance and goods delivery (She, 2017). These actions will make significant impact to the logistics industry of Malaysia especially the warehousing industry and will stimulate the warehousing firms to adopt BDA in their warehouse daily operations (Chandran, 2018).

2.2 BDA in Warehousing

BDA is needed in warehouse firm along the supply chain activities. This is because BDA will enable warehouses to have better decision making, identify and trace errors easily, forecasting demand that will affect the level of inventory in warehouses and have efficient operation flow by using different types of BDA (Bradlow et al., 2017). Furthermore, BDA is capable of transforming the business process in logistics in the warehouse or distribution area such as optimize the inventory levels and the supply chain activities. It also can improve retailers' inventory management and customer service for logistics activities in the warehouse (Schmarzo, 2013). BDA enables the warehousing firms to identify inventory levels, delivery miss-matches and incoming deliveries with the real-time conduct of BDA within the Enterprise Resource Planning (ERP) system. Based on the material flow data, BDA ease the process of distributing goods because it can perform real time optimization of complex webs of distribution hubs and warehouses (KPMG, 2017).

2.3 Theoretical Foundations

There are many theories that have been developed and used in Information Technology (IT) research (Lim et al., 2009). However, we only want to focus on those theories that influence the user adoption and relative behavior towards the technology innovation within organization as related to our research paper (Ndubisi and Jantan, 2003; Verma and Bhattacharyya 2017). We tend to choose Diffusion of Innovation (DOI) theory and TOE framework as integrated theories foundation to support our study because TOE and DOI are developed for predicting organization adoption at the firm level (Oliveira and Martins, 2011; Williams et al., 2009; Liu et al., 2008) and our research are mainly focusing on warehousing firms in Malaysia.

DOI is used to describe the process from creation of technology innovation to the usage and the technology adoption over time. We can use the perceived characteristics of DOI to explain the factor that affect new technology adoption (Tu, 2018). Rogers (2003) has suggested that the technology adoption greatly depends on five perceived characteristics which are relative advantage, compatibility, complexity (simplicity), observability and trialability (Ngah et al, 2017). DOI is still insufficient to support our study as it does not cover the external factor which is also termed as environmental context (Vermai and Bhattacharyya, 2017).

Based on this reason, the study incorporated TOE framework as a grounded theory to support DOI theory which lack environmental context. TOE framework was developed to elucidate firm's intention and behavior to adopt and implement a technology innovation with the consideration of three contexts which are technological, organizational and environmental context (Senyo et al., 2016). It can help to identify the internal factor and external factor that influence firm's intention for adopting and implementing of new technology (Gutierrez et al., 2015).

The difference between DOI theory and TOE framework is that the TOE framework addresses more firm level evaluation such as environmental context which provides big picture about the mechanism in decision making process for adopting new technology on firm level (Lai *et al*., 2018). TOE framework explains DOI theory on intra-firm innovation diffusion and cover the external firm factor (Hsu et al., 2006; Oliveira and Martins, 2011).It is important for researcher to combine more than one theoretical model in order to have better understanding of the adoption on new technology innovation (Oliveira and Martins, 2011).
There are some common variables between DOI theory and TOE framework which are complexity, compatibility and relative advantage. DOI framework can be seen as a small part of TOE framework to adoption of new technology which does not cover environmental factors. It is not sufficient to conduct research that consider internal and external factors by using DOI only. Hence, the decision to adopt TOE framework as the main theoretical framework which already comprise three variables (relative advantage,

compatibility and complexity) of DOI framework in it for this study. Taking the TOE framework developed by Agrawal (2016) which related to BDA adoption in Asian countries as a reference, this study has selected some of the variables which are relative advantage, technological infrastructure, absorptive capacity, industry competition, and government support. These variables are chosen due to their ability to provide significant result based on many previous researchers who use TOE framework and DOI theory to study adoption of new technology innovation. Piaralal et al. (2015) discovered that DOI theory combined with TOE framework are capable of providing useful theoretical framework for those logistics companies especially small and medium sized to explore the use of technology innovation by considering internal and external factors. Therefore, we have developed the following conceptual research framework that integrate TOE framework and DOI theory for our study and it will be discussed in section 3.

2.4 Key Determinants of BDA adoption intentions

2.4.1 Relative advantage

In an early study by Rogers and Shoemaker (1974), relative advantage refers to the extent of perception of an organization that an innovation can be better than the existing idea it replaces. According to Zhu and Kraemar (2005), firms must realize that the adoption of new innovative technologies in business operations will either provide insights and solutions to existing problems or offer new production opportunities like enhanced operational effectiveness and efficiency, and improved productivity. In addition, an early study relating to the factors influencing the adoption of Electronic Data Interchange (EDI) intentions shows that relative advantage is the most important determinant within technology context which can influence EDI adoption intentions in warehousing firms (Kuan and Chau, 2001).

Based on the above studies, the most influential factor in technological dimension is relative advantage in order to motivate firms to adopt the innovative technology. Therefore, in this study relative advantage is chosen as a key factor on BDA adoption intentions of warehousing firms in Malaysia under technology context. In order to achieve the research objective, the advantages of BDA have to be mainly focused. Decision makers will also need to evaluate and make a comparison whether BDA has relative advantage over traditional system in firms. Besides that, BDA can help firms in predicting risks, tracking, decision-making process, and innovating in real time compared to conventional system. BDA can also help to improve the efficiency of business operations, reduce lead time, and reduce labor costs if it is integrated with backend systems (Agrawal, 2015).

Furthermore, big data can enhance data transparency in the entire business operation process in warehouses along the supply chain (Aggarwal, 2015). The combination of big data with block chain technology can actually provide the most open way such that all transactions and documentations are conducted in transparent environment (Kristoffer and David, 2017). Bbased on the argument above, we suggest the following proposition:

P1: Relative advantage has a significance positive effect on the intention to adopt BDA in warehousing firms.

2.4.2 Technological infrastructure

Apart from the determinants from technology context, there are also some key determinants from organization context. According to the prior organizational level studies, there are some important characteristics and properties influencing the adoption intentions of BDA in firms. There are identified by former studies, including employees' technical expertise, organizational structure, top management (TM) support, financial readiness, and innovativeness.

Based on one of the studies, expertise, technological infrastructure, and top management (TM) support are considered in the construct of IT sophistication in their empirical test of EDI adoption model (Chwelos et al., 2001; Lai et al., 2018). According to Bharadwaj (2000) and supported by Agrawal (2015). in order for firms to assimilate innovations and improve products more quickly, the firms should have tangible resources based on resource-based theory. A highly integrated technological infrastructure can provide a platform in order to run innovative IT infrastructure applications faster than its competitors who adopt less developed and non-integrated IT infrastructure. Therefore, tangible technological infrastructure is believed that it is a relevant determinant of BDA adoption intentions in warehousing firms. In this research paper, technological infrastructure is chosen as a determinant of BDA adoption intentions in warehousing firms under organization context.

Technological infrastructure refers to the tangible resources of firms such as physical assets that firms need to have them to adopt technological innovations. Based on the prior studies, it has been proven empirically that there exists a positive relationship between technological infrastructure and IT innovation adoption (Sharma et al., 2007; Maduku et al., 2016; Hsu et al., 2014). Assertions by Kuan and Chau (2001) and Kamal (2006) show that the higher a firm has technological infrastructures, the higher chance for it to adopt BDA.

Based on the above review, physical technological infrastructure should have significant positive influence on BDA adoption intentions. According to Bharadwaj (2000) and supported by Agrawal (2015), a firm's technological infrastructure is a major business resource as it acts as a key source for maintaining long-term competitive advantage. Hence, it can be said in such a way that a warehousing firm's technological infrastructure can increase the BDA adoption intentions in firm. We suggest the following proposition:

P2: Technological infrastructure has a significance positive effect on the intention to adopt BDA in warehousing firms.

2.4.3 Absorptive capability

Absorptive capability is also one of the determinants under organization context of BDA adoption intentions within warehousing firms in Malaysia. Absorptive capability can be defined as the capacity and ability to explore the value of new information from outside the firms, assimilate it, and finally apply it to the commercial ends (Cohen and Levinthal, 2006).

According to Cohen and Levinthal (2006), a good and effective absorptive capability can be determined by prior relevant knowledge and intensity of effort. The absorptive capability can be generated in a variety of ways at the level of firms. The studies by Tilton (1971), Allen (1977), Mowery (1983), and Cohen & Levinthal (2006) indicate that the firms which have their own Research and Development (R&D) are better to absorb and apply outside information. This means that absorptive capability can be a byproduct of R&D investment in warehousing firms. According to Cohen and Levinthal (2006), whatever organizational level at which the innovation is defined, the external sources of knowledge are usually crucial to the process of innovation technology adoption. Hence, most of the innovations result from borrowing rather than invention at the organizational level (March and Simon, 1958; Cohen and Levinthal, 2006).

According to early study by Lane et al. (2001), absorptive capability is assumed by existing research as a knowledge base, especially the degree of former knowledge the firms possess. This is quite similar to path dependency that is an organization's ability and motivation to adopt innovative technologies. It can be greatly determined by the degree of prior knowledge and experiences possessed by firms prior to relevant technologies (Hassan and Chatterjee, 2006). This is because such skills, expertise, and knowledge are significant for successful adoption of innovative technologies (Cohen and Levinthal,

2006). Hence, the warehousing firms which have enough prior knowledge and experiences of relevant technologies adoption may have adequate technical and managerial skills in adopting and developing BDA tools and techniques compared to those firms without such technological knowledge. Thus, we subsequently propose the following proposition:

P3: The absorptive capability of firms has a significance positive effect on the intention to adopt BDA in warehousing firms.

2.4.4 Industry competition

Industry competition (competitive) refers to the level of pressure faced by the firm from its competitors is an external power pushing the firm towards the adoption of new technology to keep pace with the competitors (Passos et al., 2016). Some past studies have shown that industry competition is the significant factor that will influence the intention of an organization to adopt new technology (Ghobakhloo et al., 2011).

Firms who use big data in their businesses can gain enormous competitive advantage and also grow their businesses rapidly. If the firm can capture large competitive advantage within the industry, it can gain a leading position on the market (Kubina et al., 2015). The ability to extract big data to gain helpful business insights is the key factor to gaining competitive advantage in today's rapidly changing business environment (Wong, 2012). BDA can act as a catalyst for organizations or firms to achieve competitive advantage (Wamba et al*.,* 2017). Chen et al. (2012) suggested that BDA can provide an opportunity for businesses to achieve competitive advantage.

BDA has positive effect on the supply chain performance and firm's performance (Gunasekaran et al., 2017). BDA has become an approach that generate competitive advantage in logistics and supply chain management (Wang et al., 2016; Sivarajah et al., 2017). Some researchers have empirically tested the relationship between BDA, supply chain agility and competitive advantage (Sangari and Razmi, 2015; Gunasekaran et al., 2017). According to the survey done by EMC Corporation, 40% of Malaysia companies have already achieved the competitive advantage after adopting BDA in their businesses (The Malaysian Reserve*, 2017). This competitive advantage can directly increase the adoption level of BDA for the industries in Malaysia as many companies will intend to adopt BDA after they realize their competitors' edge through BDA.

Warehousing industry that involved in logistics and supply chain management is one of the key focus area under 11th Malaysia Plan (2016 – 2020) (Malaysia Productivity Corporation, 2017). Therefore, warehousing firms need to put some effort in adopting new innovative technology in order to gain more competitive edge. If the warehousing firms in Malaysia realize the competitive advantage inherent in BDA, the intention to adopt BDA in their businesses will definitely soar. Based on this argument, we can establish the following proposition:

P4: Industry competition has a significance positive effect on the intention to adopt BDA in warehousing firms.

2.4.5 Government support

Government support represents the government strategies initiatives that encourage the adoption of new technology innovation (Hoti, 2015). Government support in term of their policies, attitudes and initiatives are important factors that influence the adoption of innovative technology in business firms (Dahnil et al., 2014). Government usually will provide incentives in order to encourage innovative technologies which are believed to be capable of fostering growth in particular sector and economy of the country (PWC, 2010).Government policies come in the form of law which aim to protect and support the firms to adopt

new innovation (Makena, 2013; Nkhoma and Dang, 2013). High support from government can actually expedite the diffusion of new innovation technology throughout the industry (Lai et al., 2018).

The government of Malaysia has actually demonstrated their effort in supporting all industry to adopt BDA. This is because the implementation of BDA is a critical component of the 11th Malaysia Plan (2016 – 2020). In the same light, Malaysia government has established several agency such as Malaysia Digital Economic Corporate (MDEC) and MIMOS Berhad to support any new innovation technology which include the BDA as a catalyst for further economic growth in all sector. Government of Malaysia has the initiatives to support the BDA adoption in Malaysia in order to achieve 20% of GDP from digital economy by 2020 (The Malaysian Reserve**, 2017). All of these actions has shown that Malaysia government is fully supportive in BDA adoption in all industry including public and private sectors. Malaysia government has listed down warehousing industry as a part of focus area in Logistics and Supply Chain Management (LSCM) that can contribute to the productivity and economy of countries under Logistics and Trade Facilitation Masterplan (2015-2020) and 11th Malaysia Plan (2016 – 2020) (Malaysia Productivity Corporation, 2017). If the warehousing firms realize the support from government in BDA adoption to them, they may have the intention to adopt BDA in their warehouse operations activities. Hence, based on the arguments above, following proposition is suggested:

P5: Government support has a significance positive effect on the intention to adopt BDA in warehousing firm.

3. Conceptual Research Framework

Since TOE framework is consistent with DOI theory in both internal and external characteristics of organizations (Pan and Jang, 2008; Wang et al, 2010; Oliveira and Martins, 2011), we will choose the TOE framework that embarks on DOI theory as a prominent research framework. Based on the review of past researchers who used TOE framework and DOI theory such as Lai et al (2018) and Agrawal (2015), we propose a framework to examine the key determinants to adopting BDA in Malaysian warehousing industry. The relationship between the independent variables towards the dependent variable are illustrated in Figure 1. In this theoretical framework, there are five independent variables (relative advantage, technology infrastructure, absorptive capability, industry competition and government support) that influence the dependent variable (intention to adopt BDA) from the TOE framework. Relative advantage is the common variable that appeared in both TOE framework and DOI theory and other variables are adopted from TOE framework. Therefore, the independent variables in this study are mainly from TOE framework and only one of them from both TOE framework and DOI theory.

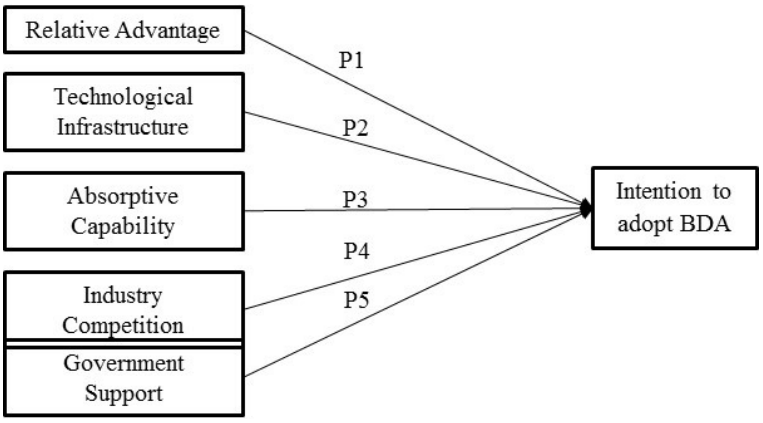

Fig. 1: Conceptual framework

4. Theoretical Implications

There are some key theoretical implications that have been determined in this research that are applicable to scholarly work, educations, and other researches in the future. The issues of BDA have attracted a lot of researchers' attention in investigating the determinants of BDA adoption intentions within warehousing industry. Therefore, it is believed that this study stimulant towards studies on factors influencing the adoption of BDA in firms.

Based on Agrawal's (2015) research, BDA is an emerging technology that can provide operational and strategic advantages. The rate of adoption in the firms across the warehousing industries is yet to be observed. Lack of focus on this technology and factors which impact its organizational adoption has lead the present study to developed and identified a research model in order to examine the contextual determinants that affect BDA adoption within warehousing industry in Malaysia drawing upon the DOI theory (Rogers, 1995) and TOE framework (Tornatzky, Fleischer and Chakrabarti, 1990).

Since that TOE framework indicates a reasonable structure to analyze and consider appropriate determinants that can affect business innovative technology adoption intentions, this research study empirically identifies and supports the applicability of the TOE framework in investigating BDA adoption intentions within warehousing industry in Malaysia. Thus, TOE framework is a recommended framework for other researchers to adopt in understanding the factors of business innovation-adoption decisions in the future (Agrawal, 2015).

In addition, this study treated technology benefits as a general concept. Hence, future research can categorize various benefits into some categories in order for us to be informed of what is the most defining benefit. Besides that, there are some other constructs that is do believed to exist which may affect the adoption intentions of BDA within warehousing industry. Not only the determinants suggested by the TOE and DOI theories, some SCM characteristics might also have essential effects on the BDA adoption intentions. Therefore, in the future research, researchers can try to consider other related factors (Lai et al., 2018). This can also contribute to scholarly in the future.

5. Practical Implications

The potential implications of BDA greatly depend on the extent of intention to adopt BDA within Malaysian warehousing industry. Hence, this research paper aims to investigate about the factors influencing BDA adoption intentions within Malaysian warehousing industry. Furthermore, it is believed that this research can help warehousing firms to implement the most attractive and appropriate strategies in adopting BDA and thus boost the sustainable supply chain and logistics system. The findings from this study will enable the warehousing industry to envision the determinants required for successful to adoption of BDA in their operations.

Each of the variables in this research paper play a key role in influencing the intention for warehousing industry to adopt BDA. Hence, it will provide a clear mindset or better insight for warehousing industry in Malaysia to adopt BDA through our research findings (Ngah et al., 2017). In addition, warehousing industry can extract the importance of big data in this research paper. Since BDA can enhance the overall business efficiency, warehousing industry is urged to implement BDA to enhance to overall logistics system in Malaysia.

By using the TOE framework combined with DOI theory in the research paper, we can empirically test the BDA adoption in Malaysia warehousing industry by providing precise and reliable result. It can provide warehousing firm some insights to understanding the BDA acceptance and its relative advantage for usage. Not only that, this research paper can act as an indicator to measure the environmental change context which can greatly influence the intention for adopting BDA in decision making process (Lai et al.,

2018). Warehousing industry can take this study as a reference in their decision to adopt BDA by study on the variables context. Hence, the warehousing industry in Malaysia can save additional cost and time for them to do research in the same area prior adoption of BDA in their business operations.

This research can also provide useful information for Malaysia Digital Economy Corporation (MDEC) to encourage not only warehousing firms but also other Small and Medium Enterprises (SMEs) to adopt BDA in firms. Since there is low level adoption of BDA in Malaysia, thus, this research study might be valuable for SMEs which have intention to adopt BDA in their firms as the data and information provided in this research can provide many important insights for them to adopt BDA in their business in order to cope with the changing business environment (Verma and Bhattacharyya, 2017). Since there is a lack of BDA expertise, this research paper can increase the awareness of BDA expertise required by firms. MDEC should encourage and train more BDA expertise by developing BDA courses and programs in Malaysia in order for local firms can have enough technical skills from BDA expertise.

6. Conclusion and recommendations

In this research paper, the primary goal is to investigate the determinants of BDA adoption intentions within Malaysian warehousing industry. The theory framework which adopted in this study is the integration of TOE and DOI theory framework. In spite of the past research studies that focused on supply chain and logistics areas only, the areas of warehousing industry are less focused even though it is a vital component in supply chain and logistics management. Therefore, through this conceptual research, the determinants of BDA adoption intentions within Malaysian warehousing industry have been explained and clarified. This paper also identified the theoretical gap, and bridges the uneven scope of research by exploring the determinants of BDA adoption intentions. Through this research, the factors of BDA adoption intentions set the foundation for the proposed theoretical framework.

This paper extends the knowledge of BDA and contributes to the determinants of BDA adoption intentions in warehousing industry. It further emphasizes the relevance of TOE and DOI theory frameworks in BDA research. This research can also serve as a precursor to future research on BDA adoption intentions in other areas. As this study adopts theoretical perspective, therefore, the future direction for future research is to focus on and carry out literature review in-detail and clarify the concepts through empirical study. Indeed, the opinions and insights from practitioners and educators are highly encouraged and valuable in strengthening the proposed theoretical framework.

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Investment Strategies of the Economic Systems Development

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Abstract

In Russia, the main goal of entrepreneurial activity in market economy is to obtain the biggest possible profit. This goal is achieved by strengthening the investment potential of economic entities, which in it`s turn requires them to make management decisions to increase investment attractiveness, taking into account the influence of external and internal factors.At the present time, Russian enterprises face the acute problem of increasing the efficiency of capital reproduction, which is impossible without the intensification of investment processes. Investment strategy becomes the determining factor in the formation and improvement of the economic entities investment potential.The necessity of studying the problems of strategic investment management in modern conditions and determining the vectors of their solution is conditioned by the systemic financial crisis, integration and globalization processes that dictate the need to search for modern methods, tools and strategies of the development of the economic entities investment activities.Foreign business organizations that are already developing and implementing the investment strategies get significant competitive advantages in the global market, which is especially important in the context of globalization.

Keywords: investment strategy, investment activity, investment management, organization.

Introduction

The development of the scientific thought regarding the implementation and effectiveness of investment activity bespeaks the growing relevance of the problems related to the investment, to the search for the management mechanisms and models that will ensure effective result of the investment processes and the development of enterprises, industries and country economy as a whole.

At the present time, there is no clear methodological support for the development of the concept of the investment strategies formation and implementation for the development of economic systems. Investment is needed in all areas of human activities and socio-economic communities: economic, social, natural, technological, entrepreneurial and in any and all, where there is a need to address financial and other aspects of development. Therefore, the strategic management of the investment activity requires an interdisciplinary approach, from the positions of management, economics, law, politics, etc.

Investment strategies are inseparable from the management of economic entities. At the same time, the strategic management of the investment process is one of the most important elements in the decision-making, in the optimization of activities and creation of value by business entities.

A smart investment strategy allows an organization to form rationally its investment potential, use effectively the investment resources, and moreover to develop successfully and to be competitive.

Methodology

The correct formation and implementation of the investment strategy is the main factor of economic entities economic growth. Theoretically, investment is based on Keynesian and monetarist economics. The founder of the economic model of economic regulation and employment theory J. Keynes made a significant contribution to the theory of investment. He wrote that money can be used not only to provide consumer needs, but also designed to increase demand and employment [Keynes J., 1978; Keynes J., 1993]. Keynes pointed out the close connection between the level of employment and the level of "effective demand." The latter indicator directly affects the level of production, i.e., to increase the supply of material goods and services that cause the labor force employment growth.

The monetary conception of M. Friedman is reduced to the limitation of the money supply, i.e., to the conduct of a hard-line monetary policy. The scientist suggests that the annual rate of growth of money amount, regardless of the situation, should be 3 - 4% - at the level of the "natural rate of unemployment" [Fridman M.,2006]. The monetarists believe that the increase in the money supply will lead to inflation.

The determining role of investments in the economy growth is recognized by the representatives of the neo - Keynesian economics. According to the Harrod-Domar model, the investments contribute to the growth of national income on the one hand, and increase the production capacity on the other [Harrod R., 1959].

The role of investment in increasing aggregate demand is recognized by all the economists. The growth of aggregate demand is directed primarily at the increasing of production of consumer goods. The growth of income and consumption of the country's population will ensure stability in the society. The received income is consumed and used in the form of accumulation (savings). Thus, the internal source of investment is the income only. The personal population income is spent on consumption, and some certain part is meant for saving. The consumed part of the income is designed to the demand increasing, i. e. to the growth of production, and the second part is a source of investment - a multiplier of production, services and works growth. Thus, the competent utilization of domestic investment opportunities is economically advantageous.

The purpose of the research is to study the problems of investment activities strategic management of economic entities in the current economic conditions and to justify the organizational and managerial measures for the development and implementation of the investment strategies.

Main Focus in the Article: Issues, Controversies, Problems

Both foreign and domestic economists paid much attention to the problems of the investment activity management. The issues of investment, state regulation of investment activity are considered by specialists of Digital McKinsey (Digital McKinsey, 2017), foreign scientists Harrod R. (Harrod R., 1959), Keynes J. (Keynes J., 1993), Dolan E. J., Lindseyn D. E. (Dolan E. J., Lindseyn D. E., 1994), Hicks J. (Hicks J., 1993), Norcott D. (Translated from English under the editorship of A. N. Shokhin, 2007), by domestic economists I. A. Blank (Blank I. A., 2001), L. M. Borsch (Borsch L. M., 2016), V. G. Fedorenko (Fedorenko V.G., 1999).

A special contribution to the study of the investment process at the macro and micro levels, of the investment strategy formation, the introduction of modern technologies of making investment decisions were made by the following scientists and professional communities: Birman G., S. Schmidt (Translated from English under the editorship of L. P. Belykh , 2006), Boston Consulting Group (Boston Consulting Group, 2016), International Bank for Reconstruction and Development (International Bank for Reconstruction and Development, 2016), Vnesheconombank (Vnesheconombank, 2017), United Nations Conference on Trade and Development (United Nations Conference on Trade and Development, 2018).

At the same time, in the existing publications and scientific developments, the issue of investment and investment activities management is mainly considered in general, without studying the problems of the investment process in the economic systems of various levels. The questions on the concept of choice, formation and implementation of investment strategies of economic entities require some clarification.

Foreign business organizations are currently using a strategic approach, which foresees the involvement of all business processes, transformations in the investment management, and the search of new approaches to the investment management.

The investment policy is becoming more complex, heterogeneous and uncertain. The imperatives of sustainable development pose new challenges for investment policy and give it a greater diversity. This policy also becomes more heterogeneous, reflecting the whole diversity of approaches that guide society and the state before the consequences of globalization. Along with the expansion of state intervention, this makes the investment policy less predictable for investors.

The investment policy is a component of the economic policy of various levels economic entities, conducted in the form of determining the scale and the structure of investment, the directions of its use, sources of receipt, taking into account the need to update and to increase the technical level of fixed assets.

The world investment shows modest growth, and the forecasts for 2018 inspire restrained optimism. The expectations for accelerating the growth in the largest regions, the resumption of trade growth and the increase of corporate profits may contribute to a slight revival of foreign direct investment.

The majority of the investment policy measures adopted in the last few years have been meant for the promotion, simplification and liberalization of investment. Many countries regulate the cross-border investments on the basis of specific investment laws, which raise the same issues as in international investment agreements.

According to Vnesheconombank, the main contribution to investment growth in 2018-2020 will be made by private investments (excluding fuel and energy complex and transport), which will grow by 2.8-5.2% per year. It is expected that the growth of investments in the infrastructure sector will be 2-3% per year. Among them the most active will be investment in rail transport - in average by 5.7% per year during the forecast period. In addition, in the midterm, the growth of investment in the transportation of hydrocarbons is expected to increase [World Development Report, 2016].

The direct investment flows in the emerging economies increased up to $ 80 billion in 2017, thanks to the cessation of the economic recession, rising of oil prices and privatization plans. The investments in the developed countries remained stable in this period, at the level of 1 billion dollars [World Development Report, 2016].

The global picture of direct investment in 2017 continued to be formed mainly under the influence of investment flows from large economic groups such as the G20 and the Asia-Pacific Economic Cooperation forum (APEC), as well as to these groups. The investments in the G20 countries for the first time exceeded 1 billion for the first time which is an absolute record over the last several years [The Boston Consulting Group, 2016].

The inflow of investment by groups of country in 2014-2017 is shown in Figure 1.

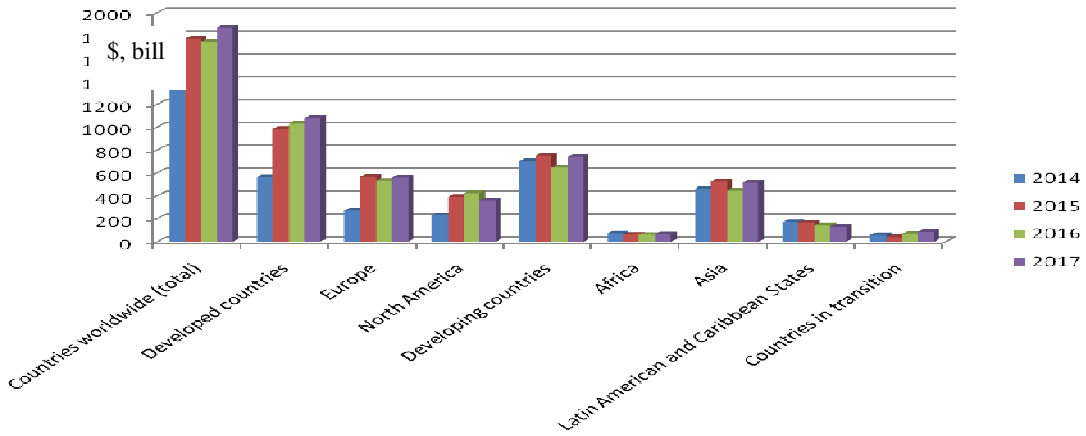

Fig. 1 : Dynamics of investment inflows by groups of countries in 2014-2017 (The world investment report, 2017)

A fundamental problem of economic growth now is the gap between savings and investment, exceeding the first ones over the second one. The world community is in the situation where there is a lot of money in the economy, but little investment. And everything that will contribute to the transformation of savings into investment, everything should be involved taking into account the peculiarities of digitalization processes. The analysts of the World Bank confirm the decrease of actual value of economic growth due to low capital investment and slow growth of labor productivity. As noted by Rozmainsky I. V., any cyclical fluctuations in economic activity are generated, in their point of view, by the changes in the "choice of long-lived assets" - main elements of basic capital and readily obtainable asset [Rozmainski, I.V., 2009].

Solutions and Recommendations

In order to minimize negative effects by the implementation of investment activity and to maximize positive effects, the company develops a subsystem of strategic planning of investment activity.

The investment strategy of an enterprise is a strategic planning tool, and the principles of planning are taken as a basis of the investment strategy.

The investment strategy should be time-oriented (having a specific time-frame for achieving it) agreed according to the areas of activity. Its nature depends on the stage of the life cycle of the enterprise.

The essence of the investment strategy of economic entities is shown in Figure 2.

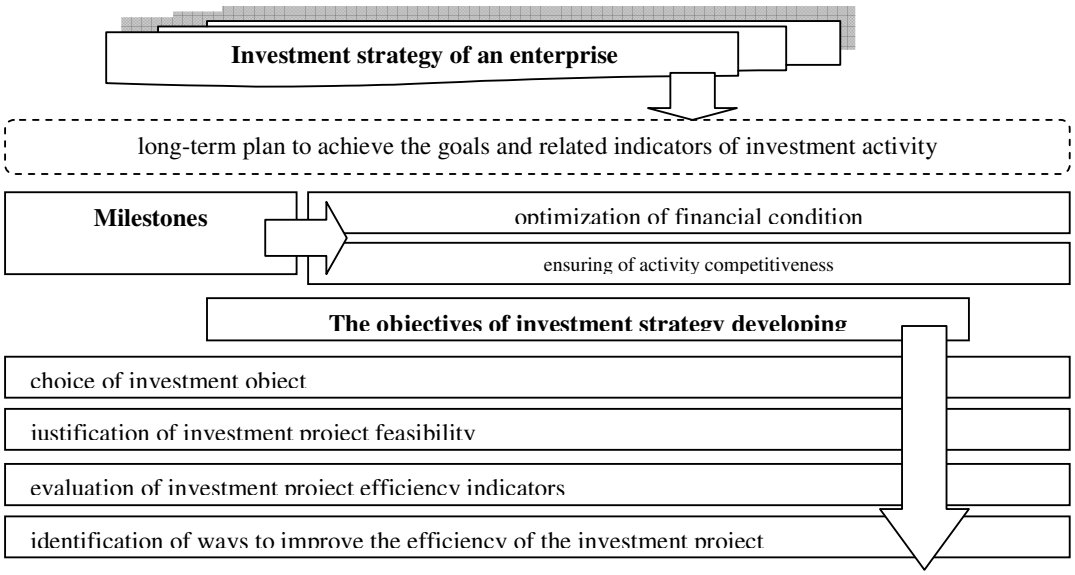

Fig. 2: The essence of the investment strategy of economic entities (compiled by the authors)

The principles of investment strategy development by business entities are:
1) openness for the external investment environment;
2) compliance with the purposes and objectives of investment;
3) combination of strategic, tactical and operational styles of management;
4) preferred orientation to the entrepreneurial style of investment activity management;
5) investment flexibility and alternativeness;
6) minimization of investment risks;
7) competency in managerial decisions making in the field of investment.
Types of investment strategies of organizations are shown in Figure 3.

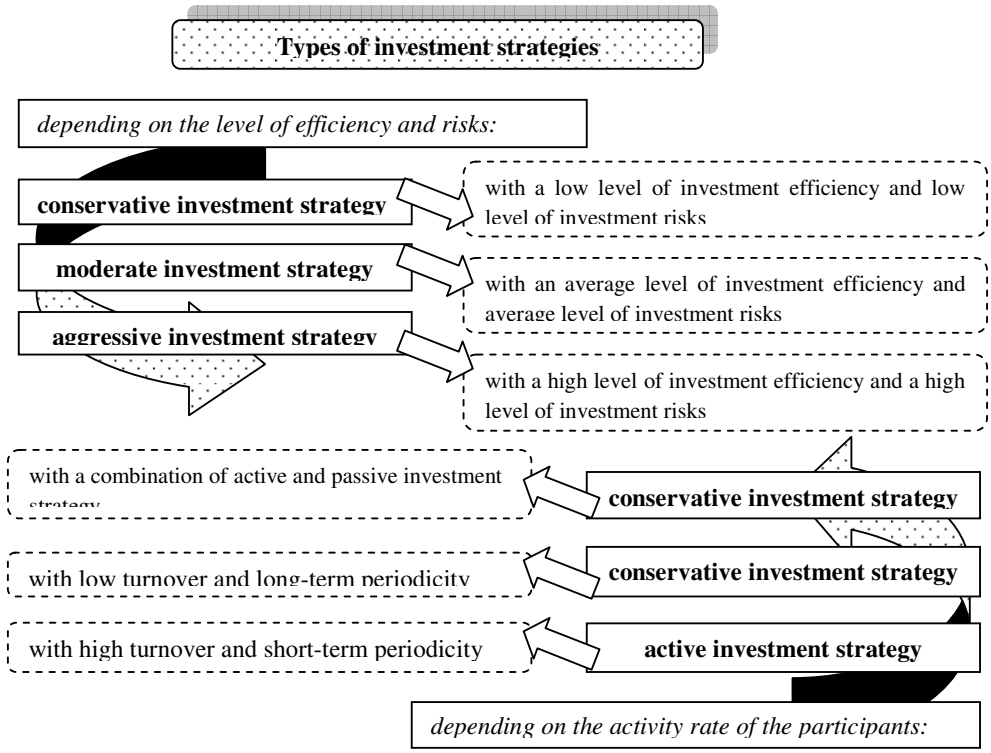

Fig. 3: Types of investment strategies of organizations (compiled by the authors)

While the development of the investment strategy for the effective management of investment processes, it is advisable to take into account the impact of the external environment and the internal potential of the organization.

The following factors requiring management attention should be highlighted:

1. External factors:

- scope of activities, products and production degree of diversification;

- general nature and nature of the achievements of the investigation object;

- structure and general orientation of the object activity.

2. Internal factors:

- purpose of the investment strategy;

- criteria for reallocation of resources and investment redistribution structure;

- attitude to financial risk;

- level of efforts concentration in the field of research, development and engineering;

- strategies of individual functional areas.

The process of managing the investment strategy implementation is expedient to be divide into several levels. The first level is the strategic level, the second is the tactical one, and the third covers the operational level of management.

At the first level, the strategic goals are formed. These goals cover a long-term perspective. They are achieved during the implementation of a competitive strategy. At the same time, the strategic priorities within each of the investment projects implemented in the business entity are formed under the influence of the trends that have developed in the modern economy. As a result, the goal, ensuring the maximum growth of business market value is taken as the basic direction of the investment activity. The management at the tactical level is focused on the increasing of the economic value added, and at the operational level such indicator will be the net profit received by the organization [Polyanin A., 2017].

While developing investment strategies, it is necessary to focus on their uniqueness, i. e., the implemented strategies should necessarily contain elements that differentiate these strategies from competitors' ones. Since the market situation in which the organizations operate is dynamic, that means that it is subject to constant changes, then the investment strategy should be implemented as a change management strategy. In addition, the market environment is characterized not only by turbulence, but also by a high level of uncertainty, manifested by various types of risks. These risks can lead not only to negative, but also to positive consequences. Therefore, in the investment strategy, future uncertainty characterizes the strategic capabilities of economic entities implementing various investment projects.

The development of investment strategies and their implementation in practice leads to the formation of one or several competitive advantages. Such advantages are formed due to the creation and utilization of new products and technologies, which represent intangible assets (objects of intellectual property).

The development of the investment strategy is preceded by the strategic analysis that involves the comprehensive diagnostics of the external and internal environment, as well as the analysis of the experience of similar investment projects implementation. Strategic analysis is aimed at the identifying of strategic prospects for the enterprise's investment activities.

The strategic analysis covers two interrelated blocks – primary and in-depth strategic analysis. The primary strategic analysis assumes strategic diagnostics of external and internal environment and is carried out according to SWOT analysis methodology [Avdeeva, I. L., 2017]. This involves the identifying of strong and weak points of the investment strategy. This diagnostics component is aimed at the internal environment of the investment activity of the enterprise. According to the results of the external environment diagnostics, the capabilities of the strategy and the threats emerging in the external environment are defined.

The following is analyzed:

- the level of existing technologies, as well as the prospects for the qualitatively new products and technologies introduction;

- financial and economic factors of the external environment (the level of inflation, the cost of various types of resources, in particular the cost of borrowed sources of financing, including interest rates on loans, access to financial instruments of the capital market);

- political factors (the possibility of imposing economic sanctions for political reasons, the consequences of the impact of imposed sanctions on the mechanisms of strategy implementation);

- social factors (for example, the impact of the strategy results on the level of employment).

The diagnostics of the internal environment involves the study of peculiarities of the functioning of the structures that make up the business entity.

In such a way the resource support, the level of technology development, the business reputation of investment strategy participants, the relation of the organization with different categories of stakeholders, etc., are analyzed.

The in-depth strategic analysis includes a set of procedures that are necessary to form investment strategy. This component of the analysis makes it possible to establish the scientific, technical and socio-economic value of the strategy, and to determine its effectiveness.

As a tool of in-depth strategic analysis it is advisable to use the scenery planning method, which help to form strategy variants. Moreover, these options may be substantially different, but equally possible from the point of view of the formation of investment activity final results. As a rule, at least three scenarios of the strategy are developed, for example, optimistic, pessimistic and most likely scenarios [Golovina, T.A., 2014; Golovina, T.A., 2017].

The in-depth strategic analysis is carried out in such areas as technical, financial and economic, commercial, organizational and social analysis.

The final managerial decision on the feasibility of the strategy implementation is made on the basis of the synthesis of the results in all indicated areas. The results obtained in different areas of analysis can sometimes be contradictory. Therefore, the final decision is made taking into account not only the quantitative results obtained in the analysis process, but also the qualitative aspects of investment management.

According to the results of the strategic analysis, the enterprise chooses the strategic priorities of the investment activity, i.e. its main directions. These areas cover a set of complex cross-functional tasks, the implementation of which forms the key factors for the success of the business entity.

When forming strategic priorities, firstly, the set of strategic goals is taken into account, and secondly, the restrictions of resources. According to the selected strategic priorities, the concept of the investment strategy, containing a set of rules for making managerial decisions, is developed. Further the concept is embodied in the strategic activities plan. Such a program covers a set of business processes implemented within the framework of the formed budget and contributing to the implementation of one or several strategic priorities. It is advisable to implement the strategic activities plan as a set of cyclical management procedures leading to the formation of the investment strategy and its constant refinement. This refinement is a consequence of a changing intensity of disturbing influence of the external and internal environment, reduction of level of initial data uncertainty, including their clarification and the appearance of new data. The strategic activities plan is implemented by management in the process of managing of investment activities.

The effectiveness of the investment strategy is assessed through the feedback. The role of such feedback should be given to strategic controlling, which represents the a complex system for project activities supporting.

The goal of the strategic controlling is to maintain the potential of the investment strategy being implemented. This is provided due to the correction of the strategic goals and priorities of the investment activities, the implementation of the strategy itself. Besides, while the implementation of the strategic controlling system, an important role is assigned to the information support of the investment strategy.

During the period of economic stagnation, an important investment management function is the investment strategy. The development of the investment strategy determines its main goals, directions and ways of effective implementation. In such a case, the enterprise proceeds from the trend of the economy development as a whole, its branches and the organization itself, as well as the availability of resources.

Conclusion

It is determined that the investment strategy as a component of the overall strategy of the enterprise should be understood as a system of long-term investment objectives and a set of the most effective ways to achieve them. The investment strategy can be both a guide and a method of achieving of the organization objectives.

Organizational and management approaches to the management of investment activities should be of strategic nature, determine the direction of economic systems development.

The proposed concept of the development and implementation of investment strategy makes it possible to detail the processes of its analysis. This will allow the enterprise to determine the key competitive advantages of the investment projects being implemented and to design an effective strategy for them. The controlling of the investment activity being implemented ensures the achievement of a high level effectiveness and effectiveness of the strategy.

The result of the study is the possibility of practical application of the methodical approach to the development and implementation of the investment strategy that meets the current needs of economic entities and provides economic growth.

In the modern era, characterized by high dynamics of scientific and technical achievements, an ever greater role is played by investments that allow organizations, providing the effective use of their facilities, to derive the maximum economic benefit, which is due to a decrease of the specific weight of living and increase of the specific weight of materialized labor in the process of social reproduction in the period of intensive technological solutions. In view of the above mentioned, the organizations should pay much attention to the study of this issue.

The subject of further researches and developments should be:

1. The introduction of digital technologies can radically change the nature of investment activities of economic entities, thus affecting the investment policy. In this regard, there is a need to develop a digital model of making investment business decisions and their infrastructure support.

2. The hierarchical system of indicators, allowing to assess the impact of digitalization processes on the return on investment longevity in the global economy, needs to be clarified.

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Personnel Risks Management in the Competency Approach at State Service Bodies

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Abstract

The article analyses a contemporary condition of the conducted personnel policy in the state service bodies, reveals the human resource management system problems, preventing the implementation of the competency approach and provoking the risks and threats for personnel security. The article gives consideration of the state service personnel risks, which represent a threat of negative influence on the ability of a body of public authority to carry out its mission in the structure of state administration and society. Systematization of personnel risks of state administration under the competency approach was fulfilled and the estimation of their presence in the system of public management in Russia on the basis of the personnel structure analyses of civil servants was conducted. The authors made up a list of personnel risks according to the key elements of the personnel management subsystems, which to the greatest degree cover the estimation of competencies, how they form and develop in the civil servants' career. The authors offered a system of methods and actions for personnel risks management in the state service bodies, with taking into account the stages of risk management: liquidation, prevention, decrease, remedy and insurance. The organizational and functional structure of personnel risks management in the state service bodies was grounded and a procedural model of personnel risks management was developed.

Keywords: personnel risks, competency approach, state service, personnel risks management

Introduction

The public administration system in Russia is on the threshold of a new state reform, preconditions of which are not only a project of the federal program "Development of state service of the Russian Federation (2015 – 2018)", unrealized up till now, but also an active introduction of the strategic management and principles of the competency approach into the public service practices. Under these conditions, an increase in volumes of work, an increase of requirements to the level of professional competencies of civil servants cause some changes in the functioning of the state service personnel management system, result in complication of work with staff and the occurrence of personnel risks.

Up till now, in the Russian system of public administration, personnel risks have practically not been paid serious attention, except for the risks, connected with corruption activity. The researches, which considered the essence and types of personnel risks, the reasons of their occurrence, the personnel risks management essence in commercial organizations are widely presented in writings of domestic scholars, in particular, Mitrofanova A.E. (Mitrofanova, 2013), Valkovich O.N. (Valkovich & Zakharova, 2016), Zakharova L.N., Kuznetsova N.V., Lebedeva S.G.

Notwithstanding the researchers' great contribution into the study of the personnel risks management processes, for the sphere of public administration this theme remains poorly researched, that causes the need in scientifically-proved approaches to personnel risks management, the development of practical recommendations, directed at the improvement of the personnel potential quality, its competence and value orientation to serving the citizens.

The research objective is to substantiate the approaches to revealing in the state service bodies the personnel risks, connected with the requirements to the level of competence and professionalism of employees and to develop the mechanisms of the personnel risks management for the purpose of increasing the efficiency of the public administration system functioning in the country and for the purpose of increasing the quality of state services, provided for citizens.

Main Results of the Research

Today it is possible to consider with confidence that personnel in the state service sphere is a major resource, and the results of the modern Russian society development, the efficiency of how the state reforms and programs will be fulfilled depend on the efficiency of using and developing of this resource.

The fact that the strategic management system and principles of the competency approach are actively introduced into the state service bodies increases the volume of duties and functions, which are carried out by civil servants, raises the requirements to the level of their competence, thereby changing the approaches to personnel management.

The competency approach as a new direction appeared and got rather widely spread in the sphere of education in the late sixties of the 20th century. An American scientist White R. can be considered as the founder the competency approach. He introduced the concept "competence" to characterize specific features of a person and connected this concept with motivation. He noted that competence includes personal characteristics of an individual, with taking motivation into account.

Developing White's ideas (White, 1959) many foreign scientists successfully started to realize their theoretical developments in practice, because the competency approach in personnel management in business and public administration became highly demanded.

In particular, David McClelland (McClelland, 1973) made a theoretical substantiation of the idea that not a level of the worker's mental abilities, but his or her competence is the basis of his or her effective work. He developed practical methods of the competence assessment, which he probed in the system of public administration – on the staff of the Diplomatic Information Service under the US State Department and on a number of other state bodies.

It should be marked that in the foreign system of public administration, the competency approach is widely used in practice (Great Britain, the USA, the Netherlands, Belgium, and Australia). In these countries, the models of competencies on the basis of the progressive approach - cluster theory - are constructed for all levels of civil servants. In addition, a competence cluster is a set of competencies, closely interconnected (usually, there are from three to five in one set). The standard model of competencies consists of cluster competencies, in which the competencies themselves with allocation of certain levels in them (tailored for certain positions of employees) and behavioral indicators are represented.

For example, in the Belgian model "5+1 competency model" (Spencer&Spencer, 1993), methodologically each cluster of a civil servant's competencies has its own hierarchy that gives dynamism to the model and for each level of power - separate behavioral indicators are developed.

In the researches of Bolden R. and Gosling J. (Bolden & Gosling, 2006), five clusters of competencies are allocated, which contain 19 competencies, connected with estimation of the efficiency of heads' activities: manager's objectives and actions, leadership, human resources management, focus on others, the monitored subordination.

For estimating the leaders' activity, Salaman G. (Salaman, 2004) defined the following characteristics of the competency approach:

- to estimate the administrative role of the chief executive, the models of measurement, monitoring and optimization of his or her behavior should be used;

- personality of the chief executive should be estimated;

- the competency approach should be oriented at constant perfection of the chief executive;

- the power on maintenance of the employees' competence should be delegated from the personnel management specialists to certain chief executives.

An interesting approach was offered by Cheetham G. and Chivers G. (Cheetham & Chivers, 1998) on the creation of a complete model of professional competence. They allocated 5 groups (of clusters) of competencies: cognitive, functional, personal, ethical and meta-competencies, which consist of certain competencies, which in a complex make it possible to conduct a rather exact analysis of the employee's professional activity. The methodology of these scientists was applied in state departments and headquarters of Great Britain.

As to the Russian practice, the Federal law № 79-FL "On state civil service in the Russian Federation" outlines the principle of professionalism and competence as an integrated fundamental principle of the organizing and functioning of state service. Professionalism is understood as deep and comprehensive knowledge and practical skills in a corresponding area of state-office activity. Competence is understood as indicators, characterizing professional knowledge, awareness and abilities of a civil servant to effectively fulfill their state service activity. The competency approach only starts to enter the practice of civil service personnel management. A considerable number of the domestic scientists' actual researches and publications on these themes testify to it. Principles of the competency approach underlie the best personnel practices at the state public and municipal service in 2016 collected and published by the Ministry of Labour and Social Protection of the Russian Federations.

The today's competencies are urged to transfer an accent of perception of public service from the area of legal norms and political statements to the area of certain behavior of people (Kudryavtseva, 2013), who fulfill state functions. In our opinion, the civil servant's competence should be the highest form of a professionalism display, their individual ability to perform official duties, the ability to transform professional knowledge, skills and experience through the prism of personal qualities into certain decisions of any level of complexity.

According to Sleptsov E. V. and Zinchenko A. V. (Sleptsov & Zinchenko, 2016), personnel management within the limits of the competency approach concept "puts on the first place the employee's potential - abilities, motivation and behavioral attitudes that creates a powerful impulse to their active participation in the organization's activity, the growth of satisfaction from work, and the formation on this basis of a constant need in perfection of knowledge, abilities and competencies". Realization of these provisions in practice of state service personnel management faces, in our opinion, the following problems:

- undefined is the structure (model) of competencies for the positions of civil employees, which are expressed for today basically as qualifying requirements and this is not enough for realizing the principle of "professionalism and competence";

- no at the federal level a unified authority body, responsible for managing the state service and fulfilling the personnel policy, stipulated in the law 79-FL "On state civil service";

- the policy in the field of state service personnel administration the issues of selection, training, motivation on a national scale is not generated, and in practice, these problems are solved by-hand by heads of the authorities, leaning on personal attitude to the personnel selection;

- personnel departments, in practice, basically deal with a document flow and are far from participation in taking personnel decisions and personnel selection for the state service bodies;

- no regular work on the attraction, retention and development of competencies, necessary to successfully deal with tasks, getting more and more complicated, in the system of public administration;

- a low level of salaries, no clear career paths, an ambiguous image of work for the state negatively affect the marketing of highly competent personnel;

- no binding of civil servants' wages to the level of their professionalism, a demand on labor market or to the results of their activity (Amelina & Pronyaeva, 2018).

The statistical data analysis in Russia specifies that the number of civil servants is reducing, so, from 2009 to 2016 the number of employees decreased by 12.6 % (table 1). The reason for that was optimization of the budget and reduction of the resources, directed at the maintenance of public authority bodies as a response to the consequences of the economic crisis. Within the framework of the Federal Law on federal budget for 2017 and the planned period of 2018 and 2019, an increase of expenses on the maintenance of civil servants by 1.7 % is considered, but how it will affect the number of civil service apparatus - will depend on the personnel policy.

Table 1: dynamics of the number of employees, who covered for state and civil service positions at the bodies of public authority of the Russian Federation

Groups of positions	Year			Relative divergence, %
	2009	2013	2016	
All state positions and civil service positions, number of employees	868151	786400	758775	87.4
State positions of the Russian Federation, subjects of the Russian Federation, number of employees	36073	38808	38448	106.6
Positions of the state civil service – total number of employees	832078	747592	720327	86.6
including: chief executives – total number of employees	141300	126908	126848	89.8
deputies (counselors) – total number of employees	31864	34849	35880	112.6
specialists – total number of employees	485764	465828	459944	94.6
providing specialists – total number of employees	173150	120007	97655	56.4

At the same time, the staffing level of civil servants at federal state bodies in 2017 made 85.9 %, for the state civil and municipal employees at the regional level this indicator is higher and makes 91.9

%. Besides, in the structure of demand for staff in branches, the greatest share, which makes 20.9 %, falls on the activity connected with public administration and providing military security; social insurance. Short-staff can be undoubtedly referred to a significant economic threat in the conditions of executing state functions in strategic programs and realizing the constitutionally established priorities of the state development.

As a consequence, availability of such a great number of problems in the personnel management system at the state service bodies creates positive environment for various threats and personnel risks to occur. In the meantime, the state service personnel may be positioned as a high risk area that "is grounded by performing by the civil servants of their power functions and it is connected with a danger of using material, financial, information and other power resources in personal, vested interests, that is with a probability of personnel risks".

Mill J. and N.W. Senior defined risk as a damage or losses as a result of choice of an administrative decision or a strategy of activity. A cardinally different approach to the definition of risk was introduced by the Hungarian economists Bachkai T., Messen D., Minko D. (Bachkai et al, 1979), who considered that a risk it not damage connected with realization of a decision, but it is a possibility of deviation from the goal, for the sake of which the decision was taken.

In the opinion of Meyer M., Roodt G., Robbins M. (Meyer et al, 2010) personnel risks include the company's culture, the shortage of talent and incompetence, activity of employees, unethical behavior, low morals, mutual relations with colleagues and disputes among them, excessive absenteeism, health of the employees, sabotage, violence at a workplace and also non-observance of safety precautions and other instructions and laws".

Galeshkova E.I. (Galeshkova, 2010), Valkovich O. N, Zakharova L.N. (Valkovich & Zakharova, 2016) understand personnel risks as a probability of losses and a failure to achieve the main objectives of the organization, connected with inefficient administrative decisions on the formation, use, development and displacement of the personnel. In this interpretation, personnel risks are consequences of certain problems in the personnel management system of the organisation.

A number of other researchers, when defining personnel risks, connect them with the personnel professional work. So, Lebedev S.G. (Lebedev, 2013), Kuznetsova N.V. (Kuznetsova, 2013), Kachayeva E.A., Vashchenko T.V. (Kachayeva & Vashchenko, 2010) understand risks as a set of potential threats to property and non-property interests of the organisation, connected with the personnel functioning.

In our opinion, the definition of "personnel risks" for the sphere of state civil service is most fully opened in the works of Kazakova N.D. (Kazakova, 2016), who understands the personnel risk as a "certain probability of approaching and unrolling of an adverse event, connected with decisions and performance (non-performance) of the management and personnel of the state civil service, which represents a threat of a negative influence on the ability of public authority to carry out its mission in the structure of public administration and society".

An overall account of personnel risks is needed for managing these risks; such account should be based on putting the risks into groups according to certain criteria. It makes it possible to estimate the place of each risk in the general system and it creates potential possibilities for choice of the most effective relating methods and techniques of managing the risks.

Mitrofanova A. E. (Mitrofanova, 2013) classifies personnel risks, dividing them in two big groups – external and internal. External risks are connected with influence of external environment on the personnel processes and safety. Political, economic, social and demographic, nature, climate and market risks refer to this group.

Internal personnel risks, in turn, according to the risk sources, are subdivided in personal risks and the risks of the personnel management system. Personal risks arise owing to displays of professional, business and personal qualities of the personnel. Personnel risks include the following types:

– biological risks (age, health, psycho-physiological features, abilities);

– social and psychological risks (demotivation, loyalty, performed social roles, interpersonal conflicts);

– moral risks (beliefs, views, values, culture);

– intellectual risks (I.Q., education);

– economic risks (creative and professional potential, qualifications, work experience);

– risks of disloyalty (short views, negligence, a sudden change of financial condition, credulity, falseness, previous convictions, etc.).

Risks of the personnel management system are differentiated by subsystems – formation, use and development of the personnel.

For the sphere of state service, the personnel risks issues are considered in the general structure of administrative risks, there is no a detailed classification and elaboration according to personnel processes and functions.

Proceeding from the above-mentioned, in our opinion, it is expedient to present personnel risks of state service in a system and to consider possible risks at the key stages of personnel management, with the account of the competency approach (fig. 1) (Tikhonov, 2015). This approach is represented as a starting point of all activities, connected with personnel management: with its help it is possible to select the staff, to estimate quality of their work, to build the career and training systems.

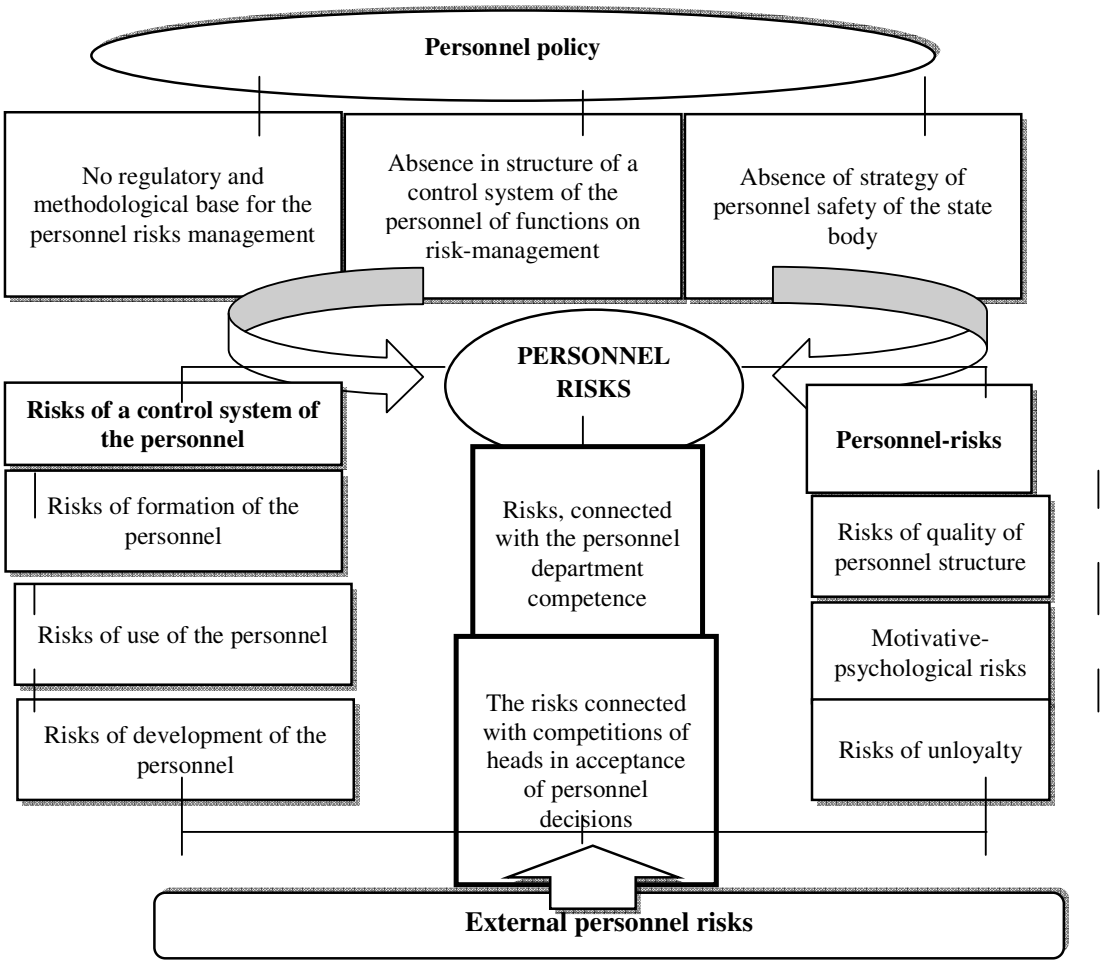

Fig. 1: System of personnel risks in state service under the competency approach

In our opinion, a special place among personnel risks belongs to the risks, connected with competence of the personnel department staff. Unprofessionalism and incompetence of the employees at these departments become a reason for the occurrence of such personnel risks as the hiring of incompetent employees, the worsening of the moral and psychological climate, the staff turnover and some other risks. In turn, the level of competence of chief executives in state service, when they make personnel decisions, can cause personnel risks too. They can include, for example, a formal estimation of applicants hired for competitive substitution of posts, done on personal preferences, a possibility of applying protectionist technologies and personnel voluntarism that leads to an increasing number of professionally incompetent state employees and, as a consequence, causes the occurrence of personnel security risks for the state and society.

A significant number of personnel risks factors, connected directly with specific features of employees and do not depend on the existing system of personnel management, relates to the group of personnel risks. At the same time, strengthening of a negative influence of these factors directly depends on the developed personnel policy and the personnel management system [8].

Risks of the personnel structure quality is a structure of staff by their age, sex, experience, education, etc. Here occur and are analyzed the threats, which cause a decrease in the level of personnel potential and a loss of personnel for state service bodies.

The analysis, which we carried out, of the dynamics of distribution of the civil servants by age, during the period from 2009 to 2016, showed that the greatest share for the whole period belongs to the employees aged from 30 to 39 (in 2016, it was 34.9 %). An average age of civil servants in Russia is 39 years old. The share of persons of a retirement age in 2016 made 7.3 % of the total number of the state machine.

The greatest share by work experience among the employees, occupying the state positions, falls into an interval from 15 till 25 years (in 2016 – 34.1 %). Among the positions of the state civil service, the greatest shares of a number of employees are in the range from one to 5 years (18.9 %) and from 15 to 25 years (18.4 %). On the basis, it is possible to draw a conclusion that risks of a lack of sufficient work experience can cause errors, falls, omissions in the performance of official duties, and a decrease in efficiency of work.

By the level of education, in 2016, the greatest share among all groups of state positions and power is occupied by employees with higher education – 94.4 %, a positive tendency is clearly traced by this indicator during the whole analyzed period. 1.2 % of employees with scientific degrees work at the state service positions.

According to the direction of base education, 40.3 % of civil servants are educated in humanitarian and social specialties; among them 36.4 % have juridical education, 35.8 % - economy and management, including 3.7 %, who have a diploma in “State and municipal management”. The analyzed data make it possible to note that in the state service system in the country, a risk of no necessary qualification is obvious and it frequently leads to a poor quality of performing the official duties.

Motivation and psychological risks include: risks of no or a decreasing motivation for work, reputational risks, professional burn-out, misconduct, decline of productivity, absence of aspiration to professional development, creation of conflict situations, etc.

The disloyalty risks group includes disciplinary risks, corruption risks, non-compliance with confidentiality requirements, breach of legislation, disclosure of classified information, etc.

Personnel risks in the personnel management system in the sphere of state service through realization of the competency principle are divided into three groups, according to the key subsystems’ names: selection, usage and training of personnel.

Personnel risks of the first subsystem are a threat of forming the personnel structure, the quantitative and qualitative characteristics of which prevent achieving the goals and solving the authority body’s problems.

Risks of the subsystem of personnel usage at public service represent a threat of unfair performance by the personnel of their official duties, some personnel crimes may occur (corruption, disclosure of State secret, etc.), absence of responsibility and adherence to the goals, tasks and, on the whole, the mission of the authority body in state governance.

As to the third subsystem - personnel training - it is necessary to note that an annual percent of state employees, who obtained additional professional education, throughout 8 years of work remains within the limits of 20-23 % of a total number of the state machinery employees in the country. This being noted, the biggest share by quantity of trainees relates to the compliance training programs, with 97.4 % in 2017. In the conditions of high rates of the modern society and economy development, this is obviously not enough. Therefore, the personnel risks revealing, connected with the personnel training, is of special importance. These risks bear a threat of the decreasing quality of the labor potential of the authority body, connected with limited possibilities or with underestimation of the importance of a continuous self-education throughout the professional life, the chief executives’ unreasoned decisions on the processes of training, retraining and skill improvement, rotation, the state servants’ career management, the formation of personnel reserve and work with them.

In order to operate risks, first of all, it is necessary to reveal them and estimate a degree of their threat. According to it and based on a comparative analysis of the literature, we made a list of personnel risks in accordance with the key elements of the personnel management subsystems, which fully observe the estimation of competencies, their formation and development for the civil servants' career (table 2).

In each of the personnel management subsystems, we allocated the key elements: in the first subsystem - the personnel selection and recruitment, the formation of personnel reserve, in the second subsystem - attestation, in the third one - training of state employees. We listed the types of personnel risks in each element of the state service personnel management that is the risks, which can arise during the personnel processes.

Table 2: the list of key personnel risks in the personnel management system, with a view of implementing the competency approach in public authorities

The personnel management subsystems	Elements of the subsystem	Name of the risk
Personnel formation	Selection and recruitment of the personnel	- Usage of protectionist technologies and personnel voluntarism during the competitive selection
		- A discrepancy between requirements to a candidate and a competency model for a certain position
		- A non-optimal set of requirements to a candidate
		- Choice of incorrect methods for attracting the candidates
		- Non-loyalty of a candidate
		- Dismissal in short terms
		- An increase in the number of professionally incompetent civil servants
		- Personnel security risks occurring for the state and society
	Personnel reserve	- Deliberate discredit of the personnel reserve formation
		- A low level of qualifications of the personnel reserve
		- A superfluous or unreasonable structure of the personnel reserve
		- Demotivation of the personnel to the personnel reserve formation
		- Infringement of a principle of equal access to state service for the Russian citizens
Personnel use	Certification	- Subjectivity of the commission in estimating the results of the attestation
		- Incompetence of a specialist, who carries out the attestation
		- A discrepancy between the contents of attestation and a professional activity of a person being attested
Personnel development	Training	- Inefficient or formal training
		- A wrong choice of an employee or a training program
		- A wrong choice of forms and methods of training
		- Reluctance to training and no motivation for it
		- Selective training in connection with the limited budget
		- Dismissal of the trained employee

This specific grouping of the state service personnel risks, offered by us, will allow to reveal these risks in due time, estimate the risk level and use some appropriate administrative tools to decrease in the risks negative influence.

So, Shihverdiyev A.P. (Shihverdiyev, 2012) thinks that a timely estimation of a risk degree helps to minimize them. But the estimation stage itself already specifies that the situation has become risky and requires a risk to be identified.

A procedure of an estimated probability of risk approach and assessment of its negative influence can be carried out by the following expert techniques: Wilson's matrix, a method of ranking the risks or methods of "weight" coefficients, the "probability - damage" matrix. The main weak points of these methods are labor input and subjectiveness of the obtained results, because every expert estimates a probability of risk approach and a possible damage from the point of view of his or her experience, knowledge, and, probably, the mood and personal feelings. However, thanks to these methods, it is possible to develop special indicators displaying the condition of personnel risks and to draw up on their basis a personnel risks profile.

Identification and estimation of personnel risks is conducted for the purpose of choosing a further strategy of behaviors under the risk conditions:

- Scenario 1. To avoid the risk, in a case when losses in connection with the risk approach are not justified;

- Scenario 2. To accept the risk, when the caused damage is minimal;

- Scenario 3. To manage the risk, this means to search every possible method of minimizing the negative consequences.

In table 3 we presented the main methods of the personnel risks management under the competency approach for the sphere of state service.

Table 3: Methods of the personnel risks management under the competency approach

Method	Actions for personnel risks management
Recruitment and selection of personnel	
Risk liquidation	- Dismissal of the HR department employee, who added the risks and losses for the public authority body during the attraction and selection of candidates for vacant positions. - Training and increase of competencies of the HR department personnel, engaged in attraction and selection of candidates for vacant positions.
Loss prevention	- Accurate requirements to duties of the HR department employee, based on the developed profile (model) of competencies for a certain position, and also optimal quantity. - Applying various methods of estimation of candidates on a position (tests, the expert evaluation method, the case-method, the assessment-centre, the interview). - Checking candidates for security (creation of a database of potential candidates).
Risk mitigation	- Attraction of candidates from the generated personnel reserve.
Risk remedy	- Carrying out of open competitive selection of candidates for a certain position. - Personifying of chief executives' responsibility the personnel decisions they take regarding the attraction and selection of candidates for vacant posts.
Risk insurance	- Working out of mechanisms of how to block personnel voluntarism and protectionism of the heads from the side of the personnel service owing to its low status. - Introduction of the civil and parliamentary control over appointments to high positions.
Personnel reserve	
Risk liquidation	- Working out and implementing of individual plans for the development of each employee, who is a part of personnel reserve, including various forms and methods of development of professional competence and professional skills of the head in the

	structure of management culture.
Loss prevention	- Creation of a system of local statutory acts regulating the work with personnel reserve, in which the rights and duties, an order of replenishment, dismissal, change and withdrawal of reservists, the rights and duties of the officials, responsible for organizing the work with the personnel reserve are fixed, reporting forms for this work, provisions about mentoring. - Motivation of the personnel, who is part of the personnel reserve, on training on adjacent specialties, labor co-operation, complementarity of official roles, expansion of a zone of responsibility.
Risk mitigation	- Strengthening of the organizational culture at the expense of accurately formulated values, traditions, norms and rules of behavior, shared by the employees, who constitute the personnel reserve, and also the maintenance of formal (status), professional and informal (personal) authority of chief executives.
Risk remedy	- Creation of the optimal by number personnel reserve. - Maintenance of stable and transparent "game rules", concerning the promotion and salary of the personnel included in the personnel reserve, on the basis of an objective estimation of their professional suitability, allowing reservists to plan the career and actively be engaged into the increase of qualifications.
Risk insurance	- Regular informing of the personnel of the personnel reserve about prospects of the activity of an authority body and also about difficulties, problems arising in this process, its attraction to the creation of the "stock exchange of ideas" for the purpose of using creative potential of the reservists for the finding of the optimum administrative decisions, promoting an increase of efficiency of an authority body.
Attestation	
Risk liquidation	- Carrying out an attestation procedure. - Training or increasing the competencies of an employee, who carries out the assessment of the attested employees.
Loss prevention	- Drawing up of an individual program of attestation for each category of the personnel, according to the performed functions by means of the developed profile of competencies on the basis of professional standards and duty regulations.
Risk mitigation	Working out of an adapted plan of measures of the personnel attestation to the activity of the state body and the attested category of the personnel – organizational events, application of the combined methods of estimation of the attested persons.
Risk remedy	- Psychological work with the personnel - preparation for the attestation process, granting the results, individual working out of the further actions by results according to the results of the conducted attestation.
Risk insurance	- Working out of a program of stimulation of the personnel following the results of a successfully conducted attestation – the development of "a map of further actions" on the basis of the received results of the attestation, the quantitative and qualitative indicators of the activity, a revealed type of a motivator for each employee.
Training	
Risk liquidation	- Rejection of the educational services, which do not correspond to the training objectives. - Receiving the additional information on the educational services, methods, and teachers. - A qualitative change of the technology and methodology of training according to the development of the required competencies.
Loss prevention	- Updating of the purposes of training according to the requirements of a profile of the model competencies and results of estimation. - Uniformity establishment in the educational programs and actions of a teacher. - Establishment of a competent system of stimulation of the trained personnel.
Risk mitigation	- A search of comprehensible ways of an effective perception of the information. - A qualitative selection of the trained persons and teachers.
Risk remedy	- Training of a sufficient number of employees.

	- Usage of various methods of training. - Adjustment of work with different educational centre's of training.
Risk insurance	- Reception of guarantees on granting of qualitative educational services from the third party. - Change of a teacher of an educational program of the used techniques.

The presented personnel risk management methods are divided into five stages of management: risk liquidation, prevention, mitigation, remedy and insurance. The described actions for each management method serve as an operative set of actions for qualitative management of risky situations and they reduce time for decision-making on the management of risky situations.

There are two main models of the risks management organizing:

- Management centralization (management of risks is concentrated within the limits of the isolated subdivision of risk-management);

- Management decentralization (risk management functions are distributed among various divisions of the organisation).

For the state management sphere the most comprehensible and effective will be the first variant, owing to big scales of management and a significant amount of arising risks.

Introduction of the centralized model of personnel risks management in country scales assumes taking modifications into the organizational structure of state service management. A stating point in personnel risks management shall be the creation of a single structure – The Center of Personnel Policy Management at the federal level and the level of subjects of the Russian Federation, in structures of which will be allocated the departments on risk-management and personnel security, specializing only on diagnostics and personnel risks management (figure 2).

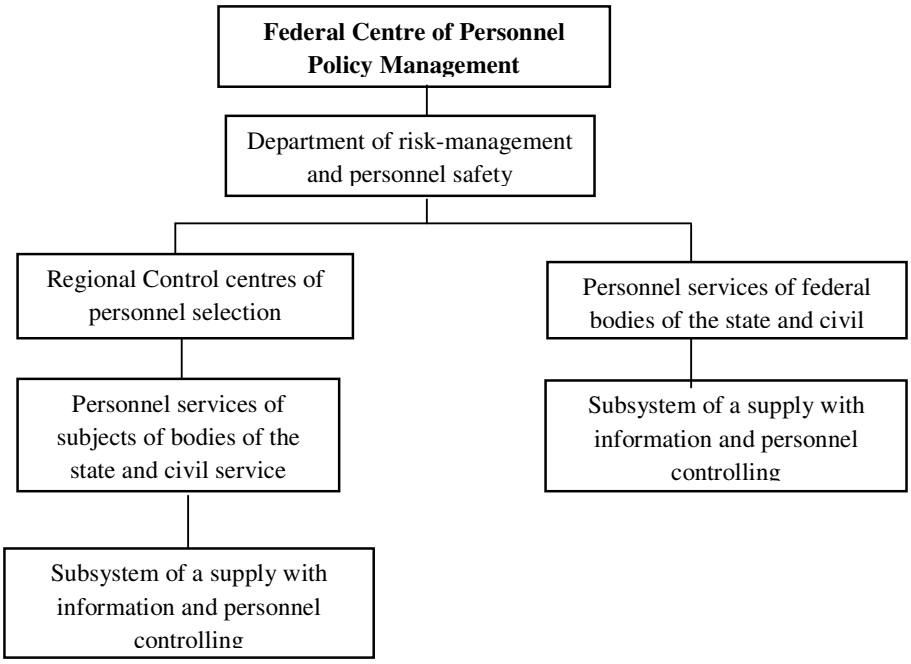

Fig. 2: Organizational and functional structure of personnel risks management in state service bodies

The personnel risks management mechanism at the level of a state body of civil service can be presented in the form of the procedural management model, which reflects the logics and algorithm of the personnel risks management process (figure 3). The presented model includes six interconnected consecutive modules: target, subject, technological, reformative, productive and controlling.

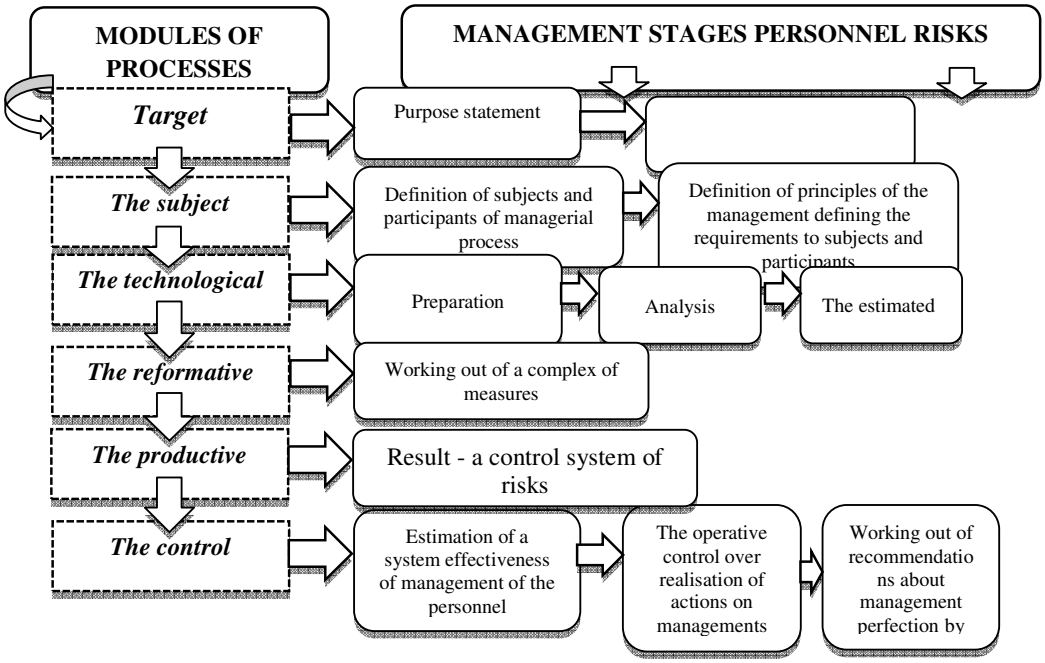

Fig. 3: Procedural model of the personnel risks management in state service bodies

The target module includes two key stages in risks management – the statement of purpose and the defining of the main tasks. For example, in personnel risks, connected with civil servants training, it can be the prevention of losses, connected with formal or inefficient training.

The subject module includes: the stage of defining the subjects (HR department specialists, leaders) and participants of managerial process (civil servants, employment centers, teachers, etc.); the principles, defining the requirements to the subjects and participants of the managerial process and their responsibility; the accounting of time factors in the managerial process, so that risk management measures will not cause great losses because of a delay in terms.

The technological module is divided into three stages:

Preparation stage - study of regulatory documents, estimation of material and technical resources, the setting of a structure of expert commission, the choice of methodical base for carrying out risk estimation;

Analytical stage is connected with identifying possible personnel risks in concurrence with the activity specifics and the revealing of reasons for risk occurrence;

Estimation stage - is directly connected with estimation of risks, their formalization and drawing up of risks profiles.

The reformative module is working out of a complex of measures of mitigating, preventive and proactive character by a commission of experts.

The result module is actually a result of the process of risk transformation into the management system.

The controlling module assumes estimation of the personnel management system effectiveness, including the estimation of weak and strong points of the personnel management system and the risks, resulting from them, and also the operational control over realizing the actions for personnel risks management and the development of recommendations on how to improve the management system.

The presented procedural model of the personnel risks management reflects the logics of managing the risks and will provide for their timely revealing, prevention of negative influence on the state civil service bodies activity and maintenance of personnel security.

Conclusions

Implementing the principle of competence and professionalism in the bodies of state civil service has a number of problems and obstacles, generated by the current personnel policy. In this connection, the personnel management system and civil servants themselves are positioned as a zone of a high risk area for the public administration system. Systematizing of personnel risks at state service will make it possible to reveal those risks in due time and thoroughly classify them and elaborate by each type of the personnel process, connected with estimation of civil servants' competencies. An optimal list of personnel risks on these processes with taking into account the specificity of state service is necessary for operative reaction and a choice of a managing method.

An important aspect of successful implementation of the competency approach for state service is the optimal mechanism of the personnel risks management in such elements of the personnel management subsystems as recruitment, selection, attestation, forming of the personnel reserve and training. Primarily, to do so, it is necessary to develop the regulatory and methodological base on the personnel risks management within the limits of personnel policy and the personnel security strategy of the state body, and also the perfection of an organizational and functional structure of management with account of risk-management elements.

Directions for Further Research

To develop the mechanisms of personnel risks management with a view of maintaining personnel security of the public administration the further research should be conducted in the issues of state regulation and personnel risks management in the following sense:

1. The development of a universal model of competencies, which as a constructor can be adapted for the positions of state employees of various categories and levels of management. It should bear applicable character, be included into official regulations, be used at estimation and selection of candidates for a corresponding positions, and also at forming the personnel reserve and the compliance training programs.

2. The development of a regulatory base, governing the issues of the state service management, taking into account personnel risks and threats at the federal level and at the level of the Russian Federation subjects.

3. Carrying out of research and creation of methodical toolkit for identification and formalization of personnel risks for each group of risks, taking into account specificity and features of the state civil service.

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A Novel Petri Nets-based Modeling for the correctness of interactive Business Process Models

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Abstract

Business Process Management (BPM) is the discipline that combines knowledge from Information Technology and knowledge from management sciences and applied them on operational business processes. By identifying, modeling, managing, verifying and optimizing the internal business process, the company gets a robust system. The multi communication between the several companies having the same or different mark name is one of the challenges things. The global business process is the general view of business process in interaction including the multiple process instances involved in the multi-communication. In order to check the correctness of the global system we provide a new design model of the system and we model it in a modular way. We introduce also a novelPetri Nets-based model called Composite Colored Business Process Communication Net (CCBPN), which aims to compose atomic business process models with rich communication's operators. Our objective is to ensure the correctness and consistency of the global business process.

Keywords: BPM, Multi-communication, correctness, interaction.

Introduction

Recently the companies use the business process management to manage their works, where BPM (Business Process Management) is considered as a main contributor for having agile, flexible and effective company. Especially that a several BPM's modeling tools (e.g. Signavio, jBPM, Bonita BPM (Snoek M et al (2015)).) appeared recently in the yard and work on facilitating the managing and automating of process related data. BPM is seen as the discipline that uses the result of combining knowledge from Information Technology (IT) and management sciences on operational business processes (Van der Aalst (2013)). All the added values of BPM solutions reside in their ability to distribute and orchestrate the tasks of multiple individuals around the resolution of a customer problem, a succession of actions, etc. Therefore this formalism spreads almost in every company and the organizational activities are more and more captured and executed via business processes. According to the expert in the BPTrends Paul Harmen (redhat.com (2018)) the investments in BPM increase year after year where 2018 records its highest percentage. Whereof the BPM purely allows answering the question "Is my process critical for the company".

Nowadays the companies sort from its shell and become day after day Multi-sites or Multi-companies. The term Multi-sites (Multi-companies) refers to a wide scale company's name with at least two or more sites distributed geographically, where the global management of all those companies is done by a holding company. The interconnection between the business processes of those sites is complex, because the communication is done between several models belong to various business processes, more preciously the messages are transmitted to many receivers. The example of

healthcare called “the routine physical examination” could illustrate the case of multi-communication. Where the patient asked his doctor to do the healthcare checkup, so the doctor prescribes the necessary medical examinations and forwarded it to a experts in the medical field (e.g. Radiologist, Cardiologist, Biologist…). This number could be two, four or more. After the execution of each test, every instance (Medicine) sends the obtained results to the doctor. Thereafter this last do the diagnostic of all the received tests results and gives the medical consultation report to the patient. The interconnection encompassed a set of exchanged messages, especially if the communication is done in hospital between the several departments, these messages subject to cardinalities. Unfortunately, the formal analysis of this kind of multiple interconnections is not available in the BP modeling methods. Thus we aim to ensure one of the most famous formal notions of correctness, which is the “Soundness”, more precisely the soundness of set of business processes in interaction and this is by analyzing the behavior of them using Colored Petri net CPN (Jensen K (2013)). The global BP is sound if an only if the three following requirements are satisfied (Van der Aalst, Van hee et al(2001))

1- The completion: for each place it is always still possible to reach the state which just marked the place end
2- Termination: for a given case when the case end is marked all the others places are empty. This means the absence of infinite enabling chain. If the global BP has at least one finite enabling chain, it’s called weak termination. The correct termination or the termination with completeness is satisfied if Me= M+ Pe. The weak termination must terminate in certain cases. For the strong termination it’s achieved if the global BP terminates with a restricted number of enabling steps. The third termination called proper termination, this kind related to the global BP that terminated either strongly or weakly following certain exit case in order to reach the full sequences.
3- No deadlock: there is no dead transition could block the execution of global BP, and it is possible to execute any activity by following the appropriate route.

The CPN is graphical formal method introduced by Carl Adam Petri in 1962, it has strong mathematical foundation, this why it’s classified as the most powerful tool for modeling the systems with discrete event. It’s allowed to describe formally the dynamic systems typified by the synchronization and the concurrency as protocols, manufacturing systems and BP. Our objective is to represent the global BPs using our proposed extended language in order to anatomize and analyze the interaction between the several instances in the BPs and ensure the soundness of our final system.

The rest of this paper is organized as follows. Section two presents literature surveys. Section three provides the formal definition of our proposal language and discusses the main approach. Section four discusses the modular composition of the language and the fifth section concludes the paper.

Related work

The Business Process Management (BPM) has been one of the active research fields over the last decades (Van der Aalst (2001), Eriksson et al (2000), Yahya et al (2018)) where the researchers moved from the modeling of one process to model the behavior of group of processes in interaction i.e. choreographies. The researchers at first time focused on control flow and disregarded interactions, resources and data because the control flows are the easiest one to be mapped from any languages e.g. BPEL, BPMN to any nets e.g. workflow nets, open nets. Communication can be treated by adding communication places a it’s mensionned in the researches of Lohman et al (2006) and Fu Xiang at al (2004) .

The Knapp et al (2004) have discussed the use of ArgoUWE tool for modeling the processes flows, where it’s can bolster the design of workflow-driven web applications. Van der Aalst, Barthelness et al (2001) have proposed the use of multicast message via ports in order to model the multi-instance communication, beside that the authors affiliate different cardinalities for each business process. Other researches have used the standards languages to model the interaction between the different

business processes like BPMN (Decker et al (2007),Fernandez-Gracia et al(2018)) and BPEL (Kopp oliver et al (2010)).

Unfortunately languages as the previous have no formal semantic for rightness analysis (Van der Aalst (2001)). In the other hands, Petri net provides a formal base used to analysis and verifies the right behavior of the interacted business processes. Van der Aslst et al (2009) have explored a new wherewithal for verify the interaction of processes, where they have focused on the correlation of multi-instances in services i.e. refinement, replacement and integration. Hamdi Rachid and Benatallah (2003) stated that the Petri net based algebra is meaningful enough to capture the semantic of web composition and the logic behavior for carrying out a new composite task. In this paper of Van der Aalst, Vanh et al (2001) the soundness property has been presented, where Van der Aalst states that this property is the master key for detecting the absence of anomalies e.g. completeness, Termination, deadlock and livelock without domain knowledge. In [18] the authors have interpreted the needing for analyzing and modeling the complex business process by the Business process architecture, where this last is a collection of Business Process belong to different company forming an organization and their interdependencies with each other. They summarized the composite pattern in three patterns i.e. Flow Feedback pattern, Unidirectional Interaction Pattern, Send Receive Pattern and Broadcast Pattern.

Our proposition based on new extended language of Colored Petri net to analyze the behavior of the different business processes in interaction, in other words the analysis of the multi communication connected the included business processes.

Proposed Approach

The global business process gathered together all the sub-BPs of multi-company with the different control flow, interactions, communications, events and messages flow interchanged between them. It has been explained in our previous work [5]. It's based on a multi-sites concept used in the healthcare field, where the sub-companies or sub-departments exchange documents throw the cloud computing using a proxy called the "AIRD proxy based controller". In order to display the distributed messages between the distributed sites we suppose that the proxy is transparent, which means that we will treat the system in general manner, where the different BPM companies interchange data throw sending messages regardless the third layer (i.e. proxy).

We could distinguish two flows called "Control flow" and "communication flow". The control flow supervises which is the first activity to execute and which is the next one to be carried out, so it's a way to explain the classification order of the tasks. The arrangement follows a certain level of reasoning suitable to the main idea of triggering the business process. The successful executions of tasks describe the process level of the BPM and more preciously a part or whole sub-BP of global BP. The communication flow or rather the choreography illustrates the message's sequence interchanged between the different parts of the global BPM. In this work we will focus on the communication flow. In order to analyze the system of BPM with its communications and composition services in global we can't use BPMN or BPEL or any other formalism so we proposed our formalism and then new language which will helps to check the soundness during the multi-communication.

Global Business Process

As stated before the global business process gathered together all the sub-BPs of multi-company with the different control flow, interactions, communications, events and messages flow interchanged between them.

Definition (1): global business process is a tuple=$< BP, V, Fm, S, R, Card >$

BP is a set of business processes depict the splitting of events.

V is a set of events includes four types of events: Start event Sv, End event Ev, Catching intermediate event Cv and Throwing intermediate event Tv (in those events we are interested to the messages events only).the start event is the only one considered as external event. Here there are two sets called pre-set of •v and post-set of v• where they are defined as follows:

•v= $\{v' \in E_v \times T_v, (e', e) \in Fm\}$, this is the set of events sharing the event e as an output.

v•= $\{v' \in S_v \times C_v, (e,\ e') \in Fm\}$, this is the set of events sharing the event e as an input.

Fm is the message flow relation Fm ⊆ (Tv x Ev) ∪ Cv.

$S: s(v_i) \to N, R: r(v_i) \to N$ are respectively the counter of sending message of the event i ={1,2,… } and the counter of receiving message of the event i.

Card is the cardinality set of event, $Card: V \to N$.

While the carrying out of the global business process the processes executed whether in parallel or sequential. The passage by each event leaves a trace, where the counters determine how many messages have been sent or received. On the other hands we found the cardinality of sending and receiving various messages.

Colored Petri Nets

Colored Petri nets CPN are High-level model. The token notion is the primary idea of Colored Petri Net, where it represents the data values distinguished by colors (Jensen K(2013), Peterson James(1981)) . Actually the CPN is a Petri net with set color, where the place in CPN contained an associated color, which defined the type of data.

Definition (2): Colored Petri net is a tuple $CPN =< P, T,\ F, C, M_0 >$

P is finite set of places.

T is finite set of transitions where P∩T=Ø (disjoint) and P∪T≠ Ø.

F is the flow relation $F \subseteq$ (P × T) ∪ (T × P). It does include two sets the pre-set (W+) and the post-set (W-) for each place and transition as follows:

$\bullet t = \{p \in P | W^-(p,t) > 0\}$.

$t\bullet = \{p \in P | W^+(p,t) > 0\}$.

$\bullet p = \{t \in T | W^+(p,t) > 0\}$.

$p\bullet = \{t \in T | W^-(p,t) > 0\}$.

The notation t • and •p have the same meaning, in other words the t • is the set of places sharing the transition t as an output transition. The drawing sketched in the figure.1 depicts a basic Petri net where t 3•= {P3}, • t3= {P1}, p4 •= {T5} and • p4= {T2, T4}.

C is a finite set of colors.

$M_\circ$ is the initial marking. $M_\circ$: P→IN depicted the initial distribution of tokens.

Each transition t∈T can be fired or enabled if and only if M (p) > W (p, t) (W: weight) for all place p∈• t, this allowed the moving of tokens from the input places and produce new tokens in the output

places. The new marking M' produced due the execution can be written as M' (p) = M (p) – W (p, t) + W (t, p) for all p∈P. The transition t enabled by the marking m can be denoted like $m[t > m' \; or \; m \xrightarrow{t} m'$. If there is chain of reachable markings α= m→m'→m"…. its denoted m [α> mn. Because the same place in CPN may contain multiple colors called multiset, the markings are represented by Multi-dimensional vectors.

Atomic Colored Business Process Net

The Atomic Colored Business Process net is the formal representation of simple atomic business process. It's an extension of CPN with two special Start and End places. The purpose behind the concept "Atomic" is the processing limits.

Definition (3) ACBP-net: Atomic Colored Business Process net is tuple $ACBP - net = < P, T, C, F, M_0 >$
P is a finite set of places includes source place "start" called P_s and sink place "end" called P_e, this two have no incoming $\bullet P_s = \emptyset$ and outcoming $P_e \bullet = \emptyset$ transition respectively.
T, F and C they have the same definition respectively of these of the tuple CPN.
M_0 is a marking function, the transition t is allowed by the marking m if the marking of place $p \in \bullet t$ higher or equal to W^- (p, t).

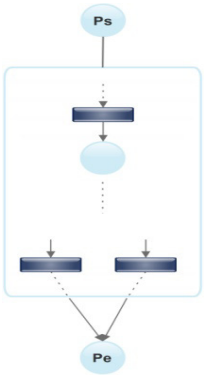

Fig 1: A simple representation of ABP-net.

Composite Colored Business Process Communication Net

In this section we will introduce an extended language of the language presented by Nouioua Maroua et al (2018). Assuming two atomic business processes A1 and A2, where there is a particular task belongs to A1 to execute. Moreover that task may rely on another BP i.e. A2, thus the two BPs need to communicate to achieve the target aim, we talk here about a composite business process. The composition of Atomic Colored Business Process net can be interpreted as the independence of each input place related to each ABP-net with one or more additional places work on the correlation between the different parts involved in the communication. Consequently the new obtained net represented as C=A1⊕A2 where A1 and A2 are two atomic business process. Hence the communication is treated with the following extended language called "Colored Composite Business Process communication net".

Definition 4 (CCBP ^{c}-net): Colored Composite Business Process communication net is tuple $CCBP^c - net = < P, T, C^{I,E}, F, M_0, Com >$

P=$P_1 \cup P_2 \cup \{P_s, P_e\}$.

T= $T_1 \cup T_2 \cup \{T_s, T_e\}$.

$$F= F_1 \cup F_2 \cup \{(P_s, T_s),\ (T_s, P_{s1}),\ (T_s, P_{s2}),\ (P_{e1}, T_e),\ (P_{e2}, T_e),\ (T_e, P_e)\} \cup \{(P_{i,x}, T_{j,y})\}.$$

$C^{I'E}$ is a colored function defined from P to T, the vector (I,E) showed whether the information is received from internal or external of the business process, it is described with binary elements(1 if message is external (internal), 0 else), (I,E) ≠ (1,1) and (I,E) ≠ (0,0).(Nouioua Maroua et al (2018).)

$$C^{I'E} = C_1^{I,E} \cup C_2^{I,E}.$$

$$M_0 = M_0 1 \cup M_0 2.$$

Com defined as follows:

Assuming transition and place called "x" and "y" respectively, where (y, x) ∈ ((P1∩ T2) ∪(T2∩ P1)).

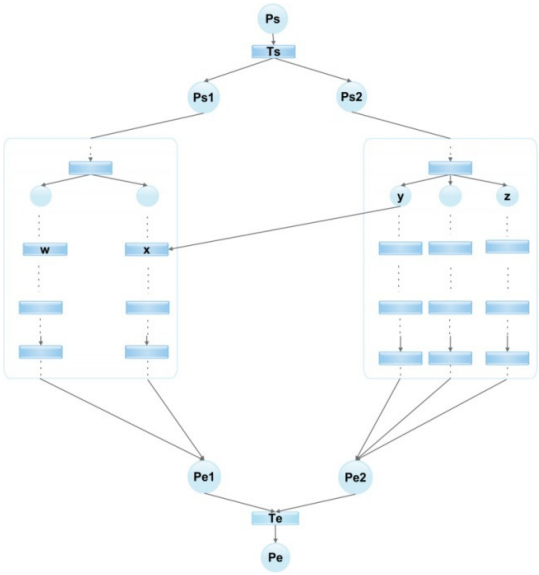

Fig. 2: Composition of atomic business process with communication.

Modular Communication Composition based on CCBPN

In the global business process the ability and possibility of sending and receiving several messages is always validated. However the global BP is presented as black boxes, those boxes communicated using messages and following the rules mentioned in the definition (1). However each event submits to two things, the first is the condition illustrating the quantity of the message sent relative to the cardinality assigned, the second shows the comparison between the cardinality and the number of received messages using the counters which counts the sending or receiving messages from the throwing and catching events respectively, the number of sent and received messages are defined as integer e.g. sendE(Car=5)>receivedE(r =3) the rceivedE compared in each action using the counter.

The action of sending and receiving multiple messages couldn't represent directly with the $CCBP^c$-net, therefore the use of intermediate net is necessary. Moreover this intermediate net will be divided

to two concepts, the first is the one how treats the sending messages, it's called CCBPs-net. The second is the one how treat the receiving messages and it's called CCBPr-net.

Definition (5): the CCBP^{e}s-net for message (s, r) ∈ Fm is the tuple $< P_{s,r}, T_{s,r}, C_{s,r}^{I,E}, F_{s,r} >$

$P_{s,r}$ includes two places P_{in} and P_{out} and they depict respectively the place send and the place receive.

$T_{s,r} = \{s_i, i \in Car\}$, the i obeys the number of messages denoted in the cardinality.

$F_{s,r}(p_{in}, s_i)$= 1, $F_{s,r}(s_i, p_{out}) = i$.

$C_{s,r}^{I,E} = C_{s,r}^{1,0}$.

Definition (6): the CCBPr-net for message (s, r) ∈ Fm is the tuple $< P_{s,r}, T_{s,r}, C_{s,r}^{I,E}, F_{s,r} >$

$P_{s,r}$ includes two places P_{in} and P_{out} and they depict respectively the place send and the place receive.

$T_{s,r} = \{s_i, i \in Car\}$, the i obeys the number of messages denoted in the cardinality.

$F_{s,r}(p_{in}, s_i)$= i, $F_{s,r}(s_i, p_{out}) = 1$.

$C_{s,r}^{I,E} = C_{s,r}^{0,1}$.

In order to evaluate the final net we suppose there is three processes P, Q and N represent the global business process, they communicate by exchanging multiple messages, where the process P sends between two and four messages and the process N expects to receive between one and two messages (Fig 3). The s represents the throwing intermediate message event, the r represents catching intermediate message event and the (s, r) ∈ Fm.

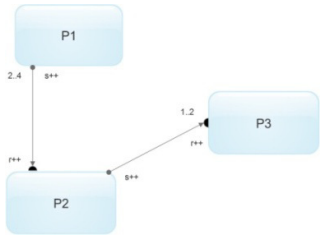

Fig. 3: Three processes in interaction

The figure 4 illustrates the transformation of global business process depicts in figure 3 to CCBP for communication net using the two sub-nets for the sending and receiving of messages with cardinalities.

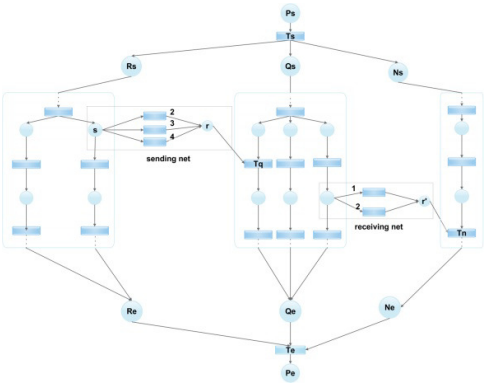

Fig. 4: The new obtained net with multi-communication

Assuming the global multi-communication C is deducted from the sub-communication C1, C2 and C3 between the three processes R, Q and N, in what follows we will analysis the communication C1 and C2 and C3.

C can't be complete if and only if the transition "te" is fired, and this is couldn't be verified only if C1, C2 and C3 are complete. C terminate if doesn't override the fired sequence in the three communication together beside the two sub-nets. C is not dead iff there is no dead transition in the three communications and by follows the appropriate execution route for the three communications it's seen that there is no deadlock. So the multi communication is sound.

Conclusion

In this paper we are interested in the multi communication between the different instances of processes in a system where multiple Business Processes are in interaction. This system we called it a Global Business Process. The paper also presented a new extended language called Composite Colored Business Process Communication Net, it defined the business process how have communicate only with sending or receiving one message. Because we are interested to the multi communication the proposed language are transformed by adding two sub-nets. Moreover the sub nets traits the cardinalities specified in each business process, the first sub-net called sanding net and the second called the receiving net. We have shown that exploiting the CCBPN model would help the analysis processes to know which verification actions have to be done in order to achieve desired company's behavior. We are currently experimenting and making the validation of our proposal in a real application.

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The Impact of the Consumers' Limited Time on the Character of Their Decision: Theoretical Point of View on the Rationality of the Decision

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Abstract

The aim of this paper is the explanation how the consumers' limited time influences their decision – for purposes of this paper, the explanation is made by means of theoretical models, using modelling as a method of scientific abstraction. The difference between full and bounded rationality is also explained and in connection with the flow of the available time, this paper focused on techniques of decision-making and on the level of reached rationality (within the meaning of the quantity of relevant pieces of information). Models as an output from this paper are drawn on the basis of the pertinent literature sources and authors' own point of view.

Keywords: decision-making, consumer, behaviour, rationality, bounded rationality, limited available time.

1 Introduction

This section contains relevant theoretical background – it deals with decision-making, time, consumer's rationality and also limited consumer's rationality.

1.1 Decision Making

The traditional view on decision-making is shown in its schematic form in Fig. 1. A consumer is exposed to a particular problem within the environment in which this consumer occurs (e.g. Nagyova, et al., 2018; Lőke, Kovács, and Bacsi, 2018; Bryla, 2016; Navratil et al., 2016; Bakos, 2017). In order to solve the problem, this consumer gathers pieces of information (it is supposed that gathered pieces of information are relevant to the solved problem). After gathering relevant pieces of information, they are processed and then the decision is taken – it can be called "response". (Mallard, 2012)

It is logical that the single steps take place over time. However, Fig. 1 does not contain any mention how many pieces of information a consumer really gathers before making a decision.

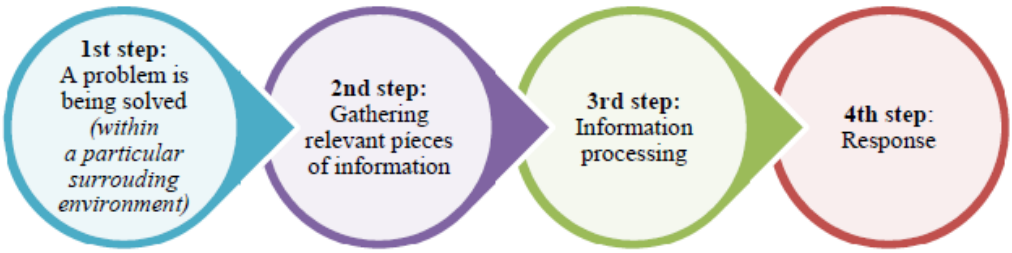

Fig. 1: Traditional view on decision-making

Source: Own creation, using terminology by Mallard (2012).

1.2 Time

The question, what time really is, is a subject of many scientific and philosophical debates. We all know what it is, but only few people really understand it in depth. (Schweber, 2005)

Time is perceived by each consumer individually (= subjectively). Besides astronomical time, there is a personal time (Riegel, 2007), whose course depends purely on the individual consumer's perception. In this sense, time is a subjective variable. According to Poidevin (2015), the act of perceiving something is connected with time dimension.

It is also necessary to emphasise that different cultures understand time in different ways – in this sense, Lewis (2014) mentiones differences among Eastern and Western cultures.

1.3 Consumer's rationality

A traditional approach assumes the absolute rationality of consumer behaviour. Such a rational consumer can be characterised as follows (Simon, 1955):

- he/she has relevant information (is not necessary to have all pieces of information, adequate volume of information is sufficient => it means that a consumer does not need to have 100% pieces of relevant information without losing the status of a rational consumer);
- he/she has the ability to process information (according to Gigerenzer and Selten, 2002, full rationality assumes unlimited cognitive/intellectual abilities; a rational consumer can immediately solve any difficult problems);
- he/she has a set of preferences (according to Schlesinger and Schulenburg, 1993, it is consumer's taste; Jones, 1999, mentions a kind of consumer who is goal-oriented – this can be understood as an expression for consumer preferences).

In this context, Simon (1955) speaks about an "economic man". Baron (1999) claims that a rational person maximizes his/her benefit where benefit is considered as a subjective value (Riegel, 2007). Kenrick et al. (2009) adds that a rational decision is the one in which the consumer maximizes his/her expected satisfaction. Expected satisfaction (and also benefit) is logically a matter of subjective perception.

The rational consumer is not limited by the difficulty of the processed information (Gigerenzer and Selten, 2002). He/she therefore knows the necessary techniques and has the appropriate tools for information processing.

This concept encounters the barriers of the real world in which consumers normally live. However, a model of the "economic man" raises doubts – also Simon (1955) mentions the need to rethink this model. It is necessary to take into account the limited availability of resources and natural limitations of the human body's ability to process information as well. Mallard (2012) emphasizes the fact that

consumer memory is limited. These limitations, linked to a human subject, can be classified as cognitive (Riegel, 2007).

From the above it follows that consumers have limited intellectual and rational capacities that do not allow them to behave fully rationally. The assumption that the consumer can be identified with the ideal is therefore unlikely (Gigerenzer and Selten, 2002). Manzini and Mariotti (2009) state that the consumer really does not have a full only limited rationality – so we get to the concept of limited rationality.

1.4 Limited Rationality

The concept of limited rationality is considered to be one of the foundations of a modern approach to decision-making (Pachur and Forrer, 2013).

Gigerenzer and Selten (2002) emphasize limited rationality does not yet mean irrationality. Although consumer behaviour does not meet all assumptions of full rationality, such a consumer is not necessarily irrational. Jones (1999) confirms this and says that a consumer wants and tries to remain rational when making decisions.

There is also opinion that consumers are systematically non-rational. This, however, does not preclude the assumption that they have certain preferences (Baron, 1999).

2 Aim And Methods

The aim of this paper is to develop theoretical models, based on the study of pertinent literary sources and authors' own perspective. In these models, the impact of the consumers' limited time on the character of their decision is illustrated. Pertinent literary sources were focused on issues of bounded rationality and consumer behaviour. The economic focus of this paper has a considerable overlap to psychology.

In general, a model as an output from modelling is a result of scientific abstraction, when only chosen aspects of a particular phenomenon are taken into account. It means it is simplification of reality. Models can be presented in the form of equations, diagrams or also in a verbal form. (Matúš and Bednárik, 2011)

3 Results and Discussion

In this section, graphic and verbal models of the impact of the consumers' limited time on the character of their decision are discussed and presented.

In each of the following graphical models, flow of time is shown on the horizontal axis. Time is perceived subjectively here, therefore, it is not measured in terms of time units in the models, but is shown only in general.

3.1 Decision-Making Techniques

If consumers are exposed to ***time pressure*** and have to make a quick decision, they use heuristics, habits and prejudices (biases) for their decisions. Thanks to them, decision-making automation is possible. (Ariely and Norton, 2011) In situations when quick decisions are required, cognitive/intellectual abilities recede and so customers' reactions are based on their emotions (Shiv and Fedorikhin, 1999).

Heuristics as a kind of decision-making strategy can be characterized by the ignorance of some information (Gigerenzer and Gaissmaier, 2011). Therefore, consumers are concerned only about a few pieces of information on which they decide (Scheibehenne, Miesler and Todd, 2007). In practice, it looks like the consumer has created a certain list of requirements which a particular product must meet. As a

consumer moves ahead in his/her list, he/she gradually eliminates those products that do not meet his/her requirements. (Mandler, Manzini and Mariotti, 2012)

Heuristics are understood as the opposite to a rational model of behaviour based on maximizing utility. However, Mandler, Manzini and Mariotti (2012) show that these two approaches are essentially the same.

Habits are a specific form of automation, but that does not mean that they lack any trase of consideration (Wood a Neal, 2009). Habits are preferably applied in routine decisions. By repeating the customary behaviour, it is automated. (Cole et al., 2008)

However, if consumers have ***enough time,*** they take a decision-making analysis, assessing the particular attributes and comparing the options. (Ariely and Norton, 2011)

Fig. 2 illustrates which decision-making techniques, depending on the consumers' available time, are used in decision-making. The wave line is the divide between the situation when consumers are in a time pressure and another situation where they have enough time to make their decisions.

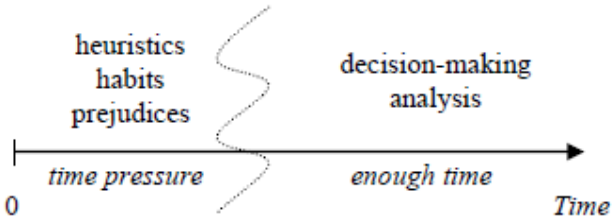

Fig. 2: The influence of the available time on the decision-making technique

Source: Own processing according to Ariely and Norton (2011).

3.2 Rationality of the Decision

As Simon (1955) points out, traditional economics considers consumers to be rational. The terms "economic" and "rational" are presented as interchangeable (= they are synonyms). For completeness it is useful to summarize the basic assumptions about a rational consumer (Simon, 1955): (1) a rational consumer is capable to process information, (2) a rational consumer has a set of preferences and (3) a rational consumer has sufficient volume of information, which is relevant for his/her decision. Relevance of information is also emphasized by Mallard (2012).

It is not absolutely necessary for the consumer to have all pieces of information. It is sufficient if a consumer has sufficient volume of information (Simon, 1955). This is confirmed by Kameníček (2003), who adds this statement: rationality does not mean that the consumer has perfect information. It is rather an ability to make decisions with incomplete information, the question remains, what information is really needed (e.g. Jacob, Boulbry, and Guéguen, 2017).

Therefore, this statement allows to assume that the consumer is fully rational if he/she has gathered more than 50% of the relevant pieces of information. For purposes of created models, this assumption is taken into account. In the following presented model, it is assumed that a fully rational decision is made when the consumer has available more than 50% of relevant pieces of information. If the consumer has available less than 50% of the relevant pieces of information, it can be described as a case of limited rationality. Volume of gathered information is also referred to "complexity" (Dijksterhuis and Nordgren, 2006).

In the following presented model it is assumed: (1) consumer's ability to process information and (2) the existence of a set of preferences (according to theory of rationality, preferences are considered stable – Riegel, 2007). For purposes of the following model, volume of relevant information is the only variable. The model, presented in Fig. 3, shows the volume of relevant information as a dependent variable (whereas the consumer's available time is independent variable).

In other words, the degree of rationality of the consumer is related to the volume of information available to the consumer for his/her decision. Obviously, consumer rationality can be measured by the volume of relevant information which is available. In this way, the following relation can be deduced:

the achieved degree of rationality = the volume of gathered relevant information.

The model presented below (see Fig. 3) shows the impact of the available time on the volume of gathered relevant information.

While the traditional model of consumer decision-making works with an assumption of the free access to information (Soukupová et al., 2004), for purposes of this paper the information barrier (i.e. free access to information is not a matter of course) is taken into account in the model presented below. Fig. 3 shows the variable "time" as one of the constraints on rational decision-making. It is not possible to get all the information at once (i.e. at time *0*).

The illustrated situation is related to the state of the economy where is relatively free access to information. Other model variants where this is not applied are presented in section 3.2.1.

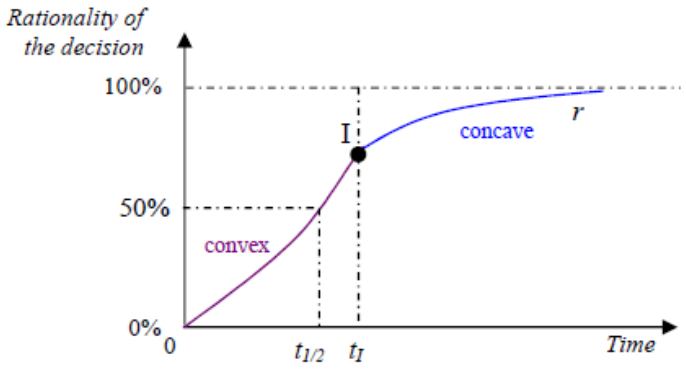

Fig. 3: The impact of the available time on the rationality of the decision (in terms of relatively free access to information)

Source: Own processing.

The horizontal axis in the Fig. 3 shows the flow of available time (perceived subjectively), the rationality of the decision is measured on the vertical axis. This rationality is expressed as a percentage share of the information that the consumer currently gathered for his/her decision and all the relevant information (it is assumed that only information related to the subject of the decision is sought; it means only relevant pieces of information – see Fig. 1) he/she could theoretically gather (this is the maximum = 100%). It is obvious that the total volume of all the relevant pieces of information that is suitable for the consumer for a particular decision-making can be expressed only theoretically.

If the 50% share, depicted on the vertical axis, is considered as the borderline from which the consumer's judgment takes predominance of full rationality, then it is possible to derive on the horizontal axis the time at which the consumer reaches this borderline. In Fig. 3, this time is described as $t_{1/2}$.

Curved line *r* shows the degree of the achieved rationality over time, during which the consumer gathers additional pieces of information. These additional pieces of information cause that customer's decision (behaviour) is more rational. Designation of the curve line by the letter *r* was derived from the word rationality. The consumer's 100% rationality of the decision can be reached in an infinitely long time (curve line *r* touches the 100% border line at infinity).

Now the curve line *r* will be explained. The model shows that the first part of this curve line is convex, while the second is concave. The turning point between these parts is marked by the inflection point *I* (see Fig. 3).

The convex part of the curve line *r* is growing rapidly. Its course can be observed in the time interval from *0* to t_I. The consumer finds quite simply many pieces of information that allows him/her to make limited rational decisions. In this case, the consumer uses tools such as heuristics, habits and prejudices (biases) and so the consumer's decisions are limited rational. However, the convex part of the curve line *r* still extends into an area of full rationality, in the time interval from $t_{I/2}$ to t_I. This is possible thanks to the relatively free access to information.

The concave part of the curve line *r* is growing slowly and is anchored in the time interval from t_I to ∞. It is based on the fact that it is not easy to find additional relevant pieces of information.

At the inflection point (point *I*), the curve line *r* changes its shape from convex to concave. This means that easily accessible information sources are already exhausted. In practice this can mean that the consumer has become familiar with all the information which was effortlessly available. If the consumer wants more information, it takes him/her much more time (so the curve line *r* rises from time t_I slower - it is concave).

In Fig. 3, time *0* is understood as "right now", "immediately". If there is a lack of knowledge and time is limited, the consumer uses heuristics in his/her decision (Mandler, Manzini and Mariotti, 2012). The above created model assumes that the degree of rationality of the decision at this point will be zero. This statement takes into account the theoretical background of the traditional approach – it is generally claimed that rationality is achieved only when the consumer has either complete information or at least sufficiently volume of information (Simon, 1955).

Tab. 1 presents an overview of the character of the consumer's decision, depending on the available time (= time that can be used for decision-making).

Tab. 1: Character of the consumer's decision, depending on the available time

Time (see Fig. 3)	$(0,t_{1/2})$	$(t_{1/2}, \infty)$
Character of the decision	predominance of limited rationality	predominance of full rationality

Source: Own processing.

3.2.1 Other Variants of Rational Decision-Making Model

It is obvious that the rational decision-making model could take several forms depending on where the inflection point *I* will be depicted on the curve line *r*. The simplified model can therefore take three forms, which will be briefly described here. In the Fig. 3, the inflection point *I* exceeds the 50% border line of the rationality of the decision, measured on the vertical axis (i.e., it is closer to the 100% threshold than to the 0% threshold). The second variant of the model could be when inflection point *I* does not exceed the 50% border line (i.e. it is closer to the 0% threshold than to the 100% threshold). And the third variant would be a case when the inflection point *I* is exactly on the 50% border line (it is related to the vertical axis on which the rationality of the decision is measured).

In the model presented above (see Fig. 3), the first variant is assumed when the inflection point *I* approaches the 100% threshold than the 0% threshold. From the authors' point of view, this model variant is currently up to date because it captures well the current consumers' possibilities – compared to the past, it is now possible to get information much easier. Consumers can take advantage of the opportunities offered by current real conditions. For example, they use Internet access to gather extra information very easily, and therefore the convex part of the curve line *r* occupies considerable space (related to the vertical axis). It is expected that the consumer is able to work with a computer and therefore is able to use information sources from the Internet – for purposes of this paper, it is assumed that a consumer is able to process information, which is one of the characteristics of a rational consumer.

The other mentioned simplified model variants are presented below. Fig. 4 shows a situation where the convex part of curve line *r* is very short and ends at the time t_I, which is before the time $t_{1/2}$. This situation can be explained as a case when a consumer has a very limited access to information. Using freely accessible information, such a consumer does not reach even a 50% threshold of rationality of the decision.

Fig. 5 represents a situation where time moments t_I and $t_{1/2}$ are equal. As a result, a consumer gets precisely on the 50% rationality threshold thanks to easily accessible information.

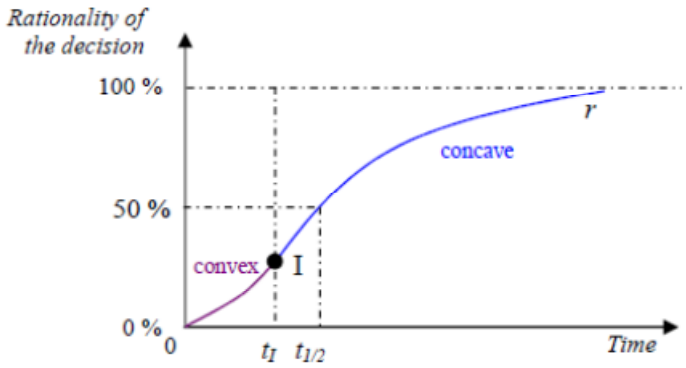

Fig. 4: The impact of the available time on the rationality of the decision (in terms of very limited access to information)

Source: Own processing.

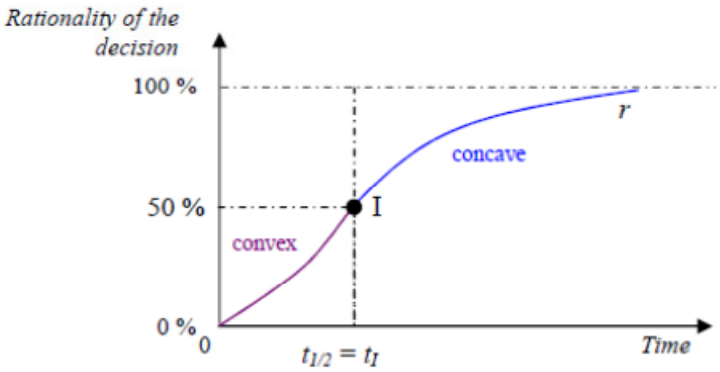

Fig. 5: The impact of the available time on the rationality of the decision (when exactly half of all relevant information can be obtained with ease)

Source: Own processing.

Conclusion

If consumers are exposed to time pressure and have to make a quick decision, they obviously ignore some information – it theoretically means that their decision is less rational (because the achieved degree of rationality is measured by the volume of gathered relevant information and in the case of time pressure consumers do not have time to gather information).

If consumers have enough time, they can deal with a decision-making analysis when they assess particular attributes and compare possible options. A variety of these models can be developed – this paper presents the impact of the available time on the rationality of the decision in three different terms: (1) in terms of relatively free access to information, (2) in terms of very limited access to information and (3) in terms when exactly half of all relevant information can be obtained with ease. All presented models serve as a basic for development of future theoretical concepts, especially in connection with the area of consumer behaviour (mentioned e.g. by Gubíniova, Treľova and Mruškovičova, 2017 and many other authors).

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Leadership and Gender Equality in Central Public Administration of Romania

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Abstract

Gender equality is important for a sustainable growth in European countries and contributes to states' welfare. In a Europe that aims to obtain the well-being for all citizens, countries are making sustainable efforts to solve problems raised by gender inequality, gender segregation and gender discrimination in the labor market. Public administration is a sector where women struggled to gain access to a higher power of decision. In Romania, public administration could be considered a feminine field of working, but it is not enough for women to hold positions from executive level. In order to have power and to play a role in an administrative reform, women must be well represented on high management positions in public institutions. For the present research an exploratory study has been conducted, using secondary data analysis, in order to observe the evolution of women in decision-making positions from Central Public Administration institutions. The data has been collected from the National Agency of Civil Servants and from the European Institute for Gender Equality. The gender equality problem was approached by analyzing the evolution of the number of women in leading positions and their proportion on the whole number of senior civil servants. The study has revealed that women's access on positions with power of decision in central administration institutions has been guaranteed and from this point of view, in this sector, women did not face discrimination. Another aspect revealed by the present study was that a form of gender equality in the central government of Romania has been reached and women now have the opportunity to take part to the most important decisions and administrative problems and are in the right place where they can try to reform the system.

Keywords: leadership, gender, Central Public administration, female leaders

Introduction

Nowadays more and more women want to lead companies, institutions, even countries. This situation is different from prior periods in which women had increased powers only concerning households, family life and raising children. With the industrialization of society, women' interest in leading and positioning themselves in places that require power and influence in decision-making has increased. This phenomenon is very well observed in the private sector, where more women want to occupy leading positions from companies and now, in the political and public sector also, where more and more women are senior public servants, ministries or parliamentarians. The number of women holding powerful positions in national governments, national and European Parliaments and public administration has increased significantly in recent years due to the favorable context created by national governments and supranational institutions like European Parliament. Legislative frameworks have been developed in order to combat discrimination against women and favor them to accede in positions with great power of decision.

A balanced participation of men and women in the labor market in terms of employment, remuneration, opportunities of promotion and inclusion in a lifelong learning process is closely connected with family (as consequence, important policies that aim to combine work and family have been created), with the socio-cultural environment in which people live (because they could have grown up with sexist stereotypes that often limit women' access to certain spheres of social life and

certain professional areas that are considered traditionally masculine) and with the way economic and political power is distributed in society (Ministry of Labor and Social Justice, 2014).

As in other countries from the world, in Romania's case, women represent the majority of the employed population. In public institutions it could be observed a massive presence of female civil servants. As the legislation of most countries in the world and of Romania's too, guarantees women's equal access to management positions from institutions and organizations (Parliament of Romania, 2013), it is necessary to observe if the implementation of the legislative framework had a positive impact over the number of female senior public servants during years.

This analysis is important because if the numerical evolution of women from public administration institutions who hold management positions is positive, it could be established if gender equality in this sector exists or not. The progress regarding the appointment of women in positions with power of decision in public administration institutions could reveal the impact of gender policies, of anti-discrimination legislation and helps further, to conduct research about the leadership styles of female civil servants and their possibility to reform public administration institutions. Given the current context, the subject of the study is relevant as leadership styles practiced by leaders are closely linked to the performance of an organization. If women lead differently than men, it could be observed if they have the necessary qualities to be effective and performant leaders. If women do not possess these qualities this might explain the low representation among managers from public institutions and private organizations, but if they possess the required qualities, then the problem is related to other variables. But first of all, female leaders' position should be analyzed in order to establish if in Romanian Central Public Administration a gender balance has been achieved and women are in the right position of reforming a sector well known for its needs to change.

Are Stereotypes Influencing The Perception About Female Leaders?

Women still have a different situation as men do, regarding payment, working hours or occupations. The reasons of this situation are multiple and diverse. The most important reason that could be considered is the presence of stereotypes in society. Stereotypes create a traditional, very rooted way of thinking, considered normal and correct, although it is not. Stereotypes make us to have many kinds of beliefs, without questioning ourselves if the way we think and judge is correct and based on scientific or objective reasons (Fiske, 1998). Because of this, we do not frequently see women working as mechanics, electricians, plumbers, drivers, painters because these occupations are considered exclusively masculine. When people observe women practicing these jobs, automatically it is believed that it is not normal or natural for a woman to do this without any objective reasons.

Stereotypes about women and men appear easily and automatically (Fiske, 1998). Although stereotypes do not necessarily appear to influence the way individuals think, circumstances favor the emergence and their application (Kunda and Spencer, 2003). For this reason, the perception about leaders reflects both the beliefs about leadership and those about gender.

Stereotypes, prejudices against women, family background and the social groups from which individuals belong, influence the labor market and produce an unbalanced participation of men and women. There still are occupations practiced almost exclusively by women and alike, occupations practiced exclusively by men. In the majority of cases it is about traditional occupations, especially related to industry field. If we expand the area of observation towards other branches as services and administration, an unbalanced participation can be observed, but this is the result of history, where women fought for their rights (e.g. the right to vote) and they still are struggling to occupy more and more decision-making positions such as minister, prime-minister, parliamentary or management positions in public or private institutions. These positions were occupied exclusively by men in the past and this might be one of the reasons from which women must work sometimes twice as men in order to achieve these important and powerful roles (see Foschi, 1996, 2000).

Methodology of Research

The research methodology consists of three major studies.

Firstly, a study of the main findings in literature review has been realized in order to discover the most important leadership styles discovered during time and the potential connection between leadership and gender in order to establish if women possess the necessary qualities for being efficient leaders, even better than men and if it was discovered if women use the leadership styles considered efficient and suited for today's organizations that could be different from the past.

An exploratory study using secondary data analysis regarding women in decision-making positions from Central Public Administration of Romania for 2013-2015 was conducted, including in the sample all the management positions from Central Public Administration of Romania. The data was gathered from the National Agency of Civil Servants, for the period mentioned and interpreted in order to observe the proportion of women in the total amount of senior public servants and the evolution during the period mentioned. We conducted a qualitative research in which we realized an analysis of the number of men and women on leadership positions from ministries, subordinated institutions and other central institutions.

Another exploratory study regarding women in decision-making positions from Central Public Administration of Romania for 2003-2017 was conducted, where we included in the sample only the number of senior civil servants which hold positions with high power of decision in ministries and Government's Office: Secretary General, Deputy Secretary General, Director General, Deputy Director General, Director Deputy and director. We conducted a qualitative research based on secondary data analysis in which we analyzed the number of men and women on leadership positions from ministries and subordinated institutions, on 2003-2017 period in order to create a clear picture about women' position in Central Public Administration of Romania. The analysis was realized using data collected in 2018, from official documents from European Commission and European Institute for Gender Equality.

The main purpose of the study is to realize a review of the main findings about gender influence over leadership styles in order to observe if women have a different behavior than men in the managerial act and if they exert the most efficient leadership styles and to establish if the situation of women in decision-making positions from Central Public Administration of Romania, where is the key place of reforming the whole national administration, has improved during years and if gender equality in the central administration has been reached.

Objectives of Research

The main objectives of this exploratory study are:

O1: The review of the most important literature about leadership styles and gender influence over leadership.

O2: The analysis of women in decision-making positions from Central Public Administration in order to establish if their situation has improved and if they have equal access to leadership positions as men do.

O3: The analysis of women evolution in leadership positions in order to establish if gender equality in the core of the administration has been achieved.

Hypothesis of the study

We started our research from the following hypothesis:

H1: The situation of women occupying positions with high power of decision in institutions from Central Administrations has improved and their number evolved positively during years.

H2: The Central Public Administration of Romania is a place where gender equality is present.

The Leadership Styles in Literature Review, Can They Be Used By Leaders From Public Sector?

The most important information about the leadership styles of women and men are from research conducted since the 1990s, when it was only distinguished between two leadership styles namely, task-oriented leadership style based on achieving tasks and organizing the important activities and interpersonally-oriented leadership style which focused on developing interpersonal relationships, wellbeing, motivation and morale. The difference between the two styles was initially explained by Bales (1950) and later developed by researchers from the University of Michigan (e.g. Likert, 1961) and Ohio University (e.g. Hemphill and Coons, 1957).

There have been studies which have shown the difference between leaders who acted in a democratic way, allowing subordinates to be part of decision making process and those who had an autocratic behavior and discouraged that type of participation. This differentiation between democratic and autocratic styles and participative vs. directive styles arose from experimental research conducted before 1990 (by Lewin and Lippitt, 1938) and was developed by researchers as Vroom and Yetton (1973).

Studies conducted between 1980 and 1990 (e.g. Bass, 1985, 1998) have created the appropriate framework to investigate the differences between women and men in terms of practicing leadership. Subsequent studies have concluded that effective leaders inspire their subordinates and motivate them to contribute to organization development. This leadership style has been called transformational leadership by Burns (1978), who led the research on (1985, 1998) and found that a transformational leader earns subordinates' trust and inspires them and ultimately, becomes a model to follow. These leaders set long-term goals, develop plans and focus on innovation, even when the organization is efficient and successful. (Eagly, Johannesen-Schmidt, van Engen, 2003). Transformational leaders encourage their employees to achieve their maximum potential and as a consequence, they contribute more to the development of the organization, using all the qualities, skills and competences. Most of these qualities have been studied by researchers, who called this forward-looking leadership style, the charismatic style (Conger and Kanungo, 1998).

In opposition to transformational style, Burns (1978) and other researchers (Avolio, 1999; Bass, 1998), have identified the transactional style that involved drawing responsibilities for each employee, rewarding them when they have fulfilled their tasks and sanction them when they did not. This leadership style is based on the self-interest of employees, forcing them to perform their tasks in order to be rewarded. Both styles of leadership are considered effective and benefic for organizations. In addition to these styles, researchers have identified the laissez-faire style characterized by the fact that the leaders do not assume responsibility for the management process (Eagly, Johannesen-Schmidt, van Engen, 2003).

Public administration is a distinct sector led by different rules as the private sector. Legislation, bureaucracy, the statute of the civil servants make administration a sector where leaders should adapt their leadership styles because they do not have the same means to motivate subordinates, to reward them or involve them always in the decision-making process, as in private companies.

Leadership and gender, Are women leading different than men do?

Numerous studies have shown the connection between being a men and being a leader and the idea that a leader should possess masculine characteristics (Powell, Butterfield, and Parent, 2002; Schein, 2001). Also, these studies showed greater preference for male leaders than for female leaders, although this preference presented a slight decrease (Simmons, 2001). Because society puts in doubt the capacity of women to be leaders, they must meet higher standards of competence than men.

For women to be considered as suited as men to be leaders than they must demonstrate their competence over their male counterparts (Biernat and Kobrynowicz, 1997; Foschi, 1996; Shackelford, Wood, Worchel , 1996; Wood and Karten, 1986).

In 1990, Eagly and Johnson conducted a meta-analysis of 162 studies realized between 1961-1987 comparing women and men as leaders. The meta-analysis was realized from two perspectives: employees' and managers'. The analysis from employees' points of view, revealed the perception that female leaders, more than men, tend to adopt democratic and interpersonally-oriented styles, while male leaders tend to be autocratic and task-oriented. The studies conducted from managers perspective, showed that the difference between women and men in management positions is that women are more likely to adopt democratic and participatory styles, while men tend to use autocratic or directive styles (Eagly, Johannesen-Schmidt, van Engen, 2003).

Further, a new meta-analysis based on studies carried out from 1987 to 2000 was realized (Van Engen, 2001). It showed the same results as the previous one and added a new discovery: that people react in a negative way when a woman is adopting autocratic or directive leadership styles and do not have the same reaction when a man is adopting these styles. Another finding was that a woman will not choose to adopt a style that will make her be evaluated in a negative way (Eagly, Johannesen-Schmidt, van Engen, 2003).

In 2003, Eagly, Johannesen-Schmidt and van Engen conducted a meta-analysis of 45 studies comparing women and men managers. The comparison was made from transactional transformational and laissez-faire leadership styles perspective. The results showed that, compared to male leaders, female leaders tend to have a transformational behavior and to reward subordinates according to their performance, feature common of the transactional style. Men, more than women tend to exhibit two characteristics of transactional leadership: active management (assists subordinates mistakes and their failures to meet the standards) and passive management (expect problems to become very serious for to intervene). Men have obtained a higher score at laissez-faire style, showing their lack of involvement in the management process. In conclusion, the study identified minor differences in leadership styles from gender perspective.

Gender differences in transformational and transactional leadership have implications in women's favor, because researchers defined these styles as the most effective ones. Based on this fact, a meta-analysis of 39 studies showed positive correlations between efficiency and all components of transformational leadership and the contingent reward characteristic of transactional style, the only aspect of transactional leadership where women exceeded men (Lowe, Kroeck and Sivasubramaniam, 1996). Another studies revealed similar result regarding efficiency and women managers (Center Leadership Studies, 2000), and showed negative correlations between efficient leaders and passive management as one of the components of transactional style and laissez faire leadership style. Given these findings, the tendency of women to overcome men on the components of leadership which lead to efficacy (i.e., transformational leadership and contingent reward transactional style component) and men's tendency to overcome women on styles considered inefficient (i.e. passive management transactional style component and laissez-faire) demonstrate women capacity of being good leaders, even better than men are. In conclusion, research on transformational, transactional and laissez-faire style suggests women's advantage as leaders, even if it is a small one.

Main Research Findings

In order to analyze the situation of female leaders from Central Public Administration of Romania, we realized a statistical analysis for 2013, 2014 and 2015. The method of research used was the analysis of official documents given by the National Agency of Civil Servants and secondary data analysis. The data included the whole number of senior civil servants from Central Public Administration of Romania (all ministries, subordinate institutions and other central institutions), the number of all public functions, occupied and vacant. The obtained data was processed in SPSS, interpreted and compared. After processing the data for 2013-2015 periods regarding the number of public management positions from central administration institutions we realized charts and graphs to observe the distribution of public management positions by gender, the numerical evolution of public

management positions occupied by men and women and we compared the number of positions occupied by men with those occupied by women.

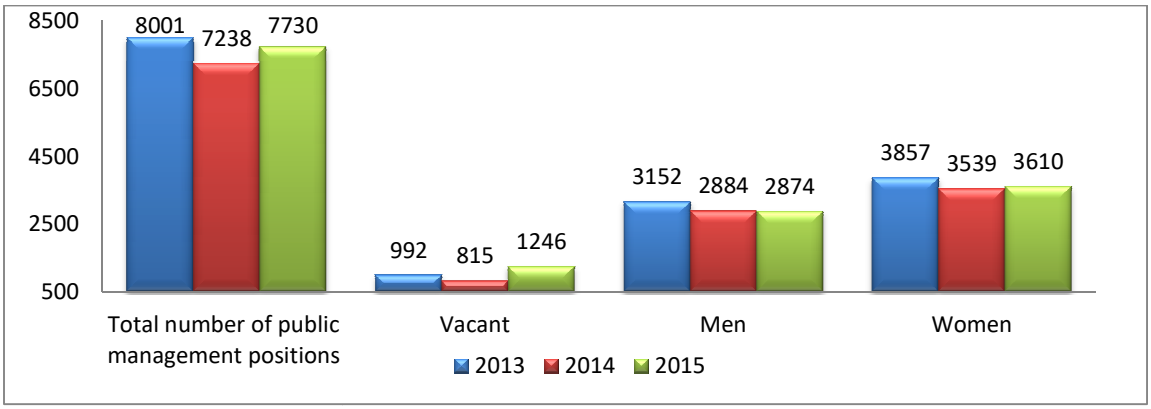


Fig. 1: The distribution of public management positions from Central Public Administration by year and gender

Source: National Agency of Civil Servants, interpreted by author, 2016

The total number of public management positions from Central Public Administration decreased in 2014 and 2015 compared with 2013. The lowest number of positions was recorded in 2014, following a slight increase in the next year. The number of men who occupied leadership positions followed a downward trend from 2013 to 2015. As it can be seen, the number of women occupying leadership positions followed the same trajectory as the total number of positions. In 2014 the number of women recorded a decrease compared to 2013 and then, the next year registered an absolute increase. Even if the number of all leadership positions occupied by women increased in 2015, different from men's situation which suffered a decrease, the number of women occupying leadership positions still remained lower compared with 2013.

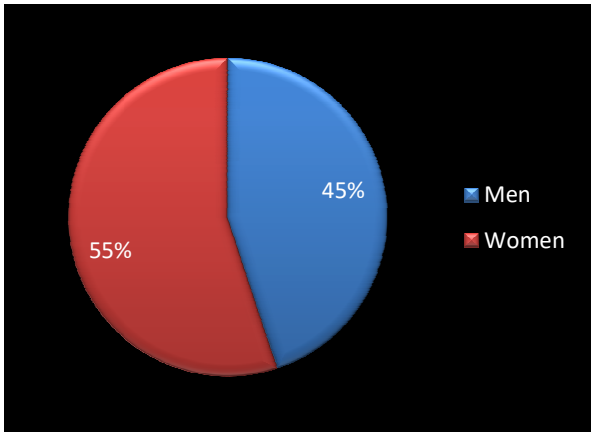


Fig. 2: The structure diagram of public management positions in 2013

Source: National Agency of Civil Servants, interpreted by author, 2016

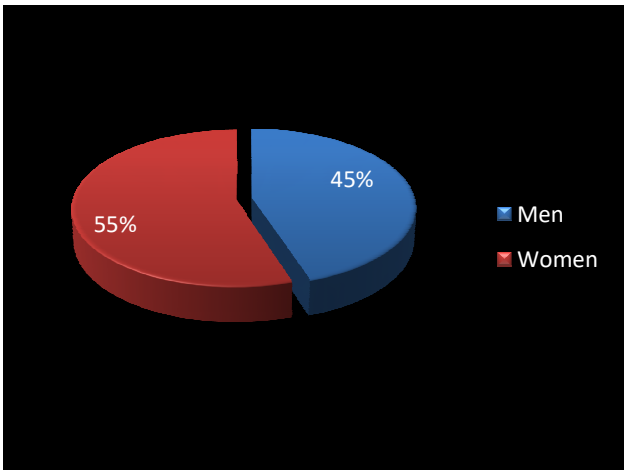


Fig. 3 : The structure diagram of public management positions in 2014
Source: National Agency of Civil Servants, interpreted by author, 2016

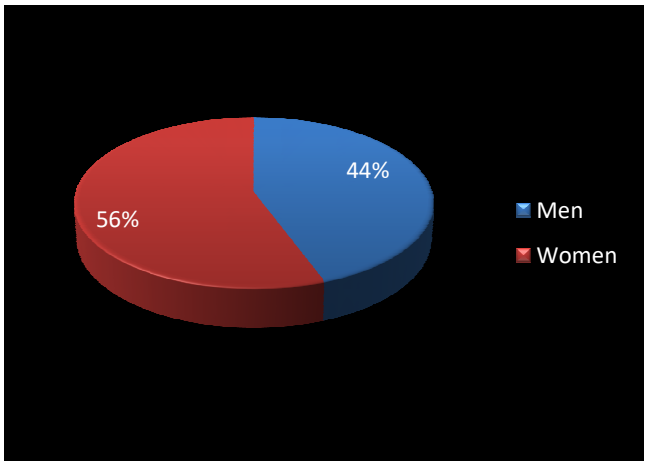


Fig. 4 The structure diagram of public management positions in 2015
Source: National Agency of Civil Servants, interpreted by author, 2016

Analyzing the structure diagrams of public management positions, it could be observed that for all three years the same situation was encountered. The number of women occupying a leadership position was higher than the number of men and the percentages were maintained over 50 in all three years. For the analyzed period the number of women occupying leadership positions was with at least 10% higher than men leaders.

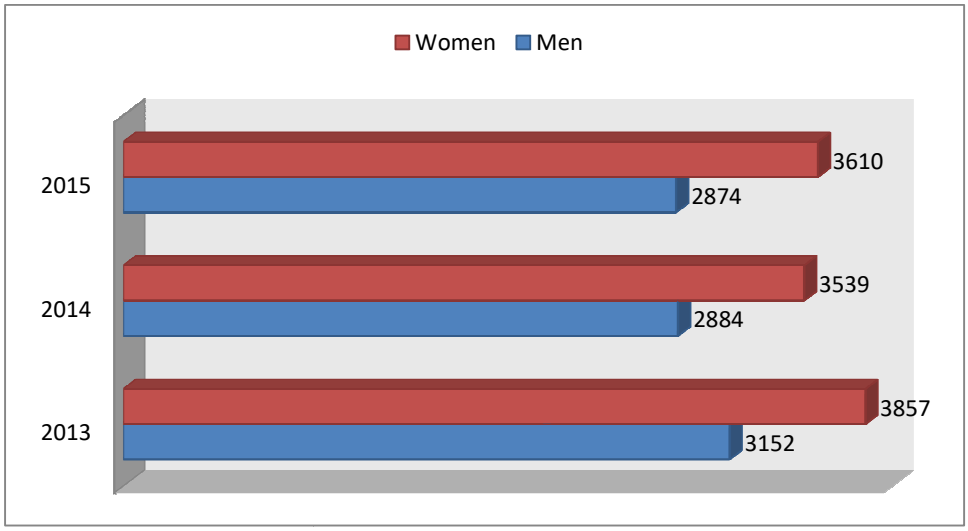


Fig. 5: The distribution of public management positions from Central Public Administration by gender

Source: National Agency of Civil Servants, interpreted by author, 2016

From the distribution of leadership positions by gender it could be observed that in every year of the three analyzed, the number of management positions occupied by women is higher than the number of positions occupied by men. Analyzing the numerical evolution of persons in leadership positions from public institution it could be observed that it registered a decline in 2014 and the situation maintained in 2015, but without the same intensity.

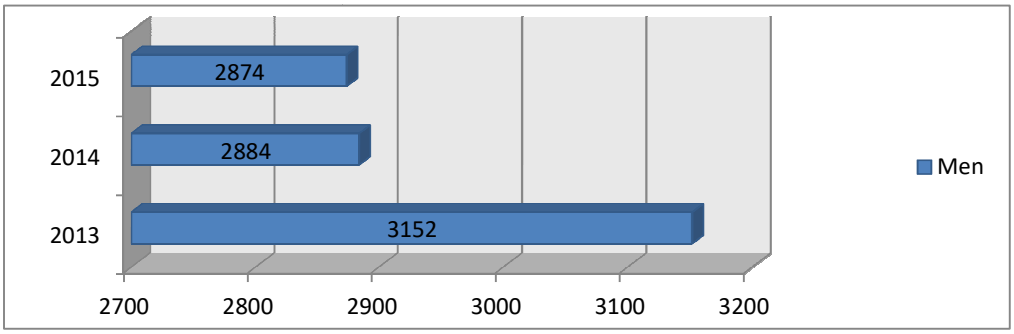


Fig. 6: The evolution of male senior civil servants

Source: National Agency of Civil Servants, interpreted by author, 2016

The number of men occupying leadership positions in Central Public Administration decreased in 2014 and 2015, while the number of women decreased only in 2014 compared to 2013 and then recorded a slight increase in 2015.

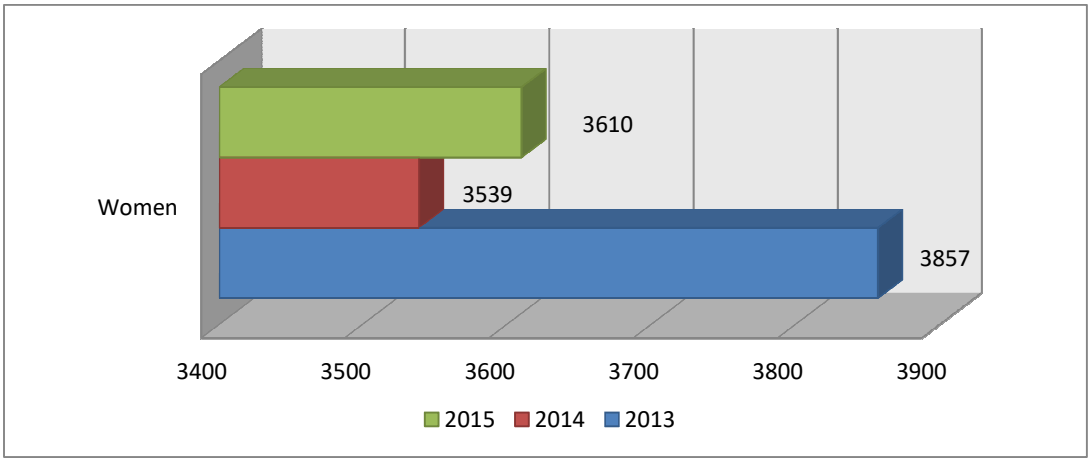


Fig. 7: The evolution of female senior civil servants

Source: National Agency of Civil Servants, interpreted by author, 2016

Analyzing the evolution of women who held leadership positions it could be observed a sharp decline in 2014 over the previous year, the situation being different in 2015 when female leaders' number registered a small increase compared with the decrease from the previous year. Though the number of women occupying a leadership position increased in 2015, it failed to overcome the decrease from 2013.

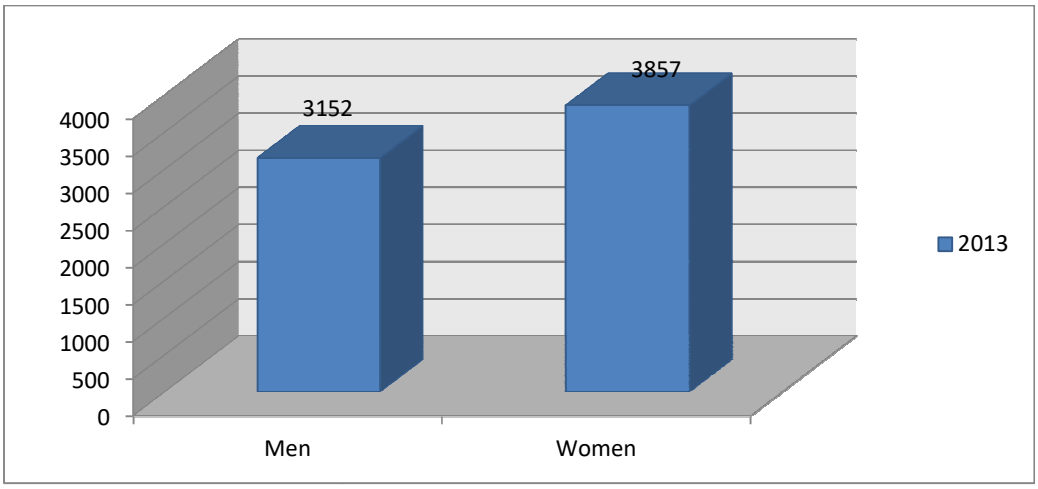


Fig. 8: The distribution of senior civil servants by gender

Source: National Agency of Civil Servants, interpreted by author, 2016

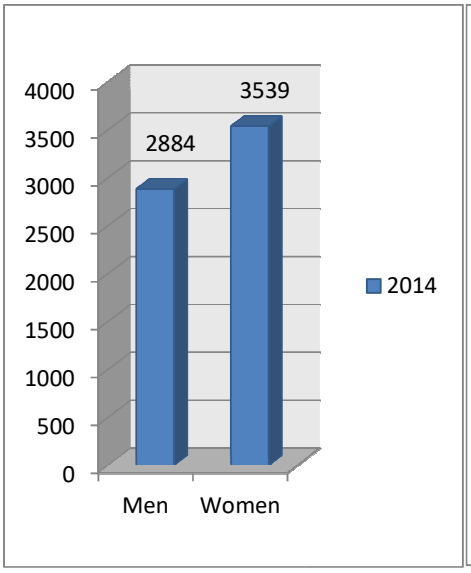


Fig. 9: The distribution of senior civil servants servants by gender

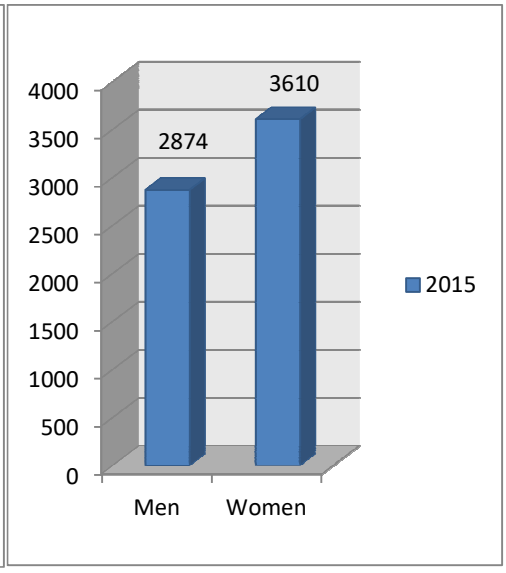


Fig. 10: The distribution of senior civil by gender

Source: National Agency of Civil Servants, interpreted by author, 2016

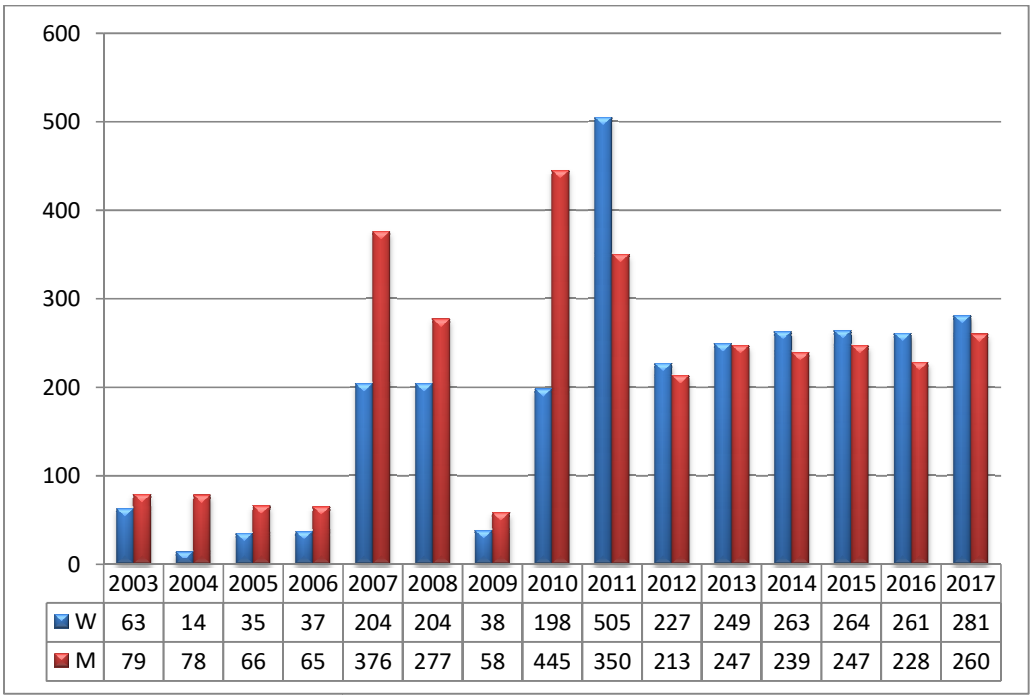
Processing the statistical data used, we calculated the relative frequency and proportion of the occupied leadership positions by each gender and it could be observed that for each year of the analysis, women in leadership positions form Central Public Administration, outnumbered men occupying the same positions. This situation showed that in the core administration of Romania a certain level of equality has been reached. The gender balance showed that more than 50% of management positions were occupied by women. This could mean than women' access in public administration of Romania was not limited and women managed to cross the stereotypes and the beliefs that they are not suited for being leaders. These proportions showed the distribution of all management positions by gender, including the one's with low power of decision (chief of service and chief of office) and the one's with high power of decision (Secretary general, Deputy Secretary General, Director General, Deputy Director General, Director Deputy and Director).

The Analysis of Women Holding Positions with High Power of Decision from Central Public Administration of Romania from 2003 To 2017

An exploratory study regarding the evolution of women in position with high power of decision in central administration institution has been conducted in order to observe if women are well represented in this area and if gender equality exists. The gender balance should show that every gender occupies more than 40% of the positions analyzed.

We used data about men and women occupying leadership positions from Central Public Administration institutions (senior civil servants): Government's Office, Ministry of Foreign Affairs, Ministry of Internal Affairs, Ministry of Justice, Ministry of National Defense, Ministry of Relation with Parliament, Ministry for Romanians Abroad, Ministry of Agriculture and Rural Development, Ministry of Business Environment, Commerce and Entrepreneurship, Ministry of Economy, Ministry of Public Finance, Ministry of Regional Development, Public Administration and European Funds, Ministry of Tourism, Ministry for Communication and Information Society, Ministry of Energy, Ministry of Environment, Ministry of Transport, Ministry of Waters and Forests, Ministry of Culture and National Identity, Ministry of Health, Ministry of Labor and Social Justice, Ministry of National Education, Ministry for Public Consultation and Social Dialogue, Ministry of Research and Innovation, Ministry of Youth and Sport.

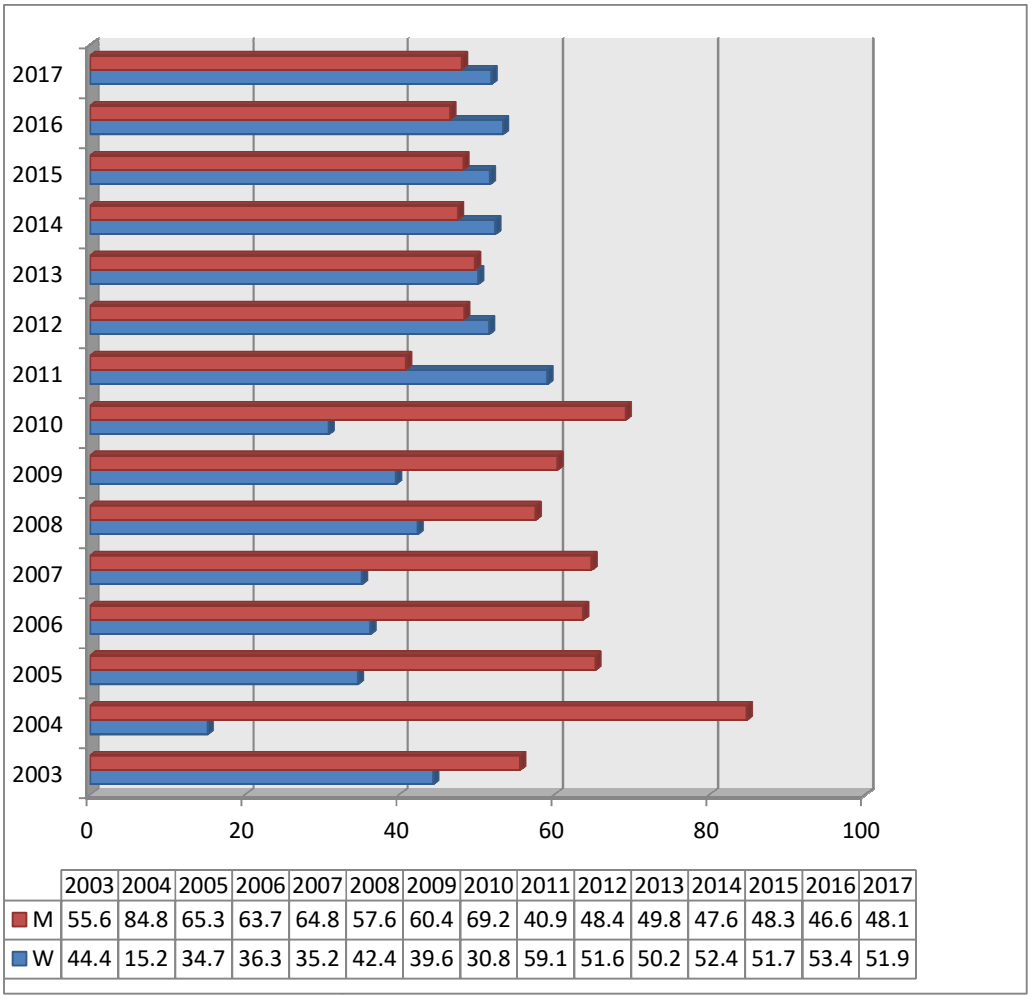
The administrative positions which were included in this study are: Secretary general, Deputy Secretary General, Director General, Deputy Director General, Director Deputy and Director.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
W	63	14	35	37	204	204	38	198	505	227	249	263	264	261	281
M	79	78	66	65	376	277	58	445	350	213	247	239	247	228	260

Fig. 11: Men and women in leadership positions in Central Public Administration
Source: European Institute for Gender Quality, 2017, adapted by author

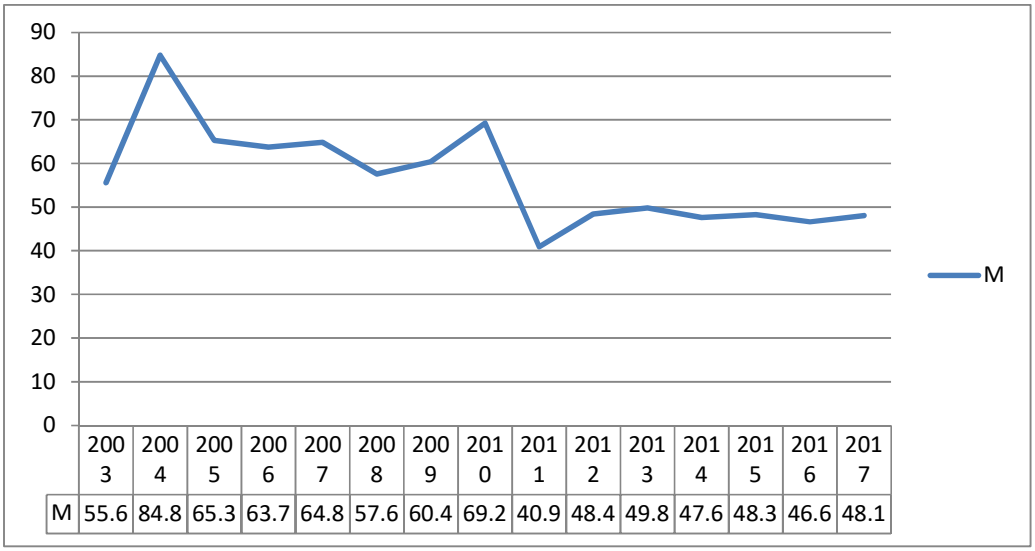
Analyzing the evolution of the absolute numbers of men and women occupying the positions included in the study from ministries, it could be observed that since 2011 women are occupying more positions than men do. In 2011 an abrupt increase in the number of women has been registered and from 2012 until present a gender balance can be noticed as both genders occupy almost the same number of leadership positions. This situation shows a form of gender equality and could lead to the idea that in the central administration women managed to occupy positions with high power of decision without being discriminated.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
M	55.6	84.8	65.3	63.7	64.8	57.6	60.4	69.2	40.9	48.4	49.8	47.6	48.3	46.6	48.1
W	44.4	15.2	34.7	36.3	35.2	42.4	39.6	30.8	59.1	51.6	50.2	52.4	51.7	53.4	51.9

Fig. 12: Women and men in leadership positions in Central Public Administration
Source: European Institute for Gender Quality, 2017, adapted by author

Concerning the distribution of leadership positions it could be observed that the percentage of male leaders was higher until 2010. In 2003-2010 men dominated the most important and powerful positions from central administration but the situation changed in 2011 when the number of women almost doubled compared with the previous year. From 2012 until present, women occupy the majority of high management positions, with more than 50% and we could assume that an equal participation of men and women is present in this area taking into account that both genders occupy more than 40% of the mentioned positions.

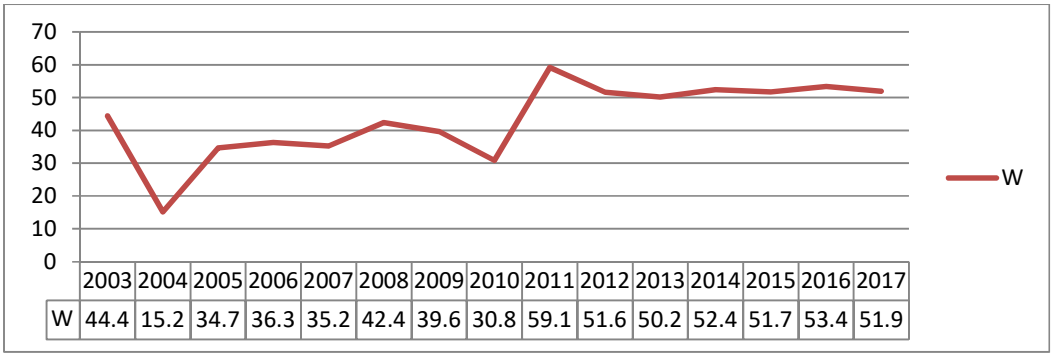


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
M	55.6	84.8	65.3	63.7	64.8	57.6	60.4	69.2	40.9	48.4	49.8	47.6	48.3	46.6	48.1

Fig. 13: Leadership positions occupied by men

Source: European Institute for Gender Quality, 2017, adapted by author

The study revealed that through time the percentage of men occupying leadership positions has decreased. The most dramatically decrease took place in 2011 with almost 30%. This situation attracted more women in the public administration and had as consequence the increase of female leaders in the total amount of leadership positions. This situation might have been a positive response to the gender policies implemented in Romania or to the fact that public administration is considered a feminine sector.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
W	44.4	15.2	34.7	36.3	35.2	42.4	39.6	30.8	59.1	51.6	50.2	52.4	51.7	53.4	51.9

Fig. 14: Leadership positions occupied by women

Source: European Institute for Gender Quality, 2017, adapted by author

Women's situation has improved during time, taking into account that in 2017 there were four times more women in leadership positions than in 2004. The proportion between men and women in positions with high power of decision from ministries is almost equal and women occupied more positions in the last seven years. This could lead to the idea that the public sector is not a field where women are discriminated and they have been given the opportunity to be in places with the necessary power of reforming the public administration. We cannot assume that in the Central Public Administration of Romania women are underrepresented and that they the necessary means and qualities and power to be efficient leaders capable of reforming the public sector.

Conclusions and Future Trends of Research

After analyzing the situation of female leaders from Central Public Administration, it could be noted that throughout the period under review (2013-2015), the number of women occupying a leadership position in the central government of Romania, remained at a level about 10% higher that the number of men occupying these positions. The analysis of all occupied management positions revealed that a significant decrease per total and by each gender in 2014 over the previous year has been registered. For 2015, the number of women increased, the situation being different from the negative trend registered by the number of men in these positions.

According to these data, it could be concluded that in the central government of Romania, women are well represented as senior civil servants per total positions. The decrease in the number of women occupying leadership positions may not be related to gender, to discrimination or to the presence of stereotypes in the Romanian society, as this decrease was registered among the number of male leaders too and correlates perhaps with potential organizational changes of administration.

The exploratory study conducted for 2003-2017 period showed that the number of women in leadership positions increased and maintained above 50% since 2011 until present. This shows that in the central administration women are well-represented and a sort of gender equality, from access to power of decision positions and equal representation perspectives, clearly exists.

Therefore, the central government of Romania is not a sector where women are underrepresented, given that the percentage of positions occupied by women is significantly higher than the number of management positions occupied by men. The share of women leaders in central government is much higher even than the average from European countries, Romania occupying a leading positions in the hierarchy of European countries in this regard. Romanian legislation and institutions promote the equal participation of men and women in positions with power of decision, equal treatment and equal opportunities between women and men. Women in Romania have access to management positions in the central government, thus showing the evolution of our country in this field and the positive impact of gender policies and anti-discrimination legislative framework.

Limitations of research: One limitation of this research is the lack of data for all leadership positions for a longer period of time. Another limitation is the lack of data about the number of chiefs of office and chiefs of service for 2003-2017 from the ministries analyzed.

Future trends of research: A study regarding the leadership styles of men and women from Central Public Administration will be conducted in order to establish if women exert the traits of efficient leaders and use the leadership styles considered efficient and suited for today's organizations, as transformational and transactional styles.

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The Human Capital and Digital Society

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Abstract

Nowadays we live in a society that is constantly changing, based on globalization and a better capitalization of human capital. Human transformation and human capital management, together with product and business development, is a key priority for organizations, a lasting advantage that increases their efficiency. This article analyzes the influence of human capital on the development of digital society and it highlights its contribution to business performance.

Keywords: human capital, knowledge society, digital society

Introduction

The implications of human capital for social and digital technologies today affect practically everyone. We live in a changing society based on a continuous development and that greatly capitalizes on human capital. Regardless of the type of organization they work for, the profession or the stage of their careers, the human capital is the one that has implications for the evolution of the enterprises and especially for the increase of their efficiency.

Human capital is presented in literature as having a strong influence on the competitiveness of enterprises. (Antlova, 2009).

The Society of Knowledge, first mentioned by Peter Drucker in 1969, can not exist without human capital, because knowledge is the result of the learning of people, the information they have acquired, the management of this information, and the experience that digital technology provides today .

The results highlight the importance of human capital for innovative performance and also the value of intellectual capital as a competitive advantage.

The knowledge strategy provides a secure advantage for improving performance, increasing productivity and creativity, and facilitating innovation in innovative, high-tech enterprises.

In the last decades, ICT tools have quickly become part of the business's most important component. Technology, including the Information Revolution, and Globalization continue to exert major effects on HRD. Rapid developments in the ITC field require an adequate level of knowledge. The capability and knowledge of an enterprise's IT staff is an important issue for all organizations that significantly influence the adoption of innovative technologies in enterprises (Ilesanmi, 2007).

It has been concluded that the most important barrier to the adoption of ICT in enterprises is the lack of knowledge of the benefits of technology and the value of the enterprise felt through their use. (Kalanje, 2002).

This research is motivated by the need to determine the critical determinant effect, namely human capital, to allow organizations to overcome inhibitory factors and adopt information and communication technology, given that it is not sufficient for an economy to have technology but is People need to sties to make the most of these technologies.

Investments in research, development and education represent one of the central objectives of the European Union, these being essential for the growth and development of a knowledge-based economy. The Europe 2020 Strategy sets out a vision of Europe's social market economy for the 21st century. The goal is to have a smart, sustainable and favorable economy that offers high levels of employment, productivity and social cohesion.

The Europe 2020 strategy supports smart growth, knowledge-based development and innovation

The use of information and communication technologies by enterprises is an extremely important factor and human capital is a major factor in the digitization of enterprises because they are not a self-acting mechanism.

In today's companies, specialized ICT skills are essential for the efficient use of ICT in e-business processes and commercial transactions (e-commerce).

2. Literature Review

The challenges faced by organizations throughout the whole business life require education, experience and motivation of people to engage in business strategies that will lead to business performance (Pena, 2002). In this context, it is not surprising that one of the most valuable assets in an organization is the human capital.

Human capital is defined as "the collective skills, knowledge, or other intangible assets of individuals that can be used to create economic value for the individuals, their employers, or their community" (Dictionary.com, n.d.). The concept was firstly shaped by Adam Smith (1776) in his book "The Wealth of Nations", where he highlights the connections between the human capital and the investments in education and training.

"A man educated at the expense of much labor and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labor, will replace to him the whole expense of his education, with at least the ordinary profits of an equally valuable capital. It must do this too in a reasonable time, regard being had to the very uncertain duration of human life, in the same manner as to the more certain duration of the machine."

Among the pioneers of the modern human capital theory are Mincer (1957), Becker (1964) and Schulz (1961). Mincer (1958) defines human capital as being "the stock of knowledge, habits, social and personality attributes, including creativity, embodied in the ability to perform labor so as to produce economic value". Gary Stanley Becker received the 1992 Economy's Nobel Prize for his research on human capital and its role in economic growth. Becker (1964) demonstrated that investments in human capital is reflected in the highest increases in labor productivity and hence in an important contribution to boosting GDP.

During the time many researchers analyzed the field of human capital and its implication over organization's performances. Green (1993) demonstrated that the lack of training of employees is related to low competitiveness. Collis and Montgomery (1995) explain how the organization's resources lead to its performance, highlighting the importance of human capital to generate competitive advantage. Mata et all. (1995) and Ganotakis (2012) have used Resource Based Theory (RBT) to demonstrate that human capital is a source of sustainable competitive advantage for entrepreneurial firms.

In the last decades, the boost of Information and Communication Technologies (ICT) had effects in all the fields of life and economy. Aldea et al (2018) and Rostam el al (2018) mentioned in a modern economy it's impossible to use a product or service without a computer. Almost all organizations use computers and Internet for running their business. The human capital needs specific skills in the field of computer science and communication in order to develop, adopt, support and use ITC systems related to enterprise resource planning, supply management, the management of relationships with customers and suppliers, the use of their cloud computing services, web solutions and e-commerce.

Data on ICT use by businesses in countries around the world, illustrate an increasing trend. The results of a survey conducted in 2016 in European Union show that 92 % of enterprises in European Union use of a fixed broadband connection to access the Internet (EUROSTAT, 2017).

Dewan and Kraemer (2000) analyzing the return from IT investments at national level for 36 countries found significant differences between developed and developing countries. They explained

that other complementary assets, among which human capital is an important one, are prerequisites for IT investments to be productive. This important asset, how people use, support and extend the technology to new uses, is compulsory to gain from IT use.

In this context, the impact of ICT on human development has been analyzed by many authors during the time. Bankole et all (2011) investigated the relationships between different dimensions of ICT investments (hardware, software, internal spending and telecommunication investment) and human development indicators (GDP per capita for the standard of living, literacy and school enrolments for education, life expectancy for health) in 51 countries.
The previous mentioned research present the influence of ITC over human capital at organization level. In the following are presented some analyses effectuated at country level.

3. Composite indices to assess itc development and human capital

In the frame of international organizations, like World Bank and United Nations, were developed various indices to assess the level of development of ITC and the human capital among the countries, highlighting the disparities among them. In the following are presented some of them:

The Technology Achievement Index (TAI) is an instrument used to measure how well performs a country in creating and diffusing technology, based on the evaluation of four dimensions (TAI, n.d.):

- creation of new technologies: The ability to innovate is measured by two indicators (Desai, 2002): the number of patents granted to residents per capita (as a measure of the level of innovation activity) and the receipts of royalty and license fees from abroad per capita (as a measure of how past innovations that are still useful).
- diffusion of old innovation: The capacity to diffuse old innovation is measured by the use of two indicators (Desai, 2002): phones subscriptions and electricity consumption, indicators relevant for the participation in the new technology revolution.
- diffusion and adoption of recent innovation: The capacity to diffuse and adopt new innovation is measured by other two indicators (Desai, 2002): Internet users per capita (as a measure of Internet usage) and share of high-technology exports (as a measure of sustained exports in the high technology sector).
- building human skills: The users of new technologies need to possess specialized skills. The capacity to build such skills is measured by (Desai, 2002): the mean years of schooling (reflecting the quality of education) and the percentage of students in tertiary education enrolled in science, engineering, manufacturing and construction programs (reflecting the effort to develop advanced skills in science and mathematics).

For each country, is calculated a composite indicator, the Technology Achievement Index Based on the TAI score, the countries fall into one of four categories (Desai, 2002):

- leaders ($TAI > 0.425$)
- potential leaders ($0.350 \leq TAI \leq 0.424$)
- dynamic adopters ($0.200 \leq TAI \leq 0.349$)
- marginalized ($TAI<0.200$)

For the 2015 edition of the index the results are (TAI, 2015):

- leaders: United States (0.630), Japan (0.532), Korea (0.524), Germany (0.465), Switzerland (0.461), Malaysia (0.454), France (0.449), Trinidad (0.445), China (0.443), Netherlands (0.441), Singapore (0.440), Iceland (0.437), Sweden (0.435), Norway (0.434, Hong Kong (0.429), Australia (0.425). These countries obtained high results in all dimensions of technology achievement.

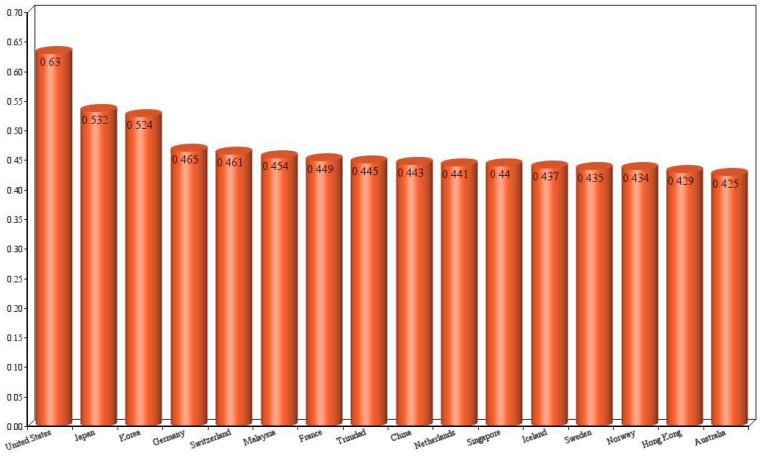

Fig. 1: Leade

- potential leaders: Oman (0.422), Austria (0.422), UAE (0.412), Luxembourg (0.412), Kazakhstan (0.410), Finland (0.408), UK (0.407), Denmark (0.407), Qatar (0.407), Ireland (0.402), Vietnam (0.401), Belgium (0.400), Czech (0.396), New Zealand (0.395), Israel (0.389), Chile (0.383), Bahrain (0.383), Latvia (0.376), Slovenia (0.373), Spain (0.373), Slovak Rep. (0.370), Russia (0.370), Belarus (0.370), Uruguay (0.368), Hungary (0.364), Kuwait (0.360), Greece (0.359), Canada (0.358), Portugal (0.357), Poland (0.356), Costa Rica (0.356), Italy (0.355), Lithuania (0.355), Ukraine (0.352), South Africa (0.351). The countries in this category haven't obtained good scores in one or two of the pillars concerning the creation and diffusion of innovation. The development level of human skills is comparable with those of leaders' countries (Desai, 2002).

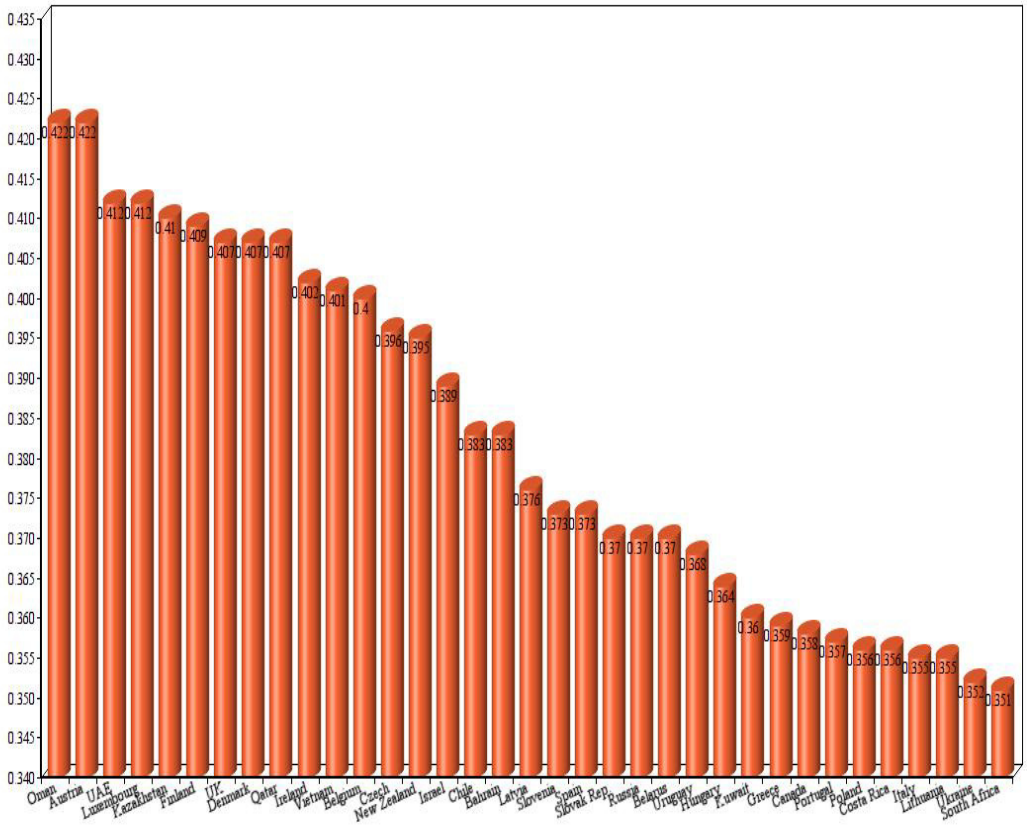

Fig. 2: Potential leaders

- dynamic adopters: Argentina(0.342), Croatia (0.341), Ecuador(0.338), Venezuela(0.336), Bulgaria (0.336), Philippines (0.333), Lebanon (0.333), Romania (0.327), Mexico (0.323), Azerbaijan(0.316), Cyprus (0.313), Serbia(0.313), Thailand (0.311), Kenya(0.305), Saudi Arabia (0.305), Panama(0.304), Cuba(0.297), Colombia(0.294), Tunisia (0.290), Macao SAR (0.287), Brazil(0.278), Algeria (0.271), Jordan (0.269), India(0.259), Morocco(0.248), Turkey (0.247), El Salvador (0.244), Sri Lanka (0.235), Puerto Rico (0.232), Dominican(0.232), Iran (0.226), Egypt (0.221), Peru(0.220), Uzbekistan(0.219), Indonesia (0.215). The high technology industries in these countries are well developed, the peoples have high human skills, but the diffusion of innovation is slow and many times incomplete (HDR, 2001).

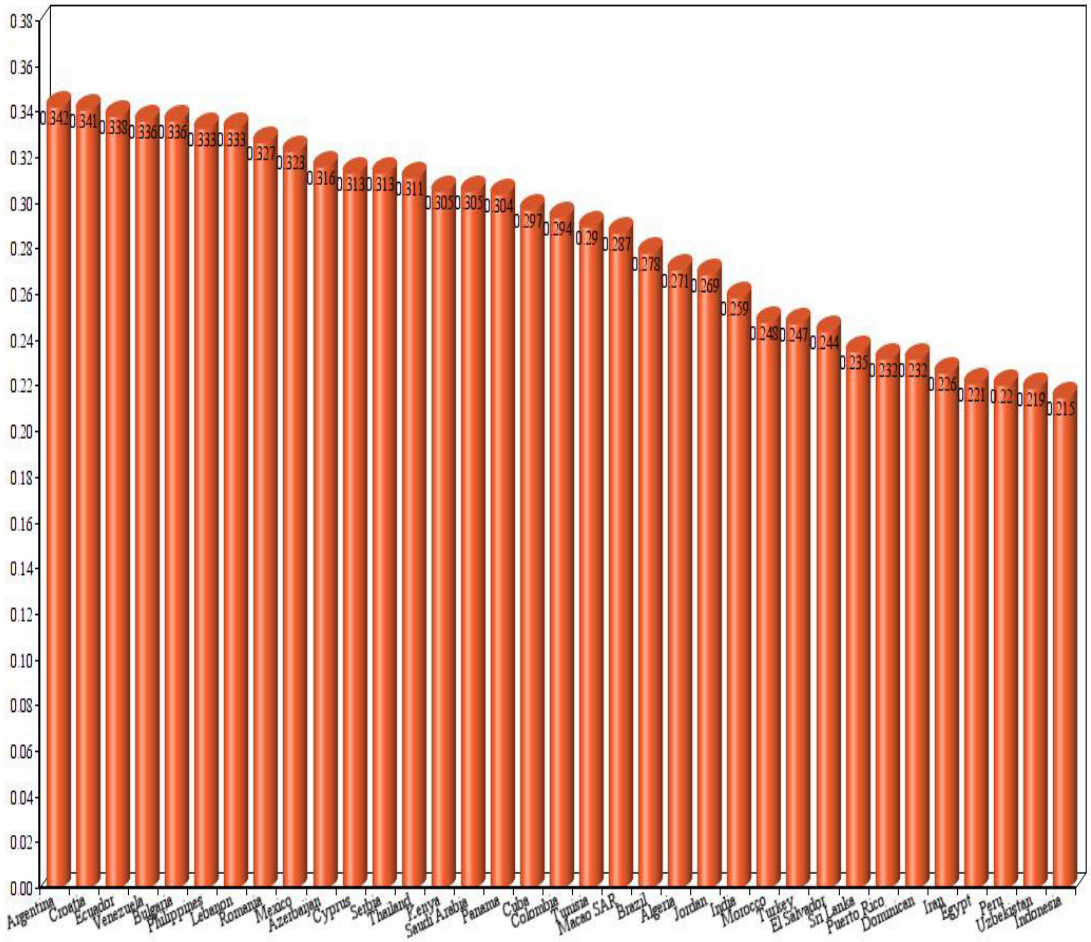

Fig. 3 : Dynamic adopters

- marginalized: Syria (0.193), Libya (0.189), Guatemala (0.181), Cameroon (0.141), Pakistan (0.141), Iraq (0.139), Coted'Ivoire (0.139), Bangladesh (0.136), Nigeria (0.135), Sudan (0.130), Ethiopia (0.098), Yemen (0.080), Tanzania (0.079), Congo (0.065). These countries are far behind in terms of technology usage and diffusion of innovation.

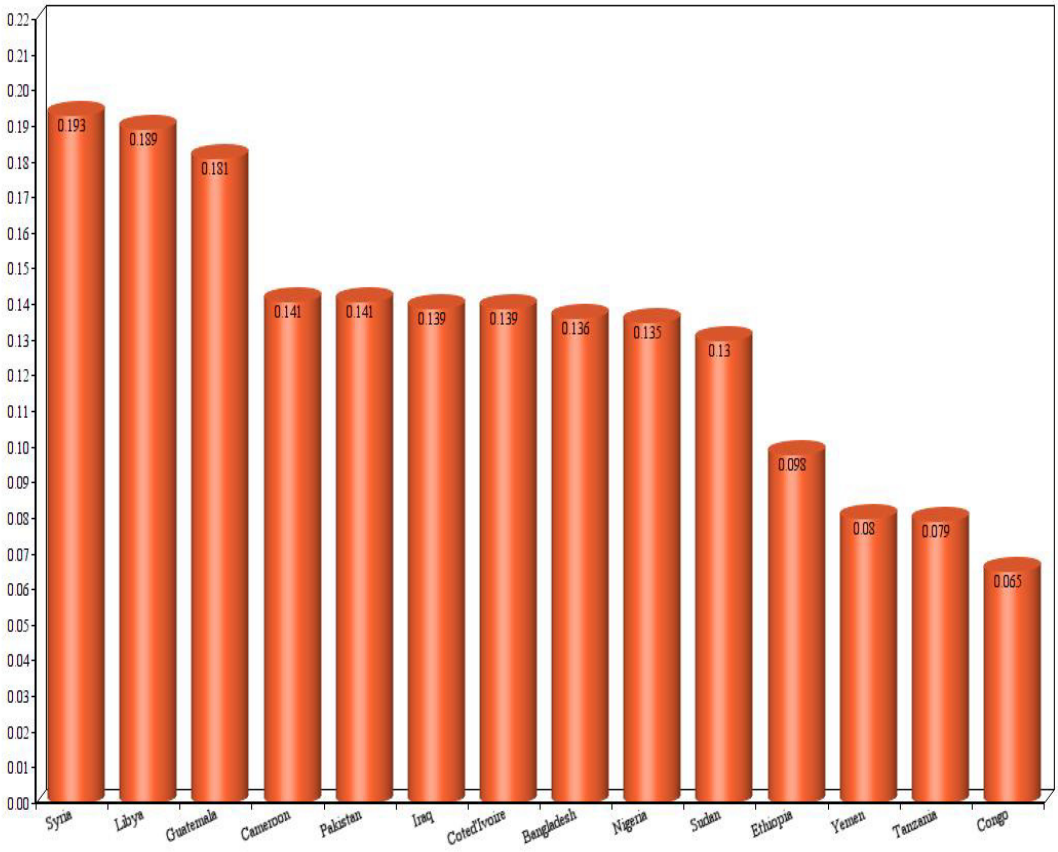

Fig. 4 : Marginalized

Assessment of skills is an important component of the index. The knowledge society is a complex phenomenon that has a major and omnipresent impact on all aspects of human activity. Both creators and new technology users need skills. Millions of jobs in all sectors such as transport, production and commerce are likely to be automated. Current technology requires skills from the human capital to master the constant flow of new innovations. Every skilled human capital country is needed to attract and add new technologies.

4. The ICT Development Index

The ICT Development Index (IDI) is another composite indicator designed to assess the level and the trend of ICT development in developed and developing countries. IDI is made up of 11 indicators, grouped into three components:

- ICT use: The indicators in this category are: the intensity and use of ICT the percentage of people using the Internet, fixed tape subscriptions per 100 inhabitants, broadband mobile subscriptions per 100 inhabitants (https://www.itu.int/en/Pages/default.aspx)
- ICT acces: In this category are included five infrastructure and access indicators (fixed-telephone subscriptions, mobile-cellular telephone subscriptions, international Internet bandwidth per Internet user, households with a computer, and households with Internet access)
  (https://www.itu.int/en/Pages/default.aspx)
- ICT Skills: Here are included indicators related to human performances (adult literacy, gross secondary enrolment, and gross tertiary enrolment)
  https://www.itu.int/en/Pages/default.aspx

Figure 5 presents the evolution of the IDI scores between 2016-2017 around the European Union using data from the International Telecommunication Union (ITU, 2018).

Fig 5 : Evolution of the IDI scores in 2016 and 2017

The results show that most states have improved their performance. Denmark, the Netherlands and Sweden record the highest values, which means that they have the largest development of the ICT sector. On the opposite side, with the lowest values are Romania, Bulgaria and Poland. In addition, despite the high number of ICT graduates, these countries do not perform in terms of basic or advanced digital skills of individuals, being found consistently at the lower end of the digital competitiveness scale from the perspective of human capital over 2014-2017

5. The Human Development Index

The Human development index (HDI) is a composite index developed on the base of three dimensions of human development: life expectancy, access to knowledge and a standard of living. (http://hdr.undp.org/en)

HDI provides an overall picture of the level of human development in all analyzed states, a global appreciation of their progress. It could be used to facilitate the better understanding the impact of human capital on digitization highlighting the different strategies that have been pursued for the

achievement of human well-being. The values of HDI index allow the characterization of the evolution of human development and the comparison of the experience of different countries or regions in the field of economic and social progress.

The values for HDI index for the top 50 countries in 2015 are: Norway (0.949), Australia (0.939), Switzerland (0.939), Germany (0.926), Denmark (0.925), Singapore (0.925), Netherlands (0.924), Ireland (0.923), Iceland (0.921), Canada (0.920), United States (0.920), Hong Kong China (0.917), New Zealand (0.915), Sweden (0.913), Liechtenstein (0.912), United Kingdom (0.910), Japan (0.903), Korea (0.9010, Israel (0.899), Luxembourg (0.898), France (0.897), Belgium (0.896), Finland (0.895), Austria (0.893), Slovenia (0.890), Italy (0.887), Spain (0.884), Czech Republic (0.878), Greece (0.866), Brunei Darussalam (0.865), Estonia (0.865), Andorra (0.858), Cyprus (0.856). Malta (0.856), Qatar (0.856), Poland (0.855), Lithuania (0.848), Chile (0.847), Saudi Arabia (0.847), Slovakia (0.845), Portugal (0.843), United Arab Emirates (0.840), Hungary (0.836), Latvia (0.830), Argentina (0.827), Croatia (0.827), Bahrain (0.824), Montenegro (0.807), Russian Federation (0.804), Romania (0.802). We can see that the first 18 countries have an indicator of over 0.9 and the others over 0.8. Norway, Australia and Switzerland are in the top with very close values. (http://hdr.undp.org/en/composite/HDI)

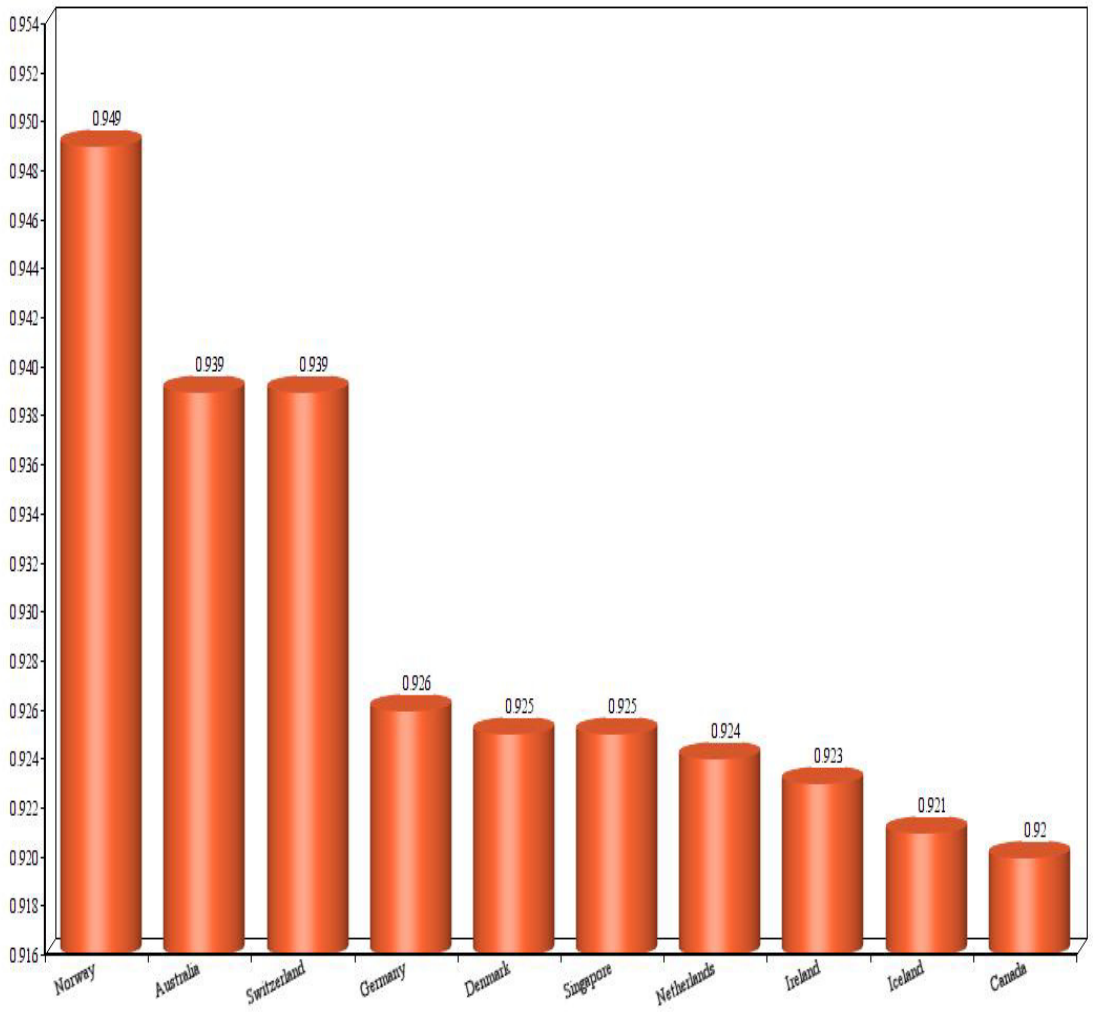

Fig. 6: HDI for the first 10 states

Based on the index values, countries were divided into:
- very high human development
- high human development
- medium human development
- low human development

This index highlights the fact that human capital and their abilities are essential criteria for assessing the development of a country. The results show a clear division of northeast countries and Southeast countries. This index is criticized because it does not include technological development and focuses only on performance and national classification. It is also criticized in terms of data errors in basic health, education and income statistics used in HDI.

6. The Digital Economy and Society Index (DESI)

In 2014, the European Commission launched the Digital Economy and Society Index (DESI). In the size of the Human Capital, based on data collected from Eurostat, we can say that Denmark, Luxembourg, Finland, Sweden and the Netherlands achieved the highest scores in 2016 and Romania, Bulgaria, Greece and Italy obtained the lowest scores. 79% of Europeans go online regularly (at least once a week), up 3 percentage points over last year. 44% of Europeans still do not have basic digital skills. DESI scores by dimension:

- Connectivity
- Human Capital/Digital skills
- Use of Internet by citizens
- Integration of Digital Technology by businesses
- Digital Public Services

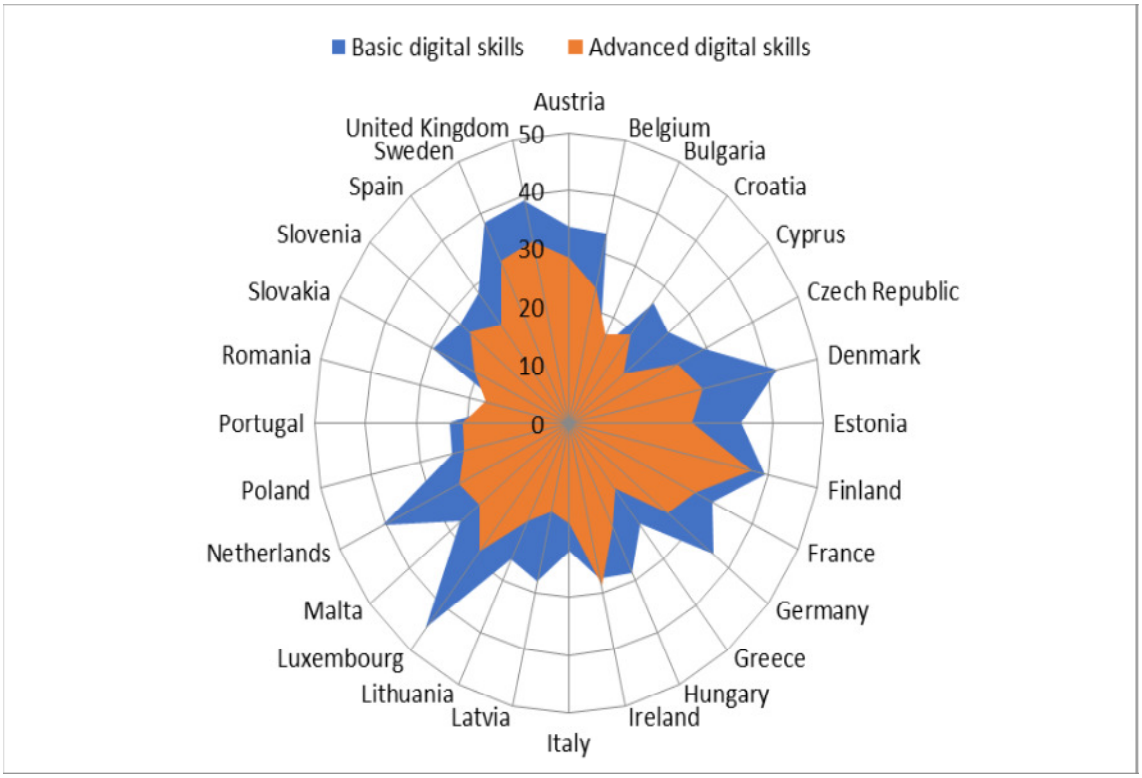

Fig 7 : The digital competitiveness of the EU 28 member states from the perspective of human capital over the period 2014-2017 Source: (European Commission, 2014-2017)

The Human Capital dimension measures the skills needed to take advantage of the possibilities offered by a digital society. The European Union has slightly improved the number of STEM graduates (19 graduates per 1,000 people aged between 20 and 29 in 2014 compared to 17 in 2012) and the share of ICT specialists in the workforce (3.6% in 2015, as opposed to 3.2% in 2013). The

increase in the number of ICT specialists was on average 3% over the ten-year period 2006-2015. This rapid growth demonstrates the increasing importance of ICT in the global economy.

Fig. 8: ICT specialists in Europe, 2015 (as a % of total employment).

Source: Eurostat (isoc_sks_itspt)

ICT specialists are important factors in the use of digital technology. Based on the data collected from Eurostat, we compared the EU Member States with the hiring of ICT specialists in 2016. According to this analysis, Denmark, Austria and Finland are the countries with the best skills in the field of digital skills and competences, and at the other end we have countries like Romania and Bulgaria, which are quite different from the EU average.

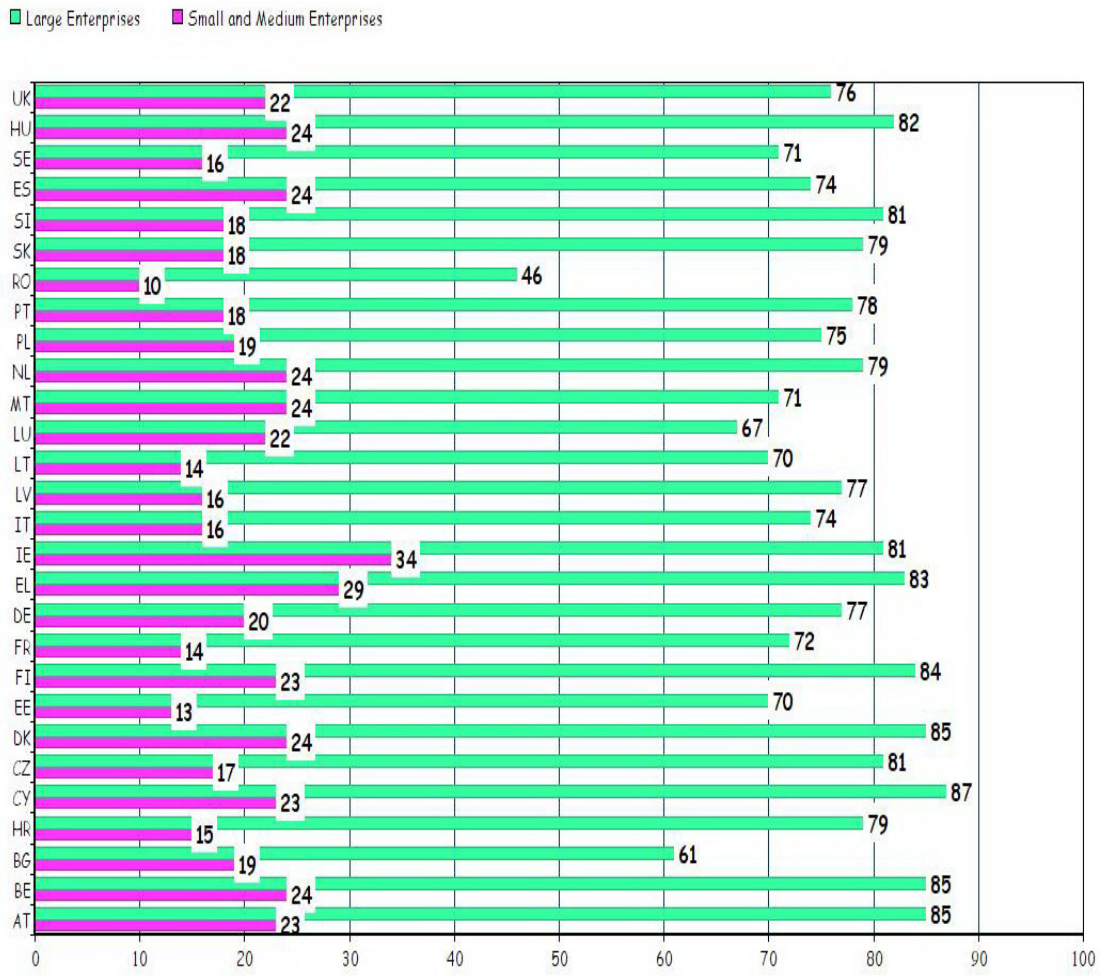

Fig. 9: Enterprises employing ICT specialists (% of enterprises) -2016

Source: Eurostat (isoc_sks_itspt)

Businesses from all countries reported difficulties in recruiting ICT specialists, especially in the Czech Republic, Slovenia, Luxembourg, Austria, Belgium and Estonia. To solve this problem, some businesses offer ICT training. Thus they manage to develop human capital, adopt and develop new technologies to overcome any obstacles.

Based on data for 2012, on average, 41.6% of EU enterprises engaged in technological innovations have provided support training. In 14 of the 23 EU Member States for which data from 2012 are available, this share was higher than 40%. The figures were highest in Cyprus (85.5%) and Luxembourg (72.1%) and the lowest in Spain, Romania, Latvia and Sweden (all below 30% in 2014).

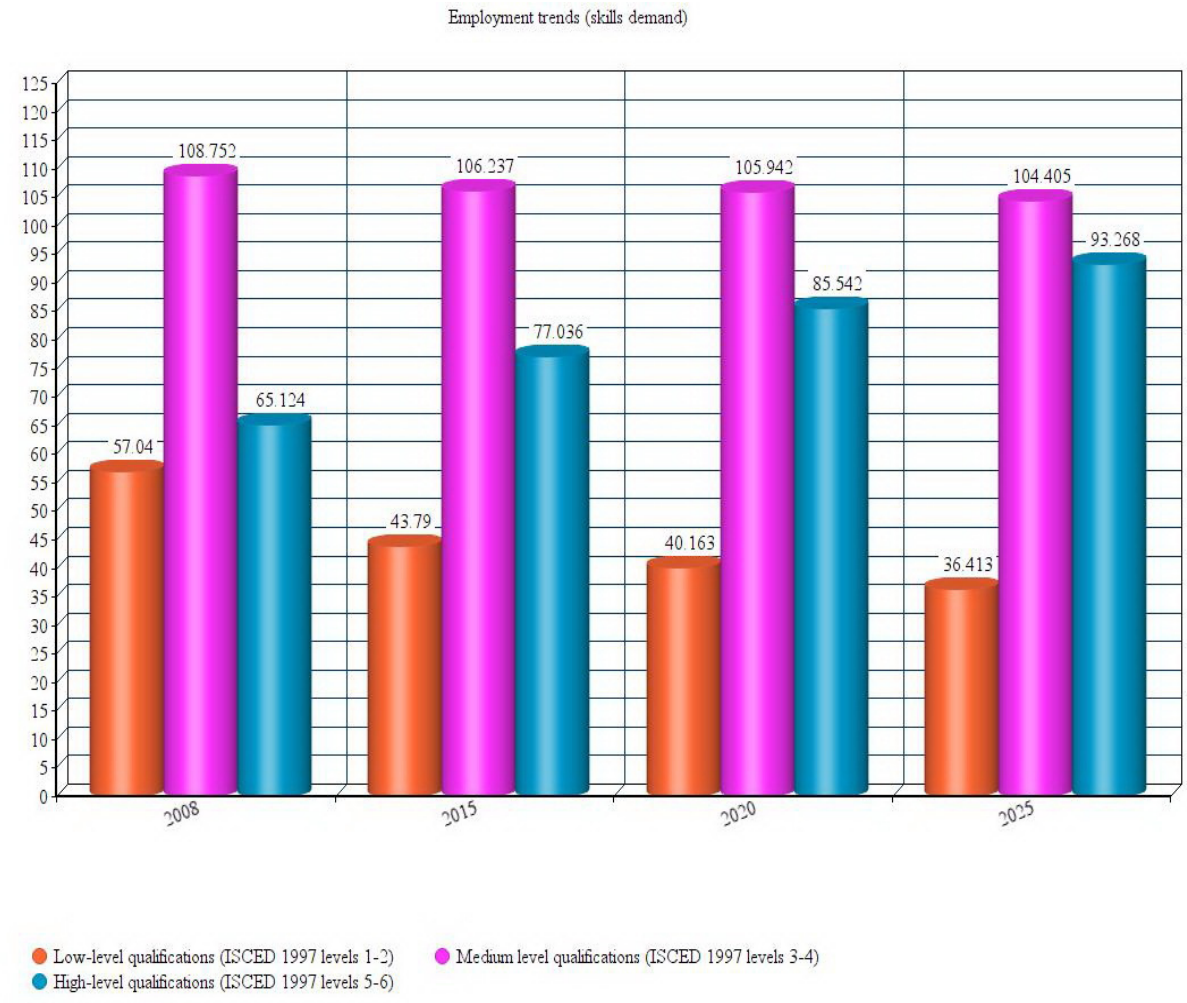

Fig. 10: Labor force and employment trends by qualification, EU-28, 2008, 2015, 2020 and 2025 (1000 persons)

Source: Eurostat (isoc_sks_itspt)

High employee incompatibilities and inappropriate levels are very costly for employers, workers and society in general. According to Cedefop's forecasts, around 16 million jobs will be created between 2015 and 2025, requiring a high level of education, while jobs with a low level will be reduced by more than 7 million.

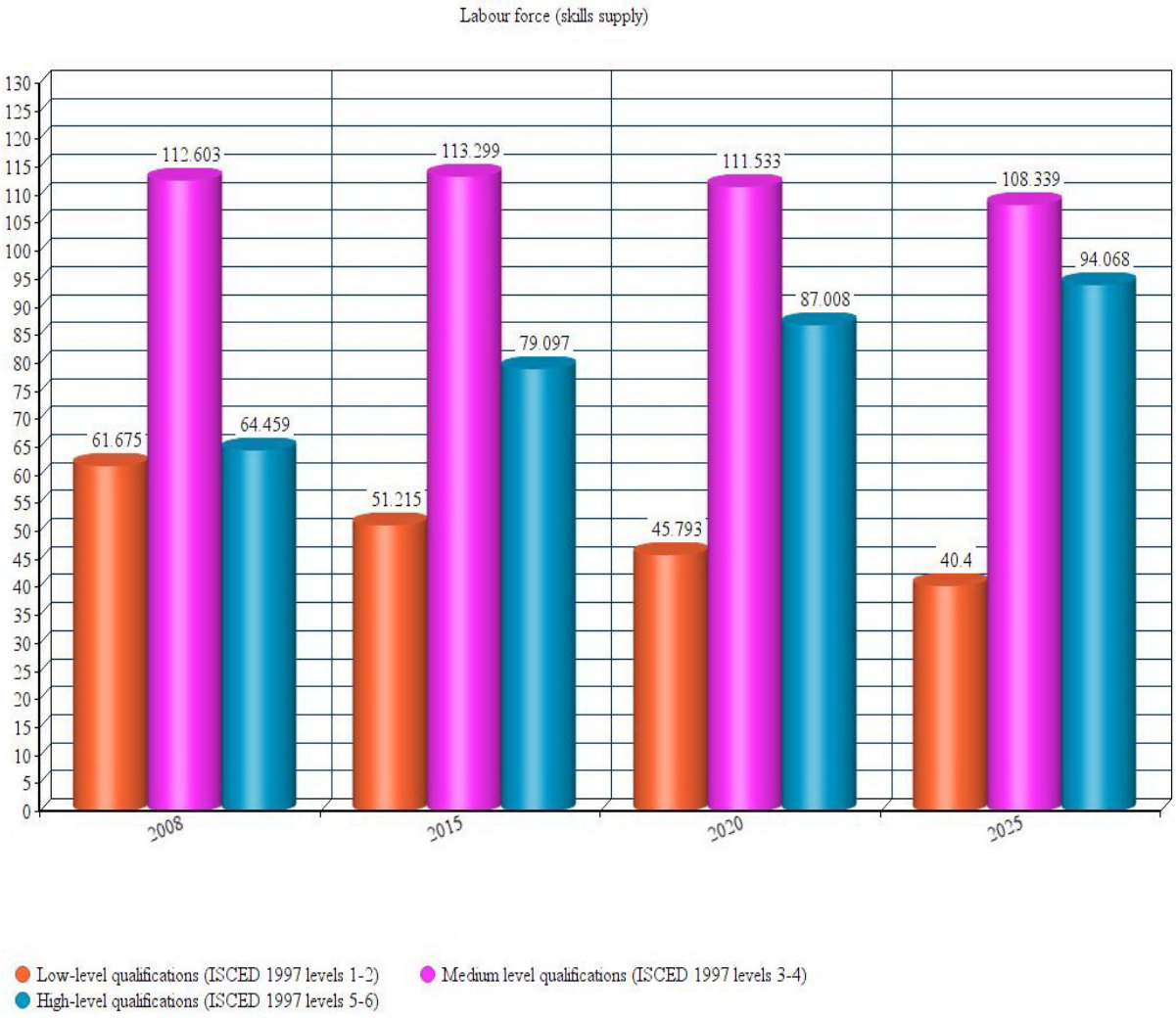

Fig. 11: Labor force and employment trends by qualification, EU-28, 2008, 2015, 2020 and 2025 (1000 persons)

Source: Eurostat (isoc_sks_itspt)

Conclusions

Competitiveness, innovation and job creation in the European industry are increasingly determined by the use of new information and communication technologies. This must be supported by a workforce that has the knowledge and skills needed to efficiently use these new technologies. Productivity increase is not the result of technological progress, but it is rather an effect of the diffusion of information and communication technology at the level of human capital. It is very clear that it is not enough for an economy to have technology if it does not have the staff to use these technologies. The lack of ICT specialists and workers with advanced ICT skills could hamper Europe's growth objectives. The European Commission is working on a series of initiatives to stimulate ICT skills in the workforce so as to make a balance between demand and supply of specialists. The Coalition on Digital Competitiveness and Jobs must support cooperation between

education, employment and industry to develop a wide variety of digital talents and to ensure that individuals and the workforce in Europe have the appropriate digital skills. These people must have sufficient knowledge, information and creativity to create a competitive advantage for the organization.

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Inter-organizational Cooperation as part of Open Innovation

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Abstract

Innovation occupies an important place among factors determining the competitiveness of enterprises. In the context of turbulent environment, research on enterprise innovation emphasize the fact that innovation processes can no longer focus only on internal knowledge. Innovative processes of modern enterprises are increasingly open to external knowledge or technology. This knowledge is often acquired on the basis of cooperation between the organization. Involving external entities not only as observers but primarily as participants in the process of innovation, at each of its stages contributes to the opening of organization boundaries. The purpose of the article will be to present inter-organizational relations established by organizations applying the concept of open innovation on the Polish market. Research on a sample of 105 innovative enterprises was conducted through a questionnaire survey. The questionnaire was developed based on a 5-point Likert scale. The aim of the study was to determine the type of relations (among others in terms of their width and depth - measures used in the studies of Chesbrough, Vanhaverbeke and West; 2006).

Keywords: inter-organizational cooperation, open innovation, relations, management.

Introduction

Dynamic market changes and the resulting growth of consumers demand are the cause of establishing and building inter-organizational relations, which is extremely important for modern organizations (Zakrzewska-Bielawska, 2016). Networks provide access to resources similar to capital (Najafian and Colabi, 2014), power and influence (Sousa, *et .al*., 2018), which enable gaining a competitive advantage and development (Wojciechowski, 2018). Organizations need different relations to acquire access to knowledge and investors (Aldrich and Martinez, 2018). Cooperation within inter-organizational networks is conducive to the development of new products (Karamanos, 2012, Mazzola, *et al.,* 2015; Soh, 2003), creating knowledge (Mazzola, *et al., 2015*) and raising financial performance by reducing costs and time of innovation (Chesbrough and Vanhaverbeke, 2006; Sousa, *et al.,* 2018).

Inter-organizational relations are of particular importance for organizations aiming at opening the innovative processes to streams of knowledge or technologies from outside, due to, among others, cooperation with competitors, clients, suppliers and communities (Wojciechowski, 2018). Involving external entities not only as observers but primarily as participants in the process of innovation, at each of its stages, forces the co-creation of innovations (Pallot, *et al.,* 2010) and contributes to the

opening of organization boundaries (Bogers *et.al.,* 2016). Combining acquired external knowledge with knowledge developed internally and bringing in-house inventions to markets via external paths (Dahlander and Gann, 2010) distinguishes the concept of open innovation from the traditional, closed model of generating innovation. Closed innovation processes include strong protection of knowledge and technology developed internally and also require high expenditure on innovation. This causes a situation, in which inventions are implemented on the market mainly by large organizations, and the process of developing and diffusing innovations is usually a long-term one. Despite these considerable efforts in the innovative process, organizations may not be successful, due to the pace of market changes and competition. In addition, different types of innovation may require different types of knowledge and degrees of involvement of external sources to develop them.

The increase in interest in the open approach to innovation, observed in the world, causes the question to arise: are organizations operating on the Polish market willing to open their innovation processes? If so, what kind of relation is common for them? The aim of the study will be to present inter-organizational relations established by organizations applying the concept of open innovation on the Polish market.

The Importance of Inter-Organizational Relations for Open Innovations

Establishing inter-organizational relations results from the desire to obtain resources that the organization does not have at the moment (Stańczyk-Hugiet, 2013). Properly used resources, whether tangible or intangible, may determine the competitive advantage on the market. Due to relations with others, organizations gain better access to knowledge or markets. E. Stańczyk-Hugiet (2013), notes that in the inter-organizational relations, the process of deleting resources, which are currently not used by organization, is very important. That is because as the result, they become available outside the organization in a paid way or not (Stańczyk-Hugiet, 2013).

According to J. Fauludi (2014), relation networks among organizations with open innovation processes can be classified due to their repose (Faludi, 2014):

- Cooperation in the field of innovation;
- Sharing knowledge;
- Transforming the boundaries of organization;
- Collaboration;

Research shows that organizations cooperate in constructing innovation networks that enable the sharing of knowledge, technology or ideas (Chesbrough and Crowther, 2006). In the literature, there is no unambiguous identification of organizations (due to their size, age, industry or intensity of their own R&D processes), which are more likely to cooperate in the field of innovation. A. Barge-Gil (2010), believes that such cooperation is more important for smaller organizations operating in sectors with low or medium technological advancement (Barge-Gil, 2010). This is due to the fact that small enterprises have limited resources necessary to develop innovations but want to remain competitive. External knowledge can become a strategic resource for them, which will enable the implementation of complex projects with a high degree of risk (Barge-Gil, 2010). The pace of development of the sector in which it operates enterprise may also be important. *The knowledge bases in the low-tech sector are very distributed and innovation performance in this sector is highly dependent on the knowledge coming from high-tech industries* (Barge-Gil, 2010). However, study by P. De Faria *et al.,* (2010), suggests that it is more important for organizations with intensive R&D

activities, operating in high-tech sectors (De Faria *et al.,* 2010). Enterprises with more resources may devote some of their resources to cooperation activities. It should be noted that radical innovations are highly revolutionary in nature, *while incremental innovations focus on refining existing firm offerings by reinforcing prevailing firm capabilities* (Obal, *et al.,* 2016). Therefore, radical innovations require multiple sources of external knowledge but with high quality of cooperation (deep cooperation). In contrast, incremental innovations will be generated based on specific information, from many sources, enabling better matching of the offer to the market (wide cooperation).

Transfer of knowledge and technology is carried out using the innovation network. In the concept of open innovation, organizations acquire external knowledge from various entities (customers, contractors, R & D units, competitors, etc.), and make it available on the market, for a fee or through other agreements. Success in generating innovation depends by the nature of the cooperation partners (De Faria *et al.,* 2010). *Vertical spillovers, associated with suppliers and customers, have a more significant effect on R&D performance and welfare than horizontal spillovers linked to universities, research institutes and competitors* (De Faria *et al.,* 2010). In addition, enterprises *that are more effective in appropriating the results from their innovation processes are also more likely to cooperate in R&D* (De Faria *et al.,* 2010). Sharing knowledge between organizations is related to absorption of knowledge. Lack of absorption capacity in the organization is a barrier for seeking and acquiring external knowledge (Cohen and Levinthal, 1990; De Faria *et al.,* 2010). Large organizations usually have broader opportunities to absorb knowledge, but less demand for external sources, while smaller organizations - a greater need for external knowledge, but much weaker opportunities to absorb knowledge from outside (Barge-Gil, 2010; De Faria *et al.,* 2010). Literature in the field of innovation indicates that radical innovations will be more often developed with the help of universities and public and private research institutions (De Faria *et al.,* 2010; Bercovitz and Feldman, 2007), that help define new paths of products and services development (Bercovitz and Feldman, 2007). Such cooperation is the domain of large enterprises, *that patent and/or receive public funding for innovation since these firms have more resources to invest in research that does not have an immediate market orientation* (Fontana *et al.,* 2006).

Relations related to the exchange of knowledge and cooperation in the field of innovation contribute to the transformation of organization boundaries (they are no longer so tight). In particular, the role of employees the R & D department must go far beyond the boundaries of the enterprise (Chesbrough, 2003). *A central contingency on this level lies in the interface between the collaboration that involves knowledge flows across organizational boundaries and the value creation and capture process that is implied in the business model* (Bogers *et.al.,* 2016).

In addition, a significant increase in the number and mobility of knowledge workers results in difficulties in the control of their knowledge and ideas (Chesbrough, 2003), which causes the innovation process to disperse. Both radical and incremental innovations (in line with the Open Innovation concept) require the transformation of enterprise boundaries.

Collaboration in the case of open innovations will primarily concern the development of open resources, the open source using the user community, platforms, cooperation between competing organizations and building networks between sectors to increase profit (Mazzola, *et al.,* 2015). *An open collaborative innovation project involves contributors who share the work of generating a design and also reveal the outputs from their individual and collective design efforts openly for anyone to use* (Baldwin and von Hippel, 2011). In such projects, some partners (e.g. customers who will be users of the product), benefit directly from cooperation like learning, entertainment, mutual

interest or the possibility to solve problems. As part of the indirect benefits of cooperation is reputation, knowledge sharing and networking (Baldwin and von Hippel, 2011). Radical innovation present higher levels of uncertainty than incremental innovations due mainly to the incorporation to develop them new technologies. They often require new, expensive software or hardware that can be obtained through open source collaboration. However, open source collaboration also enables the development of incremental innovations. However, open source collaboration also enables the development of incremental innovations, for example through using *existing, relatively standardized resources to ascertain potential areas of improvement in existing products* (Song and Thieme, 2009).

Research Method

The research was carried out from January 2018 to April 2018 in Poland, using a questionnaire sent to research entities in a traditional and electronic way. The questionnaire was developed based on a 5-point Likert scale. The aim of the study was to determine the type of relations (among others in terms of their width and depth - measures used in the studies of (Chesbrough and Vanhaverbeke, 2006) established during the process of innovation development by organizations operating on the Polish market. The survey consisted of 90 items and 3 metrics questions. The first part concerned the duration and length of relations with partners involved in the process of generating innovation. The respondents were to determine what kind of relationship is more valuable depending on the type of innovation being developed (radical or incremental) and indicate the degree of involvement of partners in the various stages of the process of innovation development (searching for ideas, planning and development of innovations, testing and starting of production and sales). In the second part of the questionnaire, questions were asked about the factors that ensure success in cooperation (taking into account the type of innovation).

Deep inter-organizational relations enable organizations to use existing knowledge and resources in the innovation process based on trust in the partners. However, broad connections support the search for new technologies, ideas, inspirations and outlets (Albano, 2018). Open innovations bring benefits in building relations that are both broad and deep, and help find the right balance between these relations (Albano, 2018).

The obtained sample consists of 105 companies of various sizes from various sectors of the economy in accordance with the direction of their business, identifying themselves as innovative, selected randomly. Due to the size of the sample, the test results should be treated as a kind of pilot study. The innovativeness of organizations was determined based on the subjective opinion of respondents. The questionnaire was addressed to the owner of the company and the management.

Research Results

The sample was dominated by micro and small organizations employing up to 50 people (59% of the sample), operating on the market from one year to nine years (38% of the sample). Half of the surveyed small and micro organizations operate primarily on the domestic market, dealing with commercial activities (2/5 of the sample).

The relational potential of the surveyed entities was determined due to the type of innovations developed by the organization. Therefore, radical and incremental innovations will be analyzed

separately. The inter-organizational relations established by organizations to develop and implement incremental innovations is shown in Figure 1.

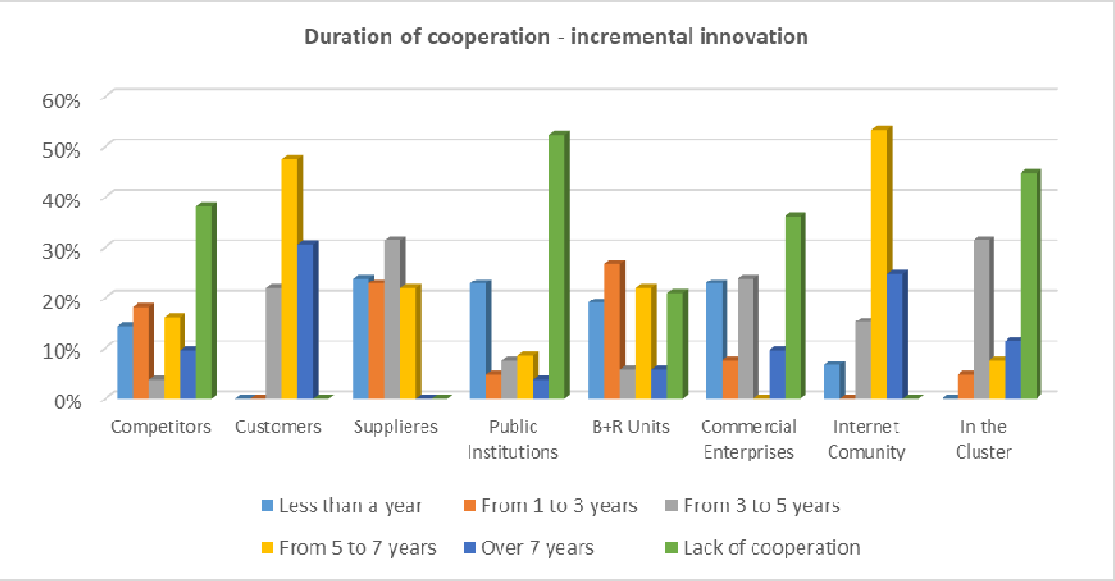

Fig. 1: Average duration of cooperation in incremental innovation.

Source: own elaboration.

As shown in Fig. 1., the relational potential of organizations is diversified and includes various relations with various entities. In this case, organizations use the full range of opportunities to cooperate with the environment (wide cooperation carried out by almost 98% of the research sample). The surveyed organizations cooperate with the Internet community for the longest period of time, the average duration of the relation has been defined by more than half of the surveyed entities as 5-7 years. In second place (in terms of length of cooperation) is the relationship with clients (48% of responses - for 5-7 years). Medium-term relations are also established by organizations with suppliers (equipment, materials, components or software) and in a cluster (31% of responses - for 3-5 years). Over 1/2 of the surveyed organizations do not engage in incremental innovation with public or government institutions. A high percentage of organizations (respectively 38% and 36% of responses) do not cooperate with competitors and commercial enterprises, consulting companies, private laboratories or private R & D institutions.

The length of cooperation in the development and implementation of radical innovations is shown in Figure 2.

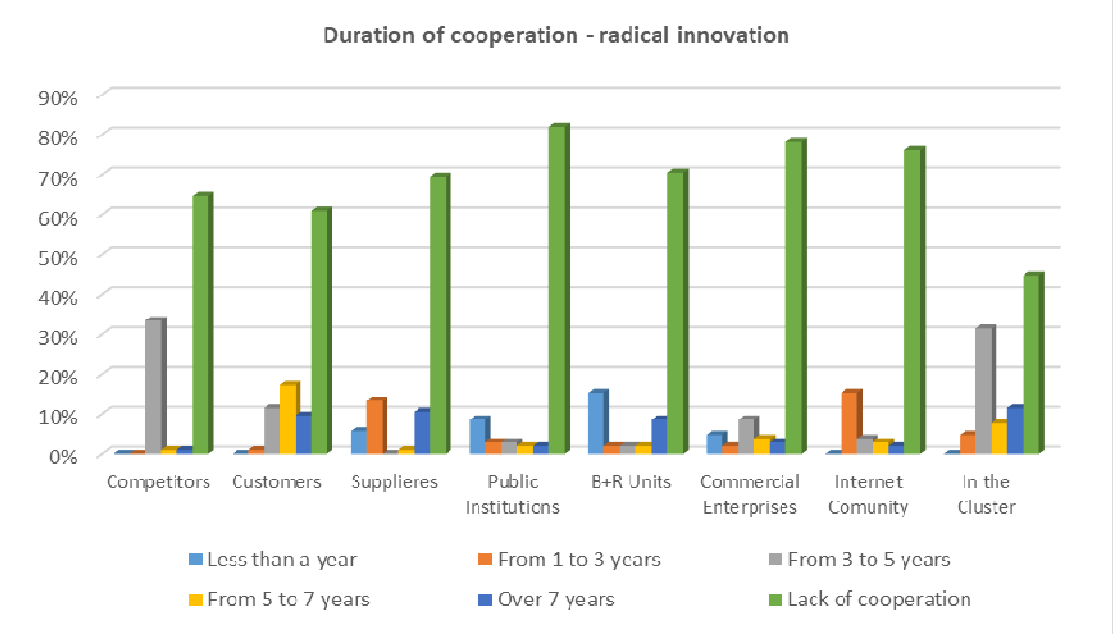

Fig. 2: Average duration of cooperation in radial innovation.

Source: own elaboration.

In the case of radical innovation development and implementation, 95% of surveyed organizations use differentiated sources. In terms of radical innovations, the depth of the relation with the chosen source is the most important. 33% of the surveyed entities indicated that the longest-lasting relations are established with competitors (from 3 to 5 years), the second place was indicated for cooperation in the cluster (also from 3 to 5 years) and with clients, established on average from 5 to 7 years. Approximately 4/5 of surveyed organizations do not establish relations with public and government institutions, private laboratories and the internet community.

The source of knowledge, inspiration or technology used by organizations depends, to a large extent, on the stage of the innovation process. These relations are shown in Figure 3.

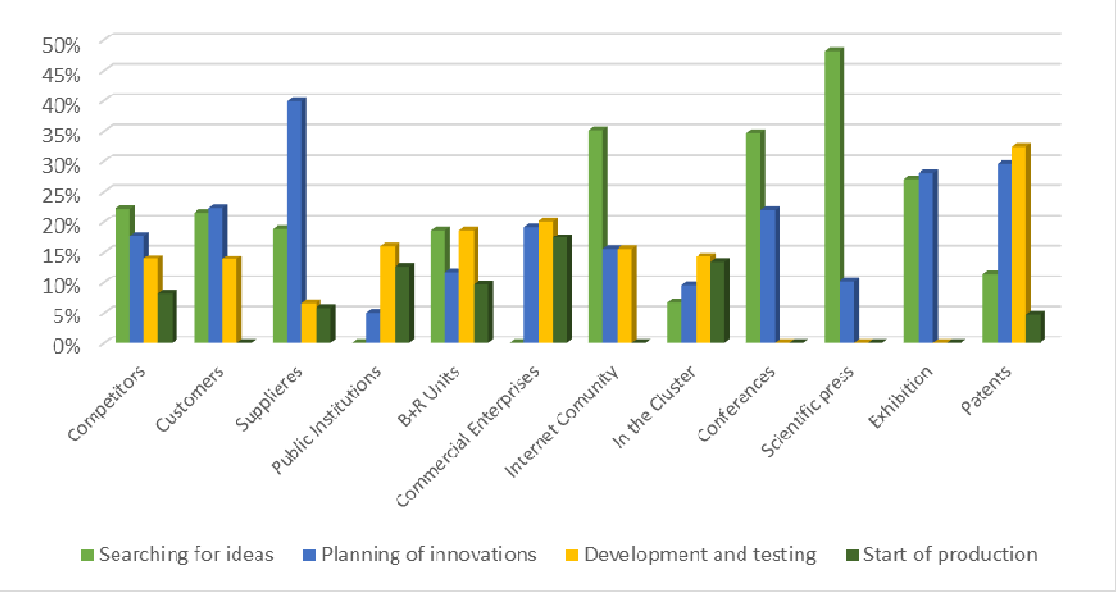

Fig. 3: The relation between the innovation stage and the source of knowledge.

Source: own elaboration.

At the stage of searching for an idea for innovations (including analysis of the market, customers' needs, technical options), surveyed organizations look for knowledge in the scientific and technical press, available databases (48% of responses) and at professional conferences and meetings (35% of responses). In addition, 36% of them cooperate at this stage with the Internet community as well as clients and competitors (about 22% of the sample). At the stage of innovations planning (concept testing, acquisition of technology, preparation of a technology implementation plan), 2/5 attempts establish relations with suppliers and 1/5 of them with consumers. Almost 30% of the research sample acquires knowledge also at trade fairs and exhibitions. In the development and testing phase (prototype construction, fixing prices, market forecasts), organizations focus on patents (32% of them) and purchase of expertise from private laboratories or consulting companies (20% of responses). At the moment of commencement of production and sales, the majority of organizations use the knowledge and experience of private consulting companies, private R & D companies and public or governmental institutions (about 1/5 of responses). In addition, about 20% of them use the opportunities offered by participation in the cluster.

The last analyzed element was intended to determine the most important factor of successful cooperation with the environment - Fig. 4. In the case of developing radical innovations, the surveyed organizations indicate that the most important factor for successful cooperation is the use of formal solutions securing the relation in the form of agreements and other regulations (67% of surveyed entities in case of radical innovation and 33% of surveyed entities in case of incremental innovations). In addition, 70% of entities believe that it is necessary to set a common budget (30% of responses for incremental innovations) and mutual trust (59% for radical innovations and 40% for incremental innovations).

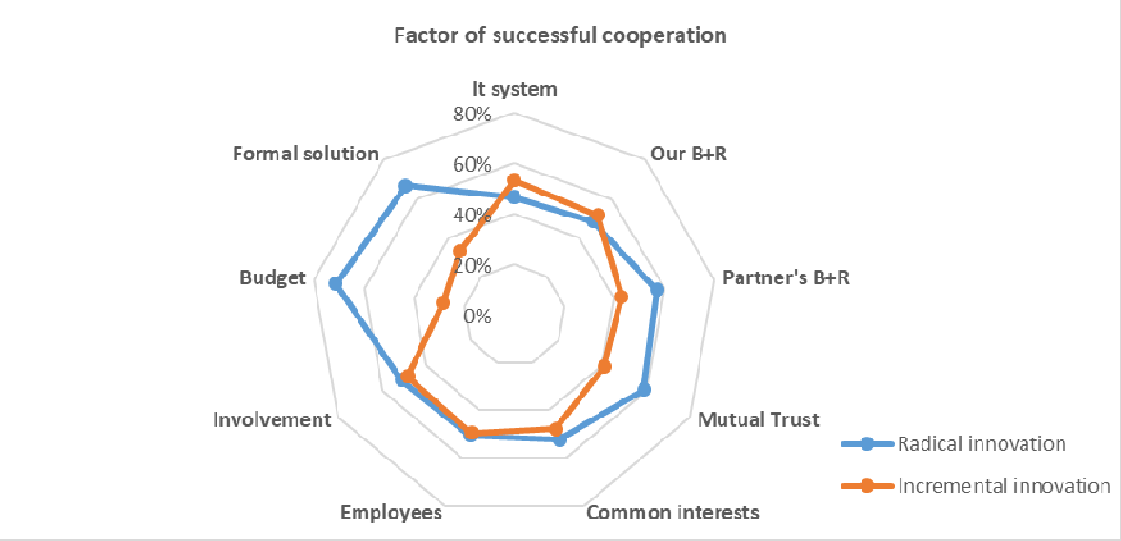

Fig. 4: The most important factor for successful cooperation. Source own elaboration.

Organizations generating incremental innovations indicate that the most important is the efficient IT system and own R&D department (53% and 51% respectively for incremental innovation, 47% and 49% for radical innovations).

Conclusion

There are many determinants of organizational level of innovations (Zimmer and Walecka-Jankowska, 2018; Walecka-Jankowska and Zimmer, 2017; Walecka-Jankowska, 2015). However crucial to achieving a competitive position and raising the level of innovation is cooperation (Zakrzewska-Bielawska, 2016). Open innovations focus to a large extent on the streams of influence and the flows of knowledge, technology and ideas to/from the organization. The dispersal of the innovation process requires the establishment of many different organizational relations, and using knowledge acquired externally together with knowledge generated inside the organization.

Enterprises, that want to establish cooperation should take into account the following factors:

1. type of knowledge source
2. type of innovation being developed;
3. resources and capabilities of the enterprise itself.

Research conducted among organizations operating on the Polish market indicates that entities that define themselves as innovative ones, establish a very broad relations with the environment (use many sources of knowledge, technology and ideas). However, among the studied sample, there is no significant difference in the range of sources used, taking into account the type of innovations developed. 98% of organizations developing incremental innovations and 95% of organizations implementing radical innovations use all sources of innovation indicated in the questionnaire. Therefore, it does not confirm the view from literature research, indicating that radical innovations require a narrower, and at the same time deeper, range of sources of knowledge. The analyzed results show that deeper cooperation (measured by the duration of the relation) is established by

organizations developing incremental innovations (especially with the Internet community - 53% of responses and consumers - 48% of responses). This may be due to the fact that radical innovations (new products or services developed on the basis of new technology) are carried out relatively rarely, due to the need of accumulating high capital and a high risk of implementation. Organizations from the examined sample establish inter-organizational relations, primarily at the stage of seeking inspiration for innovation (22% of responses) and innovation planning (19% of responses). Only 5% of organizations use cooperation with the environment during the start of production and sales. Analysis of the key factors ensuring success in cooperation has demonstrated significant differences between organizations generating radical and incremental innovations. Radical innovations, as those burdened with significant risk and, in the case of success, high profit, require formal security of cooperation, in the form of agreements on e.g. confidentiality of information and a shared budget. In addition, organizations establishing relations are looking for trusted partners with their own R&D departments while developing radical innovations. In the case of incremental innovations, effective IT system (Protasiewicz, 2017) proved to be the most important factor, which enables the flow of information. Also, own R&D department is important, because it helps to absorb the accumulated knowledge.

The carried out research is not free of restrictions. It should be emphasized once again that the innovativeness of organizations was determined on the basis of the subjective opinion of employees, not by quantitative measures, e.g. the number of patents or implemented new solutions. In addition, the next study should identify in detail different types of innovations due to the subject criterion, i.e. product, process, marketing and organizational innovations, not only consider the scale of changes (radical and incremental). This is necessary because respondents often perceive innovations only in terms of changes or new products on the offer, bypassing other types of innovations. The research was carried out based on selected relation' attributes, which is why further research should be extended in this respect, for example with the criterion related to the repeatability of established relations (which would allow for more precise analysis of the depth of cooperation).

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Operational Knowledge Management in a Manufacturing Enterprise in the High-Tech Sector – Case Study

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Abstract

The importance of knowledge for the functioning of modern enterprises has been raised in a number of research and scientific studies. Despite the great interest in the subject of knowledge, is still a lack of clear, unified foundations in knowledge management, especially in small manufacturing enterprises. The authors of the study attempt to analyze the process of knowledge management at the operational level in a manufacturing enterprise using innovative additive technologies (AM). Despite the fact that AM technology has been known since the 1980s, there is a lack of research and development on knowledge management in such a specific, ever-growing productive branch. The dynamic development of this technology makes that knowledge in such enterprises is usually individualized and difficult to specify. The research will be described in the form of a case study. The aim of the article is the analysis of the process of knowledge management at the operational level in the manufacturing enterprise of high-tech sector, which produces parts using additive technology (AM). The results were collected based on a series of interviews with employees at various levels of the company and own observations. They suggest that knowledge management in an enterprise is currently not possible without significant cultural, organizational and technological changes. Employees lack motivation and a 'good example' from project managers. In addition, the company does not have any system for collecting, storing and transferring already acquired knowledge. The study provided implications for researchers and practitioners of knowledge management.

Keywords: knowledge management, management, additive technology, mechanical engineering.

Introduction

The issue of knowledge used in the enterprise has been addressed in many works and scientific research (Kogut and Zander, 1992; Grant, 1996; Nonaka and Peltokorpi, 2006; Dayan, *et al.,* 2017) which only emphasizes its importance for the functioning of modern enterprises. However, the conducted research also indicates that it remains a resource that is not sufficiently used in everyday business practice (Dayan, *et al.,* 2017). This is emphasized also by J. R. Pfeffer and Sutton (2002), who believe that in the everyday functioning of enterprises there is a significant divergence between possessed knowledge and skill of its applications (Gierszewska, 2003). The reason for this may be the lack of proven models and procedures that can be directly used to manage knowledge (Gierszewska, 2003). The knowledge of the enterprise is perceived as an element of business management (Dayan, *et al.,* 2017), a source of permanent competitive advantage (Nonaka and von Krogh, 2009), the determinant of innovation and the main factor of socio-economic development.

Knowledge integration in organizations may occur through organizational routines (Schuitz, 1999), direction (Conner and Prahalad, 1996), or processes involving the sharing of explicit or implicit knowledge (Grant, 1996). Effective knowledge management is considered key to the success

of contemporary organizations (Dayan, *et al.,* 2017). Some authors view organizations as distributed knowledge systems (Tsoukas, 1997), streams of knowledge (Von Krogh, et al. 1994), and systems of distributed cognition (Boland and Tenkasi, 1995), wherein individuals act autonomously while understanding their interdependence with others.

Despite the high interest in the problems of knowledge is still a lack of clear, unified foundations in knowledge management. In the study, authors will focus on the production enterprise that using additive technologies (AM). Despite the fact that AM technology has been known since the 1980s, there is a lack of research and development on knowledge management in such a specific, ever-growing productive branch. The dynamic development of this technology makes that knowledge in such enterprises is usually individualized and difficult to specify. The research will be described in the form of a case study. The aim of the article is the analysis of the process of knowledge management at the operational level in the manufacturing enterprise of high-tech sector, which produces machine parts using additive technology (AM).

Knowledge in the Enterprise – The Theoretical Basis

Despite many studies on knowledge, it has not yet been clearly defined. Nonaka (2006), proves that knowledge is definitely different from data and information (Nonaka and Peltokorpi, 2006). Data can be classified as raw numbers, images, words, and sounds derived from observation or measurement (Nonaka, Peltokorpi, 2006). The information contains data that is logically ordered. Therefore, in this case knowledge is understood as a combination of experiences, beliefs, engagement and information in a specific context (contextual information) and experts' opinions (expert insight) (Nonaka and Peltokorpi, 2006; Tzortzaki and Mihiotis, 2014). Brooking (1996) advances academic insight by defining knowledge as information based upon which action is taken (Tzortzaki and Mihiotis, 2014). Knowledge will define what information is needed for this. In enterprises, knowledge is often reflected in the habits, practices or processes performed by employees, but also in documentation (Tzortzaki and Mihiotis, 2014).

The complex nature of knowledge has resulted in the creation of many taxonomies aimed at understanding the essence of this issue (Nonaka and Peltokorpi, 2006; Tzortzaki and Mihiotis, 2014). A very commonly used knowledge approach is the classification developed by Ryle (1949) dividing knowledge into knowledge-that, allowing knowledge of facts and rules, and knowledge-how, as the ability to take action (Kogut and Zander, 1992). From the perspective of knowledge management, it seems important to pay special attention to its explicit and tacit division proposed by Michael Polanyi (1967), (Nonaka and von Krogh, 2009). Explicit[i] knowledge in the enterprise is precise and systematic knowledge (Grudzewski and Hejduk, 2002). It takes the form of documents, databases or information, which are used to manage the enterprise. It is relatively easy to pass it on to other employees. Tacit[ii] knowledge, despite the fact that it is dominant in enterprises, is often difficult to specify. And its transfer takes place verbally, usually in small groups through personal contacts (Grudzewski and Hejduk, 2002).

The Management of Knowledge

Knowledge management in an enterprise, as well as knowledge itself, should be considered in many aspects, as they are fields covering various disciplines of science. For this reason, there is no uniform definition of this issue in the literature. Probst, *et al.,* (2002), define knowledge management as an integrated set of actions, that aims to properly shape knowledge resources (Proust, *et al.,* 2002). While Bukowitz and Williams (2000), capture knowledge management in the context of a process

that enables an enterprise to generate value from intellectual assets or other resources based on knowledge (Baxter, *et al.,* 2007).

Knowledge management in an enterprise should be considered in both the strategic and operational aspects. The strategic dimension of knowledge management includes primarily the construction of a knowledge-based organization, while operational is the acquisition of knowledge, its absorption and development (Mikuła, 2007). The knowledge management process presents figure 1.

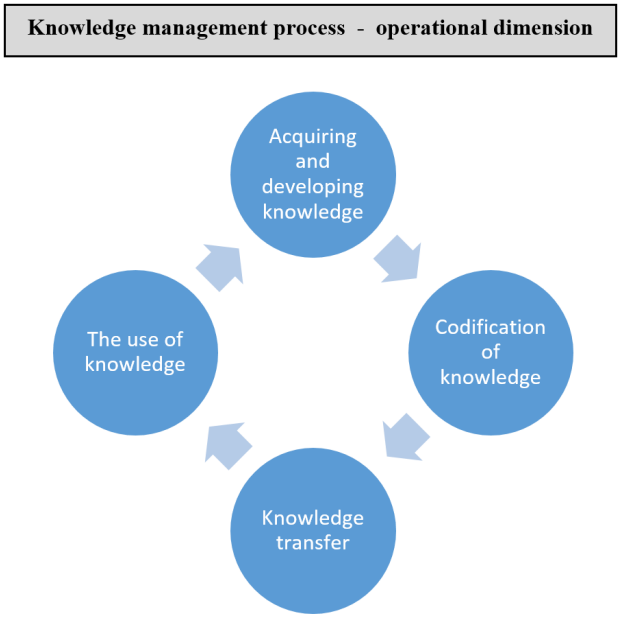

Fig. 1: Knowledge management process

Source: Own elaboration based on Mikuła, B. (2007), Od strategicznego do operacyjnego zarządzania wiedzą, Zarządzanie wiedzą. Wybrane problemy, Leja, K. and Szuwarzyński, K. (eds.), Wydawnictwo Katedra Zarządzania Wiedzą i Informacją, Politechnika Gdańska, Gdańsk.

Acquiring knowledge includes both activities focused inside and outside the organization. The internal streams of knowledge include analysis, reconstruction, synthesis, codification, modelling and organization of knowledge (Mikuła, 2007), or creating knowledge, externalization, selection, sharing, collecting, adopting, identifying (Mikuła, 2007).

Such knowledge is often obtained through the analysis of documentation, databases, books as well as contacts with co-operator. External orientation on acquiring knowledge will be related to the flow of knowledge from the environment to the enterprise, using cash flows and non-monetary flows - e.g. unpaid inter-organizational cooperation, competitions announced on the Internet, platforms for collecting ideas. Acquiring knowledge is also done through participation in training, conferences and symposia, as well as informally during contacts with other people (Mikuła, 2007).

The codification of knowledge by giving it a proper form will consist in gathering knowledge (notes, databases, archives, electrical media) in order to make it available later to interested employees. This is currently of particular importance due to the increasing mobility of knowledge workers (laboratory employees, research and development departments, laboratories) often possessing key knowledge for the functioning of enterprises.

Knowledge transfer usually takes place through cooperation and communication between employees. The effectiveness of this process depends on the organizational culture prevailing in the company, including *the level of mutual trust and the system of organizational language and the degree of its shared by people* (Mikuła, 2007).

The use of knowledge takes place in the company practically every day. In addition, the acquired knowledge can be used in the process of generating innovation.

Effectively conducted knowledge management process may result in the increase of competences and skills of employees (Mikuła, 2007), saving time, human and financial resources (Dayan, *et al.,* 2017) and increase in efficiency of management and innovation of the company (Dayan*, et al.,* 2017).

Knowledge Management in a Production Enterprises – A Case Study

A case study approach was adopted in this research. According to Gerring and McDermott (2007), the case study approach represents an analysis in which one or a few units are studied in detail in order to provide insight to a broader class of units (Gerring and McDermott, 2007). The analyzed enterprise operates on the Polish market in the sector of small and medium enterprises for 19 years. It deals with the production of parts for the customer's order using additive technologies (AM). At the enterprise's request, its name will not be disclosed in the study. The analysis used the method of observation, analysis of documentation and interviews. In total 8 interviews took place, 6 with designers and machine operators to describe the part design process as it is actually used in an enterprise. Two interviews were conducted with production manager in order to obtain information on the logistics chain and work organization of the production department. Observation of the technological process from design to shipment took 7 days. The analysis also covered the available documentation on materials, machines, production processes, etc. It allowed to identify the existing knowledge in the enterprise, ways of its codification and transfer between employees and to identify problems in connection with its management. The researched entity specializes in plastic and metal prototyping products, through the processing methods of CNC machining, 3D printing (Selective Laser Sintering - SLS, Selective Laser Melting - SLM) and all kinds of post process treatments. The company's international reach allows for the creation of innovative applications of additive technologies in the manufacturing industry.

Additive technologies – overview

Additive technologies (AM) consisting in the production of parts layer by layer through: melting of metal powders, sintering of polymers, extrusion of polymers, photo polymerization, etc. On the basis of the 3D computer model, layers corresponding to a fragment of a given thickness object are generated (Housholder, 1981; Kurzynowski, *et al.,* 2010; Kurzynowski, *et al.,* 2009; Madeja, 2014; Murr, *et al.,* 2012). The digital layer model is passed to the AM machine control system. Then the material is applied to the model plate and locally remelt, in accordance with the shape of the generated cross-section. After completing this stage, the platform is lowered and the process is repeated until the complete model is created.

These technologies were initially used mainly for the production of prototypes designed to implement the concepts of designers and constructors. Along with their development and the development of new technical and material solutions, resulting in an increase in their universality, they began to be used in various industries such as medicine, art, architecture and the clothing industry. AM in many

cases replace processes such as casting, machining, injection molding, etc. For manufacturing applications used in unit production as well as small lot production.

Description of the Manufacturing Process Used In the Enterprise

The process of manufacturing parts using AM (Fig. 2) begins with the customer providing a digital version, 3D model, of part. Depending on customer requirements, AM (SLS or SLM) technology is selected, as well as post-process machining. After selecting the technology, the model is converted to a file format accepted by the manufacturing device, checked for possible geometry errors, and modified if necessary. Modifications are always consulted with the client. After initial preparation of the model, it is virtually oriented and set in the working space of the AM device. Then, supporting structures are generated if required. The supporting structures have the task of maintaining the produced model in the working space of the device, reducing its deformation and also draining excessive heat.

The employee of the company selects the location and type of structures. In the next step, the file with model and supporting structures is transferred to the AM device. Parallel to this process, a AM machine is prepared.

The preparation process is as follows:

1. determination of the available and required amount of material,
2. preparation and loading of material to the device,
3. preparation of a model platform and its installation in the working chamber,
4. preparation of a protective atmosphere.

After completing the preparation stage, the files with the model and supporting structures are imported to the device, then the correctness of their import is checked, and the files with the process parameters are selected for the models.

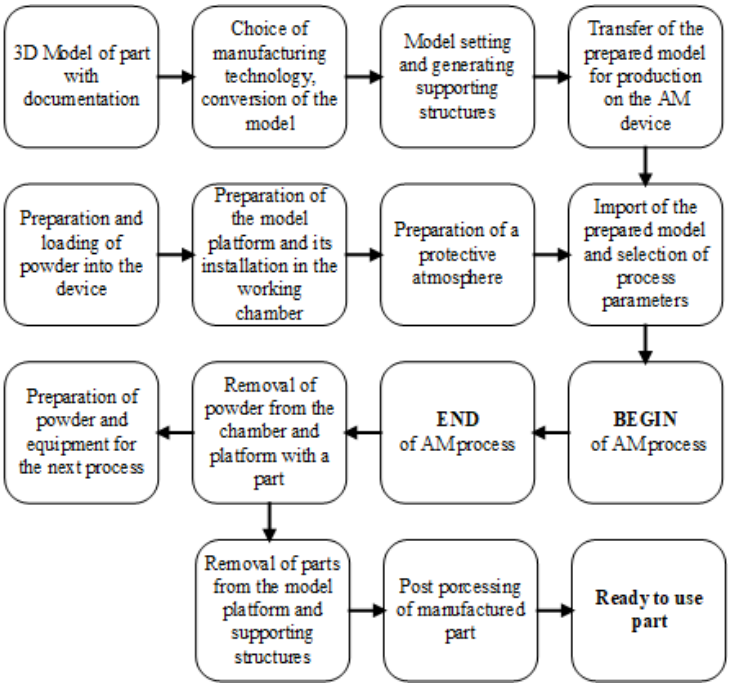

Fig. 2: Flow chart of manufacturing process used in the enterprise.
Source: own elaboration.

After completing the preparation stage, the files with the model and supporting structures are imported to the device, then the correctness of their import is checked, and the files with the process parameters are selected for the models. The completion of this stage allows to start the manufacturing process. The device carries out the manufacturing process automatically until the complete part is made. After the process is completed, the following steps are carried out: removal of the powder from the chamber and the part, removal of the platform with the part produced, preparation of powder and equipment for the next process. Part is removed from the platform. In next step, also supporting structures are removed to prepare part for post-processing operations. For example, it could be machined according to the previously prepared machining plan in order to meet the requirements specified according to the documentation provided by the customer.

Figure 3 presents stages of prepation of part for the AM process (Madeja 2017). The first step in manufacturing process was analysis of the documentation. It showed that the part must be made of a medical grade titanium alloy and also have high surface quality and high geometric accuracy. To meet the requirements related to this part, SLM technology and additional methods of post-processing, milling and grinding were selected. Additional post-processing steps were required because, despite that SLM technology allow to produce complex shape part out of various metal alloys e.g. titanium, aluminium, steel, copper, cobalt, surface quality of produced parts is low (Ra 5-20µm) and also geometrical accuracy is in many cases insufficient (±0,5mm). In next step part was prepared to be manufacture in SLM technology. After completion of all stages related to SLM production, the part was milled and ground to obtain the final surface quality and geometric accuracy.

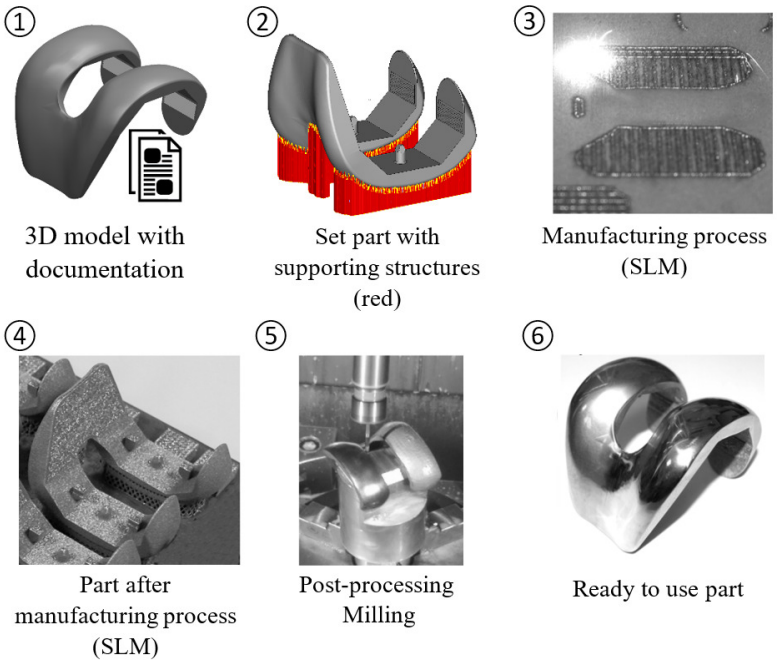

Fig. 3: Seps of manufacturing process on example of knee implant.

Source: own elaboration based on Madeja, M. (2017), Wytwarzanie funkcjonalnych części maszyn za pomocą technologii generatywnych z uwzględnieniem obróbki powierzchniowej, Doctoral thesis

Analysis of Knowledge Management Status

Despite such a specific and innovative manufacturing process (requiring strict control and protection against competition), there are practically no knowledge management procedures at the operational level in the examined enterprise. The middle management staff does not engage in knowledge management, leaving it to individual implementation for employees. There are also no formal solutions to save, collect, update and share knowledge about the processes being carried out. The problem is the organizational culture, focused on rivalry between teams and allowing theft or abuse (assigning the effects of the work of others). There is also a lack of the necessary infrastructure for sharing knowledge and the related incentive system.

The analysis of the generative process in terms of operational knowledge management in the surveyed enterprise was presented below:

1. **Acquiring and development knowledge** - this stage is important in many stages of the production process, i.e. choice of manufacturing technology, selection of process parameters and support structures, AM machine preparation and powders. In the analyzed enterprise device operation can be performed by a technician who acquires knowledge mainly through education and work experience. The choice of parameters is performed by the R&D department, which conducts its own research and acquires knowledge from outside, through participation in trainings and conferences initiated by the employee. He also uses professional literature. Acquired knowledge is individual and tacit.
2. **Codification of knowledge** (following in the stage: choice of AM technology, selection of process parameters, supporting structures, process start, post-processing) - The

codification of knowledge is performed primarily in the form of a register of activities performed on the device as well as reports and technical documentation after the completed process. However, the primary function of these documents is to inspect employees and possibly take consequences for an error, rather than sharing knowledge. The R&D Department also develops procedures for the selection of technologies and parameters, to maintain standardization and the appropriate quality of parts. However, it is knowledge available only to some employees of the department.

3. **Knowledge transfer** (the whole process) - The transfer of knowledge takes place through regular meetings of employees regarding experience (and not procedures) from which no documentation is kept. The interested employees acquire knowledge individually to a different degree and scope. It is also not verified later.
4. **The use of knowledge** (the whole process) - Knowledge is mainly used by machine operators and R&D department, which adapts the process to the clients' requirements. The sellers who have direct contact with the client do not use the process knowledge because it is incomprehensible to them.

Individual employees of the enterprise acquire or create knowledge on their own. The most knowledge necessary for the efficient implementation of the manufacturing process is developed internally by the research and development department. R&D staff perceive knowledge as an element closely related to the competencies of a particular unit, which is why they do not pass it on. This results in the accumulation of knowledge that could be useful also in other departments (sales department, customer service, production department). Employees do not use each other's experiences, incurring significant financial outlays and work to acquire the knowledge already accumulated in the enterprise. The knowledge codification stage is practically non-existent. Employees save documentation of completed projects on individual computers, using technical language, incomprehensible for other departments. There are no formal solutions to translate specialist knowledge into a language comprehensible to other departments. Transfer of knowledge takes place at team meetings, where mainly errors and future projects are discussed. Interested employees make their own notes. The acquired knowledge is used throughout the entire production process. The processes are relatively standardized due to the time and quality of manufactured parts. The problem is, however, to conduct the manufacturing process according to the individualized requirements of the clients or when the new solution is implemented on the market Appearing failures or complications are usually solved individually by the operators, only long-term stagnation of the device forces the inclusion of other employees of the company's employees or servicemen from external organizations in solving the problems.

Analysing the knowledge management process in a production enterprise, it is possible to identify several barriers and gaps in the flow of knowledge (Table 1).

Tab. 1: Barriers and gaps in knowledge management in the unit under study

Personal barriers	Pre-emptive employees to share, often hard-won knowledge. The general reluctance to transfer knowledge is also connected with the problem of the theft of ideas and attributing the merits of others. Some employees (usually new ones) also have no confidence in improving and proposing new knowledge to a wider group. The transfer of knowledge does not involve any benefits. Employees are also afraid of losing the achieved position. In addition, employees express the need to "be irreplaceable."
Team barriers	The ineffective organization of team work translates into a negligible transfer of knowledge between its participants. Employees participate in the work of many teams in parallel, which results in their excessive burden. Team work is controlled only at the final stage of project

	implementation (where there is no time to transfer knowledge). Projects are often implemented in a way that is not in line with the adopted schedule, which means that managers do not have information about the work of teams. Lack of standards enabling the development of a schedule. Internal competition also appears (also old employees versus new ones). In addition, managers are rewarded for the results of team work without due involvement in this work.
Structural barriers	The company does not have any IT system that would allow the transfer of knowledge. In addition, there is a strong tendency in the individual departments and teams to retain knowledge and experience for themselves. Reports on ongoing projects are not discussed in a wider circle.
Political and cultural barriers	They mainly result from the organizational culture, which in the surveyed enterprise is not focused on trust and openness. Despite the projects carried out in teams, the most important is individual work and individual achievement of employees. The bonus system is unclear and often unrelated to assigned tasks and achievements of employees (whoever claims for it, will usually receive it regardless of the results of work). Strategic and sometimes operational goals are not communicated to employees, which also results in a lack of deeper sense of the performed work.

Source: Own elaboration based on Kowalczyk, A. and Nogalski, B. (2007), Zarządzanie wiedzą, Koncepcja i narzędzia, Difin, Warszawa.

The operational level of knowledge management in enterprises is closely related to its strategic level. Therefore, most of the presented barriers result from improperly shaped organizational culture (unfavourable to expanding and sharing knowledge, lack of openness in communication) and organization of work (lack of incentive system and system for transferring knowledge, criticism of behaviour, theft of ideas that do not meet the reprimand from the superiors) of the company under study. Therefore, by constructing recommendations and guidelines to eliminate barriers, the strategic level of knowledge management cannot be omitted (Table 2).

Tab. 2: Recommendations to eliminate barriers

Personal barriers	- developing a procedure for introducing new employees to work, - equal treatment by managers of all employees, - development of clear requirements for employees, - appreciating attempts to adapt and share knowledge with others (including financially), - identifying the employee who is the source of knowledge of a given solution and appreciating its contribution, - development of a common conceptual apparatus, - integrating trainings and meetings.
Team barriers	- involvement of managers in the work of teams, - developing criteria for selecting employees for project teams, taking into account their burden, - development of work scheduling standards, - drawing the consequences for unrealized tasks and unjustifiably omitting the work schedule, - requiring employees to report more frequently (including partial reports).
Structural barriers (technical)	- development of an IT system that enables the transfer of knowledge and the requirement for employees to be replenished, - conducting courses and trainings in the field of knowledge transfer, - discussing the results of ongoing projects on regular, mandatory meetings (on which there is always a senior manager).
Political and cultural	Shaping a culture based on trust: - development of a code of ethical behaviours related to the sharing of knowledge (non-ignoring pathological behaviours),

barriers (social)	- rewarding joint efforts of the team, - open attitude of the management in the field of knowledge sharing, - adherence to the values declared by managers in practice, Shaping the incentive system: - development of a clear system for granting bonuses, - award for results, - introduction of a non-financial incentive system (appreciation and acknowledgements for the work done).

Source: Own elaboration

The most important change should start with the attitudes and behaviors of the company's managers. According to the principle that "the example goes from above" they should be primarily consistent in their activities but also involved in the work of teams, because they are rewarded for the results of their work.

Research Findings

The globalization processes and the resulting growing customer requirements as well as dynamic market changes cause that the main goal of enterprises is to gain a competitive advantage. In addition, the turbulence of the environment causes changes in conditions for new products or innovations, especially in technology, which begin to largely be based on knowledge from the environment adapted to the enterprise. In these conditions, especially for small and medium-sized enterprises, knowledge management (possessed and acquired) becomes crucial. The ability of enterprises to generate, collect, adapt new knowledge often determines its survival or development, which is why knowledge management is included in the strategy of enterprises. Properly managed knowledge will be a source of permanent competitive advantage (Nonaka, von Krogh, 2009) or the determinant of innovation. However, this is not the case for the surveyed enterprise, where managers do not yet see the potential of knowledge management.

The aim of the article it was the analysis of the process of knowledge management at the operational level in the manufacturing enterprise of high-tech sector, which produces machine parts using additive technology (AM). A further intention was to find barriers and gaps in knowledge management at the operational level (as part of a specific process) and ways to overcome them. It should also be noted that the research did not analyze the quality of information or knowledge, which is of great importance at the time of using the knowledge already collected and decidedly less during its transfer. The results of the research indicated a number of problems in four, adopted by the authors of the study, categories of barriers: personal, team, structural, political and cultural barriers.. The most important of them are the limitations resulting from the organizational culture and management (social and technological barriers). This is also confirmed by numerous studies stressing that the success of initiatives related to knowledge management will depend on the cultural, structural and technological aspects of the culture, centralization structure and IT suport (Oufkir L., et.al., 2017, Ale , et al., 2014: Wong et, al., 2013).

Conclusion

Despite the fact that knowledge management in the studied enterprise was to be analysed only at the operational level, its strategic level cannot be neglected. This level will include mainly changes in organizational culture and management. The operational level of knowledge management requires, above all, the development and implementation of a computer system that enables the collection and

transfer of knowledge between the company's cells. Knowledge management at the operational level requires a significant involvement of mid-level managers (Mikuła, 2007) in this process. Their role is above all to support employees and provide them with adequate infrastructure for communication and exchange of experience. In the literature on the subject there are many proposals for IT systems enabling the exchange of knowledge among others Guerra-Zubiaga and Young (2008); Young *et al.,* (2007); Maropoulos *et al.,* (2002); Baxter, *et al.,* (2009). However, one of the most suitable systems for the studied enterprise is the solution proposed by Bruno, *et al.,* (2016), used to collect, store and transfer knowledge concerning only the production process (and all subprocesses necessary to implement it) (Bruno, *et al*., 2018). It therefore covers the operational level of the company. The proposed IT system will enable the collection of three types of knowledge: process knowledge, product knowledge, and task knowledge (Baxter, et al., 2007). Product knowledge concerns the best way of designing and manufacturing of ordered parts, taking into account the client's requirements. In this case, a thorough knowledge of the product, its purpose and experience in the design and realization of the production process is required. The sequence of activities to produce the required product function in the most effective way includes knowledge of relationships between product components, parameters, and materials. In the case of product knowledge, information and data on its geometry, expected parameters and purpose will be necessary. Knowledge of tasks includes formal design documentation and catalogues with the product specification. Such an IT system will ensure data consistency, enable obtaining them from previous production processes and re-use them.

In the surveyed company, employees share knowledge occasionally and reluctantly. This is directly related to the organizational culture prevailing in the company, which is not conducive to building trust and open social relations (there were thefts of ideas, which did not meet with the reaction of the superiors). Knowledge management in an enterprise is informal and, in principle, the stage of knowledge codification is omitted. This results in cost and time-consuming in re-discovering once acquired knowledge.

Properly managed knowledge will be a source of permanent competitive advantage (Nonaka and von Krogh, 2009) or the determinant of innovation. Therefore, it is extremely important to manage this aspect of the company's operation, especially in sectors with rapid technological development, in which the interruption on the market is often determined by the use of emerging opportunities.

The research results of the authors of the study are important in two aspects: firstly, through the analysis of knowledge management elements in the additive manufacturing process (allow to manufacture complicated parts, process hard-to-machine materials, etc.), which may contribute to building a knowledge management model in the future enterprises using this technology. Secondly, filling the gap in the literature on the lack of practical guidance for managers of high-tech companies, which will indicate that knowledge management is a socio-technical process. Therefore, shaping the appropriate organizational culture and the implementation of a functional IT system is necessary for this management. In addition, properly developed guidelines for knowledge management will have practical implications for an increasingly numerous group of companies using AM processes in production. The difficulty in knowledge management is in this case the process itself, which covers issues related to the design of parts, metallurgy, metal processing, machining, postprocessing, etc. and the evolutionary nature of knowledge.

The study is limited due to its scope (one, enterprise and one type of process) and the methodology of data collection, which is why the collected results cannot be generalized. Future research should be carried out more comprehensively (analyzing the strategic, tactical and operational level of knowledge management in an enterprise). In addition, the analysis should cover a larger number

of enterprises from the high-tech sector, which will enable statistical analysis. Only such a result will give a generalized view of this phenomenon. In addition, the direction of future research should also be to confirm the effectiveness of the proposed ways of overcoming the observed barriers.

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[i] Also called a formal, objective, rational, conscious.
[ii] Called a quiet, intuitive, unconscious.

Using a Geospatial System for Flood Risk Management in Romania

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Abstract

This study aims to analyze by spatial queries using QGIS technology, the identification of flood risk settlements in Romania, depending on precipitation forecast, which will lead to the achievement of the objectives imposed by the European Union on the reduction of the potential negative effects of the floods for human health, economic activity, the environment and cultural heritage. Firstly, it has been presented the actual stage of the use of geographic information systems, after which it has been analyzed how they can be used in the flood risk assessment on the example of Romania, in order to reduce the negative consequences. The collection of data was done in digital form from three types of maps: Romania's digital map, flood risk map and precipitation forecast map. The spatial data base integrated with graphical information thereby provides a flood risk spatial mapping, which together with analysis of thematic maps leads to a rapid assessment, analysis and visualization of the potential consequences. In this way, decision makers can know and prevent certain poor situations , based on the history and on the images obtained in real time by satellite of the water level of rivers and rainfall. And, during disasters, satellite imagery provides reliable information that fast intervention systems can use to make optimal and real-time decisions.

Keywords: GIS, flood risk, spatial data.

Introduction

In the century of informational society, the use of information technologies becomes a fundamental element in making working times and services more efficient. In the specific economy of the new society, the use of modern information systems for organizing data, information and extracting new knowledge becomes essential in decision-making processes as much as possible in real time. Along with traditional data types used in computer systems in recent years geospatial data has stepped up. Thereby, computer systems store, process, visualize classical economic data and, combined with geospatial data, form the geographic information systems, GIS.

Although GIS systems have seen tremendous growth in recent years and the people number using it has grown considerably, quite a few people realize how indirectly their daily life is affected by these systems. For example, every person uses electricity, and electricity companies use GIS to manage the very complex infrastructure (transmission and distribution lines, work points and employees that ensure their optimal operation). Also, every man uses water that is supplied by a distributor who manages a water distribution system based on GIS for water distribution, infrastructure maintenance, automatic mapping, network tracking, flow analysis and other engineering aspects, operations, administration and financing. At the same time, every person travels with means of transport, and the transport infrastructure is also managed by a GIS system (more than 80% of the information used to guide road, rail and river traffic have associated space components).

We can say that without realizing, each person has contacts one way or another with geographical information systems that contain data and procedures for creating, acquiring, integrating, transforming, visualizing, analyzing and modeling information on the geographical location of certain objects on globe, shape and size there, which helps them in the decision-making process.

Thereby, GIS is applicable in many areas: regional development (through map creation), utility network management (electricity, gas, water), business (choosing the best locations for new business locations, starting and closing a business, active management and provision of customer information), health (management of population health by region), trade (segmentation of markets), environment (study of the impact of various factors), tourism, financial-banking, military, forensics, social sciences, geology, etc.

At the same time, GIS systems are also important in the economy, helping to reduce costs and increase efficiency, facilitating communication between teams, departments, organizations, and public, making it an efficient system for substantiating and adopting decisions and managing them at geographic level. Thus, the implementation and use of GIS will become virtually indispensable and binding due to their importance at all levels (economic, social, political, financial, educational etc.).

Lately, within Europe was recorded a large amount of rainfall, which resulted in devastating floods. In this sense, in this study we intend to address the role of GIS systems in flood risk management. Thereby, by using a spatial query through a geographic information system, QGIS, we will identify flood risk locations in Romania (multi-criteria analysis) according to rain forecasting, which will can lead to achieving the objectives imposed by the European Union on the member states (Directive 2007/60 / EC) on the reduction of potential negative impacts of floods on human.

The paper is organized as follows: Section 1 presents a brief review of the literature on empirical studies on geographic information systems and their use, Section 2 describes the data source, research methodology and technologies used, and Section 3 presents empirical investigations and results, and the last section concludes the study.

Literature Review

GIS is defined as a system used for capturing, storing, checking, integrating, manipulating, analyzing and viewing geographically or geospatially referenced data (Patel and Waters, 2012).

Geospatial data are data linked to geographic location, the characteristics of real entities, and their boundaries on the Earth's surface. Geographical data include spatial data (geographic coordinates - latitude, longitude, Cartesian coordinates) represented by the raster model and the vectorial model and descriptive data (attributes) associated with geographic objects / phenomena (streets, buildings, parcels, accidents, etc.) (Kaymaz and Yabanlı, 2017).

GIS is a particular form of information systems applied to geographic data. These are computer-based systems for geographic data integration, storage, query, analysis, modeling, reporting and mapping. GIS is a computer system that uses a database that integrates spatial information as well as descriptive information, of the attribute type (Kakumoto et al, 2016).

Longley and colleagues (2010) define GIS as a collection of hardware, software, geographic data and people (system users) designed to efficiently capture, store, update, process, analyze and display geographic (spatial) information, according to specifications in a particular domain.

GIS is a tool for generating information from a wide range of different data sets, but their quality depends on the data quality, the skills and knowledge of those who use it, and the organizational context in which it is used.

GIS techniques allow combining information of different types (digits, images, maps, etc.), hardware and software, all under direct coordination and determination of the human component (Wadsworth and Treweek, 1999).

GIS allows viewing, querying, analyzing and interpreting data in order to understand relationships, patterns and trends in the form of maps, reports, or graphs (Bateman et al, 2002).

GIS technology can be integrated into any business information system and can pursue many and diverse goals:

- identification of objectives / phenomena located at a given geographical location, specified by name, postal address, or geographical coordinates (latitude and longitude) (Jovanovic, 2008, Mays et al, 2011, Podor and Nyiri, 2010);
- identifying the most optimal transport routes (Effat and Hassan, 2013, Abousaeidi et al, 2016);
- providing mobile processing capabilities using cloud-computing technologies (Bediroglu et al, 2014, Neene and Kabemba, 2017);
- support for monitoring, conservation, management, sustainable development and environmental protection (Kakumoto et al, 2016, Kaymaz and Yabanli, 2017, Landres et al, 2001);
- highlighting the importance of consumer maps (food, education, health spending) in determining optimal locations for investors and marketing specialists (Turk et al, 2014);
- obtaining geographic information and various other types necessary to support and decision-making (Noorollahi, 2005, Nsanziyera et al, 2018, Pandian et al, 2018, Rayed, 2012, Sedighi, 2012, Trung et al, 2006).

Numerous researchers have demonstrated the benefits of using GIS technology in risk assessment in natural disasters to provide the most optimal decisions (Akay et al, 2012, Chen et al, 2003, Martín-Gómez et al, 2015).

Observing the unprecedented meteorological phenomena of the last period that have caused real natural disasters in Europe, a "framework for flood risk assessment and management has been established at European level in order to reduce the negative consequences within the Community" (Directive 2007/60/CE). Romania is one of the areas vulnerable to floods, where in recent years the number of disasters has increased, mainly due to deforestation and climate change.

The risk of floods is determined by the nature of the phenomenon that leads to floods (from water courses, rapid floods, from groundwater level rise, exceptional floods generated by accidents / incidents to hydro technical constructions - dams, dams) and the associated production probability with the degree of exposure of the receptors (the number of persons and goods at risk of flooding as well as their economic value) and the vulnerability to the floods of the receptors, resulting implicitly in the reduction of the risk to these characteristics (HG 846/2010).

Thereby, decreasing the consequences of floods is the result of the combination of measures and actions preceding the phenomenon (prevention, protection and training activities), emergency management (response actions taken during floods) and those undertaken after the floods. For this, it is essential to identify areas and groups of people at risk of flooding in order to prepare and publish the implications of the different gravity of the floods, and by adequate flood risk management to make optimal and timely decisions, thereby contributing to the growth awareness and understanding of flood risk, especially in areas with significant flood risk. In this regard, at the level of flood risk management, one of the fundamental issues is the accepted risk measure of the population and decision-makers, as there is no total flood protection (zero risk), as there is no general consensus the risk acceptable (HG 972/2016).

EU Member States have established flood risk management objectives, focusing on reducing the potential negative impacts of floods on human health (loss of human lives and the number of affected public institutions), economic activity (number of economic targets affected, number of kilometers affected roads, number of households affected), the environment and cultural heritage.

According to the Directive 2007/60/CE, at the level of Romania, 39 significant flood events (historical) were identified at national level, 3 on the Danube, and the other on 330 water courses as potentially significant flood risk areas (20% of the length cadastral hydrographic network).

According to the statistics, about 3500 settlements (about 25% of the total number of settlements) can be affected by floods every 100 years (1%), but they are exposed to floods in different proportions, on a case-by-case (in average, only 10% of the flood risk area is located in the floodable area), so about 250 of the 3500 identified settlements have more than half of the built area located in the floodplain area, and about 110 localities have more than three quarters of the built area located in floodplains. Of the 3,500 settlements (which account for about 12.5 million inhabitants, only about 800,000 inhabitants are exposed to the flood risk - 4% of the total population), 923 show an insignificant of exposure of the population at the risk, around 1,500 settlements (about 45% of the exposed localities), have a low exposure of the population at the risk, and 250 localities have a high risk population exposure (more 25% of the population and over 400 inhabitants) (Radulescu, 2014).

An important feature of GIS is that it allows the association of information (non-geographic data) with places (geographic data). The information can be in graphical form (it indicates the spatial distribution of the studied elements - vector or raster) and in the descriptive form for storing the attributes. Vector data in the form of a series of X-Y coordinate pairs is used to represent points, lines, surfaces, and the raster (images of the Earth made from satellite or from the plane), are stored in cells organized in lines and columns (pixels) (Martín-Gómez et al, 2015).

In a GIS application, raster data is used when it is desired to display information that is continuous in a given region and which can not easily be divided into vector elements (e.g., as background for vector layers for the purpose of highlighting vector information) (Turk and Hastaoglu, 2007).

The creation of a spatial database consists of the collection and processing of spatial data. The collection of spatial data can be done by digitizing, scanning, using existing digital data, acquiring field data (processing of measurements). Processing them involves checking and removing digitization errors, topology execution, identifying errors made after building the topology, and correcting topology errors. Digitizing or scanning paper data, from movies can produce vector data, and scanning a map produces raster data, which can later be converted to vector data by means of programs specializing in such conversions. The main advantage of vector data vs. raster data is that data storage is much more efficient. In the case of vector data, only the coordinates describing the characteristic features of the image must be encoded (usually used in large-scale mapping), whereas for raster data, each individual pixel should be encoded (Sebt et al, 2008).

Vector entity attributes are stored in a spatial database. A spatial database is an optimized database to store and query data representing objects defined in a geometric space. The spatial database stores a rich collection of spatial data in a centralized location, applies sophisticated rules and diverse data relationships, defines complex geospatial models, and integrates spatial data with other databases (Patel and Waters, 2012).

Permanent maintenance of spatial databases is essential to ensure that quality remains appropriately high. At the same time, spatial databases integrated with graphical information and sensors or special devices (flow meters), provide GIS with the opportunity to query and spatially locate the anomaly, aggregated with a series of analyzes geared to specific geographic areas (thematic maps), and thus the potential consequences can be quickly evaluated, analyzed and visualized. In this respect, the GIS allows for the best decisions on geographic location, the planning of an evacuation, or the taking of other necessary measures. Decision-makers need to know and foresee all the situations that may occur at any moment, depending on the history of the areas, real-time satellite imagery on water level, precipitation reports and radar data.

During disasters, remote images can provide reliable information that fast intervention systems can use to make optimal and real-time decisions. Viewing with satellite images allows users to compare different images, which is very useful when comparing different data sets for the same area or viewing data in different time periods.

Research Methodology and the Technologies Deployed

In this study, we propose that by using a spatial query to identify flood risk settlements, according to rainfall forecast so that the best decisions are made in a timely manner.

In order to achieve the proposed objective, it is necessary to collect quality data that must be based on spatial accuracy (the elements must be located correctly on the map), the accuracy of the assignment (any confusion must be avoided), the temporal relevance (data can expire over time). Before we begin collecting data, we have identified the necessary attributes and their way of symbolizing (allowing users to understand the attributes of the data, depending on the colors and symbols used.

The data are collected in digital format from three types of maps: the digital map of Romania (arcgis.ro), the flood risk map (rowater.ro) and the precipitation forecasts map (meteoromania.ro). Through GIS applications, we could associate information (non-geographic data) with places (geographic data). The information are in graphical form (indicates the spatial distribution of the studied elements - vector or raster) and in the descriptive form (table) for the storage of the attributes.

At the level of Romania's digital map (Fig 1), we identified the main tables: localities, roads, railways, rivers and the Danube River.

Fig. 1: Digital map of Romania

The flood risk map (Fig 2) is the data source indicating floodplains (in various scenarios), with reference to the approximate number of potential inhabitants affected; vulnerable economic activities in the potentially affected area (including infrastructure); important pollution sources, potentially affected protected areas identified, other useful information, cultural objectives, etc. National flood risk maps are made for each probability of exceeding the maximum flow rate of: 0.1% (low probability of overtaking), 1% (average probability of overtaking) and 10% (high probability of overtaking) according to law.

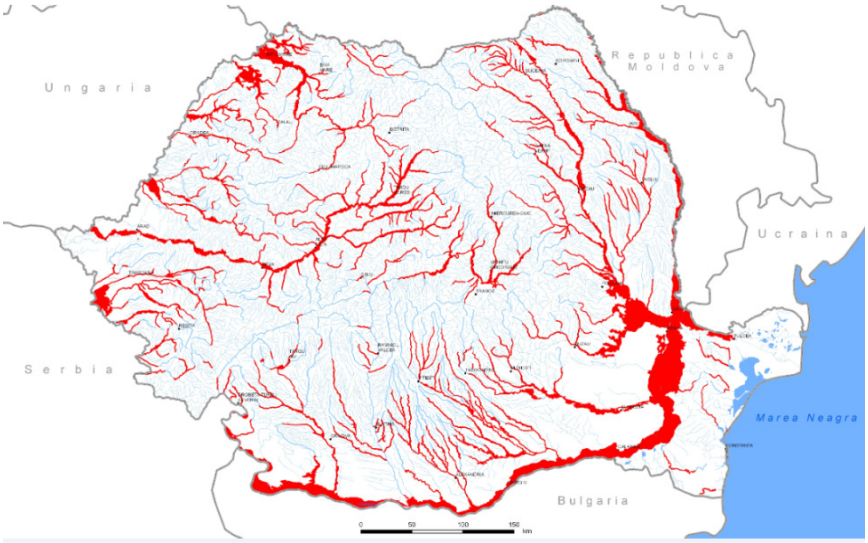
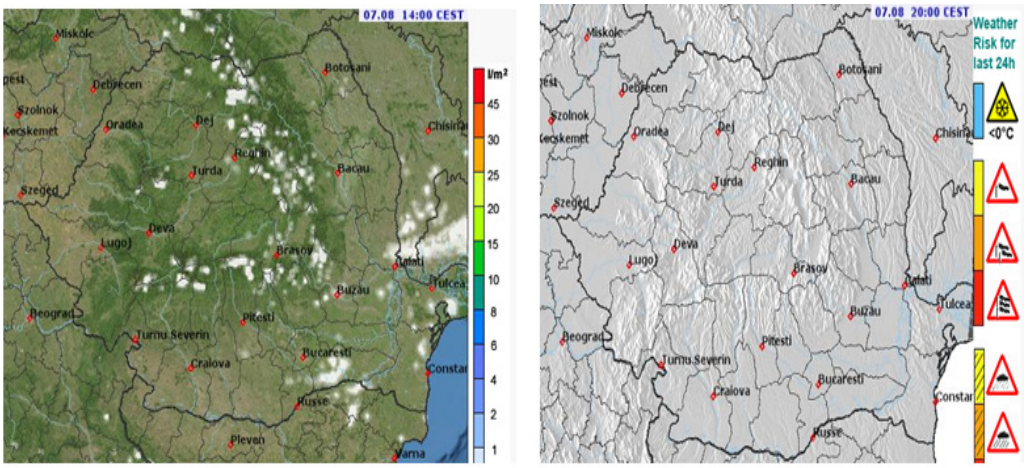


Fig. 2: Romania - Areas with significant potential flood risk

From the precipitation forecast map (using the European Centre for Medium-Range Weather Forecasts - England), we take information on the highest probability of precipitation occurring over a given period (Fig 3: (a) Rain map, (b) Map of precipitation risk areas). The colors used to represent areas in flood risk maps are as follows: red for major flood risks; orange for areas with medium flood risk; yellow for areas with low risk for floods and green open areas for areas of insignificant risk.



(a) (b)

Fig. 3: Rain forecast map

The three categories of maps used were taken for the processing and representation of geospatial data in the QGIS application, that is an open-source geographic information system and supports a large number of raster and vector data formats, with the possibility of easily adding the support for new formats, through the plugin architecture (QGIS 2.18.22). The maps were taken over in QGIS in Shapefile's ESRI (Environmental Systems Research Institute) format because the GIS data structure is simple and robust based on generating each spatial theme in a single vector (point, line, or polygon) format. With QGIS, we can create and modify geometric data from a particular layer.

Descriptive data is stored in easy-to-manage tables for updating and querying columns. Then we used SQL expressions for spatial querying using the Spatial Query plugin from QGIS.

The digital map of Romania in the Geodatabase vector format, HDR2.0, has been taken over from ArcView GIS as it provides good GIS decision support and provides coverage for the entire territory of Romania, providing support for adding new thematic layers and then, was been interrogated with QGIS. The other 2 types of maps were taken and processed directly in OGIS.

We've exported the result to Google Earth to validate data by displaying satellite imagery with different resolutions, providing a familiar web interface for web users.

Results Obtained from Processing with QGIS

Through QGIS we have stored information in the form of theme layer collections consisting of the maps used, other the real-time data types that are stored in the database, and the real-time images. Maps layers are stored as records in a database, each layer representing a real-world entity (table), and entities in a layer have the same type of geometry and the same types of attributes.

The digital map of Romania (Fig 1) includes 5 layers (Table 1): localities, roads, railways, rivers and the Danube river, which are registered in a database:

Table 1: Description of spatial database attributes - Map of Romania

Layer	Vector type	Attributes	Description	Values
Localities	Point	Name	Name locality	
		Category-1	General classification	1-Urban; 2-Rural
		Category-2	Classification according to SIRUTA	11-City-capital of the country; 12- City of residence; 13-City; 14-Town; 21-Commune; 31-Village-Village Residence; 32-Suburban Village; 41-Tourist Resorts
		AUL	The administrative unit to which the locality belongs	
		County	The county to which the locality belongs	
		SIRUTA Code	SIRUTA the locality code (Level 3)	
		Population	Population - only for cities	
Roads	Line	Type-1	Classification according to the topographical map	1-Highway; 2-Upgraded Road; 3- Road; 4-Natural Enhanced; 5-Intravilan; 6-Other categories
		Type-2	Class I by road category	1-Highway; 2-National Road; 3-County Road; 99-Other Roads
		Type-3	Class II by road category	1-European Road; 99-Other Roads
		Name-2	Road name by national rank	Ex: A1, D.N. 1, D.J. 256, etc.
		Name-3	Road name by European rank	Ex: E80, E85, E70
		County	Name of the county on which the road section is located	
Railways	Line	County	Name of the county on which the railway section is located	
Rivers	Line	Name	Name of the section of river between two confluent	
		Type	Classification of rivers according to the topographic map	1-Permanent; 2-Temporarily; 3-Channel; 4-Not defined
Danube	Point	Name	Name of the section of river	

Thus each layer will be represented by a specific type of vector, line for roads, railways and rivers, and point for localities and the Danube, and will contain a set of attributes with certain values (exemplified on the Rows table in Fig 4).

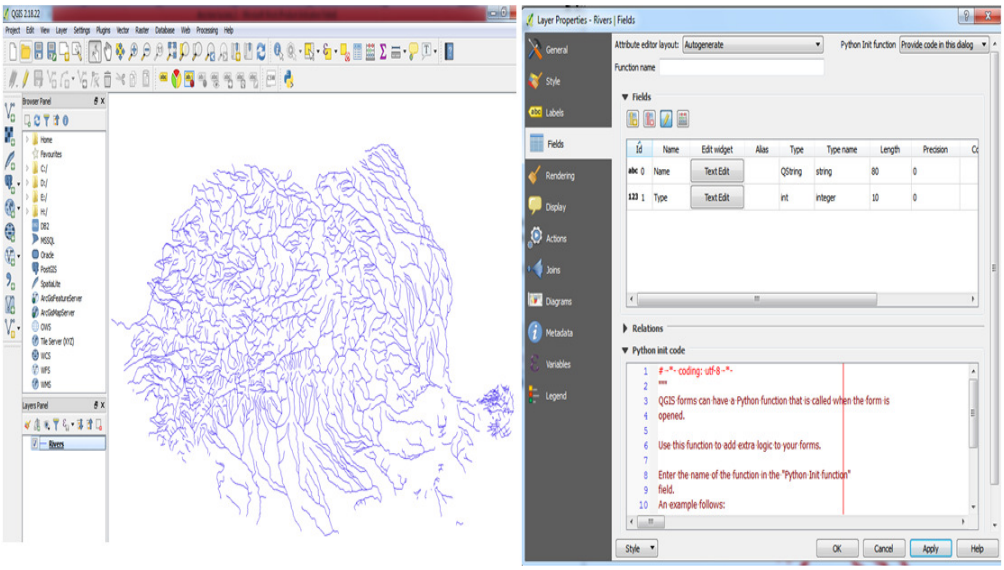


Fig. 4: Description rivers layer

Based on a common geography, the thematic data layers will be overlapped (across of the 5 layers of the map presented will be added the layers of the flood risk map and of the precipitation forecast map (Fig 4).

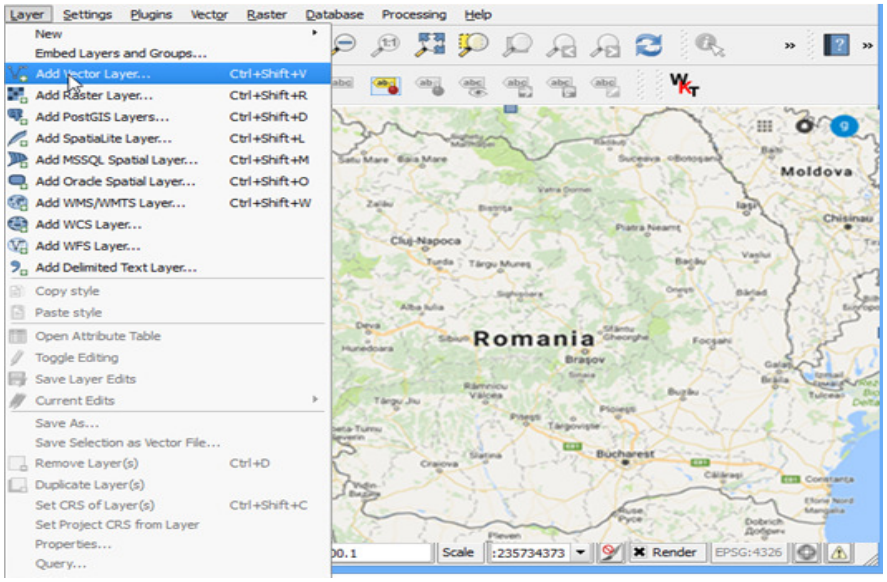


Fig. 5: Add new vector layer to digital map of Romania

So, we'll work with 7 layers: localities, roads, railways, rivers, the Danube River, flood risk areas and areas with rainfall potential. The aim was to identify flood risk localities according to rainfall forecasts. To do this, we have opened zip files in QGIS and we redesigned vector data (for example, at redesigning localities layouts and images of rivers will look like in figure 6), to create buffers for as data analysis to be made in meters or km.

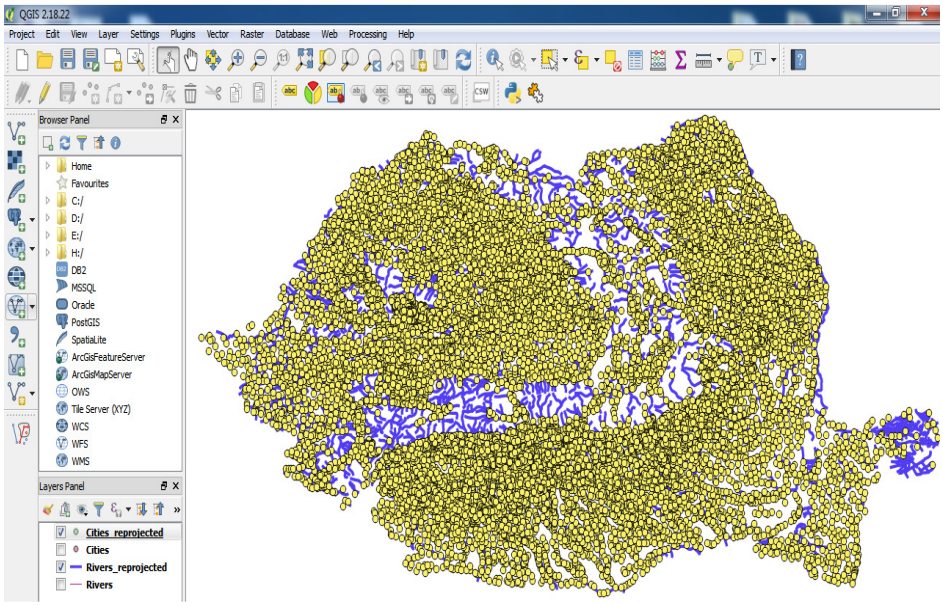


Fig. 6: Redesigning layers localities and rivers

In this way, the layers were redesigned into a Reference Coordinate System (CRS) appropriate to our study: the most appropriate solution being an equidistant azimuth projection (Fig 7).

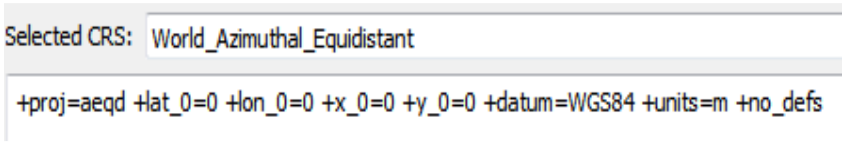


Fig. 7: Redesigning Layers with World Azimuthal Equidistant

Rezultatul interogării spațiale va conține numai entitățile care îndeplinesc condițiile de interogare și astfel se obține un nou strat.

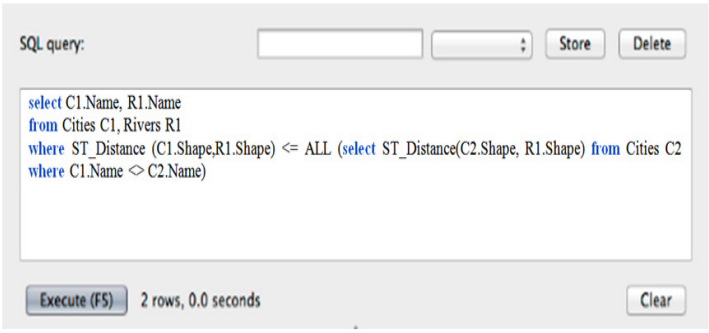


Fig. 8: Example of query

Thus, for the query presented in Fig 8, the result is the obtaining of the localities with the smallest distance from the high flood rivers (Fig 9).

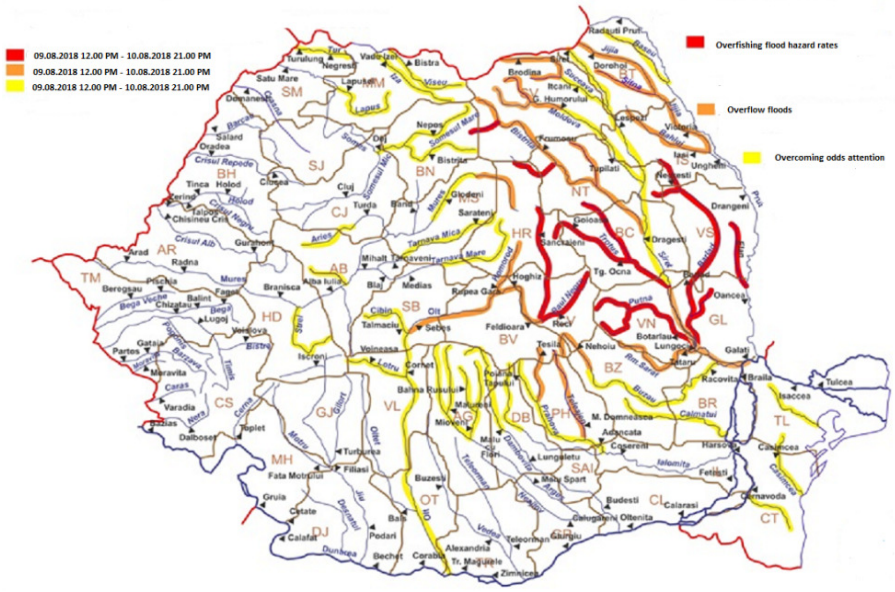


Fig. 9: Hydrological warning map

Color coding in the image is:

- Red Code: major flood risks requiring special measures to evacuate people and goods, exploitation of hydrotechnical constructions, restrictions on the use of bridges, roads and railways;
- Orange Code: Major flood risk generating major outflows that can lead to floods of households and the social-economic objectives;
- Yellow code: flood risk or rapid water level rise that does not result in significant damage, but requires special vigilance when flooded activities occur.

The results will always have to be checked to ensure that the analysis is not erroneous, and this is done by exporting this layer as a KML file and uploading to Google Earth (Fig 10), and by integrating the 2 QGIS and Google Earth applications, we would validation of the model.

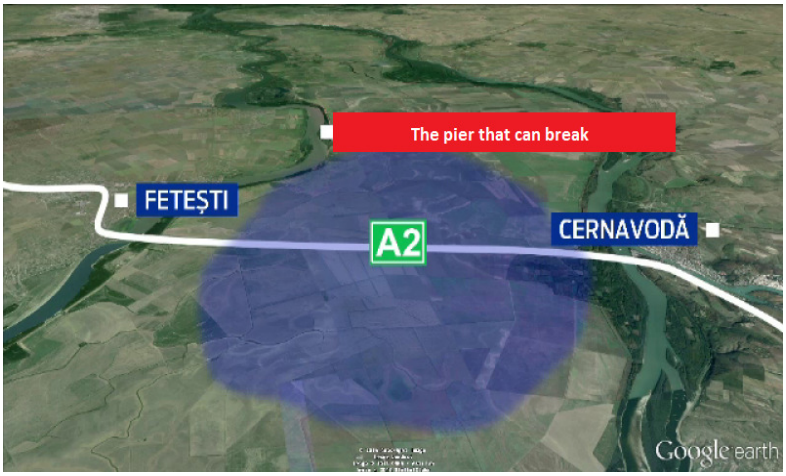


Fig. 10: Flood risk picture taken with Google Earth

Conclusions

Following the study, we can state that the GIS allows for the best decisions on geographic location, the planning of an evacuation, or the taking of other measures required, based on the history of the areas, of the real-time satellite imagery regarding the water level, rainfall reports and radar data. During disasters, remote images can provide reliable information that fast intervention systems can use to make optimal and real-time decisions. And viewing with satellite images allows users to compare different images, which is very useful when comparing different data sets for the same area or viewing data in different time periods.

Most simply, in a GIS application, vector data can be used just as a normal topographic map is used, but for complex processing (identifying houses falling below a flood level of a river), it is necessary to carry out a spatial analysis that combines spatial information stored in entity geometry with attribute information. Raster data is useful not only for satellite images and aerial photographs but also for representing abstract ideas (representing the rainfall trend on a surface, or to describe the risk of flooding in a certain area), each cell of a raster represents a value different, such as flood risk, on a scale from one to ten. Raster data is very important for flood risk management because by analyzing the Elevation Digital Models (a raster where each pixel contains river level height), it can then be used to identify areas that are susceptible to be flooded.

Spatial database integrated with graphic information offers opportunities of query and spatial location of flood risk, that combined with the thematic maps lead to the evaluation, analysis and quickly view of the potential consequences. The more information is included in the database, the more significant the results are. Thus, decision-makers can prevent critical situations on base historical levels of rivers and precipitation on areas and of the images obtained in real time. In the event of flood disasters, satellite imagery provides reliable information that rapid intervention systems can use to make optimal and real-time decisions.

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Intellectual Capital Development in Ethnically Aboriginal Economy

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Abstract

During econometric analysis conducted by the authors the following hypotheses were substantiated. Firstly, we found the most pronounced correlation between the number of innovative products, works and services in the total amount of shipped goods, performed activities and technological innovation costs per one person. This demonstrates the need for planning and implementing state programs on raising intellectual capital in multicultural regions with traditional economics. Secondly, we have identified clear interdependence between the number of smaller enterprises per 1000 people and the share of Russian people in ethnically aboriginal regions. Therefore, the influence of the Russian nationality ensures formation of entrepreneurial culture in aboriginal regions and continuous development of intellectual capital. Thirdly, there is a correlation between life expectancy and population density in aboriginal regions. This demonstrates low level of life in the regions with low population density and strong influence of traditional economy. Creation of hi - tech companies and larger amounts of goods fabrication requires creation of local unions, developing the share of scientists and entrepreneurs and formation of government programs: these are the most important success factors. To achieve that we must create a cooperation program covering all parties participating in intellectual capital development in the region. State regulation of intellectual capital development must take into consideration peculiar features of social and cultural development of aboriginal region strongly influenced by traditional economy. This direction of regional development will be available only in case of equal dialogue between business and authorities. Suggested options for using traditional knowledge for developing intellectual capital can improve economic position of the region, create new workplaces and, therefore, improve the level of life of population in the regions strongly influenced by traditional economy.

Keywords: intellectual capital, traditional economy, development

Introduction

Globalization and informational revolution weaken states and support national self -understanding all over the world as well as support the trend towards increasing the number of actors at the international stage under the banner of national self - realization. Before the World War II there were around 50 countries in the world, now we have over 250. Now of its creation UN featured 51 country whereas now it has 190 members. Some experts believe that in future national minorities will find it easier to create their own states. According to some evaluations in a quarter of a century there might be as many as 500 countries on Earth. The problem is that majority of new countries appeared after the WW II entered XXI century as a community of states with serious economic, social and cultural problems. They are the source of most part of present problems in the field of politics, social, economic sand even ecological aspects. The 1st decades were abundant with examples of “developing” and new countries shutting themselves in their undeveloped state. This is a frequent thing in Africa and Asia, but also seen at the territory of the former Soviet Union. Mid eastern republics of which spent decades thriving on resources, technological and intellectual potential of Russia are now nothing but resource based economics supplemented by semi feudal political system. As life shows low human potential of citizens in many developing and new states, authoritatity of their leaders, as well as significant decrease of resource value caused by modern globalization alongside with growing importance of technology and knowledge are the factors hindering successful development of these countries. They are the most vivid example of lagging,

stagnation and even degradation of intellectual capital. Regress of these regions aggravates the problem of international inequality; violence taking place there creates billions of refugees; disoriented population becomes a favorable environment for spreading extremists and terrorist ideas.

Transition to innovative type of economic development requires more favorable environment for forming intellectual capital considering peculiarities of traditional lifestyles in different countries.

Nowadays there are virtually no research works devoted to the analysis of intellectual development peculiar features in the regions inhabited by original population and influence of theses peculiarities on the functioning of ethnically marked regional innovative system. Solution for this problem is particularly relevant in such an ethnically rich country as the Russian Federation. Analysis of this problem would allow not only for significantly increasing intellectual capital level in the regions strongly influenced by traditional economics but also for involving small ethnic groups of aboriginal population into innovative development.

The high level of inter-regional differentiation in all key economic and social characteristics, which is so distinctive of Russia, is largely due to natural differences, the geographical evolution of the Russian state, the stage of economic development of the country and the outcomes of the preceding period. The socio-economic differentiation of regions manifests itself as differences in the quality of life, determined by the competitiveness of the regional economy (internal factor) as well as transfers from other regions and the central state (external factor). The question of increases or decreases in the heterogeneity (or differentiation) of the socio-economic space of Russia is of great importance since it has a significant impact on the evolution of economic institutions, structure and efficiency as well as the strategy and tactics of social and economic policy. In recent years, differences in the socio-economic situation of the regions have increased across almost all statistical indicators. Researchers distinguish between economic and social inequality while emphasising the close relationship that exists between them (Zubarevich, 2008).

There are more than 100 ethnic groups in the Russian Federation. The number of members of Russian indigenous ethnic group is about 19.7 million, and from them 9.5 million indigenous people live in rural areas. In Russia territories are accommodated by indigenous people have the status or the republics, or autonomous region, national territories or without any special status. The current socioeconomic circumstances of the Indigenous people in Russia are poor. For example, according to the 2010 census (compared with the 2002 census), in 19 out of the 26 indigenous regions, the socioeconomic situation of the indigenous population is showing a numerical decline (Panikarova&Vlasov, 2015).

The aim of this research is to formulate mechanisms of intellectual capital development in those indigenous regions of the Russian Federation that retain significant influence of traditional economy.

Research Procedures

In the context of new economic challenges, it is innovation development that provides sustainable development of economic agents inside the company and in the interaction with external environment, as well as be more effective in meeting the requirements in certain types of resources with the aim of the most optimal organization of production activities.

In their future research authors pointed out such peculiar aspects of northern indigenous regions of Russia development as prevailing mining industries; low population density and high population dispersion, high territory maintenance costs which predetermines low level of human capital and low innovation activity of economic agents of the northern regions of Russia (Panikarova, 2015). Huge mineral and mining resources are one of the most important factors defining competitiveness and development of economics in the northern indigenous regions of Russia. Besides that, some scientists think that at present mining industry can and must act as a driving force of innovation development of the Russian economy (Selin & Zukerman, 2013).

There are many publications devoted to the topic of innovation potential changes, innovation development and innovation climate in different regions in Russia starting from 2005 when the policy of stimulating academic and technical development of the country entered its active stage. At present, there are different systems of region's innovation development evaluation aimed at defining leaders of innovation development in Russia (Bortnik at all, 2013). Specific characteristic of the northern indigenous regions defining peculiar features of their innovation development is manifested in the following factors: resource economics; space burden and higher costs of territory maintenance (Ivanova & Shishaev, 2014).

Economics of indigenous northern regions is based on the work of major vertically integrated corporations whose interests are concentrated on mining and initial refining of natural resources. Slower mechanism of technological development of economics in resource – rich regions (Balatzky, 2012) is facilitated by "poverty trap" which implies formation of self- sustaining non-innovation functioning mechanism hindering technological modernization. Competition for investments from resource and innovation industries which demonstrate low level of hi-tech in resource mining both in Russia and abroad leads to technological stagnation and eventually to decreased internal market potential (Dementjev, 2014).

Russia is characterized by high cross regional differentiation in all key economic and social characteristics which is largely explained by natural differences, geographical evolution of the state, stages of economic development of the territory of the country and result of the previous stages. A large part of the Russian regions are multi-ethnic or aboriginal regions. Of 85 Russian Federation regions, only 33 have more than 90% of ethnic Russian population. Russian Federation includes such aboriginal regions as 22 republics, 4 autonomous areas and several regions that should be considered indigenous just because of their population: Ulianovsk region, Tuymen region, Astrakhan region. Besides that, we must consider ethnic territories within the boundaries of the Russian Federation regions that were formed because of region growth (Taymyr, Evenkia, former Komi Permyatsky, Ust Ordynsky, Agino Buryatsky and Koryaksky autonomous areas).

The indigenous regions in the system of the Russian economics regional organization are extremely diverse. Statistic analysis allows for identifying existing differentiation not only in terms of social and economic development basic features, but also in terms of economic development.

The topic of measuring innovation potential, development and climate in the regions of the Russian Federation are covered in many publications. At present, there are different systems of evaluating innovative development of Russian Federation regions aimed at defining leaders of innovation development in Russia. Majority of existing evaluation systems (ratings) is based on European innovation survey approach (European Innovation Survey, Regional innovation survey и Union innovation survey), whereas Rosstat data is used as the database for Russian regions.

Table 1 presents positions of aboriginal regions in three ratings: Association of Innovative Regions of Russia (AIRR); Higher school of Economics (HSE), National Association for Innovations and Informational Technologies Development (NAIITD) for 2015.

Table 1: Aboriginal regions in innovative development ratings

№	Region of the Federation	HSE		AIRR		NAIITD		Average	
		Ranking among Russian Federation regions	Ranking among poly-ethnic regions	Ranking among Russian Federation regions	Ranking among poly-ethnic regions	Ranking among Russian Federation regions	Ranking among poly-ethnic regions	Ranking among Russian Federation regions	Ranking among poly-ethnic regions
1	Tatarstan	2	1	3	1	2	1	2	1
2	Bashkortostan	20	6	16	3	11	3	16	2
3	Uljanovsk region	11	3	12	2	27	5	17	3

4	Chuvashia	5	2	18	4	37	8	20	4
5	Mordovia	17	4	20	5	28	6	22	5
6	Tuymen region	18	5	40	8	10	2	23	6
7	Crimea	-	-	-	-	30	7	30	7
8	Khanty Mansi autonomous area	32	7	68	17	26	4	42	8
9	Komi	36	9	48	9	52	12	45	9
10	Yamalo-Nenetz autonomous area	34	8	77	23	38	9	50	10
11	Astrakhan region	49	11	61	12	44	10	51	11-12
12	Udmurtia	67	17	38	7	47	11	51	11-12
13	Mariy El	57	14	31	6	70	19	53	13
14	Bouryatia	48	10	52	11	72	20	57	14
15	Adugeya	66	16	47	10	67	17	60	15
16	Sakha	55	12	65	15	63	15	61	16
17	Karelia	68	18	63	13	58	13	63	17
18	Altay	56	13	75	21	62	14	64	18
19	Northern Ossetiya - Alaniya	64	15	70	18	64	16	66	19
20	Kabardino-Balkaria	69	19	64	14	78	24	70	20
21	Dagestan	72	21	67	16	77	23	72	21
22	Tyva	74	22	80	25	68	18	74	22
23	Khakassiya	71	20	73	20	81	27	75	23
24	Chukotka autonomous area	75	23	72	19	80	26	76	24
25	Kalmykiya	78	24	76	22	75	22	77	25
26	Karachayevo - Cherkessia	81	26	78	24	79	25	79	26-27
27	Chechen Republic	82	27	83	28	73	21	79	26-27
28	Nenetz Republic	79	25	81	26	85	29	82	28
29	Ingushetiya	83	28	82	27	84	28	83	29

Source: own elaboration

As we can see form Table 1 positions of indigenous regions as compared to other Russian Federation regions demonstrate significantly different numbers. This is particularly true for the following regions: Chuvash Republic (5th place in HSE rating and only 37 in NAIITD), Tuymen region (10th place in NAIITD rating and 40th in AIRR), Khanty Mansi autonomous area (26th place in NAIITD rating and 68th place in AIRR rating), Yamalo Nenetz autonomous area (34th place in HSE rating and 77th in AIRR rating). Researchers are unanimous concerning the regions of Siberia, Far East and the Northern Caucasus. According to integrated evaluations results indigenous regions generally lag behind in terms of innovative development. Comparison of aboriginal regions' positions to each other in the presented ratings frequently demonstrates less pronounced spread of rankings, particularly concerning less innovatively developed regions.

The reasons behind the lag of ethnic regions in innovative development have not been sufficiently studied. In order to provide foundation for actors of innovative development of territories inhabited by aboriginal peoples the authors formulated the following hypotheses:

1. There is a correlation between the amount of innovative goods and services in the total amount of shipped goods, performed works and costs for technological innovation per one person.
2. There is a correlation between the number of small enterprises per 1000 people and the share of Russian ethnic population in ethnic regions.
3. There is a correlation between the life span and population density in ethnic regions.

Informational basis of the research is the data from Federal Statistics Agency of the Russian Federation.

Results of Empirical Research

During the research the authors received the following correlation dependencies (Table 2.)

Table 2: The results of correlation analysis of indigenous regions' innovation development factors

	Life expectancy	**Number of smaller enterprises for 1000 people**	**Amount of innovative goods and services in an overall amount of goods and services**
Costs of technological innovation per one person	-0,72236073	-0,307648112	0,745054755
Share of the Russian population in ethnic multicultural regions	0,238902613	0,72387868	-0,082686746
Population density in ethnic regions	0,609761587	0,268495239	-0,105068976

Source: own elaboration

During author's econometric research the following hypotheses were supported:

First of all, the greatest correlation was found between the amount of innovative goods and services and the total amount of goods and services and costs of technological innovation per one person. This demonstrates the need for planning and implementing state programs on upgrading intellectual capital in multicultural regions with traditional economy.

Secondly, we have identified clear dependence between the number of smaller enterprises per 1000 people and the share of Russian population in indigenous regions. Therefore, the influence of Russian nationality supports formation of entrepreneurial culture in indigenous regions and sustainable development of intellectual capital.

Thirdly, there is a correlation between life expectancy and population density in aboriginal regions. This demonstrates low level of life of population with low population density and strong influence of traditional economy.

One of the reasons behind the lag of aboriginal regions in terms of innovation development in authors' opinion is insufficient implementation of aboriginal people's intellectual capital.

Intellectual capital (further IC) was first mentioned in the beginning of 1960th and the term was coined by G. Halbright. At that time companies cared little for the presence and state of their knowledge resource but in the 1980th companies' opinion started to change under the influence of external environment which required new competitive advantages (Nikiforova, 2010). In case of adequate identification of its

components and skilled management IC (Dumay J. & Tatiana Garanina T., 2013; Mondal & Ghosh, 2012) can be such advantage.

Economy sectors related to software, telecommunication, IT developments already used intellectual capital though did not declare it openly as they did not have extensive tangible assets and relied upon experience, knowledge and skills of employees.

An important breakthrough in IC concept development was provided by appearance of multiple research in different countries by such authors as K.E. Swaybe, T. Stewart. Many of the researchers were practitioners and conducted their research for companies and only after that published academic papers available for all economic society for development, criticism and concept development.

In order to make sure what to understand by IC in this paper we will use two concepts: cost and resource, according to which definitions can be divided into two large groups.

From the pi\point of view of resource approach IC is a unique resource effective management of which can give company super profit. This approach is supported by E. Brooking, D. Ties, G. Ross, N. Bontis, etc.

Cost approach sees IC from the point of view of end profit that can be gained by the company by using it. Besides that, this approach does not give IC its own value but calls it a production factor capable of generating such value. Cost approach was created by T. Stewart, and the concept is supported by K E. Swaybe, L. Edvinsson, M. Malone, etc.

This research work uses definition of IC formulated by G. Kristandle and N. Bontis which characterizes IC from the point of resource concept that is a resource which should have VRIN characteristics:

1) Valuable – resources should generate value for the company;
2) Rare – resources should be evenly spread over the company and be difficult to access for competitors;
3) Inimitable – the risk of resources being copied by competitors should be minimal;
4) Non-transferable – competitors should not have analogous resources.

TTherefore IC is a strategic resource of the territory which has VRIN characteristics and allowing regions to create sustainable value (Kristandl & Bontis 2007).

The authors point out the following specific features typical of IC of aboriginal peoples:

1) *Cultural heritage.* Cultural heritage is an important element of aboriginal peoples' intellectual activities.

2) Autonomy. Entrepreneurs from aboriginal population are oriented towards autonomous development of business within the community or family network. This can be a barrier for potential stakeholders and investors.

3) Traditional knowledge. In its perfect form, IC of aboriginal peoples is a sensible combination of technical and cultural skills and knowledge.

4) Economic strategies. Entrepreneurial behavior of aboriginal peoples' representatives is seen by the community as a component of economic development of a community rather than as individual entrepreneurial initiative.

Of all possible variants of transforming aboriginal peoples' economy development and use of IC is more related to postindustrial transformation (export of traditional knowledge, cultural heritage, tourist impressions, spiritual practices, etc.) or development of non - traditional economy (production of ecological agricultural goods and eco - friendly exploitation of natural resources) (Pic. 1.).

Scope (trend) of transformation				
	Postindustrial		6. Modernization and catching up development (import of innovation, knowledge, technologies, institutions, etc.)	7. Postindustrial economy (export of traditional knowledge, cultural heritage, tourist impressions, spiritual practices, etc.)
	Industrial		4. Industrialization of aboriginal peoples' economies (imported production means, machinery and equipment)	5. Raw material oriented development of aboriginal peoples' economy (export of natural resources)
	Preindustrial	1. Isolation (tribe and community living by what they grow themselves)	2. Borrowing (aboriginal communities supported by state programs and international projects)	3. Non - traditional economy (manufacture of ecological products and eco - friendly nature use)
		Low level of inclusion or absence	*Global economy products consumers (import is much larger than export)*	*Global economy suppliers (export is much larger than import)*
		The format of aboriginal peoples' inclusion into global economy		

Fig. 1: Variants of aboriginal peoples' economy transformation

Source: own elaboration

Conclusion

The authors formulated the main principles of intellectual capital development for territories inhabited by aboriginal peoples: sustainable development; IC development of aboriginal peoples; postindustrial transformation of aboriginal economy; network effect for aboriginal regions.

Sustainable development concept is a good base is for modernization of aboriginal peoples' economy, as the lifestyle of aboriginal peoples is mainly defined by characteristics of ecosystem, and quality of life is directly related to the state of nature. Strategic priorities of IC development of aboriginal peoples are related to improving level and quality of life, development of human and social capital, nature preservation. In the choice of options for transforming aboriginal peoples' economy priority is given to postindustrial transformation rather than traditional economy support and to traditional economy rather than industrial development model. Organization of economic space at the territories inhabited by aboriginal peoples should provide network effect (developed communication channels; single basic institutions, developed cooperation system; variety of network elements).

Productivity of aboriginal peoples' economy is a determinant of ecological stability. Opportunities of nature capital and ecosystems are limited and have objective limitations (unlike productivity in market economy when resource limitations can be overcome by means of using new technologies and interchange of resources). Economic efficacy of traditional economy of aboriginal peoples depends not only on production of goods and services and related institutions, but also non-market goods and services. We should take into consideration the value of human, nature, and social capital when evaluating efficacy.

Creation of Hi-Tech industries and larger supply of goods require creating local unions, developing the share of scientists and entrepreneurs among aboriginal population representatives and forming state programs – these are the main success factors. State regulation of intellectual capital development should take into consideration peculiarities of social and economic development of ethnic multicultural region strongly influenced by traditional economy. This way of regional development will be available only with equal dialogue between representatives of government, society and business.

Suggested options for using traditional knowledge and traditional economy for developing intellectual capital can improve economic position of the region, create new workplaces and therefore improve the level of life of ethnic regions population and ensure their sustainable development.

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Project Management of the Regional Economic and Social System

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Abstract

The geopolitical situation of the current world economy necessitates the development and implementation of an economic package that will contribute to the efficiency and further growth of the economic potential of Russia and its regions.Project management might be an effective tool of managing regional economic and social systems, as it would guarantee their effective use on the national and regional levels through overcoming administrative obstacles and uniting the interests of government, businesses and population, with due regard for each group.

The article offers a methodological approach to assessing the level and rate of growth of a regional economic and social system.Based on using the dynamic component, it helps to assess three components of the economic and social system (i.e. social, financial and economic, natural and ecological components). Implementing this approach results in rating the assessed regions and grouping them according to the level and rate of economic and social growth.

The method helps reveal stop-go points of regional economic and social growthin order to developaproject-based economic packagenecessary to increase the efficiency of managementsystem. The article presents the substantiated algorithm of assessing the latter.

The above-mentioned algorithm and method have been tested in a specific RF region. The designed project of managing the development of the Kursk region economic and social system may help direct all the financial and labor resources to the most significant spheres and structure the reproduction process in Kursk region, as well asdevelop promising first-priority economic areas.

Keywords: regional economic and social system; project management; social, financial and economic, natural and ecological components of the system.

Introduction

The functioning of the regional economic and social system is primarily aimed at providing the region with necessary and sufficient resources.The efficiency of the system and its subsystemsfunctioningwill determine the level of economic growth and the development of the most significant social spheres in the region.

The management of economic and social systems is an up-to-dateand highly prioritizedtrend of the present-day economicscience.Nevertheless,the complicated and multifaceted character of theoretical approacheshampers the formation of a unified scientifically grounded one. Project management is an effective tool of managing the economic and social system of the region.However, the insufficient development of itsscientific and methodological support interferes with implementing this tool of regional management and demands that the scientific community participate in the solution of this problem.

In spite of a great number of scientific works dedicated to the problems of managing the development of the regional economic and social system, the theoretical and methodological research and the practical substantiation of these processes need updating.

Initially, in Russia the fundamental problems of the systems theory (its conceptual framework, terminology, consistent patterns of the rise and development of complicated systems)were discussed by the philosophers, who offered several variations of the systems theory, - I.V. Blauberg(1997), A.I. Uyomov (1972), Yu.A. Urmantsev (1971), V.S. Tyukhtin (1988), V.N. Sadovsky (1974).

In our opinion, neither the methodology nor the terminology of the systems theory isconsideredfully established. Supposedly, the most developed aspects of the systems theory are those connected with the management of simple, i.e. predictable (in terms of management determinacy), systems – technical and socio-technical systems. From our point of view, though these findingscan only partially apply to economic science, the fundamentals, methodology, methods and the developed nomenclature of the systems theory can and must be widely used by economists.

Currently the research of vital importance is devoted to working out the practical guidance related to creating optimal conditions, resource base, methods and instruments to enhance the regional economic and social system by forming an efficient system of managing the regional economic and social development.

Its formation and implementation may entail the rise in the competitivenessof the regional economy and its increased investment appeal, improved living standards, an increased regional and municipal manageability and efficiency of budgetary financing.

The current situation in the present-day territorial economic and social systems demands expanding the set of tools used to manage the socio-economic processes and applying the project approach to the activity of regional authorities.

Methodological approaches to assessing various aspects of the economic and social system are presented in the publications by S.A. Brentchagova (2005), P.M. Mazurkin (2009), T.V. Pogodina (2005), L.R. Slepneva (2016), O.V. Tutskaya (2010) and A.P. Yanukyan (2011).

The topicality of the stated problem and an increasing demand in finding its solutions regarding the management of a territorial economic and social system have determined the theme, the subject and the object of the research, its goal and tasks.

Results and Discussion

The development of a regional economic and social system objectively reflects the efficiency of the created management system in the region.

To create such a system, regional authorities must organize the process of optimal employment and redistribution of various resources (financial, material, labor resources etc.)to the best advantage. It is also important to foreseepossible consequences of certain managerial decisions.

With the dynamic nature so characteristic of the present-day economic and social systems, the management system must be in continuous development and improvement, which can be achieved only with due regard for the modern tendencies, resource possibilities and ways of regional developmentconditioned by economic reforms, worldwidedevelopment of IT and globalization of social relations.

Public management is the key factor that influences the condition and the tendencies in the regional socio-economic development.

The efficiently formed system ofregional economic and social management determines the employment of financial, natural and investment resources, facilities and equipment and other

resources of the area, as well as gives an opportunity to use the reserves for accelerated economic growth and social developmentof territorial units.

The proposed assessment technique is carried outthrough the following stages:
- setting the goal of research;
- selecting the object of research;
- selecting indicators for research;
- collecting statistical data;
- rating the indicators;
- calculating particular and integrated indicators;
- analyzing the rating of the assessed regions;
- making a cluster analysis of the regions in order to group them in accordance with the level of development of the economic and social systems.

To assess the development of the regional economic and social systemwe have worked out a substantiated system of indicators. It characterizes the following components of the economic and social system: a social component (the living standards, the welfare of the population, infrastructure, science and education, culture and recreation); a financial and economic component (labor, finance, facilities and equipment, innovations); a natural and ecological component (natural resources and ecology).

The system of indicators presented above will enable us to provide a well-grounded assessment of the regional development,estimate the degree of differentiation between the assessed regions and reveal the major factors that influence the indicators of regional development.

Calculations of the proposed technique are made in two steps:
1. Assessing the level of development of the regional economic and social system with the help of an initial set of relative indicators.
2. Assessing therate of development of the regional economic and social system by analyzing the growth rate of each indicator in the given year as compared with the base year.
The most important stage of this technique is rating the assessed regions in accordance with the value of the integrated and particular indicators.

The proposed technique has an applied character as comparing the economic and social development of regionsis important for federal and regional authorities and enables them to design a more efficient system of public managementand consequently work out a regional policy. The findings of this comparative analysis will guide them in a changing pattern of trans-regional and level-to-level relations between regions.

The final stage of the assessment technique is the cluster analysis that helps to classify and differentiate the regionsunder study.

The proposed technique of assessing the level and rate of regional economic growth and social development was tried and tested in the regions of the Central Federal District from 2006 till 2016.

The research found the following.

- Over the given period, the city of Moscow had the highest developed economic and social system, which is quite predictable due to the financial and material security of the region, its high living standards and the welfare of the population. The least developed socially and economically was Ivanovo region.

- Over the given period, the top regions with the fastest developing economic and social systems were as follows: 2006 – Moscow region, 2007-2009 – Smolensk region, 2010 – Kaluga region, 2011 – Kursk region, 2012-2016 – Tambov region. At the same time, among the regions with the slowest socio-economic growth were Kostroma region (2006-2009), the city of Moscow (2010-2012), Yaroslavl' region (2013-2016).

The next stage of the proposed assessment technique is rating the regions according to the level and rate of their economic growth and social development.

In 2016, the first on the list of regions with the most developed economic and social system was the city of Moscow, while Ivanovo region was at the very bottom of the rating. Kursk region is in the 8th place: it occupies the 4th place on the growth rate list and the 10th place on the development level list.

Table 1 shows the results of the cluster analysis of the regions under study according to two assessed characteristics: the level of development of the economic and social systems and its rate.

The presented assessment of the regional economic and social systems of the RF Central Federal district has shown the following:
- There is a high degree of region differentiation according to the level of development of their economic and social systems and its rate, which results from significant gaps between the indicators characterizing the components of the aforementioned systems.
- There are three groups of regions according to the level of development of their economic and social systems and its rate.
- The social component and the financial and economic component of the system are of utmost importance and make a complex indicator of economic and social development.
- High levels of economic growth and social development might be combined with the slow and average rate of development of the economic and social system.

Table 1: Regions clustered according to the level of development of their economic and social systems and its rate

	DevelopmentLevel		
DevelopmentRate	High	Average	Low
High	Lipetsk region	Bryanskregion, Kurskregion, Ryazan'region, Tambovregion, Tularegion	-
Average	Kalugaregion, Moscowregion, Tver'region, the city of Moscow	Vladimirregion, Voronezhregion, Smolenskregion	Ivanonoregion
Low	Belgorod region, Yaroslavl'region	Kostromaregion, Oryolregion	-

The peculiarities and tendencies of development of regional economic and social systems in the Central Federal District found in this research can be employed in developing social and economic management strategies in the regions.

Effective management of the regional economic and social system and its development consists in a combination of managerial steps that influence the system and are aimed at making it more orderly, preserving or transforming it so as to guarantee an effective reproduction of the potential in aterritorial unit.

A necessary condition on which the regional system of managing the economic and social development might rise to a new level is project-based management approach.

Implementation of the project-based approach inmanaging the economic and social development in Kursk region will help direct all the financial and labor resources to the most significant spheres and structure the reproduction process in Kursk region as well as develop promising first-priority economic areas. This will give the agro-industrial complex a competitive edge;involve major

producers of raw materials and fuel and power resources in the regional economy; develop the regional line of business during structural reorganization.

1. The summary of theoretical ideas made it possible to define project management on the regional level as an efficient tool of regional economic policy. It implies setting goals and priorities for further development of the area, working out aneconomic package to achieve the set goals, specifying the resources necessary to implement the project, the deadlines and the competent authorities responsible for its realization.

2. In the study, the authors developed a methodological approach to an integrated assessment of the rate and the level of development of a regional economic and social system. Its characteristic feature is a dynamic component that enables us to assess the three components of the economic and social system (a social component, a financial and economic component and a natural and ecological component). The proposed assessment technique helps promptly evaluate the current and perspective condition of the regional economic and social developmentin any stage.

3. The practicality of the project-based methodology is proved by the fact that the findings of the research, i.e. the peculiarities and tendencies of regional economic and social development of the Central Federal District, can be employed in developing social and economic management strategies in the regions.The study ofregional economic and social development is an important tool in detecting the key competences and weaknesses of a region. The findings of this research must lay down the foundations of a long-term regional policy.

4. Implementation of the project-based approach in managing the economic and social development in Kursk region will help direct all the financial and labor resources to the most significant spheres and structure the reproduction process in Kursk region as well as develop promising first-priority economic areas. This will give the agro-industrial complex a competitive edge; involve major producers of raw materials and fuel and power resources in the regional economy; develop the regional line of business during structural reorganization.

Conclusions

Due to the study, we can draw the following conclusions:

1. Project management leads to an efficient use and growth of Russia's economic potential.
2. An integrated assessment of the rate and the level of development of a regional economic and social system is based on a dynamic component that enables us to assess the three components of the economic and social system (a social component, a financial and economic component and a natural and ecological component).
3. As a result of the proposed assessment technique implementation, the regions were rated and clustered according to the level and rate of their economic growth and social development.
4. The peculiarities and tendencies of regional economic and social systems of the Central Federal District found in this research can be employed in developing social and economic management strategies in the regions.
5. Implementation of the project-based approach in managing the economic and social development in Kursk region will help simultaneously realize several first-priority projects of government policy.

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FASET: Desarrollo de un Asistente Web para el Proceso de Selección de Tecnicas de Educcion de Requisitos

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Abstract

Existe una gran cantidad de técnicas de educción para requisitos de sistemas software, por esto los profesionales ligados a la informática, se ven enfrentados a la toma de decisiones sobre qué técnicas de desarrollo utilizar en cada uno de sus proyectos. Esto representa una desventaja para profesionales noveles que no cuentan con la experiencia suficiente, e incluso para profesionales expertos que sesgan sus elecciones por razones intuitivas o preferenciales, perjudicando así la calidad de los requisitos, y por lo consiguiente la calidad del producto final. Este trabajo propone una herramienta software para la selección de una técnica de educción adecuada en un contexto particular de proyecto de desarrollo de software. Para esto, se desarrolla una herramienta web que ayuda a la selección de técnicas de educción en proyectos de desarrollo de software. Este asistente web, pretende ayudar a los ingenieros de software, de forma sencilla e intuitiva, y contribuir a la calidad de la construcción de sistemas.

Keywords: Ingeniería de Requisitos, Herramienta web, selección de técnicas de educción, desarrollo de software

Introducción

Al momento de comenzar el desarrollo de un software es relevante que el equipo desarrollador conozca de forma precisa el problema a resolver, de tal manera que la solución que se construya sea correcta y útil. Como menciona Benet (2003) esto se realiza a través de la especificación de lo que debe hacer el software, con descripciones del comportamiento, propiedades y sus restricciones. Por tal motivo, la obtención de los requerimientos del sistema software es uno de los aspectos claves en la gestión de proyectos de software, ya sean grandes o pequeños. Según SWEBOK (2018) Para entregar un producto de software con éxito, se necesita desarrollar, documentar y validar los requisitos de software. Una defectuosa captura de requisitos es la causa de requisitos incompletos, incorrectos o requisitos contradictorios, lo que se traduce en un alto costo de desarrollo, baja calidad del producto, clientes insatisfechos y equipo desarrollador desmoralizados.

La comprensión de los requisitos de un problema está entre las tareas más complejas que enfrentan los desarrolladores. Cabe notar que el valor de los buenos requisitos crece dramáticamente con el tamaño y complejidad del sistema en desarrollo. Una vez establecido el valor de una buena especificación de requisitos, surgen otras cuestiones: ¿Cómo desarrollarlos?, ¿Cómo saber si un conjunto de requisitos es bueno?, ¿Qué estándares, herramientas y métodos pueden ayudar?, ¿Estas herramientas existen o deben ser desarrolladas? Estas preguntas no tienen una respuesta definitiva, puesto que continuamente surgen nuevas herramientas y métodos.

En la práctica, cuando los ingenieros de software se proponen determinar los Requisitos del sistema de software, muy a menudo usan solo una técnica, entrevistas, aunque estén familiarizados con muchos otros métodos como explica Hofmann (2001). Esto se debe, a que son inconscientes de los beneficios de cada técnica, para lo cual no hay una guía metodológica sobre el proceso de educción o algún procedimiento estándar. Según Goguen (1993) Algunos estudios dan cuenta de decenas de técnicas de educción y como menciona Cooke (1994) muchas de estas técnicas han sido importadas desde campos como la sicología cognitiva, antropología, sociología y lingüística, y han sido exitosamente usadas en el conocimiento de la ingeniería y, más tarde, en la Ingeniería de Software. La mayoría de los ingenieros de requisitos, sin embargo, desconocen este rango de técnicas y pierden

la oportunidad de optimizar la educción de requisitos. Este es solo otro ejemplo de la bien conocida brecha entre teoría y práctica explica Davis & Hsia (1994).

El objetivo general de esta investigación es diseñar una solución informática que automatice un marco para el proceso de selección de técnicas de educción requisitos. Para ello, se desarrollará una aplicación web que permita la selección de una técnica específica que se adecúe al contexto del desarrollo de un producto intensivo en software. Esta solución permitirá difundir conocimiento consistente de las técnicas de educción, implementar un marco que permita la selección de técnicas de educción de requisitos y generar un entorno (herramienta) web amigable y de fácil manejo.

En particular, se propone una aproximación a la solución de la selección de técnicas que puede subdividirse en dos partes de igual importancia: un esquema con las medidas de pertinencia de uso de las técnicas para los atributos de los factores que influyen en el proceso de selección y un software que utilice el esquema a través de un procedimiento de selección de técnicas y permita elegir técnicas de acuerdo al contexto del proyecto. Con respecto al primer asunto, la realización de este marco se basa en el estudio realizado por Carrizo (2011), el cual entrega la información necesaria de selección a través del esquema de pertinencia con respecto a los atributos, técnicas y contexto de un determinado proyecto. En relación al segundo punto, se desarrolla un algoritmo basándose en el esquema de pertinencia que permite soportar el proceso de educción y, en particular, la selección de técnicas de educción de requisitos.

El proceso utiliza la información relacionada a la adecuación de uso de cada técnica en cada configuración de atributos de influencia, para que, dado un Contexto Situacional actual o específico pueda seleccionar la o las técnicas más adecuadas para conducir un Plan de Educción idóneo.

Framework

El marco que se pretende informatizar se presenta en la Figura 1.

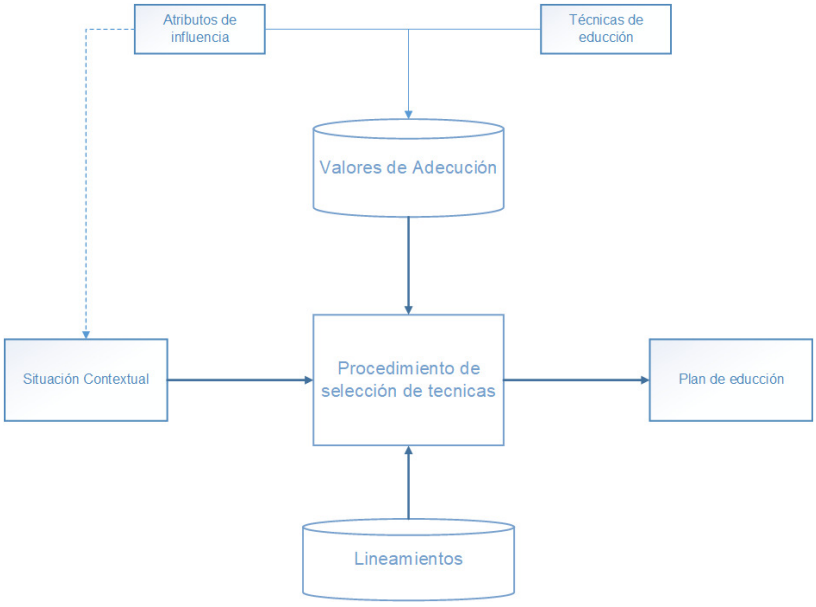

Fig. 1 : Marco propuesto.

El primer paso es determinar un número de atributos obtenidos de todos aquellos que influyen en el proceso de educción. Estos atributos son clasificados y agrupados en factores, y serán usados para determinar valores distintivos, particulares a cada técnica de educción. Este conjunto de atributos consideran características que no son inherentes a las técnicas de educción, esto quiere decir que estos atributos describen no las técnicas actuales, sino los elementos contextuales que tienen influencia en su uso. El objetivo es de alguna manera encapsular las técnicas y asociarlas solo a su comportamiento operacional con cada valor del atributo.

Estos factores son los siguientes:

- **Eductor**: Agente del equipo de desarrollo que educe información de los requerimientos del sistema de software. Puede tener otros nombres como analista o ingeniero de requerimientos, estos son usados en la literatura para referirse a esta figura o rol.
- **Informante**: Agente humano que, para los propósitos de este enfoque, tiene la información requerida para definir los requerimientos. Informantes pueden ser clientes, usuarios y, generalmente, cualquiera que tenga un mando en el desarrollo de software.
- **Dominio del Problema**: Conjunto de características que describen el foco del desarrollo, esto es, el problema que el sistema de software bajo construcción está destinado a resolver.
- **Dominio de Solución**: Conjunto de características que describen el producto de software siendo desarrollado para resolver el problema.
- **Proceso de Educción**: Parte del proceso de desarrollo que se centra en la recolección de requerimientos.

Estos factores son considerados como línea base del marco, pero el software a desarrollar debe tener la capacidad de admitir más factores que puedan ser considerados por otros desarrolladores. Junto a estos factores también debemos tener en cuenta los atributos que caracterizan a estos factores. El esquema de 16 atributos es presentado en la Tabla 1, es también la línea base a considerar en el desarrollo del asistente. El asistente web debe poder modificar esta línea inicial de atributos. Cada

atributo puede tener dos o más valores exclusivos de un universo de valores posibles. Esta categorización relaciona cada técnica de educción con circunstancias particulares de acuerdo a Carrizo (2011).

Las técnicas de educción consideradas en el estudio son un conjunto primario en el universo de técnicas. Contempla las más populares, no obstante, nuevas técnicas pueden ser agregadas al marco en cualquier momento entregando sus valores de adecuación siempre que tengan justificación. Las técnicas de adecuación usadas en este enfoque son descritas en Carrizo (2011). Cada técnica, por su naturaleza, tiene un comportamiento distinto dependiendo del contexto en que se aplique. De esta forma, la base de datos del marco es el conjunto de valores de adecuación prescrito para todas las configuraciones de contextos posibles, a nivel de valor de atributo.

La Tabla 2 presenta las diferentes recomendaciones por cada par técnica/atributo usando la notación siguiente. El detalle de su justificación puede verse en detalle en Carrizo (2011):

√: Esta técnica es recomendada para el uso para el valor del atributo en cuestión. Esto significa que el resultado de usar esta técnica en la sesión puede ser mejor que usar otra que no sea específicamente recomendada. Por lo tanto, esa técnica debe tener prioridad durante la selección sobre técnicas indiferentes.

−: El uso de esta técnica es indiferente para el valor de atributo en cuestión, esto es, que no hay garantía que, si esta técnica es aplicada, entregue mejores resultados que otra. Aunque esta técnica pueda ser seleccionada, una técnica que sea recomendada para este atributo debería ser preferible.

×: Esta técnica no es recomendada para el uso del valor de atributo en cuestión. El uso de la técnica es probable que entregue peores resultados que otras técnicas.

Tabla 1 : Factores, atributos y sus valores

FACTOR	ATRIBUTOS	DESCRIPCIÓN	VALORES	DESCRIPCIÓN
EDUCTOR	Formación en técnicas de educción	Tipo de entrenamiento y práctica que el Eductor recibió previamente en cada técnica	Alto	Entrenamiento y práctica formal.
			Bajo	Entrenamiento sin práctica.
			Cero	Desconocimiento de Técnicas
	Experiencia en Educción	Número de proyectos previos en los que el Eductor ha realizado actividades de educción.	Alto	Sobre cinco proyectos de educción
			Medio	De dos a cinco proyectos de educción
			Bajo	Menos de dos proyectos de educción
	Experiencia con técnicas de Educción	Número de actividades de educción previas, en las que el Eductor ha aplicado cada técnica	Alto	Más de cinco técnicas aplicadas
			Bajo	Desde una a cinco técnicas aplicadas
			Cero	Nunca ha aplicado una técnica.
	Familiaridad con el Dominio	Número de proyectos previos o conocimientos adquiridos en el dominio por el Eductor	Alto	Más de dos proyectos o conocimiento Formal
			Bajo	De 1 a 2 proyectos o conocimiento informal
			Cero	Sin conocimiento Alguno
INFORMANTE	Individuos por sesión	Número de personas que pueden participar simultáneamente en la sesión de educción	Individual	Un individuo
			Pequeño	De dos a cinco individuos
			Gran grupo	Sobre cinco individuos
	Consenso entre los informantes	Nivel de acuerdo entre los informantes desde el comienzo	Alto	Consenso
			Bajo	Sin Consenso
	Interés del Informante	Motivación mostrada por el informante de su participación en las sesiones de educción	Alto	Muy Interesado
			Bajo	Poco Interesado
			Cero	Sin interés
	Pericia	Experiencia del informante en el dominio del problema o trabajo	Experto	Sobre 5 años en el trabajo o dominio
			Entendido	Desde dos a cinco años en el trabajo o dominio
			Principiante	Menos de dos años en el trabajo o dominio
	Articulabilidad	Que tan fácil, el informante considera explicar su conocimiento	Alto	Explica el conocimiento excelentemente
			Medio	Es capaz de explicar satisfactoriamente
			Bajo	No explica el conocimiento satisfactoriamente
	Disponibilidad de Tiempo	Tiempo que el informante debe gastar en sesiones de educción	Alto	Tiene tiempo suficiente
			Bajo	Tiene menos tiempo que el recomendado
	Ubicación/ Accesibilidad	Ubicación física del informante con respecto al Eductor	Lejos	En una ciudad diferente al Eductor
			Cerca	En la misma ciudad que el Eductor
DOMINIO DE PROBLEMA	Tipo de Información a ser Educida	Tipo de información categorizada que la técnica pueda educir	Estratégica	Educe estrategias, controla directivas
			Táctica	Educe procesos, funciones, heurística
			Básica	Educe conceptos, atributos, elementos básicos
	Disponibilidad de Información	Tipo de información categorizada que está disponible antes de la sesión y de aplicar la técnica	Mas	Hay información táctica / estratégica
			Menos	Hay conocimiento básico / táctico
			Cero	No hay información
	Definición del Problema	Claridad de los objetivos y alcances del Proyecto	Alta	Bien Definido
			Baja	Pobremente Definido
PROCESO DE EDUCCIÓN	Restricción de tiempo del proyecto	Relativa disponibilidad de tiempo para aplicar la técnica en un proyecto	Alta	Poco tiempo
			Media	Tiempo ajustado
			Baja	Hay tiempo suficiente
	Tiempo del proceso	Etapa en la que el proceso de educción es previa a la sesión	Principio	Educción de definiciones generales
			Medio	Educción de requerimientos clave
			Final	Educción de información final

Tabla 2 : Adecuación de técnicas de educción

Factores	Atributos	Valores	Open-ended	Structured Int	Task Obs.	Card Sorting	Questionaries	Protocol A.	Repertory Grid	Brainstorming	Nominal group	Delphi Method	Participant	Prototyping	Focus Group	JAD workshop	Scenario/Use
Eductor	Entrenamiento en técnicas de educción	Alto	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Bajo	-	√	√	-	√	-	-	√	√	-	√	-	-	-	-
		Cero	-	-	-	×	-	×	×	-	×	×	-	-	×	×	-
	Experiencia de educción	Alto	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Medio	√	√	√	√	√	-	√	-	√	√	√	√	√	-	√
		Bajo	-	-	√	-	-	×	-	-	√	√	√	-	-	×	-
	Experiencia con técnicas de educción	Alto	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Bajo	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Cero	-	-	√	-	√	-	-	-	√	-	-	-	-	×	-
	Familiaridad con el dominio	Alto	√	√	-	√	√	-	√	√	-	√	-	√	√	√	-
		Bajo	√	√	-	√	√	√	√	√	-	√	√	-	√	√	-
		Cero	√	-	√	-	-	√	-	√	-	-	√	×	×	×	-
Informante	Personas por sesión	Individual	√	√	√	√	√	√	√	×	×	×	√	√	×	×	√
		Grupo	-	-	√	-	√	-	√	-	√	√	√	-	√	-	-
		Grupo grande	×	×	-	×	√	×	√	√	√	√	√	-	√	√	-
	Consenso de los informantes	Alto	√	√	-	√	√	√	√	-	√	-	-	√	√	-	√
		Bajo	×	×	-	×	√	×	√	-	√	√	-	√	√	-	-
	Interés del Informante	Alto	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Bajo	-	-	√	√	√	-	√	-	√	√	-	√	√	-	√
		Cero	×	-	√	-	√	×	√	×	√	√	×	√	-	×	-
	Pericia	Experto	√	√	-	√	√	√	√	√	√	√	√	√	√	√	√
		Entendido	√	√	√	√	√	-	√	√	√	√	√	√	√	√	√
		Principiante	-	-	√	√	√	-	√	√	√	-	√	√	√	√	√
	Articulabilidad	Alta	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Media	√	√	√	√	√	-	√	√	√	√	√	√	√	√	√
		Baja	-	-	√	√	√	×	√	×	×	√	-	√	×	×	-
	Disponibilidad de Tiempo	Alta	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Baja	-	-	√	√	√	×	√	×	×	√	×	-	×	×	-
	Ubicación/ Accesibilidad	Lejos	-	-	-	-	√	×	√	×	×	√	×	×	×	-	√
		Cerca	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Dominio	Tipo de información a ser educida	Estratégica	√	-	-	×	√	-	×	√	√	√	√	-	√	√	-
		Táctica	√	√	√	×	√	√	×	√	√	√	√	√	√	√	√
		Básica	-	√	-	√	√	-	√	×	×	-	-	√	-	×	-
	Disponibilidad de Información	Alta	√	√	√	×	√	√	×	-	-	√	√	√	√	√	√
		Media	√	√	√	√	√	×	√	√	√	√	√	√	×	√	√
		Cero	√	×	√	×	×	×	×	√	√	×	√	×	×	√	√
	Definición del problema	Alto	-	√	√	√	√	√	√	√	√	√	√	√	√	×	√
		Bajo	√	-	√	×	√	×	×	√	√	√	-	√	√	√	-
Proceso	Restricción de tiempo del proyecto	Alto	-	-	×	√	√	×	√	×	×	×	×	×	×	×	√
		Medio	√	√	-	√	√	-	√	-	-	-	-	-	-	-	√
		Bajo	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Tiempo de Proceso	Principio	√	-	√	√	-	-	-	√	√	-	√	-	√	√	-
		Medio	√	√	-	√	√	√	√	-	√	√	√	√	√	×	√
		Final	√	√	×	×	√	-	-	×	×	-	×	-	-	×	-

La selección de una técnica de educción está basados en la tabla de adecuación atributo-técnica. Aunque esta es una ayuda sustancial, tiene algunos inconvenientes. Solo con una tabla de adecuación, la decisión en cómo combinar esta información para una técnica final recae sobre el ingeniero. Una solución completa al problema de selección debe ofrecer un plan de educción que contenga más o menos técnicas adecuadas como se puede apreciar en la parte superior derecha de la Figura 1. Solo así, y considerando algunas otras condiciones emergentes, el ingeniero está habilitado para tomar una decisión basado en información objetiva acerca de la técnica a ser aplicada en una sesión en particular.

En este enfoque, las condiciones actuales de un proyecto definen una situación contextual (esto es, los valores particulares para los atributos influyentes). Entonces, para cada valor de los atributos, cada nivel de adecuación de las técnicas puede ser obtenido desde la tabla de adecuación (véase Tabla 2). Un perfil de adecuación cuantificado de cada técnica, puede ser obtenido por estos niveles y valores de adecuación, los cuales son expresados como el número de valores recomendados (√), indiferentes (–) y no recomendados (×). Por consiguiente para el plan de sesión se tiene un conjunto de técnicas más o menos adecuadas que pueden ser consideradas para aplicarlas en la siguiente sesión. Cuando no hay técnicas adecuadas, algunas guías base priorizadas pueden modificar los valores de los atributos que son sugeridos. Basados en la lista de técnicas propuestas, los ingenieros de requerimientos seleccionan una técnica para la siguiente sesión, este proceso se grafica para una mejor comprensión en la Figura 2.

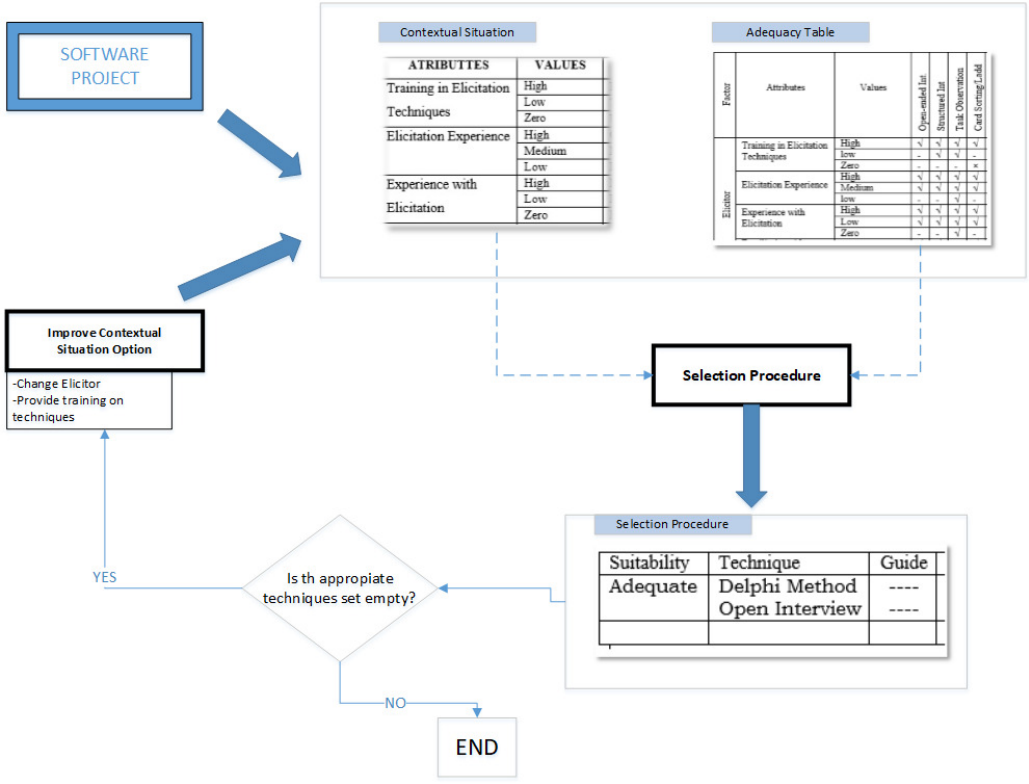

Figura 2 : Procedimiento de selección de técnicas de educción detallado

Metodología De Desarrollo

Para este trabajo, según las definiciones de metodologías existentes, se adapta mejor a una metodología tradicional ya que se tiene un buen control de las actividades, y los requisitos están bien definidos, y entre las metodologías tradicionales que más se adapta a este contexto es la metodología cascada. A este

modelo se le agrega un enfoque en V que cubre de mejor manera el proceso de integración y testeo por parte del stakeholder.

La versión original del modelo en cascada, fue presentada por Royce en (1970), que después fue afinado por Boehm (1981), Sommerville (2011) y Sigwart y col. (1990). En este modelo, el producto evoluciona a través de una secuencia de fases ordenadas en forma lineal y permitiendo iteraciones al estado anterior.

Según Rodríguez (2008) es un método completo utilizado para proyectos de mediana envergadura que involucran hasta cinco personas y su objetivo es regular el proceso, de manera que se minimicen los riesgos y se garantice la calidad del proyecto. Busca ser más efectivo que el Modelo Cascada, por lo que se desarrolla bajo el esquema en el que, para cada fase de desarrollo, existe una fase paralela de verificación y validación, obedeciendo al principio de que para cada fase debe existir un resultado verificable.

Es por esto que la metodología cascada con enfoque en V nace al combinar dos modelos de desarrollo de software bastante utilizados. Si bien son dos modelos por separados juntos logran y se adaptan mejor al proyecto en sí. Por un lado, el modelo cascada nos aporta con un flujo secuencial, donde el progreso es de una etapa a otra, y el modelo en V entrega la validación y verificación de estas etapas. Por esto el número de defectos de un modelo cascada puro disminuye notoriamente, como también si las necesidades del usuario son inciertas y cambian, entrega una mayor flexibilidad, lo que le permite al equipo de desarrollo encontrar defectos en fases iniciales, reconocerlas y eliminarlas o adaptarlas sin grandes esfuerzos para el equipo de desarrollo.

Por las razones expuestas anteriormente, se considera un enfoque en modelo V por las ventajas que presenta en este sentido suple las carencias de un modelo cascada puro, entre las que podemos encontrar:

- Minimización de los riesgos del proyecto: Mejora la transparencia y control del proyecto, especificando los enfoques estandarizados, describe los resultados correspondientes y funciones de responsabilidad. Permite una detección temprana de las desviaciones y los riesgos y mejora la gestión de procesos, reduciendo así los riesgos del proyecto.
- Mejora y Garantía de Calidad: asegura que los resultados que se proporcionan sean completos y contengan la calidad deseada. Los resultados provisionales definidos se pueden comprobar en una fase temprana. La uniformidad en el contenido del producto mejora la legibilidad, comprensibilidad y verificabilidad.
- Reducción de los gastos totales durante todo el proyecto y sistema de Ciclo de Vida: El esfuerzo para el desarrollo, producción, operación y mantenimiento de un sistema puede ser calculado, estimado y controlado de manera transparente mediante la aplicación de un modelo de procesos estandarizados. Reduciendo la dependencia en los stakeholders y el esfuerzo para las siguientes actividades y proyectos.
- Mejora de la comunicación entre los stakeholders y el grupo de desarrollo: La descripción estandarizada y uniforme de todos los elementos pertinentes y términos, es la base para la comprensión mutua entre todos los stakeholders. De este modo, se reduce la pérdida por fricción entre el usuario, stakeholder y desarrollador.

Esta metodología en cascada con enfoque en V entrega la retroalimentación que no posee un modelo cascada puro, por lo que nos asegura calidad y reducción de costos, En la Figura 3 se pueden observar las distintas etapas del proceso.

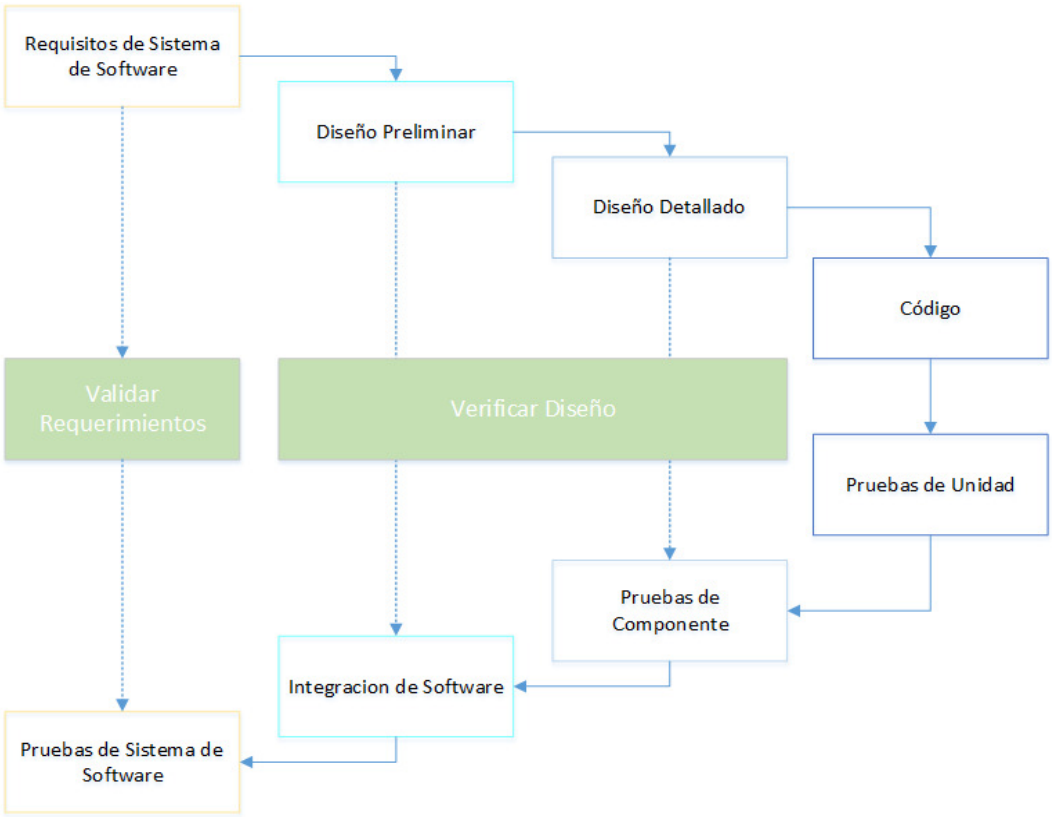

Figura 3 : Modelo de desarrollo Cascada con enfoque V

Desarrollo

Como se ha mencionado anteriormente, como resultado de este producto de software se obtiene una herramienta para los ingenieros noveles que apoye en la decisión de elegir una técnica de educción correcta, bajo un contexto determinado. Sistema que es denominado F.A.S.E.T. (por sus siglas en ingles FRAMEWORK TO ASSIST THE SELECTION OF SOFTWARE REQUIREMENTS ELICITATION TECHNIQUES) el cual posee dos módulos claramente definidos (Figura 4) los cuales se describen a continuación:

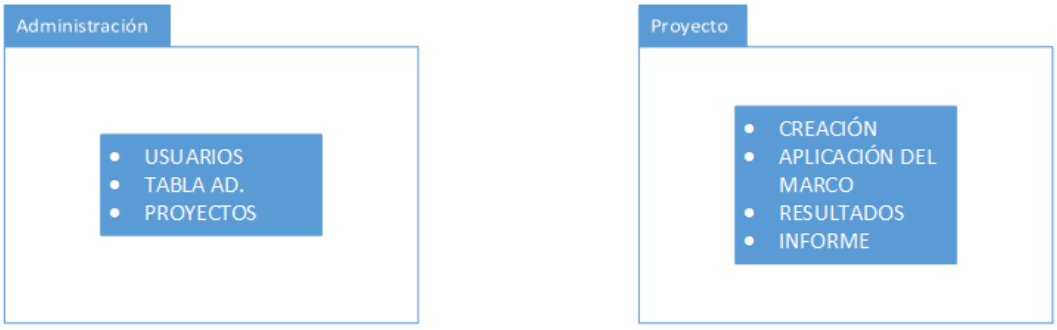

Figura 4: Módulos de F.A.S.E.T

En este apartado se explica cómo se lleva a cabo la estrategia de desarrollo del proyecto, según la metodología cascada con enfoque en V. El desarrollo se realizó en 8 etapas (ver Figura 3). En cada fase intervienen diferentes actividades a las cuales se les dedicó mayor o menor esfuerzo y tiempo según la fase y su complejidad.

Fase I: Esta etapa es fundamental en el proyecto ya que aquí se realiza la educción de los requisitos del sistema. Debido a las características del sistema y a que el stakeholder conoce bien el funcionamiento del marco de trabajo, se opta por realizar una entrevista abierta, en la cual se le solicitan al stakeholder los detalles de la aplicación como también se le concede tiempo para que plantee sus puntos de vista acerca de las opiniones del desarrollador. Luego de la entrevista se pudo obtener los requerimientos funcionales y no funcionales del sistema. A modo de detallar el proceso de desarrollo, se elaboran tablas para cada uno de las fases, se pueden observar los objetivos, entregables y criterios a evaluar en esta fase en la Tabla 3.

Tabla 3 : Objetivos, Entregables y criterios a evaluar en Primera Fase

Objetivos	✓ Establecer el alcance del proyecto y sus restricciones ✓ Encontrar los casos de uso críticos, para definir la funcionalidad ✓ Estimar el tiempo del proyecto
Entregables	✓ Documento de especificación de Requisitos
Criterios de Evaluación	✓ Entendimiento de los requisitos, como evidencia de la fidelidad de los casos de uso.

Fase II - III: En esta etapa se aprecian dos fases que son el Diseño preliminar y el Diseño Detallado. Una vez que en la primera fase se ha descrito el problema se puede tener una vista preliminar de lo que se busca, sin embargo, se necesita una reunión con el stakeholder para generar un diseño completo. Esta etapa tiene un lapso de tiempo más amplio que el de la etapa I, ya que requiere la formulación del diseño siguiendo los requerimientos establecidos para crear los módulos más importantes y sus relaciones. Esta etapa también cuenta con una validación del diseño. En este sentido se realiza una reunión con el Supervisor Guía el cual verifica si el diseño refleja lo que se busca, y cumple con las relaciones establecidas entre los módulos. Una vez verificado y validado el diseño se procede con la siguiente fase de generación de un diseño detallado que define los algoritmos empleados y la organización del código para comenzar la implementación. El resumen de las tareas realizadas en estas fases se puede observar en la tabla 4.

Tabla 4 : Objetivos, Entregables y criterios a evaluar en Segunda y Tercera Fase

Objetivos	✓ Definir, validar el diseño. ✓ Crear un diseño preliminar. Este diseño puede variar ✓ Obtener un diseño detallado
Entregables	✓ Modelo de BD. ✓ Definición de los casos de uso. ✓ Documento de arquitectura de software
Criterios de Evaluación.	✓ El diseño cumple con los requisitos.

Fase IV: En esta fase se procede a programar el código, y corresponde a todo el proceso de llevar a cabo la programación necesaria para la correcta funcionalidad de la aplicación, la gestión de usuarios, la edición de tabla de adecuación, modificación de la Base de datos entre otros (véase Tabla 5). La

verificación y validación se realizó a través de reuniones semanales con el Supervisor Guía quien verificaba si las funcionalidades descritas cumplían con el objetivo señalado en los requerimientos. Esta fase fue la que tomó mayor tiempo desarrollar.

Tabla 5 : Objetivos, Entregables y criterios a evaluar en IV Fase

Objetivos	✓ Programar cada módulo de la arquitectura del sistema. ✓ Caracterizar la interfaz del sistema. ✓ Validar y verificar resultados.
Entregables	✓ Diseño de la interfaz. ✓ Informe de resultados.
Criterios de Evaluación.	✓ Los módulos cumplen la función solicitada. ✓ La interfaz cumple con los requerimientos establecidos ✓ El sistema entrega resultados coherentes.

Fase V-VIII: A través de estas faces se hacen las pruebas necesarias para comprobar la funcionalidad de la aplicación desde una fase más temprana, como es las fase V donde se obtiene una joven beta, pasando por una prueba de componentes, integración de software, hasta la fase VIII donde se realizan las pruebas de un sistema completo. Se resumen las actividades de estas fases en la Tabla 6.

Tabla 6 : Objetivos, Entregables y criterios a evaluar de V - VIII Fase

Objetivos	✓ Generar una versión beta del sistema. ✓ Integración del sistema.
Entregables	✓ Beta del sistema. ✓ Documento de aseguramiento de la calidad ✓ Manual de usuario.
Criterios de Evaluación.	✓ La beta cumple con los requisitos especificados. ✓ El sistema entrega resultados correctos.

Se debe destacar, que la versión beta del sistema alcanza un alto nivel de operatividad. Cumpliendo los objetivos planteados, logrando entregar resultados satisfactorios al momento de ingresar los datos contextuales necesarios que necesita el sistema para trabajar. En concreto, las características de esta versión son:

Sistema modular: El sistema está basado en módulos que agrupan las áreas críticas de las funcionalidades, permitiendo separar cada área dependiendo de qué es lo que el usuario o administrador necesita.

Web Responsiva: El sistema puede trabajar tanto en computadores de escritorio, como notebooks, dispositivos táctiles, celulares, Tablet etc. Lo que facilita el uso en cualquier tipo de condición.

Generación de reportes: Una de las características importantes del sistema es la generación de un reporte con la técnica de educción elegida como mejor opción bajo algún contexto dado, el informe también muestra una gráfica comparativa del resto de técnicas con su respectiva ponderación.

Web multi-usuario: la aplicación cuenta también con niveles de usuario, en este caso con dos: un administrador encargado de todo el sitio, y un usuario común el cual puede ejecutar sus proyectos y sesiones sin mayor inconveniente.

Aplicación intuitiva y simplificada: La aplicación es intuitiva y simplificada para desempeñarse en el objetivo principal, el cual es entregar una herramienta de fácil acceso y uso.

Las figuras 5 y 6 evidencian algunas secciones de la versión beta del sistema F.A.S.E.T.

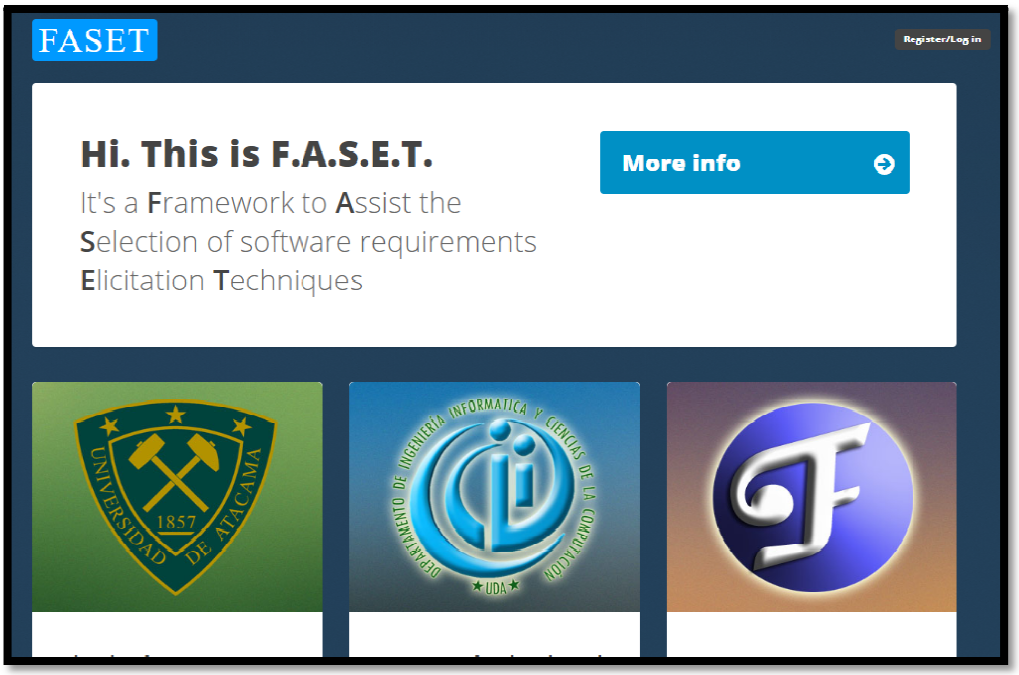

Figura 4 : Indice principal del sistema FASET

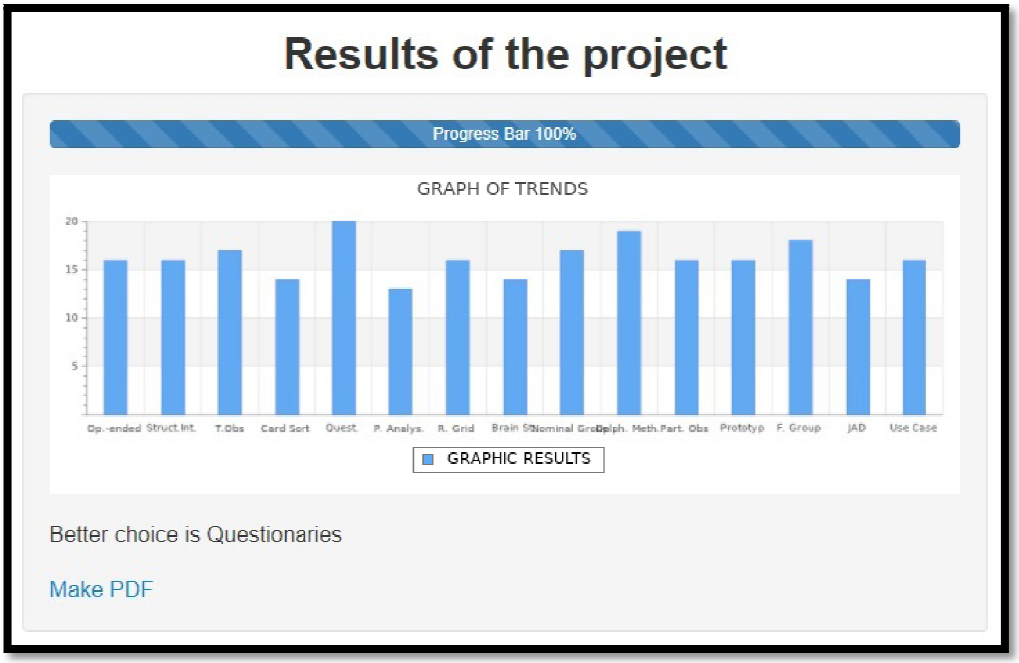

Figura 5 : Resultados de un proyecto en el sistema FASET

El sistema F.A.S.E.T se encuentra disponible en http://www.diicc.uda.cl/magister/investigacion/faset.

Conclusiones

Este marco propone una ayuda a los ingenieros de requisitos a seleccionar la técnica de educción más adecuada en un contexto conocido. Para esto, se ha determinado cuales atributos son los más relevantes e influyentes al contexto del proceso de educción de requisitos. Luego se establece una valorización para cada técnica por cada valor de atributo contextual. Y finalmente, se crea un procedimiento para seleccionar la o las técnicas más adecuadas basándose en una situación contextual particular.

El marco web se construye basado en la tabla de adecuación basada en teorías fundamentadas y resultados de investigaciones empíricas. Se puede mencionar que el marco está en una etapa inicial la cual contiene atributos relevantes y valores de adecuación para técnicas establecidas en bases de información disponible en el tiempo de la investigación.

Las técnicas de educción consideradas fueron seleccionadas subjetivamente, a pesar de que se intentó asegurar de que coincidieran con las técnicas más utilizadas o las más conocidas. El marco es fácilmente extensible y modificable y siempre que se descubra evidencia teórica o empírica para un atributo, técnica o valor de adecuación, la información en el marco podrá ser fácilmente agregada a través de una interfaz amigable e intuitiva.

El marco realiza correctamente su labor, cumpliendo con todos los requisitos solicitados en un tiempo prudente. El software pretende ayudar a cualquier persona con conocimientos en informática a determinar una técnica de educción adecuada, para un proyecto a desarrollar, la aplicación es de fácil uso y manejo, por lo que no debería haber ningún inconveniente de uso. Especialmente diseñada para ingenieros noveles con la idea de generar experiencia en la toma de decisiones, y acercarlos más a conocer nuevas técnicas de educción.

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Marketing Topics Related to General Data Protection Regulation (GDPR) in Europe in an Online Environment

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Abstract

GENERAL DATA PROTECTION REGULATION (GDPR), a trendy subject in academic and practical research papers, is a new legislation which impacts on different business domains such as management, human resources, accountability, commerce, information security and nevertheless, marketing. Marketers will have to acknowledge the new directives and they just cannot afford to ignore any part of it. As a first step for an ampler empirical research, in which we intend to find out how GDPR affects the customer relationship management (CRM), this paper aims to identify which are the main marketing topics that can be related to GDPR. We considered specific activities from marketing practices and tried to figure out if there are any correlations between these activities and GDPR in the online environment. In order to do so, we used some instruments for measuring the frequencies a marketing topic is related to GDPR, instruments such as Google trends and qualitative data analysis tools. The main marketing topics we proposed to analyze in correlation to GDPR were: branding, sales, marketing research, marketing strategy, social media, databases and, of course, CRM. Research findings proved that there are a series of marketing topics correlating to GDPR.Besides our search list of supposed words correlating to GDPR, we noted some other topics such as: "MailChimp", "WordPress" and/or "Amazon". We analyzed the GDPR searches on the Internet and considered to extract a general feeling regarding the specialists' attitude regarding the potential effects of GDPR on marketing, using sentimental analysis. The results of this research will be a foundation for our academic future research and a starting point for marketing practitioners preoccupied with respecting the personal data of their clients.

Keywords: GDPR, personal data, CRM, online marketing/environment

Introduction

In this paper, we choose to tackle the subject of General Data Protection Regulation (GDPR), as it may seem as having a great impact on the marketing strategies after its coming into force this year (May 2018). This new European regulation (GDPR) aims to standardize privacy rules and the protection of personal data across the European Union (Maringer et al., 2018). It was meant to improve the level of personal data protection and to bring harmonization across the EU as the old Directive 95 could no longer meet the privacy requirements of the digital environment nowadays (Tikkinen – Piri, Rohunen and Markkula, 2018).

The rapid progress of technology and electronic data processing, started in the 1960s (Tikkinen – Piri, Rohunen and Markkula, 2018), led to a quick evolution of data privacy legislation. It was a consequence of "the practice of gathering, holding, analysis and use of customer data – their personal details, locations,

interactions with media, enquiries, transactions, questionnaire responses and so on" (Stone, Woodcock, and Wilson, 1996) known nowadays as database marketing (Stone et al., 2017). At first, the legislation regarding the personal data privacy was established in the Western Countries, both in Europe and the United States (US) (Tikkinen – Piri, Rohunen and Markkula, 2018).

A good thing to mention about GDPR is that it "applies to all organizations across the world" (Kolah and Foss, 2015), not solely EU countries; but also companies or outsourcing providers from the USA, China or India, exporting their goods will have to obey the same GDPR rules. This happens besides the fact that "The US has not unified its data – security and privacy laws" (Posadas, 2018) for addressing the issues arising from interconnected data-security and IoT (Internet of Things). This emphasizes the fact that "data protection and privacy laws across the largest single trading block in the world are just about to get harmonized" (Kolah, Foss and Hickley, 2015). And, as European Commission states, GDPR lowers the barriers for entering to those markets dominated by big players but will have great practical implications especially for those companies providing services for customers, based on their personal data (Tikkinen – Piri, Rohunen & Markkula, 2018).

Personal Data Clarifications

When talking about GDPR, we have to clarify first some of the basic elements of this regulation, among which is personal data, the processors and processing under GDPR, data controllers, the rights of the individuals to transfer their data, to rectify and / or delete the data (GDPR, 2018) and also their right to object to processing his or her personal data (Posadas, 2018). We can't understand the terms of this law having questions about what personal data, as a central concept in any privacy regulation around the world (Schwartz and Solove, 2014), means. According to the GDPR legislation, personal data refers "to any information concerning an identified or identifiable natural person" (GDPR, 2018). This conceptual term is considered as a mean of defining the scope and the boundaries (Schwartz and Solove, 2014) of different privacy statutes and regulation policies.

From a more practical point of view (Smart Insight, 2018), we can state that personal data refers to: "name, identification number, location, online identifier". There are some authors who consider that food consumption information could be categorized as personal data (Maringer et al., 2018), as there are several kinds of digital apps collecting personal identifying information. Focusing on the online identifiers, we realise that GDPR will apply to cookies, mobile IP and IP addresses, digital apps, search engines, (Smart Insight, 2018), as well as other forms of direct marketing (Direct Marketing Association, 2018) or information platforms (Stone et al., 2017). Moreover, specific factors like socio-cultural, economic, mental, physiological or genetic information (Smart Insight, 2018), come under the umbrella of GDPR.

GDPR and Marketing – the Basics

It seems that a large number of specialists (Schwartz and Solove, 2014, Tikkinen – Piri, Rohunen and Markkula, 2018; Weiss, 2018) agree upon the fact that the GDPR affects the marketing activities of an organization. Tikkinen – Piri, Rohunen, and Markkula (2018) consider that an early adoption of the regulation statements guarantees the compliance with GDPR and brings a competitive advantage to the companies. Stone et al. (2017) notice the benefits of a partnership in creating information platform, which may consist in data sharing and portability, as well as compliance with data protection regulation that may be managed by the platform owner. In such cases, there are some critical elements as collaboration costs, trust and commitment, knowledge sharing, opportunism and overall collaboration strategy, market size and volatility (Li and Nguyen, 2016) that led to success.

GDPR brings a series of benefits to companies, by offering consistency in data protection activities and liabilities across the EU countries (not solely) (Tikkinen – Piri, Rohunen & Markkula, 2018) and by enabling more integrated EU-wide data protection policies, but it also poses new challenges to companies. One of the major challenges regarding the GDPR's implementation is the "lack of awareness and understanding of the forthcoming changes and requirements that the GDPR imposes through its new rules" (Tikkinen – Piri, Rohunen & Markkula, 2018). Besides these aspects, the implementation of GDPR will generate new types of costs, new personnel committed to maintaining compliance with the new regulations, employees who will require training and new qualifications skills, all these meaning a new spending of time and energy for any organization's economy.

GDPR to whom it may concern, young and old ones...

GDPR takes into consideration the rights of all individuals, being child or adult. Considering that nowadays children will be the clients of tomorrow, the new regulation has in view the idea of protecting them, regarding (cyber-) bullying, online privacy and reputation (Livingstone and O'Neil, 2014). It promises to tackle some of the risks of young generations' reputation from an online preservation of information and gives them the "right to be forgotten", to have their personal data removed.

We noticed that the young generation, the millennials, show a different type of consumer behaviour; so that companies realized the need to change their communication strategies. It is obvious now that companies can catch their attention especially through social media and online campaigns (Dabija, Bejan & Tipi, 2018). The advantages of social media are clear and consist in the fact that (new) target customers can be immediately identified (Stone et al., 2017) and the "real-time" sentiment of communication and analysis of responses. On the other side, this comes with extra needed information, personal data, about the customers like geospatial or weather data, education or social activities, in order to draw a more complete profile of the customer.

Same as social media, e-commerce websites can target those potential customers who are interested in buying. But, in order to do so, to attract and retain customers, they need to build up a strong supplier–customer relationship based on trust. Satyanavi and Chalam (2018) state that the variables an e-commerce website uses for gaining online customers' trust include "personal information security, transaction security, security of payment, prompt delivery, after sale communication and customer service", a claim that it is mandatory for a website to "provide security wherever and however an online potential customer senses a risk".

When GDPR came into force, on May 2018, specialists thought about its impact on marketing activities, among one which is strongly affected, being the customer relationship management (CRM). The information gathered in the system of CRM of a company is used for many purposes (Stone et al., 2017), starting from the point of supporting marketing activities to sales and services processes. In order to offer customers' great experiences, companies make great efforts to establish strong rational and emotional connections, which also needs gathering personal data. But a strong CRM system together with creating a great (rational, emotional and sensorial) experience for the customers brings benefits both for company and clients: customers learn about their needs and preferences after each buying experience, while companies find out about their strengths and weaknesses by getting feedback from their customers' experiences, as Alamsyah, Laksmiani and Rahimi, (2018) showed.

Trends in Marketing Activities after GDPR - the Online Perspective

The aim of our study is to understand the attitude around the topic associated with the changes the GDPR legislation is supposed to bring into the marketing activities.

Two approaches were used in order to achieve the purpose of the study:

1. Google Trends statistic – offers statistics on the number of searches regarding a certain subject. Google Trends statistics revealed the popularity of the subject on regions, by affiliated subjects and similar online searches.
2. Content analysis regarding articles with top online impressions on a topic. In order to understand which are the most approached topics debated in the articles related to the influences of GDPR on the marketing activities, we intended to perform a content analysis on the articles related to the subject, articles which according to platforms as Buzzsumo.com generated the most impressions in the online environment.

In order to evaluate the interest regarding the General Data Protection Regulation, we used Google Trends statistics instrument. Figure one (Fig.1) shows that searches on GDPR were higher between May and July 2018, given to its adoption in EU on 25 May 2018.

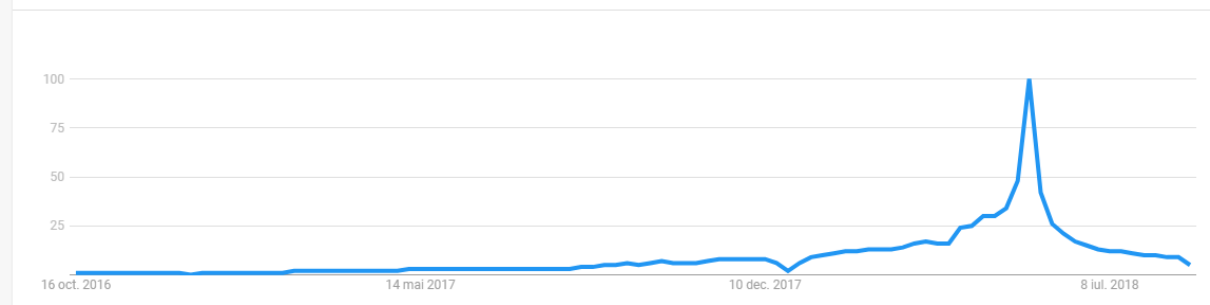

Fig. 1: Timeline of GDPR term searches

Source: Google Trends Analysis https://trends.google.com/trends/explore?date=2016-10-10%202018-08-29&q=gdpr, accessed in 29.08.2018 by research authors

According to Buzzsumo.com, a platform meant to analyze the interest regarding the content related to specific topics in the online environment, the evolution of the number of articles published between September 2017 and September 2018 on GDPR and marketing is presented in Figure 2. As expected, the most articles were published around the date the GDPR went into force in Mai 2018.

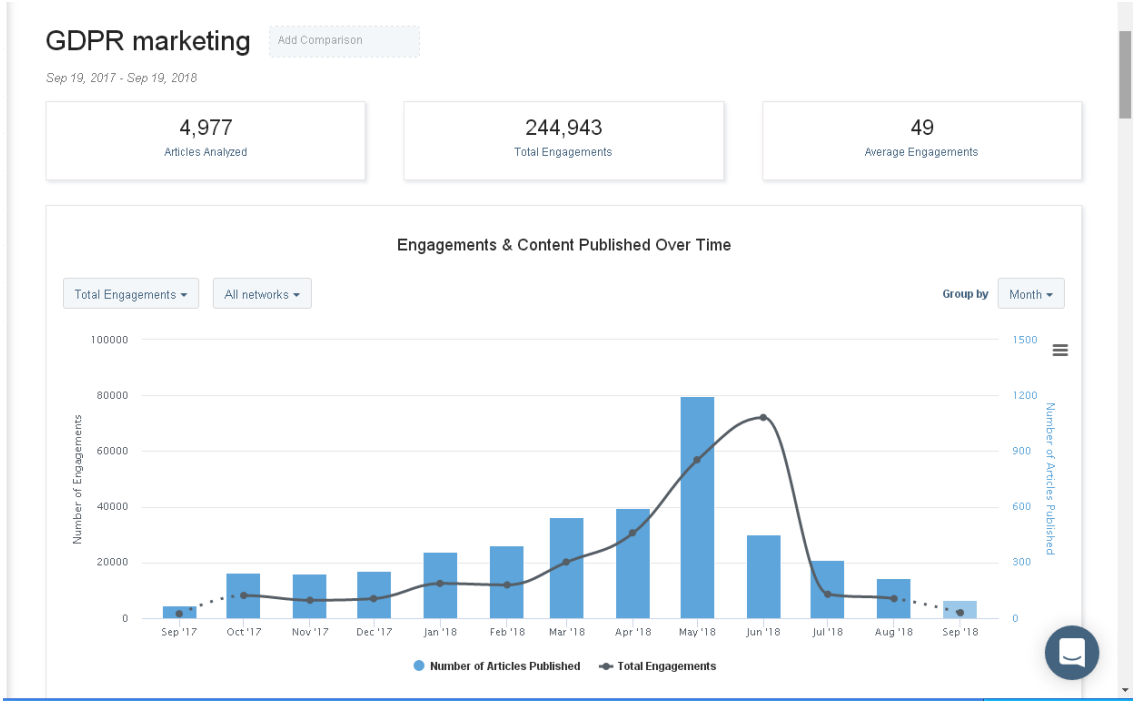

Fig. 2: GDPR-Marketing Engagements & Content Published, September 2017- September 2018
Source: Buzzsumo.com, (2018), Content Analyzer, available at https://app.buzzsumo.com/research/content

Main GDPR related topics in Google searches

GDPR is a European Union regulation that affects primordially EU countries. Given the globalization and high level of interconnectivity between companies that use a database, the GDPR has an important impact on affairs from regions connected to the European Union. Google Trend statistics reveal that the highest interest regarding GDPR was manifested in the Czech Republic, Saint Elena Island, Malta, Luxemburg and Ireland as it is presented in Table 1.

Table 1: Interest on GDPR by regions

Region	Rank	Number of searches
Czech Republic	1	100
Saint Elena	2	92
Malta	3	89
Luxemburg	4	84
Ireland	5	81
United Kingdom	6	76
Sweden	7	75
Norway	8	51
Cyprus	9	51
Belgium	10	48
Slovakia	11	45
Slovenia	12	45

Finland	13	40
Croatia	14	40
Denmark	15	39

Source: Google Trends Analysis https://trends.google.com/trends/explore?date=2016-10-10%202018-08-29&q=gdpr accessed in 29.08.2018 by research authors.

According to Table 2, the adoption of GDPR in EU raised the highest interest regarding the privacy policy which is the main instrument that assures customers that their data is secured. A practical consequence of GDPR adoption is the redesign of privacy policy in marketing and sales for most of the campaigns into clients' data protection orientation. GDPR compliance is the second regarding the number of searches and phrases "GDPR rules", "GDPR principles" that are reflecting also the high interest of the decisional factors in implementing the new database use regulations.

The third category of similar searches related to GDPR is "MailChimp" (Mailchimp being an email marketing platform for small businesses according to MailChimp website (2018)). This result reveals the significant impact GDPR has on redesigning online marketing strategies for most of the European Union Businesses. One of the services that is most used by MailChimp users is email marketing. GDPR changes the way companies are conducting email marketing campaigns. The newsletter sending must be based on the mandatory accept of the receiver. This may lead to fewer contacts in a database, but more efficient selection. Email contacts who are interested in the product or service will agree that their data will be used by the sender in order to receive regular informative newsletters and also will feel more protected and secure with the use of his own information.

Wordpress sites functionality is directly influenced by GDPR adoption. The correct use of a database in Wordpress demands the implementation of the plugin which "is meant to assist a Controller, Data Processor, and Data Protection Officer (DPO) with efforts to meet the obligations and rights enacted under the GDPR" (Wordpress.com).

Cookies are small text files which have different purposes in order to make user experience with a site to be more efficient. According to GDPR Complet (2017) the cookies that are accepted and submitted to the user consent are the (1) necessary cookies for the good functionalities of the site on a certain display, (2) statistics cookies, which help sites owners evaluate the user interaction with their website through collecting and reporting data anonymously, (3) marketing cookies which are meant to follow users from a website to another in order to identify relevant advertisement for each user and (4) unclassified cookies which are in the process of classification by cookies suppliers.

Table 2: Similar online searches

Similar online phrases	**Searches rank**
Privacy policy	1
GDPR compliant	2
MailChimp	3
MailChimp GDPR	4
GDPR Wordpress	5
Cookies GDPR	6
GDPR privacy notice	7
GDPR rules	8
Amazon GDPR	9
GDPR principles	10

Source: Google Trends Analysis https://trends.google.com/trends/explore?date=2016-10-10%202018-08-29&q=gdpr accessed in 29.08.2018 by research authors.

The GDPR has a significant impact on the design of sales and marketing strategies companies have to adopt. Most concerns regarding GDPR implications are, as the Google Trends statistics reveal, regarding the newsletter instruments use, sites, databases, sites analysis, sales instruments and other instruments that involve personal data manipulation. The subjects related to GDPR that had a growth with more than 2100% searches in the last 12 months are presented in Table 3: ”MailChimp campaign”, ”WordPress – Data Base”, ”Google Analytics” , ”Opt-in email”, ”Plug-in”, ”Small business”, ”Salesforce.com” ”Form”, ”Individ”, ”Controler” and ”Policy”.

Table 3: Subjects related to GDPR in Google searches

Related subjects	Searches rank	Growth rate
MailChimp (Company)	1	Massive growth
Wordpress (Database)	2	Massive growth
Google Analytics (Website)	3	Massive growth
Analytics	4	Massive growth
Opt-in e-mail	5	Massive growth
Plug-in	6	Massive growth
Small business	7	Massive growth
Salesforce.com	8	Massive growth
Form	9	Massive growth
Individ	10	Massive growth
Controller	11	Massive growth
Policy	12	+2100%
Regulatory compliance	13	+500%
Checklist	14	+450%
Personal data	15	+350%
Contracts	16	+300%
Cookie	17	+300%
Rights	18	+250%
Demands	19	+250%
Marketing	20	+160%

Source: Google Trends Analysis https://trends.google.com/trends/explore?date=2016-10-10%202018-08-29&q=gdpr accessed in 29.08.2018 by research authors.

Main topics reflected by the online articles approaching the “GDPR and Marketing” subject

Based on the results offered by BuzzSumo, we selected a number of 33 articles considered as representatives for the research. The qualitative software package we used in our research was QDA Miner/WordStat (Provalis Research, 2018). Articles were searched for words and phrases to identify the most frequent keywords and topics approached by authors in their articles. After generating the results we eliminated the words we consider not to be relevant for our research. We also eliminated the words GDPR, Marketing, Data/Information because the selection of the articles was made using these keywords and, as consequence, they appear in all the articles and were the words with the highest frequencies. The results are presented in the charts below (Fig 3 and Fig 4):

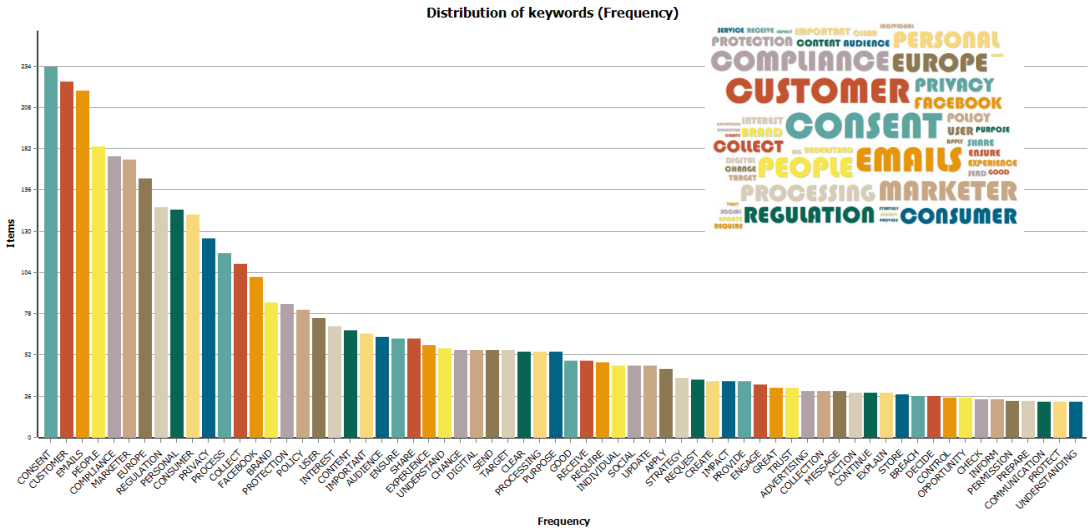

Fig. 3: Distribution of keywords (Frequency)

Source: authors' own representation

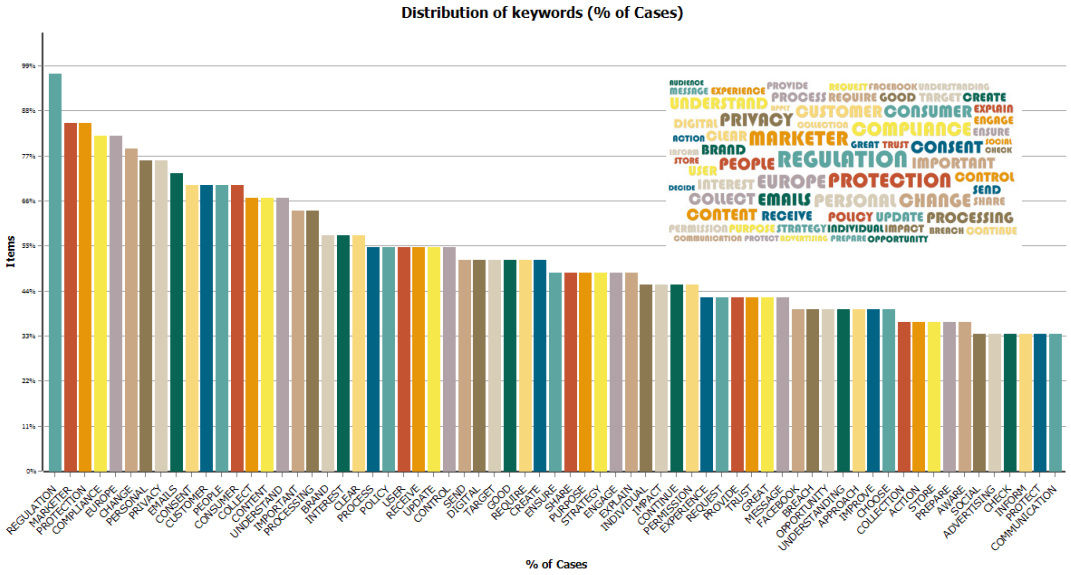

Fig. 4: Distribution of keywords (% of cases)

Source: authors' own representation

We also performed an analysis in order to extract the general topics of the selected articles. The result shows the following order of topics (starting with the highest level of coherence of words in each topic): DATA PROTECTION GENERAL DATA PROTECTION REGULATION (0,817), PRIVACY POLICY EU CITIZENS (0,781), PERSONAL DATA (0,710), COMPLIANCE (0,691), CUSTOMER TRUST (0,628), DATA CONTROLLER/PROCESSOR (0,587), LEGITIMATE INTERESTS DIGITAL (0,553). We emphasize especially the topic "Customer trust". It occurs in a significant number of the selected articles and presents interest in the context of our research.

The way the GDPR legislation impacts the marketing activity is still under research. The specialists and the practitioners do not have a unanimous opinion on this topic. There are significant numbers of articles mentioning both the negative (Mitchell, 2016; Tikkinen – Piri, Rohunen & Markkula, 2018)) and the positive (Schwartz and Solove, 2014; Stone et al, 2017; Tikkinen – Piri, Rohunen and Markkula, 2018; Weiss, 2018) impact of GDPR on marketing. In order to extract a general feeling regarding the specialists' attitude regarding the potential effects of GDPR on marketing, we make appeal the sentiment analysis. Automated sentiment analysis is defined as the application of a set of text analytics techniques meant to identify subjective opinions in text content and to classify it in categories as positive, negative or neutral (ProvalisResearch.com). In order to categorize the words we used the WORDSTAT SENTIMENT DICTIONARY 2.0 (01/26/2018) and the results are presented in the chart below.

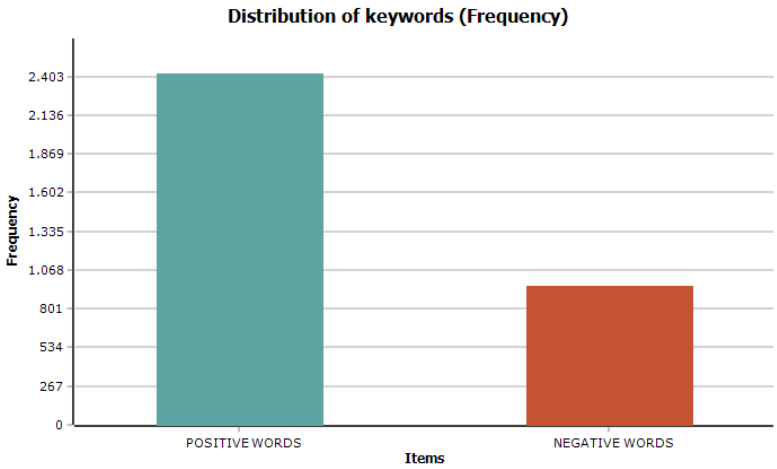

Fig. 5: Automated sentiment analysis based on Wordstat Sentiment Dictionary 2.0 (01/26/2018)
Source: authors' own representation

Conclusions and Further Research Directions

This paper is part of a longitudinal study in which we intend to determine the trend of the nature of emotions associated with the impact of the GDPR legislation on marketing. As shown in the specialty literature, it is expected that GDPR will have great implications (legal, economical and practical), especially for the companies that collect, keep and use personal data of their customers.

Based on the results of our study, we consider that the general background associated by the specialists with the impact of the GDPR legislation on marketing activity is mostly positive, despite the fact that the changes involved were often considered being dramatic. We highlight the fact that the keywords trust and opportunity, even if they don't have high frequencies, they occur in many articles (trust in about 42% of cases, and opportunity in about 39% of cases). We associate this with the fact that "customer trust" is one of the topics extracted by the application in the selected articles. Also, the automated sentiment analysis indicated a positive attitude of the specialists. Based on all these observations, we may conclude that, at the moment of our study, the impact of GDPR legislation on marketing activity is mostly perceived as having the potential of positive changes on marketing especially with positive influences on gaining or regaining the customer trust.

Our research is exploratory in nature materialized in the content analysis of a limited number of articles published in online media. Even if we selected the articles approaching GDPR impact on marketing that generated the most interest (according to BuzzSumo.com), the limits of the research are obvious and the results could be used to support at best a hypothesis for further research and less for a general conclusion.

Acknowledgements

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The Evaluation of Civil Servants' Professional Performances in Romania and its Influence on the Development of Their Careers

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Abstract

In this article we seek to analyze the manner in which the annual evaluation of civil servants in Romania is carried out and its weight in career promotion and development. According to the provisions of Article 3 d) from the Government Decision No. 611/2008 for the approval of the rules concerning the organization and development of the civil servants' career, the evaluation of individual professional performances consists of "the entirety of processes and procedures implemented annually, by applying the performance criteria to the degree of fulfilling the individual professional objectives established, based on the duties provided in the job description". Throughout the article we will refer to the criteria taken into account for the performance evaluation, the categories of civil servants who have the competence to evaluate, the evaluation results and the procedure of appeal for the evaluation report. As concerns the procedure of appeal for the individual evaluation report, we will also analyze some decisions of the Romanian courts in this matter.

An efficient administrative system, that would rise to the standards imposed by the European Union and respond adequately to the needs of the public service beneficiaries can properly function only through a body of competent civil servants with excellent skills and professionalism. The availability and monitoring of such a level of performance can be achieved both by the results obtained by the Romanian public institutions and by evaluating the performance of civil servants and promoting them on the basis of transparent and objective criteria. In order to be ensured the transparency and efficiency of the performance evaluation process according to Article 69 par. (5) of the Statute of the Civil Servant, the

evaluation methodology is established by Government Decision at the proposal of the National Agency of Civil Servants "after consulting the trade union organizations of civil servants, representative at national level" and we intend to also analyze the content of this methodology.

Keywords: civil servant, right to career, performance evaluation, professional deontology, efficiency, success, public institution management.

I. Preliminary Aspects

The need for making more efficient the activity of public administration authorities is common to all contemporary states, this not being a problem specific only to Romania. For the time being, at international level, public administration faces difficulties such as the instability of political and economic environment, the need to diminish the cost of public acts/services, the increase in the citizens' demands, demotivation and aging of the labor force, etc.

In the most general way, through the public administration activity must be ensured the proper functioning of the society, the correct exercise of rights by citizens, compliance with the Constitution and the laws of the country, etc. Thus, "public administration is a continuous process and is subject to the rules of updating the positions, as a guarantee of its adaptation to the permanently dynamic conditions offered by the social environment. Consequently, public administration should not be a purpose in itself, but must serve social realities in their progress." (Alexandru, Ioan, 2008, pg. 508).

But from theory to practice it is often a long way and the specialists in New Public Management believe that the failures and very poor performance of public services are due to the manner in which public sector activities are carried out in the traditional administration, dominated by bureaucracy – the main cause for delaying the achievement of specific goals and fast servicing of the citizens.

In this complex and difficult context, the way of approaching and managing the human resource, ensuring effectively the exercise of the civil servants' right to career is becoming a matter of utmost importance. An efficient public management implies, inter alia, the creation and maintenance of a body of competent, motivated civil servants that would not be dependent on politics. The accomplishment of this goal is absolutely necessary in a context when the new public management intends to take public services out of the political influence, to eliminate excessive bureaucracy, to practice an efficient management inspired by private sector management, its activity to be focused on the satisfaction of citizen, in its capacity of end-user of public services, etc.

II. Definitions and Terminological Explanations

Due to the fact that the subject of this study refers mainly to the career and activity of Romanian civil servants, it is necessary to specify precisely the meaning and to give the definitions of the fundamental notions used, as they are formulated in the Romanian legislation, doctrine and practice (which do not differ essentially from those of other states).

Thus, in the Romanian legal doctrine, public office is defined as "the legal status of the natural person legally invested with duties of exercising the competence of a public authority, consisting of all rights and obligations that make up the complex legal content between the respective natural person and the body that invested it "(Iorgovan A., 2001, vol. I, p. 561).

In the framework law, Article 2 par. (1) Of the Law No. 188 of 1999 on the Civil Servant Statute, as subsequently amended and supplemented, the public office is defined as follows: "the entirety of duties and responsibilities established pursuant to the law for the execution of public power prerogatives by the central public administration, the local public administration and the autonomous administrative authorities".

Further, by civil servant is understood the person who is carrying out its activity within the authorities and institutions from the public administration. However, since the activities performed are extremely numerous and various and not all those who carry out professional activities within them have the status of civil servants, in Western (but also Romanian) doctrine there is a distinction made between civil servants and contractual staff. According to Article 2 par. (2) of the Law No. 188/1999 on the Civil Servant Statute, "a civil servant is the person appointed, according to the law, in a public office". The budget contractual staff is subject to a different legal regime and another way of remuneration.

In the older specialized doctrine, the notion of civil servant was defined as follows: "a natural person who is part of an organ of state is legally invested with a position in the state, which he/she exercises continuously and for which he/she generally receives remuneration (Ionescu, Romulus; 1977, p.123).

The normative act regulating the right to career of civil servants and the way of exercising it is the *Government Decision No. 611 of June 4, 2008 for the approval of the rules concerning the organization and development of civil servants' career, with subsequent amendments and completions*. According to Article 2 of this normative act, "the career in public office includes all the legal situations and the effects caused, which occur from the birth date of the employment relationship of the civil servant until the termination time of this relationship, according to the law."

In the *Public Law Dictionary*, the career of a civil servant or administrative career is defined as follows: "all the steps a civil servant undergoes, from the birth of the employment relationship, his/her progress in vocational steps and degrees, in positions of execution or leadership, and until the employment relationship termination. For civil servants, it is even recognized a right *to career*, which, without being legally established as such, results from the manner in which the it is regulated the civil servant career, the regime of his/her evaluation, promotion and accountability, and is theorized as such in doctrine. "(Vedinaș, Verginia; Godeanu, Teodor Narcis; Constantinescu, Emanuel; 2010, p. 24).

The Romanian legislation, even if it does not regulate *expressis verbis* the civil servants' right to career, establishes, within the framework of Article 4 of the Government Decision No. 611/2008, as subsequently amended and supplemented, the principles underlying the organization and development of the civil servants' career, thus taking shape the legal framework for its development. The normative act sets up the principles, such as: *competence* of the civil servant who "has to possess and prove the knowledge and skills required for exercising the public office in question" (Article 4 letter a); *competition*, which requires that the occupancy of a civil servant position be carried out following a contest or examination confirming the level of knowledge of the person who wins the contest/ passes the examination; *equal opportunities* - " in the public office it is recognized the career vocation of any person who fulfills the conditions established according to the law" (Article 4 letter c); *professionalism of the civil servant* - who must effectively perform the duties which implies "the exercise of public power prerogatives, within the limits provided by the legal provisions regulating those duties" (Article 4 d); *motivation* "a principle according to which, with a view to developing the careers of civil servants, public authorities and institutions have an obligation to identify and apply, according to the law, instruments of financial and non-financial motivation of civil servants, as well as to support the initiatives for their individual professional development "(Article 4 (e)); *transparency*, "a principle according to which the public authorities and institutions have the obligation to make available to all interested persons information of public interest regarding the career in public office" (Article 4, (f)).

Practically, in order to progress in a career, a civil servant should meet the minimum seniority conditions in a certain position (for climbing to the upper level), should have properly fulfilled his job duties and should pass an examination which proves the acquirement of the knowledge required in order to carry out the duties of the higher position or degree. Evidence that the civil servant has performed a competent activity follows also from the annual evaluations results. In the following, we will describe the procedure for the annual evaluation of the professional activity of civil servants and, at the end, we will present the advantages and the difficulties involved in making an evaluation as fair and transparent as possible.

Before analyzing the procedure proper for evaluating civil servants, it is necessary to mention that career development in any field, including in public administration, "involves a process of both quantitative and qualitative enhancements at the level of experience built up based on the professional training and skills proven at the workplace" (Cîrciumaru A., 2016, p. 99). In this long and complex process, the following elements are important: "self-knowledge and formation of interrelation skills; initial education and vocational training; assuming roles in life; the way of integrating, living and planning the various events of life " (Cîrciumaru A., 2016, p. 99).

III. Procedure for the Evaluation of Civil Servants in Romania

Most generally, according to the opinions of the specialized doctrine, evaluation is "a process - oriented towards administrative intervention and reform - which refers to ideas and measures oriented towards the proper functioning of the administration itself" (Verdung E., 1997, p. 11).

In Article 3 (d) of the Government Decision No. 611/2008, as subsequently amended and supplemented, it is specified that the evaluation of the individual professional performance of a civil servant consists of "the entirety of the processes and procedures implemented annually, by applying the performance criteria to the degree of fulfilling the individual professional goals, established on the basis of the duties provided in the Job Description". From this definition we can deduce foremost that the civil servants evaluation is a process that is achieved annually, the result of the evaluation being elaborated based on the analysis of the way in which it performed its activity and accomplished the tasks required by the specific nature of its professional activity and expressly provided in the Job Description.

Reiterating this aspect, in Article 13 of GD 611/2008 it is specified that "the evaluation of civil servants shall be done, according to the law, with a view to determining the degree of reaching the professional goals by the civil servants, by reference to the current duties in the Job Description, as well as for establishing the fulfillment degree of the performance criteria."

The evaluation procedure is accomplished by an evaluator, namely by "the person within the public authority or institution with duties of leading the compartment in which the evaluated civil servant is working or, as the case may be, who coordinates the activity of that civil servant" (Article 3 (e) of the Government Decision No. 611/2008).

Career management in public office is ensured on several levels, the highest being the National Agency of Civil Servants, which has the mission to build the legal framework that regulates the civil servant career and to supervise and monitor the manner in which they are actually implemented and accomplished.
Then, based on the legal regulations in the field, at institutional level there are drafted "the internal policies and instruments for human resource management and planning" (Article 5 (b) of the GD 611/2008).
Last but not least, a very important role in the development of one's own career falls on the public servant himself/herself who, by acting and performing his/her duties, contributes essentially to his/her professional development.

As mentioned previously, the most important quantifier of the civil servant evaluation is the manner and degree of fulfillment of Job Description. In order to be ensured an accurate and transparent evaluation, Article 10 par. (1) of GD 611/2008 provides expressly what are the main elements of the Job Description: "(A) contribution to the achievement of purposes, functions, duties and objectives of the institution; b) content and expected results of the work that will be executed; c) limits of authority related to the exercise of public office; d) requirements and conditions that a person has to meet in order to occupy that position." In order to be ensured unitary application of the law, Annex 1 of the normative act contains the actual model of the Job Description and, on the basis of that model; all job descriptions of the civil servants in Romania are drafted.

In his/her professional activity, after passing the occupancy contest for a position within an authority or institution in the local or central public administration, the civil servant begins by having the debutant degree and the duties specific to it. Subsequently, with the passage of time and depending to the results obtained in the evaluation at the probation completion, he/she is appointed definitively in his/her position and gains the right to develop in the career, i.e. to receive new (more complex) duties and to be remunerated according to these.

The debutant civil servant must get through a probation period which usually is 12 months (for civil servants of the first class), but may be also 8 or 6 months for civil servants in the second and respectively third class. Throughout the probation, the debutant civil servant carries out his work under the direct coordination of a mentor (a civil servant appointed definitively for that purpose).

At the end of the probation period, the activity of the debutant civil servant is evaluated based on the following documents (provided by Article 87 of GD 611/2008): the Probation Report drafted by the debutant civil servant himself /herself (according to Annex 4B of GD 611/2008), the account of the mentor civil servant (the model can be found in Annex 4 C of GD 611/2008) and the interview with the evaluator (who is always a person other than the mentor). The interview consists of a discussion between the debutant civil servant and the evaluator concerning the content of the mentor's report, the way in which the evaluated performed his/her duties and the evaluator notifies his conclusions to the debutant civil servant. Pursuant to Article 93 par. (3) of GD 611/2008, "in case between the evaluated debutant civil servant and the evaluator there are differences of viewpoints on the registering entered, the comments of the civil servant shall be recorded in the evaluation report. The evaluator may change the evaluation report if it is reached a common viewpoint."

Finally, the evaluator draws up a report (according to Annex No. 4 A of GD 611/2008), in which, after showing the activity of the debutant civil servant and the results obtained by him/her, proposes either promotion (appointment to a definitive public office), or release from the office.

According to the legal rules, the following aspects must be taken into account during the evaluation process of the debutant civil servant: "a) the degree of knowledge of the regulations specific to the field of activity; (b) the degree of knowledge of the specificity and principles governing public administration and administrative relations within the public authority or institution; c) ability to perform duties; d) the degree of adaptability and flexibility in carrying out the duties; e) the ability to properly distinguish between the characteristics of the various options in the performance of their job duties and to identify the best option of acting; f) ability to communicate ideas in writing and verbally, fluency in writing, including the ability to write clearly and concisely; g) the ability to work in a team, i.e. the ability to integrate into a team, to make their contribution through actual participation, to support the activity of the team in achieving its objectives "(Article 94). Although these criteria are not provided restrictedly, namely within the institution, other specific professional aspects can also be taken into account; Article 95 of GD 611/2008 provides the compulsoriness of informing the debutant civil servant on the additional criteria even from the beginning of the probation period. Otherwise, the evaluation cannot be made based

on any additional criterion. We believe that this obligation to inform is natural, since the debutant civil servant should know explicitly all his or her duties and what it is expected from him/her in exercising that position. Given that on the outcome of this evaluation depends its keeping within the body of civil servants (which is only possible if the result of the evaluation has the "appropriate" rating, namely it has obtained between 3.01 and the maximum of 5 points, and the final result is the arithmetic mean of the grade obtained for each of the evaluation criteria) it is necessary to be known from the very beginning of the activity all the elements necessary for their correct fulfillment.

The evaluation outcome, i.e. the content of the evaluation report, is brought to the attention of the debutant civil servant within 3 days of the drafting. If he/she is dissatisfied with the manner in which the evaluation was performed and the result obtained may lodge an appeal within 5 days from the date of taking a note of the report (Article 98 par. (2) of GD 611/2008). The appeal is filed, pursuant to Article 98 par. (2), to the director of that public authority or institution. The director of the institution or the person designated by it will analyze the final report of the evaluator and the other documents underlying it, having the possibility to change the report if the appeal is well-founded. If the debutant civil servant is not satisfied either with the result of the second report, he/she will make an appeal before the administrative court, following the procedure provided in Law No. 554/2004 regarding the administrative litigation.

The debutant civil servant who received an "appropriate" rating will be appointed permanent civil servant in an execution position corresponding to his/her degree, and the position occupied will be changed in order to correspond to the new duties and competences. The civil servant who received the "inappropriate" rating (i.e. had a final rating between 1 - the minimum score and 3) will be released of his/her position through an administrative act issued by the head of the institution (Article 101 (2) of the GD 611/2008).

The annual evaluation of permanent civil servants is an instrument with the purpose to monitor civil servants with a view to forming a body of professionals able to properly achieve and manage the activity of public authorities and institutions. Thus, the evaluation must be transparent and objective, which implies: "a) the objective correlation between the civil servant activity the and the requirements of the public office; b) an objective evaluation of the individual professional performances of civil servants, by comparing the achievement of the individual objectives established with the results actually obtained; c) ensuring a motivational system by rewarding the civil servants who have accomplished outstanding results, so as to be determined an increase of the individual professional performance; d) identifying the training needs of civil servants in order to improve the results of the activity carried out with the purpose of reaching the goals set " (Article 106 din GD 611/2008).

Depending on the authority or institution within which the evaluation is made, the evaluator may be (Article 107 par. (2) (a-f): the head of the department for the subordinated servants, the hierarchically superior civil servant (for the servants with management functions), the senior civil servant for the civil servants in management or execution positions who do not have a direct chief, the mayor, the director of the public authority or institution for servants being under their direct subordination or a person expressly appointed for that purpose.

The evaluation of the civil servants activity is carried out annually, i.e. it takes into account the calendar year (the period from January 1 to December 31), but it can also be done for shorter periods if during the year there occur circumstances such as: suspension or modification of the employment relationship, promotion, termination of the employment relationship.

Since the evaluation is also performed in order to ensure the right of civil servant to promote, it pursues two distinct segments: the first - the degree of achievement of the individual objectives and the second - the level of fulfillment of the performance criteria.

It is obvious that these two elements need to be analyzed and quantified in the most objective and transparent way possible in order not to create imbalances or injustices. Thus, for the individual objectives, the normative act sets up the following requirements: "to be specific to the activities that involve the exercise of the public power prerogatives" (Article 111 par. (1) (a) of GD 611/2008), namely activities specific to civil servants; then, to be able to be done practically since only in this way their level of fulfillment can be quantified; to be established beforehand the time limits for their accomplishment (the time limits must be reasonable so that they can be achieved, and the activity of that authority or institution not be delayed or disturbed); "to be realistic – to be achieved within the foreseen deadlines and with the resources allocated " (Article 111 par. (1) (d) of GD 611/2008); and "to be flexible - to be able to be reviewed depending on the changes occurred in the priorities of the public authority or institution" (Article 111 (1) (e) of GD 611/2008).

Considering their degree of flexibility and the necessity for modifying them periodically, the individual objectives can be set half-yearly (or even more often), but must be promptly communicated to the servant together with the corresponding performance criteria. In other words, the servant has to know what to do, how to do, and how much time he has to accomplish the task.

The performance criteria are provided in Annex 5 of GD 611/2008 and include: criteria specific to execution civil servants from classes I, II and III and criteria specific to leading civil servants. Annex 5 is a complex document through which it is analyzed and evaluated in detail the most important aspects of civil servants activity.

Thus, for the execution civil servants there are 10 criteria and, depending on Class I, II or III, achievement of performance involves different activities. The 10 criteria are the following: the ability to implement (ie the ability to apply own solutions or those offered by the senior ones), the ability to efficiently solve problems (problems identification, solving, assuming the related risks), the ability to bear responsibilities, ability to self-train and turn to account the acquired experience, ability of analysis and synthesis, creativity and initiative spirit, ability of planning and strategic action, ability to work independently, to work in a team and competence to manage the assigned resources. From the bare listing of these criteria, we can deduce that there are certain difficulties in noting them. That is, regarded in this manner, the activity evaluation of civil servants seems to us a rather arduous process. In a system where hierarchical subordination prevails, it is difficult to determine the individual's creativity, analytical and synthesis ability. We will return to conclusion with the analysis of these aspects.

As concerns the management civil servants, the analysis of their performance degree has in view the following criteria: ability to organize, ability to lead, ability to coordinate, ability to control, ability to achieve the best results, decision-making, ability to delegate, human resource management skills, ability to develop staff skills, abilities of mediation and negotiation, objectivity in evaluation, and performance criteria foreseen for the first class execution civil servants without the ability to work independently and to work in a team.

Within the evaluation, each rating is scored with grades from 1 to 5, and for the final result it is made the arithmetic mean of them. Depending on the score obtained, the servant is assigned one of the following ratings: „a) between 1.00-2.00 - unsatisfactory; b) between 2.01 and 3.50 - satisfactory; c) between 3.51 and 4.50 - well; d) between 4.51 - 5.00 - very well." (Article 117 of GD 611/2008).

The actual evaluation of the civil servant is carried out in three stages. In the first stage, the evaluator draws up the evaluation report according to Annex 6 of GD 611/2008. This shall include the following elements: the final rating of evaluation for the individual professional performance that will be, according to the score obtained, one of the five listed in the previous paragraph; the description of the remarkable results obtained by the servant throughout the year, the difficulties encountered, the way in which they have been overridden and other aspects considered relevant by the evaluator; fixes "the needs of

professional training for the year following the evaluated period" (Article 115 (c) of GD 611/2008) and the individual goals to be achieved in the following year of evaluation.

In the next stage takes place the interview which, according to Article 116 par. (1) of GD 611/2008 "is an exchange of information between the evaluator and the civil servant, in which: a) the evaluated civil servant is informed on the records performed by the evaluator in the evaluation report; b) the evaluation report will be signed and dated by the evaluator and the evaluated civil servant." The same as in the case of debutant civil servant, if there are differences of viewpoints between the evaluator and the evaluated, they can discuss at the interview the aspects that are subject of disagreement, and the evaluator may change the final report in a sense agreed by the two, if the assertions of the evaluated person are founded and according to reality. At the end of the interview, the evaluated person signs the evaluation report, thereby certifying that he has taken note of its content. The refusal to sign of the evaluated servant does not affect the report validity. Separately, it is concluded a protocol where it will be found this refusal and the evaluation report is to produce the related legal consequences.
The final stage of evaluation consists in the counter-signature of the report by a civil servant designated especially for that purpose. According to Article 118 par. (2) "It has the capacity of counter-signatory the civil servant who is hierarchically superior to the evaluator, according to the organizational structure of the public authority or institution. Exceptionally, in case that, according to the organizational structure of the public authority or institution, there is no civil servant hierarchically superior to the evaluator, it shall be designated as counter-signatory the civil servant holding the highest public office in that public authority or institution and when this is not possible, the counter-signatory will be the deputy of the head of the public authority or institution or a dignitary of his/her subordination. "The duties of the counter-signatory are not just formal. Thus, he/she has the power to modify the final evaluation report if it contains elements that do not correspond to the reality or in the case of discrepancies between the evaluated and the evaluator, discrepancies that have not been solved at the interview stage.

If the evaluated person is dissatisfied with the final form of the evaluation report, he/she can address the administrative court and request the nullity of the report drafted in violation of laws and his/her rights, after having gone through the preceding procedure, namely after having filed an appeal to the director of the public institution or authority in question (within 5 days of the communication) and the solution of this appeal was not favorable (the deadline for settling the appeal is 15 days).

Revaluation of the performance of a civil servant during a calendar year may be made exceptionally following the decision of the head of the public institution or authority or may be ordered by the administrative court. In any of the two situations, the procedure for making the evaluation and appeal it is that described in the previous paragraphs.

The rating obtained by the civil servant as a result of the annual evaluation is very important for the development of his/her career. For promotion, there will be taken into consideration the evaluation results of the two years preceding the promotion. Thus, a "unsatisfactory" or "satisfactory" rating will prevent the evaluated servant from promoting in the next two years after the evaluation. Only by improving the performances and the manner to accomplish the objectives, the servant can prove that he/she has the qualities required for promotion.

IV. Discussions and Conclusions

From the above rendered we can conclude, without fear of exaggeration or mistake, that the annual evaluation result of civil servants is an essential element of exercising the right to career development. This system of annual evaluation is intended to ensure promotions based exclusively on professional merits and experience. It has been designed so as to be applicable to all civil servants in a fair and transparent manner, allowing the evaluated servant to participate in the evaluation process, to issue

opinions, to justify his/her point of view and to appeal against the report when it is not favorable to him/her.

From the case law of the administrative courts, we recall the Civil Decision No. 147 of 2011 of the Ploiesti Court of Appeal - Commercial and Administrative and Fiscal Department, through which it was approved the request for the annulment of evaluation report of the Applicant's individual professional performances for the year 2009 with the Unsatisfactory rating, registered under No. 1710/29.01.2010 and the Defendant to be ordered to draw up another evaluation report, which was motivated by the fact that when drafting this report there have not been taken into account the objectives set within the evaluation report for the previous year (2008) and there have been analyzed other objectives related to which the evaluated person was not informed as provided by the normative act.

From the case law analysis it did not result that there was a large number of appeals concerning these reports, but their appeal in court is an effective means of defense for civil servants who, for various reasons, are not objectively evaluated.

At the same time, we cannot fail to notice that the content itself of the evaluation criteria is quite abstract and makes the activity specific to that criterion difficult to quantify. For example, as regards the criterion relating to the ability to efficiently use the material and financial resources allocated, without prejudice to the institution activity, in the literature it has been basically issued the opinion that "in order for this criterion to be judged correctly, there should be certain performance indicators, particularized by category of servants, depending on the material and financial resources allocated. For example, a financial indicator that can be used for evaluating the performance of certain servants of first class, in respect of the use of allocated financial resources (with high applicability in the context of the current economic crisis) could be the determination of coercive performance at the level of civil servants, a concept which is generically defined in the first part of this article" (Ștefănescu A., et al, 2010, p. 236).

Thus, while some criteria are too general, others cannot be applied in certain particular situations as they are not directly related to the activity of the civil servant for the evaluated period. For example, criterion number 2 of Annex 5 of GD 611/2008 concerning the capacity to efficiently solve the problems that materialize through "the ability to overcome the hindrances or difficulties encountered in the current activity, by identifying the solutions adequate for solving and assuming the identified risks" it may well not be found at all or only insignificantly in the repetitive and very simple activity of a civil servant.

In our opinion, it would be necessary that this evaluation be more personalized, more leaning towards the specific activity of each position in the public administration. Only in this way could be overtaken the purely formal character of some evaluations that give the maximum score to situations and abilities that have not actually been achieved by a certain civil servant. Of course, neither the solution to give the minimum score to that servant would seem acceptable to us since it is by no means the fault of that servant that he did not actually face during the evaluated period any situation that would require his/her performance on that criterion.

It is true that by setting up a unique way of evaluating civil servants, it has been pursued uniformity and equal treatment in the context in which promotion has to be done exclusively with regard to individual performances, the level of professional knowledge and the effective method of using them.

In the same train of ideas, the specified criteria, despite their multitude and diversity, allow for much subjectivity and even superficiality in evaluation. Also, among the evaluation criteria, is lacking any way of taking into account the opinion of citizens concerning public services. Some authors (Ștefănescu A., et all, 2010, p. 237) consider that the degree of citizens' satisfaction for the services provided should be an essential element of the servants evaluation, but we cannot agree with this aspect since, although the activity of the authorities and the public institutions is oriented towards meeting needs of public interest,

nevertheless, on the one hand not all servants have direct attributions in this respect and, on the other hand, citizens often criticize the bureaucracy and the functioning of the entire system of public administration is not imputable to individuals. Aspects such as the circuit made by a request within the institution until resolution are not tied to the work efficiency of a servant. Once received, the request is registered and goes through multiple compartments until resolution, no matter how simple and predictable its resolution may be. Thus, an act that could be drafted and communicated within 48 hours is actually done in 30 days. And such situations are quite a lot and it would not be right that the citizen's dissatisfaction regarding the duration of the request resolution to affect the evaluation of a civil servant who only complies with the principle of hierarchical subordination, legal rules and internal regulations of that institution or public authority.

And, as a last observation, we mention that also the promotion on the criteria of personal merit, the motivation of civil servants to perform in order to progress in their career was criticized in the literature. Thus, there is a certain reluctance over the "incentives or rewards for the best results" (Management of Performance in Administration: Performance Measurement and Result Based Management, Public Management, Special Edition, No. 3/1994, p.79) which those concerned should have achieved anyway. We believe that these statements do not imply also the right of civil servants to be promoted given the fact that they have successfully accomplished their job duties.

There is no doubt that the current system of evaluating the professional performance of civil servants is perfectible, but, at the same time, we cannot disagree with the fact that such an evaluation transparent and applicable for all civil servants is an effective measure to improve the quality of the services provided by the public institutions and authorities of Romania to its citizens.

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Logistics' Role in the Sustainable Development of a Multinational Company

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Abstract

Sustainable development supports the fact that social, economic and environmental challenges are connected, and their management requires an effective approach.
In an enterprise, product logistics concern all phases of the production cycle, from raw material supply, assembling or spare parts at all levels of the manufacturing chain, transport, warehouse storage, and product sales.
Logistics is an extensive field that includes several chapters, thus managing to be in close relationship with all the functions and departments of the enterprise, contributing to the increase of performance, the correct administration of data and goods, the organization of information and financial results.
In this article I analyzed the role, impact, importance and what logistics supposed to accomplish for an automotive multinational company/corporation in Romania, located in Braila, but especially how it leads to the sustainable development of the organization.

Keywords: sustainable development, logistics, supply chain management, automotive company.

Introduction

The concept of sustainable development designates all the forms and methods of socio-economic development, the basis of which is primarily to ensure a balance between these socio-economic systems and the elements of natural capital.

Sustainable development is a global challenge that calls for a coordinated response from all of the world's communities. Countries, cities and local governments need to measure, manage, and mitigate emissions and enact regulations that support sustainable development.

Development is associated with economic growth, and if there is growth, there is necessity and development.

At the end of the 1980s, the notion of sustainable development was proposed following a finding that the traditional model of development can not, from an environmental point of view, perpetuate, and which is socially unfair.

Logistics is an integral part of our everyday life and is a field of activity that has witnessed a strong evolution after the Second World War and especially over the past three decades in terms of its role and forms of deployment in the economy. Today, more than ever, it influences a large number of human and economic activities.

In order to better emphasize the role of logistics, or more precisely, of the supply chain management, the present project was drawn up within a company that carries out the activity according to CAEN CODE 2931 Manufacture of electrical and electronic equipment for motor vehicles and for motor vehicles / section C with location in Romania, city of Braila.

In other words, in the production enterprise mentioned above, in a production enterprise, the time it takes to manufacture a product is strongly conditioned by the supply of raw materials, assembly elements or spare parts at all levels of the manufacturing chain. It is called "logistics chain" all the related logistics related links: purchasing, supply, stock management, transportation, handling, etc.

The logistics chain is expanded globally, starting with all suppliers and subcontractors.

Throughout this paper we sought to answer a few questions, namely:

- If a company adopts and implements logistics or the concept of supply chain management, how effective should it be?
- What are the advantages that logistics bring to a multinational company?
- What is the role and impact of logistics / supply chain management on the company and how it leads to sustainable development?

In response to these questions, we have demonstrated that the implementation of logistics or the creation of a department responsible for logistical tasks (acquisitions, transport, planning, inventory, storage) brings only benefits, makes work more efficient, saves time, improves from all points of view aspect leading to sustainable development.

Material and Method

Sustainable development has also had a profound impact on many businesses, their operations and their supply chains.

The complex and interrelated nature of environmental problems will challenge firms to move beyond mere compliance with environmental regulations to develop innovative responses to environmental challenges.

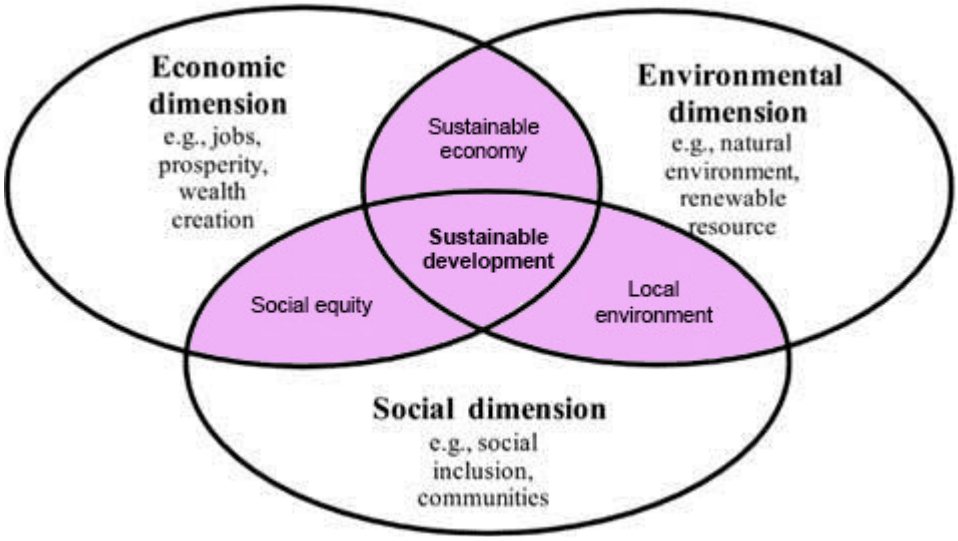

Figure 1 : Sustainable development scheme

Organizations will have to focus on innovative responses such as reducing waste and emissions, recycling solid waste, conserving energy and reducing business impacts on the environment.

Initially limited to the organization of transport and storage, logistics intervenes today in all phases of the product lifecycle, from its conception to after-sales and maintenance.

In a quest to meet customer demands for more environmental responsible products, companies are rethinking supply chain strategies, structures and flows. Sustainability-related initiatives are motivating new forms of inter- and intra-firm collaboration. Meanwhile, new partnerships are requiring increasing levels of operational transparency and accountability.

At the same time, many companies are finding out that evaluating their supply chains through the lens of sustainability can provide a considerable competitive advantage.

Logistics deals with the planning and control of material flows and related information in organizations, both in public and in private sectors. Broadly speaking, its mission is to get the right materials to the right place at the right time, while optimizing a given performance measure (e.g. minimizing total operating cost) and satisfying the given set of constraints (e.g. a budget constraint).

One of the problems that may arise is when it comes to deciding how and when raw materials, semi-finished products and finished products must be purchased, moved and sorted. Logistics problems also arise in public enterprises and organizations that produce services. This is the case for garbage collection, postal delivery, public utilities and post-sale services, etc.

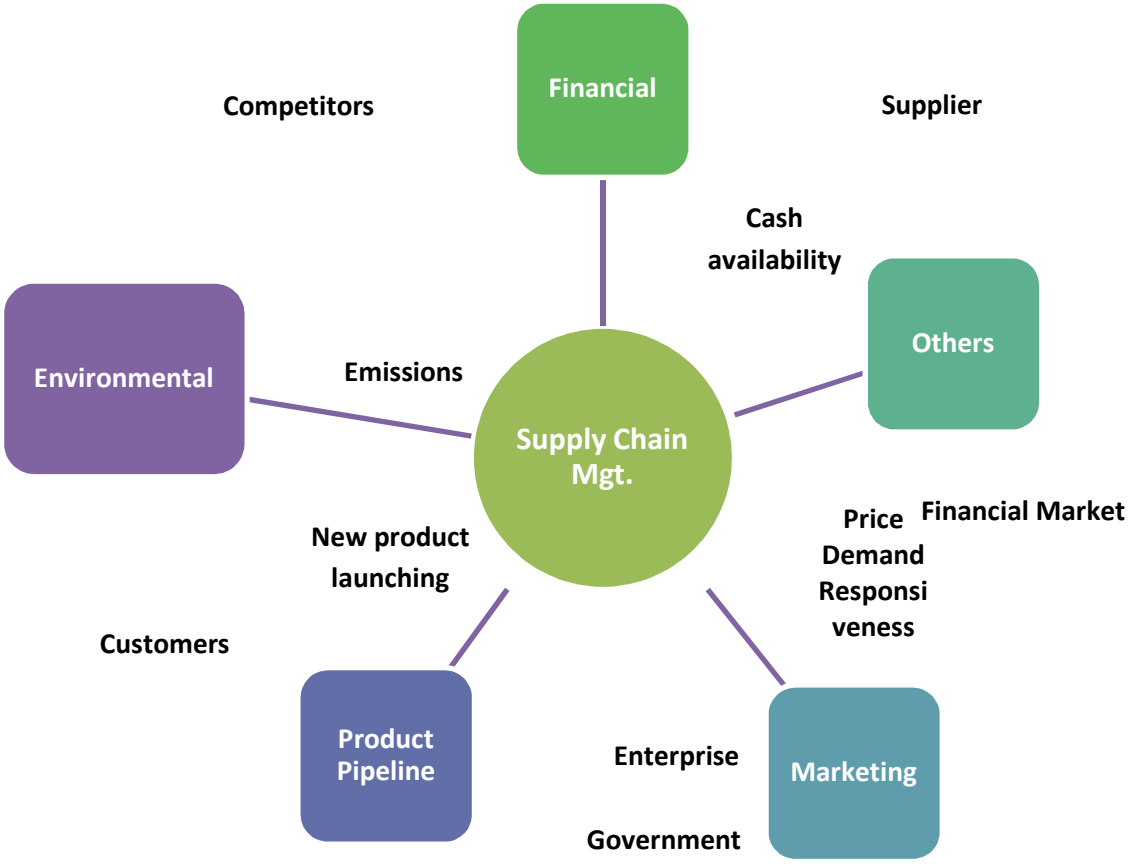

Figure 2: Sustainable supply chain management activities

Sustainable supply chain management activities—which attempt to reduce the environmental impact of products throughout their entire life cycles, can motivate changes which lead to increased quality, improved efficiency and greater organizational effectiveness. In the future, it is those organizations that are able to secure the resources and proactively develop competencies to address the challenges of natural environmental constraints that will win the battle.

Measuring the organization's performance in the logistics field is becoming increasingly important in the context of increased focus on the supply chain. It has a critical role for the success of many organizations, regardless of the field of activity (production, retailing, wholesale trade, etc.).

The main arguments supporting the need to measure value in logistics are:

- Logistics has many "moving parts", product flows, orders, information, between different points (manufacturers, wholesalers, retailers, transporters, etc.) at international level;
- Logistics holds a significant share in the organization's total costs;
- Logistics has become a key area of competition in various fields of activity. Measuring logistical value generates substantial benefits for the organization.

Results and Discussions

The automotive industry is not only one of the most important economic sectors in the world but has an important role in terms of quality, variety of products and process complexity.

For the multinational company with CAEN CODE 2931 Manufacture of electrical and electronic equipment for motor vehicles and motor vehicles / section C in the city of Braila, logistics has an important role: about 87% of the time a product is in one place is actually, used to move and store it. Logistics aims to involve the integration of flow control in the enterprise strategy.

Thus, among the most significant advantages of achieving effective measurements in the logistics field, the following are listed:

• identifying inefficiencies and reducing costs.
• improving customer service.
• substantiating decisions about serving.For sustainable development and in order to make work more efficient, logistics helps and seeks to involve the integration of flow control in the enterprise strategy.

Logistics is a diverse and dynamic function that has to be flexible and has to change according to the various constraints and demands imposed upon it and with respect to the environment in which it works. Therefore, so many terms have been used, often interchangeably, in the literature and in the business world. One quite widely accepted view shows the relationship as follows: (Baker 2006):

Logistics = Supply + Materials Management + Distribution

In this way, logistics implementation impacts the following:

- Enterprise growth; either because the strategy involves a perfect control of logistical issues (later logistics), or because logistics is a component part of the industrial strategies to which it contributes through their modeling (previous logistics);
- cost control. This can be done:
  - ✓ through a better knowledge of the whole cost of the product, from raw material to after-sales, especially when the enterprise has integrated logistics;
  - ✓ by lowering logistical costs due to a global approach and action on the overall enterprise flows.
- Possibility to outsource part of the enterprise's activities. The logistics analysis allows the enterprise to focus on its core vocation by entrusting some specialized forms to operations such as transporting and storing commodities. The enterprise may have recourse to services, subcontracting or even to the creation of one or more specialized subsidiaries.
- Normalization of products and management process. Stream optimization involves the development of rules:
  - ✓ standardization of certain components and products
  - ✓ relative to the quantities stored or transported;
  - ✓ on programming-launching, procurement procedures;
  - ✓ on costs.
- Diversification of the enterprise. Control of the logistics chain allows the enterprise to expand its range of activities.
- Flexibility and adaptability of the enterprise, due to the development of normalization, greater flexibility in upstream and downstream distribution, better control of transport and storage management.

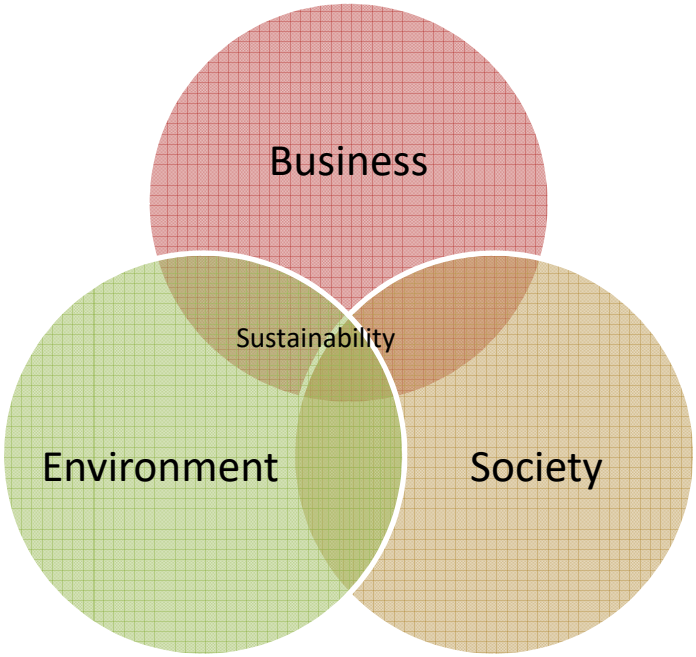

Figure 3: The three areas of sustainable development – environment, business and society – govern all our activities
(https://w5.siemens.com/cms/supply-chai management/en/sustainability/approach/pages/strategy.aspx)

Logistics exerts a certain influence on:

- the transport sector. The development of logistics generates profound mutations and restructurings to various transport actors who can change their policies and leadership in activities;
- regional development. Enterprises are attracted to implanted in regions with a solid logistical infrastructure, contributing to their economic growth and development;
- economic policies. Taking into account the increasing role of logistics leads the state and local authorities to step up their interventions to improve transport networks to help a less-favored region, to pursue a transport policy, to orient transport shifts, etc.
- the scientific and technical environment. Its domain includes both the creation and the transmission of the information needed to optimize the flow management.

The development of logistics is related to that of new information and communication technologies. Logistics is an element of the scientific and technical policy of industrialized countries.

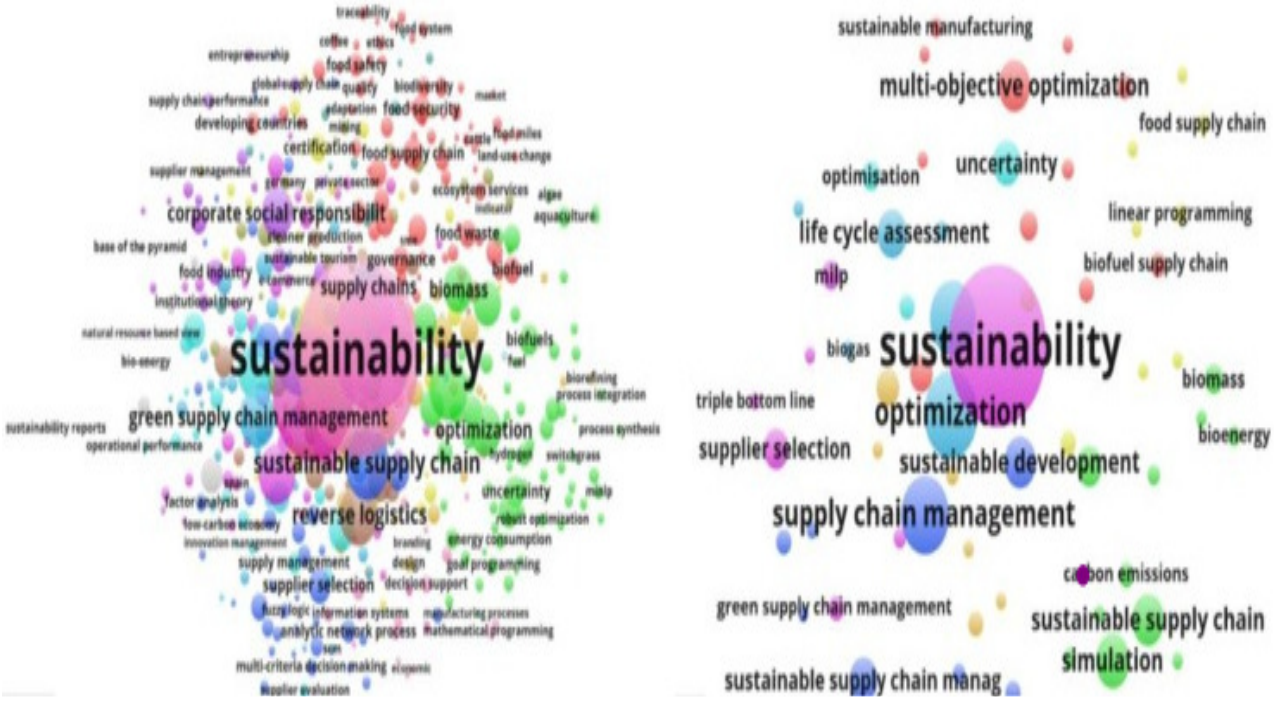

Figure 4 : Logistics sustainability
(https://www.sciencedirect.com/science/article/abs/pii/S0377221717309499)

Logistics analysis favors the generalization of modern production methods - automation, robotization, etc.

Supply chain management

A supply chain means a wider logistics that encompasses all the activities associated with the transfer / movement of goods from the raw materials stage until they reach the final consumer.

The supply chain includes a variety of businesses, ranging from raw materials to those dealing with retail. The supply chain also includes all kinds of companies engaged in transportation, storage, information processing and materials.

A supply chain can be managed in two ways: either in an integrated or fragmented manner.

An integrated supply chain management focuses on relationships, flow of information and material flow across organizational boundaries to reduce costs and improve flows.

Companies that adopt supply chain management are looking for ways to integrate logistics, supply, operations, and marketing functions with other members of the supply chain for materials, information, semi-finished products, finished products to flow smoothly from the point of origin to the point of consumption at a low cost and a high level of service to customers. Supply chain management is based on partnerships and cooperation. Without this, there could be no integration of efforts. Supply chain management requires the sharing of sensitive customer information, application, strategic plans, transactions, etc.

Supply chain management involves communication and joint involvement, and therefore often use work teams that go beyond organizational and functional boundaries to coordinate the movement of products to the market.

In other words, in order to achieve the real potential of supply chain management, it is necessary to integrate not only within the organization between departments but also with external partners.

The goal of supply chain management is to satisfy customers, achieve high organizational performance, and identify ways in which firms continue to learn, innovate and grow.

The objectives of supply chain management are waste management, time compression, flexibility in response capability, and cost reduction per product unit.

These objectives were mentioned by all the managers with whom they were discussed, talking about the importance of both inter-functional coordination and that between firms. Organizations seeking to compete with industry leaders need to revise and improve how they measure performance.

Conclusions

Addressing the theme of sustainable development is a very important and current approach. It is, at the same time, a generous subject in the concerns of many specialists, politicians, decision-makers, but also a subject of great complexity.

A special way of approaching the subject has manifested itself in the importance and priority of one or other of the basic components of the development of human society:

- the economic factor, as the engine of the development of society;
- the environmental factor, as the element that sustains the consequences of uncontrolled, chaotic development, having potentially irreparable effects on the environment and which, in many areas or areas, is already manifesting;
- the human factor, the man being, all the "measure of all things";
- the technological factor, being the element called to develop, but within the limits of resources, environment, human health and biodiversity.

Performance and sometimes even enterprise continuity depend on logistics control today: strategy, growth, or flexibility is directly associated with flow management, which conditional strategic decisions and business outlook.

Webgraphy

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Networking As an Approach for Managing Ambidexterity in Creative Industries – Literature Overview and Research Concept

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Abstract

As proposed by the paradox theory, companies are forced to deal with different pressures influencing their performance. Based on that assumption, the ambidexterity concept was proposed as an approach to simultaneously resolve the exploitation vs. exploration paradox. Analyzing the research results, we may confirm that those tensions are extremely important in creative industry where the pressure on fostering creativeness and, at the same time, optimizing the economic outcome is crucial. On the other hand, that creativeness (based on knowledge absorption) is strongly influenced by networking skills – either internal, or external. Therefore, based on the literature review and database search, we proposed perceiving networking as an approach enabling the combination of the tensions mentioned and, which in that way, manifests ambidexterity.

Keywords: ambidexterity, creative industry, networking, paradox theory, exploration, exploitation

Introduction

There has been strong evidence in the literature that the building of a competitive advantage by contemporary organizations requires resolving the paradoxes that could be identified in managerial practices. According to Smith and Lewis (2011, p.38), a paradox is defined as *"contradictory yet interrelated elements that exist simultaneously and persist over time"*. Those contradictions and interdependence are the main source of managerial dilemmas (Putnam, Fairhurst, & Banghart, 2016) and therefore require more insight into their nature and further recommendations for managers (Schad, Lewis, Raisch, & Smith, 2016). For that reason many different areas have, so far, been investigated, including goal setting (Miron-Spektor & Beenen, 2015), sustainability and CSR concept (Hahn, Preuss, Pinkse, & Figge, 2014) or human resources management (Aust, Brandl, & Keegan, 2015). Although the research perspectives are different, the paradox lens seems to be useful in searching for recommendations for increasing the efficiency and accuracy of managerial actions taken.

As has already been mentioned, there are different issues that are investigated using the paradox theory as proposed by Poole and Van de Ven(1989). However, the main common approach is to describe the simultaneous pressure on exploitation and exploration (Gibson & Birkinshaw, 2004). Based on studies of the literature, this paper will investigate whether those tensions are present in one particular sector – creative industry, where they seem to be extremely important. Companies functioning within that industry are forced to find the balance between actions aimed at converting intellectual and social capital into economic capital that can be measured by the final economic outcome (Chen et al., 2013). As a result, it is necessary to balance innovativeness, understood as the original effect of creative work and its measurable, economic effect. Therefore the main paradox that could be identified is the simultaneous pressure on fostering creativeness and achieving desirable economic outcome (Jones et. al., 2004) which would require ambidexterity (O'Reilly & Tushman, 2013). Studying the literature on creativity and creative industries would allow us to conclude that in that business among the key factors leading to success we could mention building and continuously fostering relationships which, as a result of such actions, operate within networks (Starkey, et al., 2000). Therefore, the main aim of this article is to investigate the current research trends exploring the issue of ambidexterity (through the lens of exploration and exploitation paradox) using the creative industries perspective and checking whether networking could be one of the approaches for

managing ambidexterity. For that purpose, an analysis of the literature will be conducted using Scopus and Web of Science databases. Based on that, research trends will be analysed and further research implications will be presented.

Literature Review

Paradox Theory and Ambidexterity

As it was observed in managerial practice, to execute the strategy of development, organizations are forced to deal with different *"tensions, oppositions and contradictions"* and that assumption is the basis of paradox theory (Poole & Van de Ven, 1989). Although those conflicting pressures have different backgrounds (we may mention here i.e. the dilemma of diversification vs. specialization, now vs. the next or efficiency vs. effectiveness) they are quite unavoidable and therefore are perceived as an universal part of the decision making process in either different types of organizations or different industries (Ogrean 2016). That general characteristic is derived from the fact outlined by Rodgers (2007) who stated that *"the essential elements of a paradox are the simultaneous presence of conditions that are self-contradictory and apparently mutually exclusive"*. Moreover, as suggested by Lewis (2000) the interdependence between competing pressures, that is the basis of paradox theory, could be used as a source for long-term organizational sustainability. Therefore, it could be perceived as a source of competitive advantage. For that reason, investigating actions which are focused on resolving the paradoxes seems to be an interesting and still relevant are for research.

Among the different types of pressures, as distinguished by March (1991) we can mention two universal paradoxes – exploration where the main goal is to optimize the results using existing knowledge, and exploitation where knowledge needs to be acquired (Luo et al. 2015). Therefore managers are forced to introduce different actions in order to deal with simultaneous pressure on short-term productivity (where stability and plans are required) and long-term vision (based on flexibility and adaptability). Those actions are focused on successful resource allocation and coordination (Parmentier, Picq 2016). The topic of exploitation vs. exploration paradox has already been deeply investigated by many scholars (Lavie et. al., 2010) and in combination with enterprise performance (Vagnani, 2015). Dealing with those tensions is called ambidexterity and is based on applying the paradox lens (Papachroni et. al., 2015) where combining the pressure between flexibility and efficiency is required. It is important to mention that there are two perspectives on ambidexterity. According to some researchers, exploration and exploitation are the two ends of the same continuum and in that case management between such trade-offs is needed (Auh & Menguc, 2005). In the different perspective, exploration and exploitation are independent and orthogonal and it is necessary to ensure the high level of simultaneous fostering of both (Jansen, Van Den Bosch, & Volberda, 2006). Such transition from managing the trade-offs is postulated by Raisch and Birkinshaw (2008). Companies that are using it successfully (ambidextrous organizations) were investigated in the study by Andriopoulos and Lewis (2009).

Creative Industries

Organizations operating in creative industries are facing specific types of tensions. As observed by Knight and Harvey (2015)*"the notion of a creative industry embodies a fundamental paradox"*. On the one hand, the tensions are connected with building and expanding their creative potential (Townley & Beech 2010) and as a result establishing the innovation processes (Parmentier & Gandia 2013) which could also involve the inventing process based on new technology (Mangematin, Sapsed & Schüßler 2014). Therefore, in some cases artistic creation needs to be combined with technology usage (Lê, Massé & Paris 2013) which could result in change of the business model (Moreau 2013) as well as processes designed (Gandia 2013). All those actions could be called the exploration activities. On the other hand, there is high pressure on the optimization of costs (Jones et. al., 2004) that represent the exploitation issue. Therefore, consistency between creativity and economic efficiency (Jones, Svejenova, Strandgaard 2012) is highly recommended.

For that reason, a mismatch could be observed between the spontaneous and un-structured set of outcomes necessary to introduce new ideas (Townley and Beech, 2010) and standardized routines regulating the internal processes which could influence the freedom necessary to use creative potential (Hodgson and Briand, 2013). That is reflected even in the definition of organisations operating in creative industry presented by the same authors where the origin of individual creativity as well as exploitation of intellectual property are highlighted.

The managerial practice that enables the balance of those tensions requires ambidexterity, which influences long-term performance (Lubatkin et al. 2006). However, as reported by Alvarez and Barney (2004), implementing that concept is extremely difficult in the case of SMEs where financial and human resources are scarce. Considering that in the population of companies operating in creative industries small sized enterprises are dominatant it seems important to investigate this issue in more detail.

Networking

Many research studies reported that networking is part of included a managerial practice among creative organisations (Starkey, et al., 2000). It is strongly observed in small companies where external networks help manage innovation paradoxes, mainly by initiating exploratory projects with start-up ventures, introducing new and varied design perspectives and identifying potential creative workers in the employment procedure (Andriopoulos &Lewis 2010). Regardless of the size, in the creative industries the network of partner companies influences the decision – making process because it can limit or expand their business possibilities. On the other hand, innovation (which is strongly connected with creativity) is based on the knowledge network formed by the relationships between employees (Snijders, Lomi & Torló, 2013), where constant social interaction and trust are essential (Khvatova et. al., 2016) because they foster knowledge transfer and absorption (Fritsch & Kauffeld-Monz, 2010). Therefore internal networking is reported to be highly important.

As mentioned before, networking is crucial in creative industries and could be therefore perceived as an enabling approach to deal with the tensions between exploration and exploitatio. It would be called network ambidexterity and should be separated from the structural (or organizational) ambidexterity which is based on designing the internal processes (Parmentier and Picq 2016). Usage of the networking approach should involve building internal networking structures which operate independently (O'Reilly and Tushman, 2013) as well as building external networks, which would require, in some cases, introducing change in the business processes necessary to cope with other sectors (Gandia 2013). It is manifested in the term "co-opetition", which was introduced by Brandenburger and Nalebuff (1996) and further confirmed by Lado, Boyd, and Hanlon (1997) who associated it with high level of organizational performance. Therefore, external networking, either with competitors or with other stakeholders, seems to be highly recommended.

Methodology

The research methodology was based on the approach proposed by (Tranfield et. al, 2003), where a systematic literature review should follow four main steps:

1. Planning the review and its aim.
2. Conducting a review (identification of research).
3. Data extraction and synthesis.
4. The report and recommendations.

The main aim of the research was to determine the research trends in the area of ambidexterity in the creative industry (creative organizations) from the perspective of management. In particular, we were trying to check whether networking could be one of the approaches used to manage ambidexterity. Our research perspective is presented in figure 1.

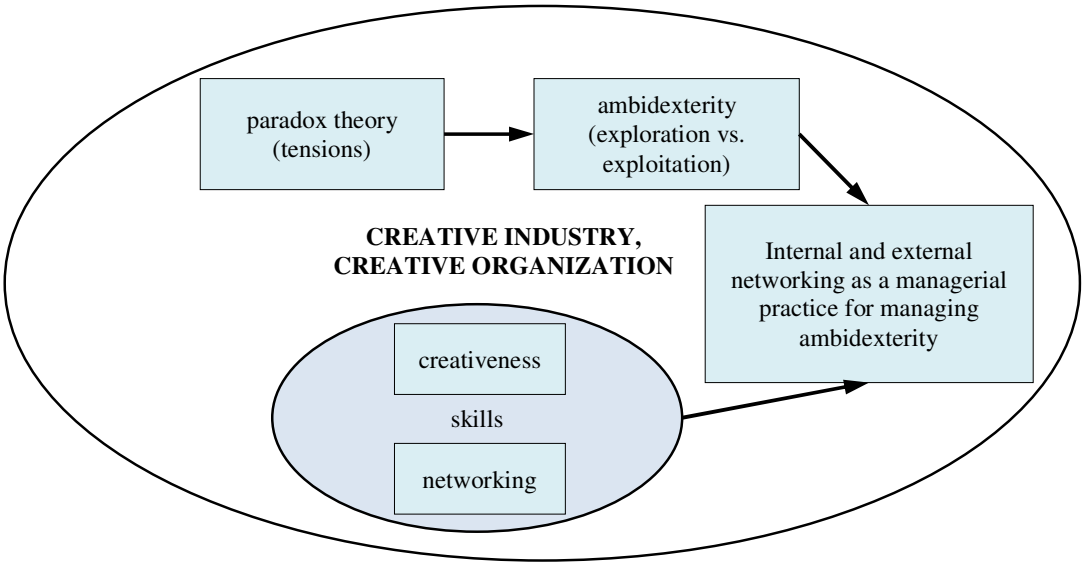

Figure 1: Framework for research perspective proposed.

To accomplish the research goal, our analysis was divided in eleven stages described below:

- Stage I-V – we identified the articles which referred to *ambidexterity* defined as *exploration – exploitation* and *creativity* (broadly defined) *(creativ*);*
- Stage I-VII–we identified the articles which referred to *ambidexterity* defined as *exploration – exploitation, creativity* (broadly defined) *(creativ*)* and *networking (network*);*
- Stages IV, VI and IX-XI - we identified the articles which referred to either *creativity* (broadly defined) *(creative*)* or *networking(network*)*and *creative industries* (*creative organizations*).

For that purpose, an analysis of the literature was conducted using Scopus and WoS databases. Only articles in English, published in the last twenty years (between the period01.01.1999 to 01.08.2018), have been analyzed.

Research Results and Discussion

The authors focused on one of the paradoxes mentioned in the ambidexterity concept, namely the exploration - exploitation paradox. Therefore, in the first five stages, filtering was performed based on two criteria: the occurrence of the term *ambidexterity* or *ambidextrous* (the first set) and the occurrence of the terms *exploration* and *exploitation* (the second set). Only the title, abstract or key words were analyzed. Afterwards, the two sets were compared and confronted with the next set, which was created by filtering using the term *creativ** (creative, creativity, creatively, creativeness). The resulting collection was further analyzed. Only full-text articles published in journals (excluding the reviews, editorial notes and conference materials) and focused on business and management were considered. 10 publications were found in the Scopus database, and 33 in the WoS database. Both research results were compared in order to eliminate duplicating articles. As a result, 39 articles were identified.

In the second step (including stages from I to VII) further selection was proposed by narrowing the results obtained in stages I-VI to publications containing the term *network ** (network, networking). In the research results, only the full-text articles published in journals (excluding the reviews,

editorial notes and conference materials) and focused on business and management were considered. No publication was found in the Scopus database, whereas 2 were identified in the WoS database.

The third step (stages IV, VI and IX-XI) was based on comparing two sets of publications resulting from filtering databases using the terms *creativ** (creative, creativity, creatively, creativeness) and *network** (network, networking). The new collection of articles was compared to the set of results identified after filtering with the following terms: *creative industr** (industry, industries) or *creative organization*. Only the full-text articles published in journals (excluding the reviews, editorial notes and conference materials) and focused on business and management were considered. In the Scopus database we found 62 publications, while 63 were found in the WoS database. Both research results were compared in order to eliminate duplicating articles. As a result, 94 articles were identified.

Detailed research results are presented in Figure 2.

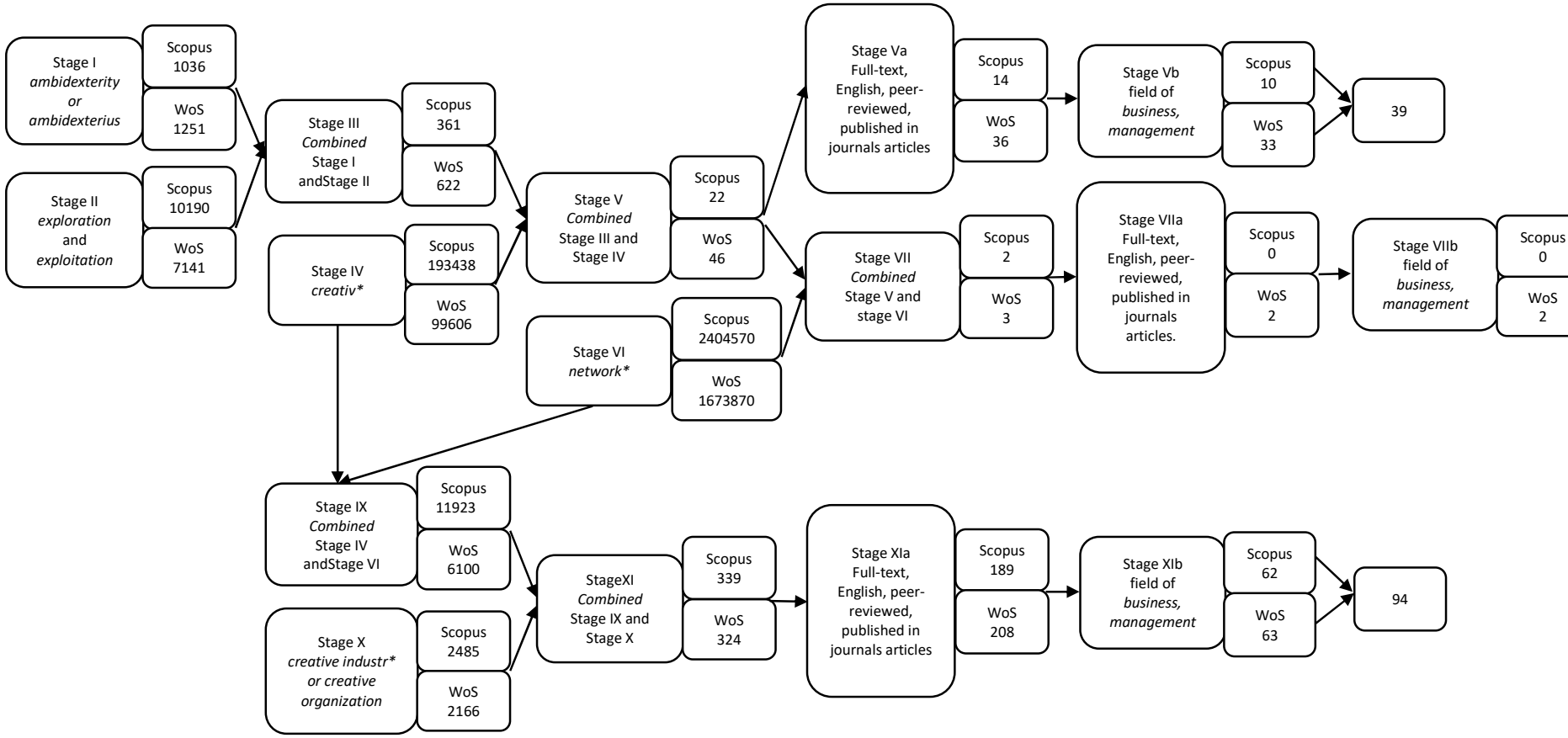

Figure 2: Stages, criteria and results of article selection using the Scopus and Web of Science databases (between the period 01.01.1999 to 01.08.2018)

At the next stage of research, bibliometric techniques were used, including either the analysis of the number of publications and their content, or frequency analysis, which facilitated the investigation of research activity in the area of ambidexterity (defined as the exploration-exploitation paradox) in combination with creativity (broadly defined) and networking in the area of creative industries / organizations over the last 20 years (1999-2018). Based on the detailed analysis of 135 articles (selected at different stages), the main research areas were identified.

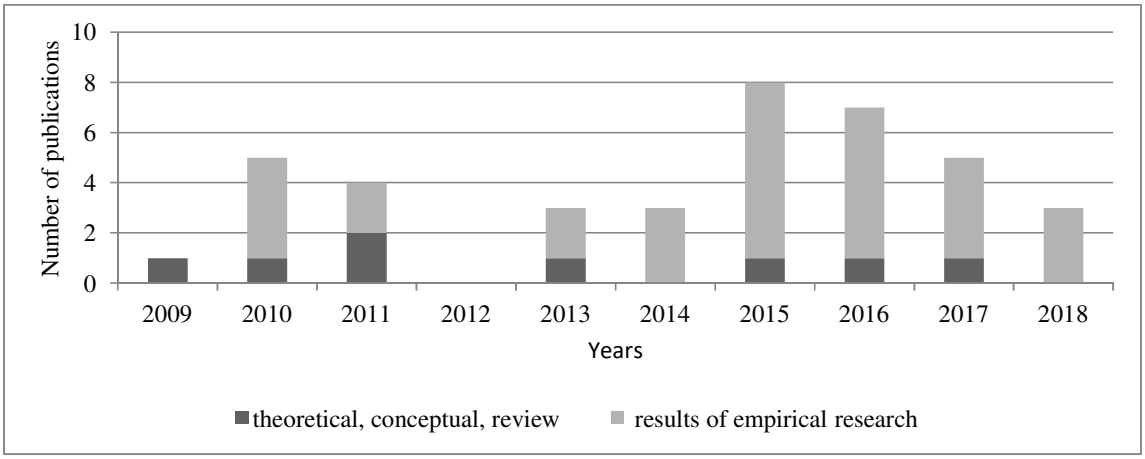

Figure 3: The number of publications referring to *ambidexterity* (defined as *exploration – exploitation paradox*), and creativeness (broadly defined) between 2009-2018[1].

Based on the research results presented on Figure 3 we may identify the first article referring to *ambidexterity* (defined as the *exploration – exploitation paradox*), and *creativity* (broadly defined) published in 2009. Wang and Rafiq (2009) tried to understand how two core components of organizational culture - the organizational diversity and shared vision could be used to resolve the tensions between exploration and exploitation. Between 2010 and 2014, another 15 articles were published. The publication peak occurs in 2015. That year eight articles were published. Since then, we have observed a systematic decline of works on ambidexterity (in the sense of the exploration - exploitation paradox) and referring to broadly understood creativity. It should also be noted that during the period considered, empirical publications dominate (almost 80% of papers that appeared between 2009 and 2018).

Using frequency analysis based on the research perspective (Oliver, Ebers, 1998), main research areas were identified. The research areas, the number of publications and sample references are presented in Table 1.

[1]Only the data for the period 2009-2018 were presented, because there was no article found in Scopus and WoS databases before that period.

Table 1: Main research areas of ambidexterity (defined as exploration – exploitation) and creativity in management science and sample references (the period between 2009-2018).

Research perspective	Main research areas (no of publications)	Sample references
Learning process and knowledge acquisition	the balance between explorative-exploitative learning (2)	Brink (2016)
	exploration-exploitation knowledge management (2)	Schmitt (2015)
	knowledge, learning and motivation as 3 levels of paradoxes (1)	Knight, Harvey (2015)
Organizational context	competences (5)	Brion, Mothe, Sabatier (2010)
	capabilities (also dynamic capabilities) (5)	Birkinshaw, Zimmermann, Raisch, (2016)
Managerial practice	project management as a supporting tool (2)	Andersson, Johansson (2010)
	collectivistic culture (2)	Hooge, Béjean, Arnoux (2017)
	empowering and training (3)	Sok, O'Cass, (2015)
	contextual ambidexterity and organizational culture (4)	Wu, Wu (2016)
	team performance (2)	Kostopoulos, Bozionelos, (2011)
	role conflict and dual-leadership approach (4)	Rosing, Zacher (2017)
	goal setting (1)	Stetler, Magnusson (2015)
	individual behavior (6)	Simon, Tellier, (2011)

A detailed analysis of 39 articles referring to *ambidexterity* (defined as the *exploration – exploitation paradox*) and *creativity* (broadly defined), allowed for the identification of three main research perspectives:

- Learning process and knowledge acquiring (5 articles)
- Organizational context (10)
- Managerial practice (24)

Thus, it can be observed that works focused on the problems of managerial practice dominate. However, different issues were investigated (i.e. project management, organizational culture, individual behavior, role conflict, leadership approach, goal setting, team performance, empowering and training).

The frequency analysis of research problems and/or research goals allows for the identification of the most investigated issues related to ambidexterity; innovation, exploration and exploitation, leadership, performance, organizational context, paradox, behaviors, creativity and management. It is presented in Figure 4.

Figure 4: The frequency analysis of research problems and/or research goals (word cloud).
Source: own study (visualization with wordle.net)

The analysis of the data presented in Figure 4 allows for the identification of the first article referring to creativity, networking and the issues of creative industries/organizations, which was presented in 2005. Wilson and Stokes (2005) tried to understand how to distinguish managing creativity from managing innovation given the managerial implications to develop business communication skills, external focus and promotional strategies.

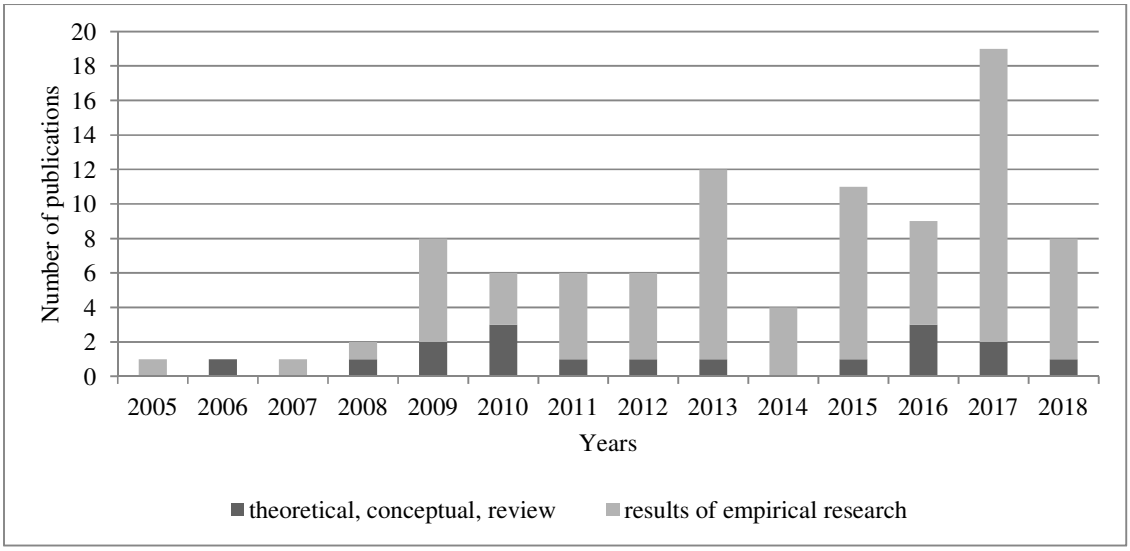

Figure 4:The number of publications referring to creativeness (broadly defined), networking and creative industries/organizations 2005-2018[2].
Source: own study

In the following years we can observe an increase in the number of publications. However, the sinusoidal trend is visible (from around 2009, we can observe the phenomenon of two-year cycles consisting of increases and subsequent decreases in the number of publications). However, the analysis of the number of publications between 2005 and 2018, allows us to conclude that in general there is an upward trend. In addition, it is worth emphasizing that empirical publications dominate during the period under study (almost 82% of all that appeared between 2005 and 2018). As the main research areas investigated in those publications are highly differentiated, in the next research step, 47 of the newest articles (which constitute 50% of all articles published between 2015 and 2018)

[2]Only the data for the period 2005-2018 were presented, because there was no article found in Scopus and WoS databases before that period.

were selected for the analysis. The main research areas with sample references are presented in Table 2.

Table 2: The main research areas referring to creativeness (broadly defined), networking and creative industries/organizations between 2005 and 2018 in management science.

Research perspective	Main research areas	Sample References
Factors fostering networking	social media	Baboo, Yi (2018)
	urban policy	He, Huang, Xi (2018)
	skills - complex perspective	Higdon (2018)
	community engagement	Rustiadi, Kusumahdinata, Rahman, Arsandi (2018)
	digital technology	Nakano, Fleury (2017)
	festivals and platforms	Comunian (2017)
Advantages	social capital	Liu (2017)
	embedment	Shaw, Wilson, Pret, (2017)
	enabling new entrance	Štefko, Steffek (2017)
	knowledge exchange and career development	Yagoubi, Tremblay (2017)
	basis for artistic innovation	Montanari, Scapolan, Gianecchini (2016)
	support for internationalization (SMEs)	Ginting (2015)
Negative aspects	knowledge leakage	Shipilov, Godart, Clement (2017)
	informal relationships as a discrimination tool	Hennekam, Bennett (2017)
Managerial practice	managerial tools and models	Strazdas, Cerneviciute (2016)
	gender factor	Mylonas, Petridou (2018); Handy, Rowlands (2016)
	global and locat context	Makkonen (2017)
	micro-principles	Basov, Brennecke (2017)
	business models	Pfeifer, Peterka, Stanić (2017); Dellyana, Simatupang, Dhewanto (2017)

We were able to distinguish four research perspectives:

- Factors fostering networking
- Advantages
- Negative aspects
- Managerial practice

However, as mentioned above, there are no clear research areas that could be identified in each perspective. For that reason, we may conclude that the areas investigated are still interesting and relevant topics offering broad research possibilities.

At the last stage of research, two articles that described all research areas investigated (networking, creativity and ambidexterity) were investigated. As indicated by Schultz,Schreyoegg, von Reitzenstein (2013), creativity required in R&D departments is strongly connected with exploration-

exploitation tensions. Therefore, managers should ensure the appropriate organizational support to those employees who are focused on combining those two pressures. The research study conducted among 332 respondents revealed that those individuals perceived as multitaskers benefit the most from access to internal resources, whereas external resources (mainly networking) are more efficiently allocated to explorative-only employees. Those findings reveal an interesting perspective for further research which could be focused on the relationship between the type of networking (external or internal) that is perceived as crucial for different types of individuals. However, our main idea of introducing the networking as one of the approaches that fosters dealing with ambidexterity, is confirmed. It was also mentioned in the second publication authored by Simon, Telier (2011) where dealing with ambidexterity can result from the evolution of social networks linking individuals involved in idea development. The research results indicated that "*different network structures and types of connections are relied upon depending on the explorative or exploitative objectives of teams of individuals"*.

Conclusion

In this paper we were willing to investigate the current research trends exploring the issue of ambidexterity focusing on the exploration and exploitation paradox in creative industries. Our research showed that although we may identify some works including such perspective, this topic is still unexplored. The argument that confirms the necessity of further investigation is that operating in creative industries requires developing specific managerial skills, where the ability to combine the creative and knowledge potential with commercial success and operating efficiency, is becoming extremely important (Hortovanyi, 2016) and therefore may determine the competitive advantage. For that reason we proposed including the networking perspective as one of the approaches useful for managing ambidexterity in the creative industry by facilitating knowledge absorption and developing specific organizational abilities. That is the research gap that we identified and confirmed through our literature study and therefore it is our main contribution. The main limitation of that study lies in using the theoretical perspective and that should be further developed by empirical study where the importance of networking as a useful approach for ambidextrous actions in organizations operating in creative industries would be investigated. It would also be interesting to include the size of the companies along with geographical context in further analyses.

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Building a Brand Personality Scale in the Context of Saudi Arabia

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Abstract

The study developed a brand personality scale specifically relevant to the Saudi market. Saudi Arabia has been a promising market for global brands owing to high purchasing power of Saudi consumers. However, it is quite challenging to market these brands in Saudi Arabia because of the conservative culture and strict monitoring by religious and governmental authorities. Therefore, having a brand personality scale particularly applicable for the Saudi market will be beneficial in formulating unique marketing and brand communication strategy appropriate for the Saudi customer. Also, brands can reflect on their brand image and brand associations under the light of these brand personality dimensions which can eventually strengthen the brand equity of the company in the Saudi market and increase its market share in Saudi Arabia.

For this purpose, twenty-four international brands and four Saudi brands were chosen and 723 Saudi consumers were asked to rate these brand on a list of 104 personality traits. The responses were analysed using factor analysis which resulted in six unique dimensions of brand personality in the context of Saudi Arabia namely; Morality, Religiousness, Competence, Ruggedness, Sophistication and Excitement.

Keywords: Brand Personality, Consumer Preferences, Saudi Arabia

Introduction

Brand personality better defined by Aaker (1997) as "the set of human characteristics associated with a brand" has been a subject of interest for researchers all over the world for more than two decades. It has been observed that brand personality is instrumental in developing brand preference (Mulyanegara, Tsarenko and Anderson, 2009), increasing brand liking (Malar, Kromer, Hoyer and Nyffenegger, 2011), generating brand interest (Rageh and Spinelli, 2012), building brand loyalty (Molinillo, Japutra, Nguyen and Chen, 2017) and above all influencing consumer choices (Sung and Kim, 2010).

There has been ample research on brand personality measurement, the pioneer study being that of Aaker (1997), which established five main brand personality dimensions namely Sincerity, Excitement, Competence, Sophistication and Ruggedness. However, when the same scale was tested by Aaker (2000) in Japan the brand personality dimensions that emerged were Sincerity, Excitement, Competence, Peacefulness and Sophistication. Aaker, Benet-Martinez and Garolera (2001) studied brand personality in Japan and Spain; they observed that brand personality dimensions relevant for Japanese consumers were Sincerity, Excitement, Competence, Peacefulness and Sophistication while Spanish consumers see brand personality as a composition Sincerity, Excitement, Peacefulness, Passion and Sophistication. The above discussion suggests that brand personality scale cannot be generalized and brand personality dimensions are influenced by cultural dimensions. Brand personality dimensions vary across different countries and cultures. On this presumption, this study aims to identify the brand personality dimensions of customers in Saudi Arabia.

Methodology

Since the aim of this research is to develop a brand personality framework for global brands in Saudi Arabia, 24 international brands were chosen from a pool of top hundred global brands as listed in the Interbrand Top 100 Global Brands Report (Interbrand, 2017). Furthermore, 4 Saudi brands were also incorporated in the study based on their listing in Saudi Arabia top index ranking 2017 (Brand Index, 2017). The selection of the brands was also done keeping in mind the brand salience in the Saudi market as well as the representative product categories of the brand. Table 1 below illustrates the brand stimuli selection.

Table 1: Stimulus Brands Used in the Study

International Brands (Interbrand, 2017)		
Product Category	Brand 1	Brand 2
Smartphones	Apple	Samsung
Soft Drinks	Pepsi	Coca Cola
Sports Wear	Nike	Adidas
Casual Wear	H&M	Zara
Websites	Facebook	Google
Coffee	Starbucks	Nescafe
High End Automobiles	BMW	Mercedes
Fast food	Mc Donald's	KFC
Automobile	Toyota	KIA
Cosmetic	L'Oréal	Gillette
Luxury Jewellery	Tiffany & Co.	Cartier
Luxury Fashion	Gucci	Louis Vuitton
Saudi Brands (Brand Index, 2017)		
Product Category	Brand	
FMCG	Almarai	
Fast Food	Albaik	
Stationary	Jarir	
Banking	Al Rajhi Bank	

In order to understand how the relationship between brand and human personality can determine customer preference, a pool of 283 personality traits was generated by analysing previous scales used in measuring human and brand personalities (e.g., Aaker, 1997; Aaker, Benet-Martinez and Garolera, 2001; Alt and Griggs 1988; Doss and Carstens, 2014; Ekinci and Hosany, 2006; Huang, Mitchell and Eliott 2012; John 1990, 1998; Lee and Ashton, 2014; Lee and Cho, 2009, 2012; Malhotra,1981; Mc Crae and Costa 1987,1989; Mc Crae, Costa and Martin 2005; Norman 1963; Plummer, 2000; Sweeney and Brandon, 2006; Usakli and Baloglu, 2011).

Furthermore, advertising agencies IMPACT BBDO & FCB Horizon were contacted in order to source the adjectives used in advertising and brand communications of Saudi brands. To identify any unique personality traits specific to Saudi Context, a free – elicitation task was conducted among 48 participants (females = 28, males = 20, mean age= 21 years). After explaining the concept of brand personality, each brand was given to two participants and they were asked to write down the personality characteristics they recall while thinking about the brand. Eight unique traits (i.e. God-fearing Haram, Halal, Islamic, Muslim, Money- digger, Saudi, Saudi vibes) resulted from this procedure and were added to the overall trait list making it 291. To reduce the trait list to a manageable number, 63 participants were asked to rate the 291 traits on how descriptive the traits are for a particular brand on a semantic differential scale from 1 to 7 where a rating of 1 signified not at all descriptive while a rating of 7 denoted extremely descriptive. The subjects were enrolled in the course of Brand Management at undergraduate level and were considered to have background knowledge of the concept of brand personality. In order to isolate the most irrelevant traits, the cut-

off for final list for personality ratings was 6. This left a total of 104 personality traits which were later translated into Arabic in order to facilitate the study for Saudi customer.

The shortlisted personality traits were tested for exploratory factor analysis on a sample of 723 Saudi customers (females = 413, males = 310, mean age =34 years. The respondents were asked to rate the degree to which they perceived that each of the 104 traits accurately described a particular brand on a five point Likert scale (1= not at all descriptive and 5= very descriptive). In order to test the appropriateness of factor analysis for 104 traits, the results of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.95) and the Bartlett's test ($p < 0.001$, chi-square = 47519. 28, df = 5356) showed that sufficient correlations exist among the variables to run a factor analysis. Principal component analysis, with varimax rotation and latent root criterion (eigenvalues > 1), was used in the factor analysis. In factor analysis, 69 traits with factor loadings less than 0.7 were removed. After removing these items, 35 traits exhibited factor loadings greater than 0.70, and no items were cross-loaded. An appropriate name was assigned for each items based on factor loading size and the characteristic of the item in each factor. Table 2 depicts the results of factor analysis.

Table 2: Results of Exploratory Factor Analysis

Factors (In Arabic)	Factor Loading	Eigenvalue	Explained Variance (%)	Reliability Cronbach's α
Morality (أخلاقية)		**30.88**	**27.09**	**0.82**
Caring (رعاية)	0.89			
Kind (القلب طيب)	0.85			
Careful (حذر)	0.85			
Honest (صادق)	0.79			
Generous (سخي – كريم)	0.72			
Incorrupt (نظيف أي)	0.70			
Religiousness (ورع)		**23.80**	**20.88**	**0.79**
Islamic (إسلامي)	0.87			
Muslim (مسلم)	0.85			
Halal (حلال)	0.81			
God-Fearing (يخاف من الله)	0.78			
Just (عادل)	0.76			
Sincere (صادق)	0.73			
Truthful (صادق)	0.71			
Competence (مهارة)		**15.42**	**13.53**	**0.85**
Technical (تقني)	0.79			
Up-to-date (عصري)	0.76			
Western (غربي)	0.74			
Reliable (يعتمد عليه)	0.74			
Ruggedness (غلظة)		**11.03**	**9.67**	**0.89**
Rugged (جامد/ خشن)	0.87			
Stubborn (عنيد)	0.85			
Tough (قاسي)	0.83			
Small-town (مدينة صغيرة)	0.81			
Masculine (ذكوري)	0.76			
Sophistication (أناقة)		**8.43**	**7.40**	**0.81**
Glamorous (كريم)	0.86			
Grandiose (فخم)	0.83			
Classic (تقليدي)	0.81			
Feminine (نسوي)	0.79			
Upper-class (طبقة فوق المتوسطة)	0.76			
Charming (ساحر)	0.74			
Excitement (إثارة)		**3.95**	**3.46**	**0.83**
Trendy (رائج)	0.86			
Contemporary (معاصر)	0.83			
Young (شاب)	0.81			
Unique (فريد)	0.80			
Exciting (مشوق)	0.74			
Cool (رهيب!)	0.72			
Daring (مقدام)	0.71			
Total variance explained			**82.03**	

Results

Six dimensions of brand personality; Morality, Religiousness, Competence, Ruggedness, Sophistication and Excitement were found to be relevant in the Saudi context and explained 82% of total variance with factor loadings ranging between 0.70 and 0.89.

Morality (أخلاقية), pronounced as 'akhlaq' in Arabic, was the predominant dimension and was made up of traits like Caring, Kind, Careful, Honest, Generous and Incorrupt. In Islam, 'akhlaq' is described as a trait that is embedded in the soul of a person, which will act naturally without the need for consideration of thought beforehand (Miskawayh, 1961). The character starts from the heart and is translated through the conduct of an individual (Mustafar and Borhan, 2013). Since Saudi consumers follow Islamic principles, morality/ akhlaq is integral to the formation of brand perception and drives their purchase decisions.

Religiousness (ورع) spelled as 'wara' in Arabic, was found to be the second most important dimension of brand personality. 'Wara' comprised of traits namely; Islamic, Muslim, Halal, God-fearing, Just, Sincere and Truthful. This is also unique dimension in the context of Saudi Arabia as Saudi is a highly conservative society and religion plays a vital role in deciding the consumer behaviour. Saudi Arabia is considered to be far more particular about religious fundamentals than other Muslim countries (Rice and Al- Mossawi, 2002). Luqmani et al. (1989) observed that ignoring the influence of religion, specifically Islam, on advertising can alienate a significant portion of the population that adheres to the theology. The alienated segment can influence societal perception and negatively affect consumer attitudes (Michell and Al-Mossawi, 1999). Therefore, marketers need to be extra cautious while formulating their brand communication strategies in this region (Wilson, 2012).

The other four dimensions Competence, Ruggedness, Sophistication and Excitement were largely similar to the traits identified by Aaker (1997) with a slight variation in a few traits based on their higher factor loadings on a particular dimension compared to their loadings on the dimensions observed by Aaker (1997).

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Creative and cultural sector: Focus on Romania

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Abstract

Cultural and creative industries represent a sector undergoing a flourishing and constant development. Due to the increasing importance of creativity and innovation in economic development and cultural empowerment, the expansion of the creative industries is largely spread in sectors such as IT, research and development, cinema and music, fashion, design and architecture, photography, performing arts, books and magazines etc. All these activities and even emerging industries contribute to economic development, diminishing differences between regions, job creation, foreign trade expansion, fostering innovation etc. In this paper we focus on presenting the area of cultural and creative industry, based on Eurostat approach and on the data provided by the National Institute of Cultural Research of Romania. We also present key measures and indicators for the cultural and creative sector in Romania, namely the number of firms operating in the industry, and the turnover created in the industry, for the period of 2010-2016.

Keywords: creative; cultural; creative sectors; creative industries; number of enterprises; turnover.

The Particularity of the Creative Activities

Although the interest shown to the creative economy is quite recent, creative occupations have sparked the curiosity of scientists hundreds of years ago; the father of the economy, Adam Smith (Cojocaru et al., 2015), considered that "there are some very nice and beautiful talents whose possession give rise to a certain kind of admiration, but whose exercise for the purpose of earning is considered, either by admiration or by prejudice, a kind of public prostitution. Therefore, the pecuniary reward of those who practice them in this manner must be sufficient not only to pay for the time, work and expense of acquiring the talent, but also for disregarding their use as a mean of subsistence".

As we can see the way talent is being exploited, but also how its exploitation is perceived by the society, the artistic activities were differentiated from other activities and brought the attention of the famous Adam Smith on them. He was the first to see that artistic value depends not only on cost and efficiency but also on other elements, such as the artist's reputation and social status.

The cultural elements of human activity often describe creativity through: aesthetic sense, imagination and inclination towards innovation. Together, these elements have an important potential in creating value; creativity makes its presence felt in the combination of the production factors in any kind of industry, but alongside artistic and symbolic expressiveness, product ownership rights and specific production methods, it frames the creative and cultural industries.

The Creative Industries

Creative industries are identified by "those industries which use culture as input and have a cultural dimension, even if their productions are generally functional. These include architecture and design, which are integrating creative elements into wider processes, as well as other sectors such as graphics, fashion, or advertising"(Croitoru et al., 2016). According to UNESCO, another aspect typical to the creative industries is their orientation towards "promoting and maintaining cultural diversity and in ensuring democratic access to culture" (in UNCTAD, 2008).

If we take into consideration the approach proposed by the National Institute of Cultural Research of Romania (Croitoru et al., 2016), the creative economy has four sectors, the first two being cultural, the third one - artistic, and the last sector is considered transversal. All these sectors bring together 11 sub-domains, as presented in the following subsections of this paper.

1. Culture and arts

This sub-domain embraces artistic and cultural activities untouched by industrialisation: libraries and archives, heritage, and art craft, which, more detailed, comprise the followings:

- Libraries and archives

  - the library is the „institution, department or the specialized structure whose main tasks are to set up, organize, process, develop and preserve book collections, serial publications, other library documents and databases, in order to facilitate their use for information purposes, research, education or recreation; initiate, organize and conduct cultural projects and programs, also in partnership with public authorities and institutions, other relevant institutions or through public-private partnerships; within the information society, the library has a strategic role" (Law no. 334 / 2002);
  - the archives represent „official and private diplomatic and consular papers, memoirs, manuscripts, proclamations, calls, posters, plans, sketches, maps, cinematographic films and other such testimonials, sealing matrices, as well as photographic, made in the country or by Romanian creators abroad" (Law no. 16 / 1996) and are part of the National Archives of Romania;
  - the economic activity conducted by the National Archives is not taken into account by the statistics regarding the creative and cultural industries, thus Romania's results in comparison with other countries are altered. Due to the contribution in conserving and protecting the historic and cultural resources, it is considered (Croitoru et al., 2016) that the National Archives is included in the category of non-industrial cultural and artistic activities.

- Heritage

  - is represented by „all the goods identified as heritage, no matter of the property type, which represents a testimony and a continuous evolving expression of values, beliefs, knowledge and traditions; it comprises all the elements resulted from the interaction of the human and natural factors, over time" (Law no. 182 / 2000);

  - Includes persons who conduct professional activities as archaeologists, restorers, conservationists, technical verifiers, or other experts and cultural heritage specialists.

- Art craft
  - implies handicrafts, traditional and artisanal craft, all "the craft products and services belonging to the small industry; these are products and services realised by craftsmen and artisans in small or

unique series, handmade or using hand tools or machineries, as log as the hand contribution of the craftsman or artisan, remains the most substantial in the final product, being characterised by: no restrictions regarding the quantity and using raw and unprocessed materials, generally natural resources; the special nature of the crafts it's given by their distinctive features: artistic, creative, cultural, decorative, traditional, symbolic or socially and religious significant; they comprise a wide range of objects and activities which add value to the techniques, raw materials, traditional shapes and ornaments and to the folk creation of different types, as well; there are products and services with artistic value, but also with a utility, keeping the specific of manual and traditional making" (Governmental order no. 169 / 2013);

- handicrafts are also known as creative craft, implying "the production of predominantly decorative objects, mainly manual techniques (which do not allow the automation of the whole process of work) by persons who can have formal or informal training in the field of visual arts and whose teaching is done by any means, including the informal one" (Croitoru et al., 2016);

2. Cultural sectors

The cultural sectors are characterised by cultural and symbolic expressiveness and comprise the performing arts, visual arts, books and press.

- Visual arts
  - represent "original works of intellectual creation in the literature, artistic or scientific field, whatever the way of creation, mode or form of expression, and regardless of their value and purpose, such as works of graphic or plastic art (sculpture, painting, engraving, lithography, monumental art, scenography, tapestry, ceramics, plastics of glass and metal, drawings, design), and other works of art applied to products intended for practical use, as well" (Law no. 8/1996);
- Performing arts
  - These are "artistic productions such as performances or concerts offered directly to the public by artists, interprets and / or executors. These can be drama performances, choreographic, opera, operetta, folklore, cabaret, circus, marionettes, instrumental theatre and concerts of academic, symphonic, vocal-symphonic, folklore, electronics music" (Governmental order no. 21/2007);
- Books and press
  - This sub-domain comprises "activities involving the creation, editing, publishing and distribution of books, periodicals, magazines and newspapers, printed and digital, as well" (EUROSTAT, 2012) and these are subject to the copyrights laws;

3. Creative sectors

These sectors have a cultural feature which is more functional and, are represented by architecture, advertising, audiovisual and multimedia:

- Architecture
  - Represents "a complex act of technical and aesthetic creation and service provision, which is achieved through projects' elaboration, coordination of studies and related documentation drawn up by other specialists, studies and research programs, design and competitions, technical documentation, layouts and other such activities" (Law no. 84 / 2001);
- Audiovisual and multimedia
  - The audiovisual comprises activities related to "radio, television, film, video, multimedia (also video games) and sound recording (...) includes design, the graphic of the visual arts, as well" (EUROSTAT, 2012);
- Advertising
  - It can take "any form of presentation of a commercial, industrial, craft or liberal activity in order to promote the sale of goods or services, including assets, rights and liabilities" (Law no. 158 / 2008);

4. Transversal sectors

The purpose of the transversal sectors is functionality, but the predominant features are creativity and innovation, and their role in supporting other sectors, such as: IT, software, video games and research and development (R&D) activities.

- IT, software, video games
  - The IT regards creation, projection and all the activities related to databases, computer networks, web design, informatics systems, standard codification, computer protections, etc. (Rubinian, Online);
- The R&D activities
  - These "include creative work undertaken on a systematic basis in order to increase knowledge, including the knowledge of man, culture and society, and to use this stock of knowledge to design new applications" (OECD, 2002);

- These activities are seen as the chore element for the development of all creative – cultural sectors because "they boost economic performance only in activities of technical innovation, for most of the creative and cultural sectors, research being seen only as an engine for development rather than effective earnings. For some of the creative and cultural sectors, the research presents itself as the main activity, but research should be transversally activated due to its value and creative potential" (Croitoru et al., 2016);

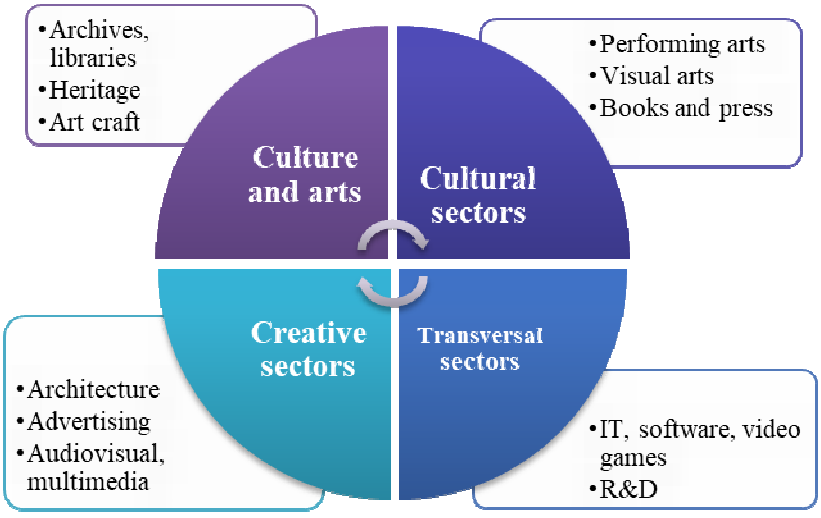

Figure 1: Vision upon the creative economy's sectors

Source: own elaboration based on data retrieved from Croitoru et al., Cartea albă pentru activarea potențialului economic al sectoarelor culturale și creative din România, Pro Universitaria, [Online] available: http://www.culturadata.ro/wp-content/uploads/2017/04/2016_Cartea_Alba_RO.pdf accessed on 28.07.2018

Dimensions of the Creative Economy in Romania

The impact of the creative sector on the economy has some difficulties in measuring, but it mostly depends on the definition of the activities included.

In order to know its dimension in Romania, the creative economy must be known in terms of quantity. Thus, during the years 2010-2016, we will analyse some data, such as the number of companies conducting creative and cultural activities and also, the turnover for each creative and cultural sector. The data was collected from Borg Design and Eurostat databases accordingly to the NACE rev. 2 – statistical classification of economic activities.

1. The Number Of Enterprises Involved In The Creative And Cultural Economy

In the first year of analysis, there were registered 32331 companies having the main activity specific to the creative and cultural industries; over time, their number has steadily increased, managing to be almost double, by 2016, as seen in Table 1.

Table 1: The total number of enterprises involved in the creative and cultural economy of Romania

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
TOTAL	32,313	36,038	39,782	43,628	47,848	53,808	61,009

Source: own elaboration based on data retrieved from: https://membri.listafirme.ro/statistici-economice.asp#selectie and http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_1a_se_r2&lang=en accessed on 30.07.2018

As expected, a positive evolution is observed for all the creative - cultural sectors over the six-year period, in the most cases, the number of companies has doubled (Art Craft, Visual Arts, Audiovisual, Advertising, IT, Research). The most spectacular development was in the sector of Libraries and Archives, a sector that tripled its number of enterprises, having registered only 143 in 2010 and reaching a number of 434 companies by 2016. In absolute values, the IT had the largest number of companies set up during the analysis period, managing to increase up by to 7642 companies in 7 years.

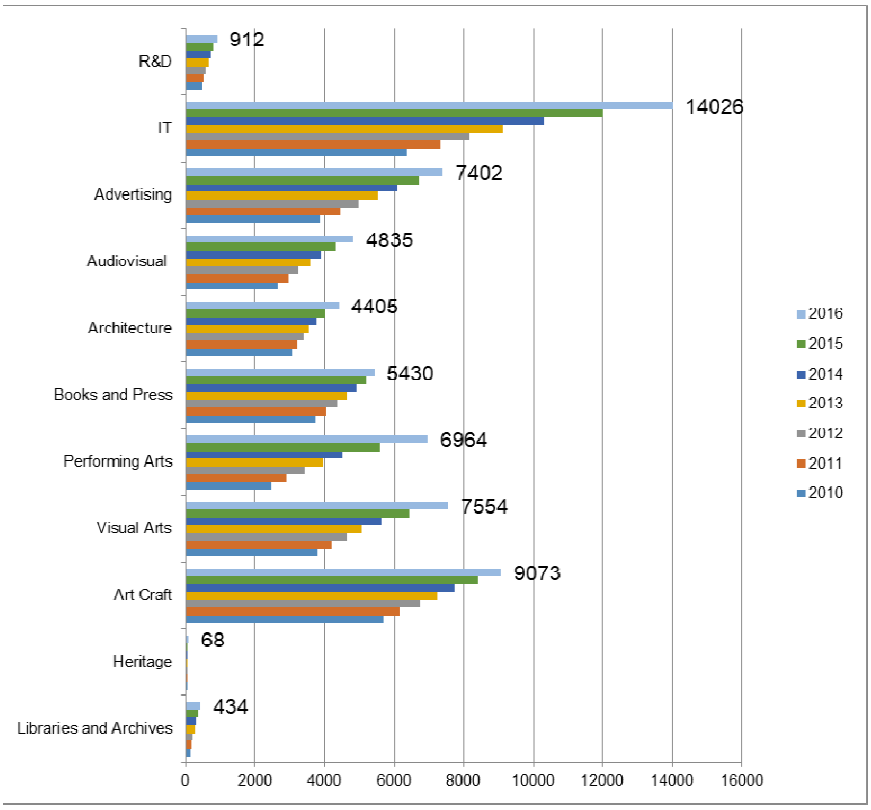

Figure 2: The number of enterprises involved in the creative and cultural economy of Romania (2010 - 2016)

Source: own elaboration based data retrieved from https://membri.listafirme.ro/statistici-economice.asp#selectie and http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sbs_na_1a_se_r2&lang=en accessed on 30.07.2018

The IT sector is leading as a number of companies, which is not surprising given the technological evolution and changes occurred in the analysed years, such as the emergence of various smart gadgets that have developed from year to year. The next sector is Art Craft, the large number of operators being explained by the diversity of the sector, including activities from local craft production to fashion house activities. On the opposite side there is the Heritage, due to the unchangeable character of the products and services offered.

2. The Turnover Of The Creative And Cultural Sectors

Where are the more economic operators, there are also, the higher incomes. Again, the Art craft and the IT are top sectors, but this time the sector of Art Craft surpasses the IT, reaching the highest values of turnover recorded during all the analyzed period. This fact could be put on the large share of activities included in this sector and on the high prices of the unique and handmade objects.

Table 2: The turnover recorded by each creative – cultural sector in 2010 - 2016 (thousands lei)

Sector/ Year	2010	2011	2012	2013	2014	2015	2016
Libraries and Archives	57,382	72,061	80,923	91,272	117,404	142,748	167,245
Heritage	32,777	33,318	43,925	44,663	65,691	65,913	67,177
Art craft	**12,887, 216**	**14,790, 096**	**15,839, 368**	**17,176, 158**	**19,002, 255**	**20,082, 993**	**21,952, 899**
Visual arts	3,259,487	3,723,417	3,925,015	3,972,622	4,002,332	4,222,087	4,742,203
Performing arts	448,177	561,152	655,362	694,540	761,653	1,028,739	1,384,729
Books and press	3,974,044	4,340,160	4,513,110	4,621,335	3,830,806	5,280,782	5,693,978
Architecture	746,204	772,606	763,264	713,586	784,638	963,987	1,084,799
Audiovisual	2,981,597	3,304,858	3,544,061	3,906,513	4,612,762	4,674,301	4,986,265
Advertising	4,743,859	5,278,673	5,581,401	4,654,838	4,612,001	5,532,550	6,838,943
IT	**6,923,237**	**8,264,629**	**9,962,832**	**11,401,30 7**	**14,041,63 0**	**1,673,875**	**18,959,65 3**
R&D	1,094,279	1,078,067	1,274,389	1,313,799	1,359,019	1,520,752	1,464,781
TOTAL	**37,148, 260**	**42,219, 036**	**46,183, 650**	**48,590, 632**	**53,190, 190**	**60,253, 606**	**67,342, 672**

https://membri.listafirme.ro/statistici-economice.asp#selectie and http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do accessed on 28.07.2018

The smallest turnover during the analyzed period was recorded by the sector of Heritage, although this sector has experienced a remarkable evolution, succeeding in six years to double its values. Almost the same could be said considering the sector of Libraries and Archives, despite recording the second lowest turnover, during 2010-2016, it tripled its values.

Another sector with a spectacular evolution is sector of IT, where initial values or the turnover have almost tripled in the years 2010-2016. There is also a substantial growth in Art Craft, but in this case the turnover only doubled its values.

A remarkable aspect is that of the visual arts' turnover, although the number of enterprises of this sector is lower than that of the other creative and cultural sectors, it is able to record a significant turnover. The small number of enterprises can be attributed to low demand for specific products, such as paintings, and the high turnover can be explained by the high value of the artworks and also, by photography or design services for which, however, the demand on the market is increasing.

Conclusions

The creative economy has a great impact not only economically because it uses a resource that is not limited, but also socially due to the aspects it implies. The social side is closely linked to culture, belonging to the group, and diversity acceptance and inclusion, due to the phenomenon of globalization.
The economic activities included in the creative – cultural sectors regard those activities with a great implication of the intellect or talent; also, these activities regard the trade of goods and services with an

intrinsic value greater then their utility, the main aim of their commercialisation implying aspects more symbolic or of artistic expression.

In Romania, the activities specific to the creative economy are framed in 11 sectors, more exactly: Archives and Libraries, Heritage, Art Craft, Visual Arts, Performing Arts, Books and Press, Architecture, Audiovisual, Advertising, IT, Research and development.

In terms of the total number of enterprises involved in the creative economy, between 2010 and 2016 there was a steady growth, the number almost doubling. The same positive evolution was recorded by the total turnover realised in the creative – cultural sectors.

Considering the number of enterprises, the IT and the Art craft sectors are the most developed, being followed by the sector of Advertising. The sectors of IT and Advertising have a high value of operating companies due to the digitalisation of nowadays activity and also due to the wide range of goods and services offered on the market and their competitive fight. The high values registered by the Art craft sector could be explained by the many people working in this sector and the high demand for unique or personalised goods and services. On the other hand, in terms of a manual production, it takes a lot more time to create an embroidery on a fabric than one created by a machine.

If we take into account the recorded turnover, the sectors of IT and Art craft again are highlighted as recording the greatest performance. On the opposite the sectors of the Archives and Libraries, and of the Heritage earn the least, but these two are mostly of public interest and their unique offer makes them incomparable with other creative sectors.

The creative economy encountered a continuous development during the post – crisis years proving its sustainability and growing importance for the future economy.

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An Analysis of the Impact and Influence of the Global Economic Crisis on the Housing Market in European Post-Communist Countries

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Abstract

For decades there did not exist a private housing market in countries of Central and Eastern Europe and the owner of the majority of housing resources used to be the state. This market, following the polity transformations, was gradually changing into a private housing market, acting on the basis of free market economy. Households, which formed the demand party, were given the opportunity to accumulate the capital by purchasing real estate, while estate developers (the supply party) – in response to the existing demand – were able to satisfy their own expectations regarding the rates of return from invested capital. This mechanism enabled society to grow rich. The above-described development was disrupted because of the economic crisis. The global crisis of 2008 had a negative impact on the condition of the housing market which responded with a drop in prices and a decrease in estate developers' activity. The drop in the prices was caused by, among others, a more difficult access to financing purchases of real estates, whereas the developers' slack activity manifested itself in a smaller number of construction permits, a decrease in the value of building production or a lower number of the employed in construction industry. The present article aims to analyze the impact of the economic crisis on the housing market in European post-communist states and to measure the extent of it. In the conducted research, the level of the influence was associated with the intensity and the length of its operating on the market.

Keywords: economic crisis, post-communist country, real estate, housing market.

Introduction

The economic development of states, including also those post-communist ones, is possible in the case when conditions which are favorable to economy (bull market) last longer than the unfavorable ones (bear market). In order that there should follow a lasting development it is also required that the amplitude of a boom should be higher than that of a slump. Examining the development of the economies of the post-communist countries in recent decades, one can observe the above-mentioned regularities, that is a boom has influenced the economy more intensively and longer in comparison with a slump. This dependence made the economic development of the post-communist countries possible, as well as catching up with the economically strong countries of the European Union. However, did – following the global crisis of 2008 – the post-communist states manage to keep on making economic progress or, possibly, was it slowed down? Or still did there follow a process of shrinking of the economic potentials of these states?

It is commonly accepted that the economic crisis of 2008 was caused by a speculative bubble in housing market, which – because of its vital connections with other branches of economy – resulted in the global recession. In the first phase of the last crisis, the European post-communist countries' housing markets lost part of the their potential. The loss differed depending on the individual states which reacted to the effects of the recession in a similar way, yet with different intensity. Part of the countries of Central and Eastern Europe coped with it fairly well, others – moderately, and still others have felt the effects of the crisis up till now. The European housing market indeed reacted to the crisis with a decrease in the prices of real estates and lowered supply and demand. The former can be observed when we calculate price indexes, while the latter – when we notice a decrease in such parameters of the housing market as: number of building permits, number of the employed in the construction industry or value of building production.

Taking the above into account, the aim of the present research is to make an attempt at assessing the reaction of the post-communist countries to symptoms of the crisis. Realization of the research focused on parametrization of the housing markets of 9 states. The diagnosis of the housing markets was begun with the year 2008. That year was the starting point, showing the degree of reaction on the part of European housing markets to the crisis. The analysis made for the subsequent years, i.e., 2009 through 2016, was meant to reveal the scale of the crisis and its lasting effect. The conducted research will allow evaluating the post-crisis destabilization of the housing markets, their shaking in the periods of downturn, as well as will make it possible to estimate the lasting character of the impact exerted by the crisis on the markets of the post-communist states. The results of the studies will show which of them coped with the crisis in a skillful manner. It needs underlining, though, that the present studies indicate the range of reaction of the examined countries to the crisis only, without explaining the causes behind it, which obviously include, among others, the state of economy or finances of the given individual state.

A Crisis, Housing Market, Speculative Bubble – An Analysis of the Literature of the Subject With Reference To the Problem Area

While analyzing a housing market and the appearance of speculative bubbles in it, the following questions can be asked: Why do speculative bubbles arise? And, if they have a negative influence on economy, why are they allowed to arise? When there appear warning signals on the part of economy, why don't we undertake some corrective or repairing actions, but pretend that the problem does not exist? As early as in 2003, Case and Shiller (2003) noticed that despite the fact that the daily press and journalists' commentaries were full of speculations about a bubble in the housing market, which was expected to burst any time, nobody had reacted until the economic crash did occur. Was then the families' wish to possess their own flats or the developers' desire to make profit so strong that the logic of thinking and acting in the housing market was suspended? Thus, who should be responsible for preventing speculative bubbles to form? It is popularly believed that this is the responsibility of central banks. The latest studies, however, prove that there is no correlation between the macro prudential policy of central banks and bubbles forming in the market (Bordo, Jeanna 2002; Mishkin, White 2003; Detken, Smets 2004). In other studies, Yuan and Fan (2003) and Bernanke and Gertler (2001) conclude that excessive liquidity leads to the appearance of speculative bubbles in housing markets, which is a most complex phenomenon. The literature of the subject does not unambiguously point to factors which provoke it (Hunter et al. 2005) and elaborations dealing with the problem offer opposing suggestions as to what causes them to arise and how to prevent them from forming (Meltzer 2003; Trichet 2005; Roubini 2006). Himmelberg et al. (2005) carried out very interesting research and described formation of a speculative bubble in a housing market, simultaneously pointing to some erroneous representations in the mechanism of understanding the phenomenon. Another article shows that a housing market is also subject to the influence of economic fluctuations, calling them hot and cold seasons in a housing market (Ngai &Tenreyko 2014). If a housing market finds itself in the phase of a boom and is additionally financed with risky financial instruments,

then the risk of a speculative bubble rises, too. Hartmann (2015), in his studies, indicates that it is the economic cycle in a housing market which has been the main factor in systemic financial crises so far and therefore should be taken into account in macro precautionary policy. However, a geographically varied housing market means that this policy must be dedicated to individual regions or countries. Until 2007, that is until the onset of the last economic crisis, no tools of a macro prudential policy had been applied on a common basis with the aim to prevent speculative bubbles. The key conclusions which help order the knowledge on the problem of crises or speculative bubbles can be found in the work by Crowe et al. (2013), where the authors describe, in a complex manner, what catastrophic effects neglecting the control over a housing market can have for the whole economy at the time of a crisis. The authors discuss also weak and strong points of governmental programs (macro prudential) designed with the intention to limit the damage to the financial system and the economy. The conducted research also brings the conclusion that booms in housing markets, whose effects are speculative bubbles, are to a substantial degree financed from credits. In recent years, the growing globalization and internationalization, supported to a considerable extent by the development of financial instruments, has caused the risk of formation of speculative bubbles in housing markets to increase dramatically (Bardhan& Kroll 2007; Topintzi et al. 2009; Rącka et al. 2015).

In order to explain the level of reaction of individual countries to symptoms of a crisis and, at least, initially justify the magnitude of its impact, we can – relying on the work by Chaney, Sraer and Themsar – state that faced with financial turbulence at the time of a crisis, companies (as well as states) make use of assets amassed as securities to finance new schemes. The problem arises when the stock of the assets is insufficient to cushion the effects of the crisis.

Other studies make attempts at identification of the way in which a housing market is integrated with the global market. The relevant research was conducted with the use of bootstrap analysis which – by assumption – is resistant to non-linear dependences and increased changeability, especially in the days of economic crises (Hatemi-J et al. 2014). The research mentioned above was carried out with reference to five relevant global real estate markets, that is those of the USA, the UK, Japan, Australia and the United Arab Emirates. The integration of a housing market with other markets is also presented in the studies by Yuksel (2016), outlining the relation between prices of shares and those found in a housing market in the era of a global economic crisis. The shares market and the housing market functioning in a global financial crisis are dealt with in the article by Hui and Chan (2014).

Concluding the presentation of the problem area as discussed in the literature of the subject, it needs commenting on the members' of society desire or need to possess housing, which are undoubtedly strong, but also conditioned by prior satisfying other needs referred to as ones of the lower order (Maslow 1970). Without a doubt, the latter are fulfilled in many households functioning in developed markets. Assuming that they have been satisfied, we can try to identify the power of the demand for housing. This power can be defined with strictly economic factors, but also with cultural ones. From the point of view of a household, purchasing a real estate is based on a two-factor group: the first is the property in itself; the other – feelings connected with it (Friedman, Linderman 2005). Taking into account the first type of value, that is housing as a resource in itself, while making the purchase we are directed by financial, physical, socioeconomic or environmental aspects (Grum&Temeljotov-Salaj 2010; Grum&Kobal-Grum 2015). On the other hand, the values linked to feelings are identified as purchasers' psychological traits (cf. Andrews et al. 2011). Unfortunately, in today's economy, in particular in finances, we can observe the excess liquidity of money, which gives rise to the risk of irrational market behaviors and formation of speculative bubbles (cf. Issing 2002; Gouteron&Szpiro 2005). Excess liquidity of money offers a relatively easy way for households to obtain financing to purchase a real estate, disturbing the logic of proceeding and the above-mentioned relations between the factors which encourage them to purchase one (financial, physical, socioeconomic, environmental or psychological) and the very purchase of it itself. The nearest years to come, or even months, are going to prove whether we have drawn constructive

conclusions after the global crisis of 2007, since there have again appeared signals of a speculative bubble forming in the housing market (although this time, apart from the housing market there has arisen an additional risk of a speculative bubble forming in the commercial housing market).

Research Assumptions and Methodology

The research of the post-communist countries' reaction to the crisis phenomena appearing in the area of housing market since 2008 was conducted at three research stages (cf. Fig. 1). Having defined the aim of and the need for the research as the first step, four research areas were determined, which directly influence the condition of the development of a housing market. At this step, the assumption was accepted that the following areas should be subject to the analysis:

- number of building permits issued with the aim to construct new housing,
- number of the employed in the construction industry,
- value of building production,
- prices of real estates.

Next, after defining research areas, the research sample was determined and assumptions were accepted with reference to the time span of the analyses. The examination of the impact of the global economic crisis on the level of development of the housing market was carried out for the following 9 European post-communist countries: Bulgaria, Czechia, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia. The beginning of the time of measuring the above-mentioned data was defined arbitrarily and was meant to show the reaction of the housing market to the global economic crisis which began in 2008. Then, the upper time limit of the collected data (i.e., the year 2016) was determined by availability of data from the European databases (www.eurostat.eu). The data collected in all the categories were expressed as dynamics of changes (%) calculated in relation to the base year.

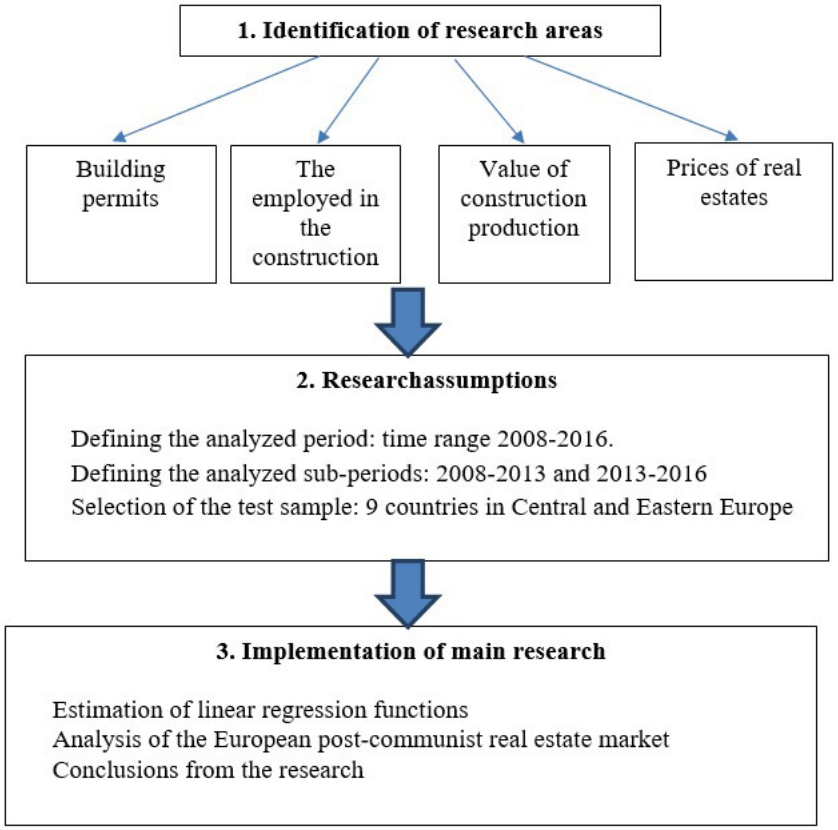

Fig. 1: Research stages [source: own study].

Due to the changeability of the research tendency within the examined areas between 2008 and 2016, in order to obtain representative results, the research period was divided into two sub-periods, that is 2008-2013 and 2013-216.

The third step included carrying out research proper, which consisted in assessing linear parameters of the trend function for the 9 examined states in the two sub-periods defined earlier. The parameters of the trend function will allow estimating the impact of the crisis on the four examined components and – what follows it – directly on the developmental potential of the housing market and – indirectly – on the condition of each individual country. Having conducted the studies, also at the fourth stage of the research, synthetic conclusions from the research were drawn up.
The theoretical values of the examined items were marked with the variable Y which can be written in the matrix form (cf. Expression 1).

$$\hat{\boldsymbol{y}} = \hat{\boldsymbol{\alpha}}\boldsymbol{X} \tag{1}$$

On the other hand, assessment of structural parameters of the model by means of the Method of the Least Squares (MLS) was made with the use of the estimator expressed with Expression 2.

$$\hat{\boldsymbol{\alpha}} = (\boldsymbol{X}^T\boldsymbol{X})^{-1}\boldsymbol{X}^T\boldsymbol{y} \tag{2}$$

where:

$\hat{\boldsymbol{\alpha}}$ – estimator MLS of an unknown vector of parameters α,
y – observation column vector on a dependent variable of the dimensions *(n x 1)*,
X – observation matrix on dependent variables of the dimensions *[n x (k+1)]*.

In linear models, in the case where the parameters of a model are assessed with the Method of the Least Squares, the value R^2 remains within the range [0;1]. Measure R^2 is calculated according to Expression 3 and it indicates which part of the variability of the response variable is explained by the constructed model.

$$R^2 = 1 - \frac{\sum_{t=1}^{n}(y_t - \hat{y}_t)^2}{\sum_{t=1}^{n}(y_t - \bar{y})^2} = \frac{\sum_{t=1}^{n}(\hat{y}_t - \bar{y})^2}{\sum_{t=1}^{n}(y_t - \bar{y})^2} \quad (3)$$

where:
y_t – value of variable *Y* at the moment or in the period *t*,
$\hat{y}_t$ – theoretical value of variable *Y* at the moment or in the period *t*,
$\bar{y}$ – mean value of variable *Y*.

With respect to the common application of MLS to estimation of structural parameters of the model and the common application of coefficient of determination to assessment of the degree of adjustment of the model to empirical data, the above is a presentation exclusively of a synthetic description used in computational engineering. Detailed application principles and computational assumptions can be found in many works in the field of econometric modeling (cf. works by Aczel (1989), Maddala (1992), Hyndman &Athanasopoulos (2018), Davidson & MacKinnon (2004), Baltagi (2011)).

Research Process and Analysis of Research Results

Examining the impact of an economic crisis on a housing market consisted in checking how defined dimensions describing the potential of this market were forming in 9 countries of Central and Eastern Europe. The description of the research was divided into 4 stages in which respective dimensions relating to the number of issued building permits, value of construction production, number of the employed in construction industry and prices of housing property were described. For each of the dimensions there were set two functions of the trend, whose parameters defined the level of reaction of individual European countries' reaction to the crisis. Additionally, for the assessed trend functions, the coefficient of determination was calculated. Its task was to inform whether the observed changes were of the predictable character or they were characterized by considerable changeability.

Table 1 presents the estimated trend functions and coefficient of determination for the number of issued construction permits. The direction of the assessed functions informs us by how many percent, saying on the average, one should expect changes year-over-year (YOY) within the area of the number of issued building permits. On the basis of the assessed trend functions, we can notice that in the years 2008-2013, the biggest drop in the number of construction permits took place in Bulgaria and in Hungary. In these countries, on the average, the drop amounted to 48.13% and 39.29%, respectively. On the other hand, it needs observing that each of the 9 examined states reacted by decreasing the potential in the area under study, which the negative value of the slope coefficient in the assessed trend functions testifies to. In the face of the crisis, Lithuania turned out the least affected by the crisis, regarding the number of issued building permits, the country's average decrease in the number amounting to 4.61%. Considering the successive period, i.e., the years 2013-2016, we can notice that in the majority of European countries there was following a rise in the number of issued building permits in the consecutive years. The highest increase in that period was recorded in Hungary and Estonia, where it was 43.45% and 40.94%,

respectively. However, in one of the examined post-communist countries (Latvia), there occurred a continuing decrease in the number of permits in the two periods under analysis. The drop observed between 2008 and 2016 testifies to the fact that Latvia did not manage to cope with the effects of the global economic collapse. The continuing drop in the number of permits in this country means that estate developers were really careful and afraid to invest their financial means in Latvian housing market. It also needs mentioning that in the first period under analysis (2008-2013), the coefficient of determination, which assesses the adjustment of the trend function for Estonia, Latvia and Lithuania, reached an unsatisfactory level. Because of the rather low values of the R^2 for the above-indicated countries, the analysis of the impact of the crisis on the number of issued construction permits in them should be exclusively of a demonstrative character.

Table 1: Calculations relating to the item: Issued building permits [source: own study]

State	2008-2013		2013-2016	
	trend function I	**coefficient of determination**	**trend function II**	**coefficient of determination**
Bulgaria	y = -48.13x + 319.47	R² = 0.58	y = 14.84x + 86.7	R² = 0.90
Hungary	y = -39.29x + 250.33	R² = 0.88	y = 43.45x - 21.60	R² = 0.77
Slovakia	y = -17.02x + 168.99	R² = 0.70	y = 16.92x + 70.65	R² = 0.97
Czech Rep.	y = -15.40x + 161.93	R² = 0.91	y = 6.49x + 71.70	R² = 0.98
Romania	y = -10.32x + 141.63	R² = 0.80	y = 0.97x + 88.35	R² = 0.57
Estonia	y = -9.95x + 157.81	R² = 0.17	y = 40.94x + 77.80	R² = 0.96
Poland	y = -8.14x + 131.17	R² = 0.74	y = 15.10x + 63.20	R² = 0.99
Latvia	y = -6.69x + 152.85	R² = 0.11	y = -18.35x + 147.35	R² = 0.49
Lithuania	y = -4.61x + 138.57	R² = 0.05	y = 19.99x + 112.20	R² = 0.82

The second component to determine the potential of a housing market is the value of construction production (cf. Tab. 2). Between 2008 and 2013, all Eastern European states recorded a drop as far as the analyzed category is concerned. In the case of two of them, the average annual decrease amounted to over 70% year-over-year. They were Latvia (a drop of 73.36% YOY) and Lithuania (70.08% YOY). In Estonia the drop regarding the examined category was also substantial, amounting to 38.45% YOY. As regards the other examined period (2013-2016), a decrease was still observed to continue (the negative value of the slope coefficient in the estimated trend functions) in 4 countries. Only two of all of the analyzed states (Latvia and Lithuania) recorded an increase in their construction productions in the years 2013-2016, which amounted to over 10%. Nevertheless, that growth was disproportionately low in relation to the drops observed in the preceding period.

Table 2: Calculations relating to the item: Construction production [source: own study]

State	2008-2013		2013-2016	
	trend function I	coefficient of determination	trend function II	coefficient of determination
Latvia	y = -73.36x + 382.25	R² = 0.94	y = 11.55x + 108.24	R² = 0.72
Lithuania	y = -70.08x + 374.35	R² = 0.85	y = 12.45x + 104.91	R² = 0.83
Estonia	y = -38.45x + 244	R² = 0.95	y = 5.61x + 134.33	R² = 0.68
Bulgaria	y = -17.90x + 184.55	R² = 0.59	y = -1.51x + 93.12	R² = 0.26

State	2008-2013		2013-2016	
Hungary	y = -11.66x + 144.35	R^2 = 0.97	y = 2.14x + 82.63	R^2 = 0.54
Romania	y = -8.12x + 148.20	R^2 = 0.16	y = 4.48x + 93.85	R^2 = 0.67
Czech Rep.	y = -7.02x + 128.95	R^2 = 0.98	y = -0.91x + 96.21	R^2 = 0.20
Poland	y = -4.65x + 119.20	R^2 = 0.34	y = -1.37x + 123.11	R^2 = 0.20
Slovakia	y = -4.26x + 119.70	R^2 = 0.32	y = -3.40x + 95.47	R^2 = 0.71

The next determiner related to the potential of a housing market is employment in construction industry. In consequence of the crisis, between 2008 and 2013, the biggest decrease in this sphere was recorded in Bulgaria, Lithuania and Latvia. In the case of the above-mentioned states, the drop in the employment rate year-over-year was higher than 8% and amounted to 13.69%, 8.83% and 8.49%, respectively. It should be stressed that such a considerable decrease in the number of the employed in construction industry caused a rise in the unemployment rate in individual states. It also needs observing that in the case of one of the examined states a rise in the employment rate was recorded in the years 2008-2013. This concerned Poland, where the growth was 2.12% YOY. In the other period following the crisis (2013-2016), the highest increase in the employment rate was observed in Romania (3.25% YOY).

Table 3: Calculations relating to the item: The employed in the construction industry

State	**2008-2013**		**2013-2016**	
	trend function I	**coefficient of determination**	**trend function II**	**coefficient of determination**
Bulgaria	y = -13.69x + 151.63	R^2 = 0.91	y = -2.89x + 83.95	R^2 = 0.67
Latvia	y = -8.83x + 160.76	R^2 = 0.24	y = -3.85x + 138.50	R^2 = 0.77
Lithuania	y = -8.49x + 144.56	R^2 = 0.57	y = 2.19x + 105.25	R^2 = 0.40
Romania	y = -5.87x + 131.69	R^2 = 0.53	y = 3.25x + 98.60	R^2 = 0.74
Estonia	y = -5.59x + 135.09	R^2 = 0.38	y = 1.47x + 109.70	R^2 = 0.36
Slovakia	y = -2.79x + 106.45	R^2 = 0.88	y = -0.25x + 88.10	R^2 = 0.20
Hungary	y = -2.70x + 108.54	R^2 = 0.87	y = 2.00x + 90.25	R^2 = 0.95
Czech Rep.	y = -1.53x + 103.26	R^2 = 0.83	y = -0.37x + 92.40	R^2 = 0.22
Poland	y = 2.12x + 94.69	R^2 = 0.52	y = -4.64x + 104.90	R^2 = 0.91

[source: own study]

Poland, on the other hand, having turned out the sole leader (the only country with a rise in the employment), suffered the largest decrease in the employment in the succeeding period – as much as 4.64% YOY (see Table 3).

The fourth and the last item subject to the analysis were the housing prices indexes. Taking into account the regress functions in Table 4, we can notice that in the years 2008-2013, the greatest decrease occurred in Bulgaria (9.26% YOY) and Romania (8.01% YOY). Moreover, it should be said that regarding this category, all of the countries experienced a fall in prices. In the other of the examined periods (2013-2016), all the countries under analysis recorded a rise in the prices, the highest being those in Hungary (by 9.71% YOY) and Estonia (7.38 YOY). Analyzing the calculated values of the coefficients of

determination, it needs remembering that their value which is too low does not allow drawing general conclusions. As regards prices of real estate, it was in the case of Estonia and Latvia where the value of the R^2 was too low.

Table 4: Calculations relating to the item: The employed in the construction industry

State	2008-2013		2013-2016	
	trend function I	coefficient of determination	trend function II	coefficient of determination
Bulgaria	y = -9.29x + 143.45	R² = 0.77	y = 3.60x + 91.06	R² = 0.89
Romania	y = -8.01x + 134.51	R² = 0.90	y = 2.29x + 94.90	R² = 0.62
Latvia	y = -6.28x + 120.69	R² = 0.26	y = 2.91x + 95.12	R² = 0.63
Lithuania	y = -5.54x + 115.22	R² = 0.38	y = 4.78x + 86.19	R² = 0.99
Slovakia	y = -3.87x + 112.68	R² = 0.72	y = 4.44x + 87.70	R² = 0.93
Hungary	y = -3.19x + 103.39	R² = 0.98	y = 9.71x + 72.40	R² = 0.95
Poland	y = -2.79x + 109.69	R² = 0.87	y = 1.45x + 95.86	R² = 0.99
Czech Rep.	y = -1.24x + 100.34	R² = 0.80	y = 4.37x + 88.40	R² = 0.94
Estonia	y = -0.65x + 76.73	R² = 0.01	y = 7.38x + 76.71	R² = 0.96

[source: own study]

Conclusion: Summing Up The Conducted Research

The research allowed assessing how selected parameters of European housing market reacted to the economic crisis of 2008. This assessment made it possible to determine the reaction force of the examined factors and their permanence. The reaction force was implied by the size of the estimated parameters of the slope trend functions, whereas the permanence of changes could be assessed by examining the sign of the slope coefficients in two analyzed periods, that is the years 2008-2013 and 2013-2016. Below, there are presented the most important conclusions concerning the research carried out with respect to the housing market of post-communist countries (for four examined areas). Conclusions with reference to the item: Number of issued building permits:

- The most severe effects of the crisis, regarding the item described, were suffered by: Bulgaria and Hungary which saw a dramatic drop in the number of the building permits issued in the years 2008-2013, amounting to 48.13% YOY and 39.29% YOY, respectively.
- In both of the analyzed periods Latvia experienced a decrease in the number of the issued building permits and the drop observed in the years 2013-2016 means that this state did not manage to cope with the effects of the global economic crisis. Of all the examined post-communist states it is only Latvia which recorded a fall in the number of the permits in both examined periods.

Conclusions with reference to the item: Value of building production:

- In the period between 2008-2013, all the analyzed post-communist countries recorded a decrease in this category, in the case of two of them (Latvia and Lithuania) the average annual drop amounting to 70% YOY.
- In the other research period (the years 2013-2016), four countries continued to record a fall in the examined sphere (a negative value of the slope coefficient in the estimated trend functions).
- Only two of all the European countries under analysis (Latvia and Lithuania) recorded an increase in their building production in the period between 2013 and 2016, which amounted to 10%.

However, that rise was disproportionately low compared with the falls observed in the preceding period.

Conclusions with reference to the item: Employment in construction industry:

- Because of the crisis the greatest drop in the employment in construction industry in the years 2008-2013 was noted in Bulgaria, Latvia and Lithuania. As regards these countries, the year-over-year drop amounted to 13.69%, 8.83% and 8.49%, respectively.
- In the case of one state there was recorded an annual rise in the number of the employed in the branch between 2008 and 2013, namely in Poland (by 2.12% YOY).
- In the next period following the crisis, i.e., between 2013 and 2016, the highest rise in the employment rate in construction industry was noted in Hungary – the annual average 2% YOY. Poland (as the only country) recorded a drop in the number of the employed in the years 2013-2016, amounting to as much as 4.64% YOY.

Conclusions with reference to the item: Prices of housing:

- In the years 2008-2013, the biggest decrease in prices occurred in Bulgaria (9.26% YOY) and Romania (8.01% YOY).
- As regards the second research period, the years 2013-2016, all of the examined countries recorded a rise in prices of housing, the highest occurring in Hungary – 9.71% YOY.

Summing, we can point to the countries which successfully coped with the economic crisis as far as the area of real estate market is concerned. Analyzing four components of this market, we can assess their reactions to the phenomena related to the crisis. The research which was conducted has allowed estimating the level of the countries' potentials and their diminishing in response to the crisis. Finally, it needs observing once again that the conducted research shows the strength and lasting effect of the reactions of the selected aspects of real estate market, without explaining directly what the causes behind them were, that is whether it was a consequence of, for instance, weak points existing within the area of financing real estates, or a poor condition of economy in individual states, or maybe investors' distrust of the economies of chosen countries, or still something else.

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Investments as a Key Factor of Social and Economic Development of Regions of Various Types

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Abstract

The article considers investments as a factor determining the dynamism of social and economic development of the regions of the Central Federal District. The study evaluated the dynamics of investment per capita for each region of the Central Federal District, as a result of which it was revealed that only the Voronezh, Kursk, Lipetsk and Tula regions, as well as Moscow, are consistently and dynamically progressive regions. A grouping of the regions of the Central Federal District was made in the article according to the size of investments per capita, which revealed that the progressive group includes Voronezh, Lipetsk, Tambov and Belgorod regions together with Moscow, which is the clear leader. The use of the grouping method in combination with the analysis of dynamics clearly reflects the high instability in the level of investment provision in a number of regions, which is a deterrent to long-term development of the innovation-investment model. It is revealed that investment as a factor is very closely related to the most important economic indicators (GRP and the volume of market trade per capita), and is also closely related to the level of mortality and life duration that characterize the quality of life of the population according to the correlation analysis. A conclusion is made on the basis of the analysis about the priority of improving the investment climate and stimulating investment not only in the economic sectors, but also in the social sphere, the improvement of which contributes to the development of human potential.

Keywords: Central Federal District; demographic indicators; economic situation; investment per capita; social and economic development.

Introduction

The priority of creating a competitive economy and socially-oriented development of the country is the construction of economic processes to the knowledge-based economy. This requires a significant increase in investment resources and the receipt and introduction of breakthrough technologies in production activities. The problem is in the point that the Russian economy and science get far behind in technology, which is supplemented by an investment crisis caused by the Central Bank's policy with a high refinancing rate and limits on the amount of "long-term money" with financial sanctions that limit the possibilities of attracting them in the West. This complicates both the reconstruction and modernization of existing facilities, as well as the implementation of new breakthrough high-tech projects that can activate economic processes in the country. Beyond that point, there is a lack of financing for the development of social sectors that contribute to the development of human potential, which will also be reflected in the increase in the staff potential of a high level of training that can successfully master the developed domestic or acquired foreign technologies in production.

The volume of investment is a factor that is extremely necessary for the dynamic development of not only economic processes (which is a self-evident fact), but also of social orientation branches. Investments are necessary for the development of basic social sectors in the social sphere - health, education and science, on which depends the quality of training and health of scientific and practical workers whose skills and abilities will be realized in the production of products. Economic activity of the subjects of almost all economic sectors also lacks investment, therefore, the dynamics of their growth in relative terms should be evaluated.

All this determines the need to assess the impact of investment on various indicators describing changes in social and economic processes. The regions of the Central Federal District were chosen as a base for the study as the largest and most effective district of the country, which accounts for a significant share of GDP and investments in fixed assets. It is also the most densely populated district of the country where 39 million people live and participate in social and economic processes, large industrial production is concentrated here, despite the lack of natural resources. Moreover, the latter aspect allows to consider the effectiveness of investment in the context of a new economic model based on the knowledge economy, rather than expanding the opportunities for development through a commodity model. The analyzed period of time is advisable to be implemented from the moment of Russia's accession to the WTO, as this determines the changes in the nature of export-import relations with other countries, which seriously affects both the economic development of the country and the social aspects of the population life.

Results

In general, there is a growth of investments per capita in the Central Federal District, although its dynamics has declined since 2014. However, the indicator fell below the level of 2012 in three regions (Ivanovo, Kaluga and Ryazan regions), and the investment level in 2016 decreased relative to 2014 or 2015 years in a number of areas (Belgorod, Bryansk, Vladimir, Moscow, Oryol, Tambov). As a result, only few regions (Voronezh, Kursk, Lipetsk, Tula regions, and also Moscow) showed a steady dynamic growth in investment per capita (Table 1).

Table 1: Volume change of investments per capita by the regions of the Central Federal District in 2012-2016, thousand rubles.

Indicators	2012	2013	2014	2015	2016	Change	
						RUB, in thousands	%
CFD	69.4	84.7	88.2	93.9	96.8	27.4	39.6
Belgorod	88.4	83.6	77.8	94.4	92.6	4.2	4.8
Bryansk	36.1	48.9	54.2	50.4	51.0	14.9	41.3
Vladimir	42.3	46.2	53.8	57.6	56.5	14.2	33.6
Voronezh	77.2	93.1	104.4	113.0	116.0	38.8	50.2
Ivanovo	23.5	30.3	28.7	24.9	22.1	-1.5	-6.2
Kaluga	93.6	89.4	98.7	91.6	78.9	-14.6	-15.6
Kostroma	32.1	33.9	42.0	40.3	40.9	8.8	27.4
Kursk	56.2	63.2	64.2	62.8	79.9	23.6	42.0
Lipetsk	79.2	87.1	95.1	100.8	110.7	31.5	39.8
Moscow	83.9	116.6	121.1	130.7	137.6	53.6	63.9
Moscow	69.8	80.5	82.2	87.5	85.5	15.7	22.5
Oryol	52.0	56.7	58.7	68.9	63.5	11.4	21.9
Ryazan	58.0	62.1	51.3	47.8	45.4	-12.6	-21.8
Smolensk	57.8	57.7	58.8	62.5	62.8	5.0	8.7

Tambov	76.8	91.7	106.1	116.6	102.7	25.9	33.7
Tver	60.2	60.8	56.6	56.9	69.1	8.9	14.8
Tula	53.7	59.1	63.1	70.1	74.9	21.2	39.5
Yaroslavl	53.1	58.4	60.2	54.3	64.5	11.4	21.4

* Source: Calculated by the author on the basis of statistical data of the Federal State Statistics Service (The website of the Federal Service of State Statistics; Russia in figures. 2017)

It is quite difficult to talk about the sustainable development of all the regions of the Central Federal District (Feraru, Kiselev, 2016) in situations where the basic factor of activation of socio-economic development processes varies so much. Therefore, a number of scientists suggest clustering or rating of territories. This will allow to obtain analysis results, on the basis of which it is possible to form a cluster management model for the development of similar subjects in the level of social and economic development (Gurban, 2015; Savina, Kosobokova, Dilman, 2016; Zavedeev, 2017; Pozhidaeva, Zyukin, 2013).

Thus, we grouped the regions of the Central Federal District in terms of the volume of investment in fixed assets per capita in the dynamics for 2012-2016 using methodological developments in the field of clustering regions and administrative regions (Pozhidaeva, Zyukin, 2013) (Table 2).

Table 2: Grouping of the regions of the Central Federal District in terms of investment in fixed assets per capita for 2012-2016

Years	1 group	2 group	3 group
2012	**More than 73 thousand rubles.**	**From 53 to 73.5 thousand rubles.**	**Less than 53 thousand rubles.**
	Kaluga, Belgorod, Moscow, Lipetsk, Voronezh, Tambov regions	Moscow, Tver, Ryazan, Smolensk, Kursk, Tula, Yaroslavl regions	Oryol, Vladimir, Bryansk, Kostroma, Ivanovo regions **
2013	**More than 78 thousand rubles.**	**From 58 to 78 thousand rubles.**	**Less than 58 thousand rubles.**
	Moscow *, Voronezh, Tambov, Kaluga, Lipetsk, Belgorod, Moscow regions	Kursk, Ryazan, Tver, Tula, Yaroslavl regions	Smolensk, Oryol, Bryansk, Vladimir, Kostroma **, Ivanovskaya ** regions
2014	**More than 84 thousand rubles.**	**From 63 to 84 thousand rubles.**	**Less than 63 thousand rubles.**
	Moscow *, Tambov, Voronezh, Kaluga, Lipetsk regions	Moscow, Belgorod, Kursk, Tula regions	Yaroslavl, Smolensk, Oryol, Tver, Bryansk, Vladimir, Ryazan, Kostroma **, Ivanovo ** regions
2015	**More than 91 thousand rubles.**	**From 68 to 91 thousand rubles.**	**Less than 68 thousand rubles.**
	Moscow *, Tambov, Voronezh, Lipetsk, Belgorod, Kaluga regions	Moscow, Tula, Oryol regions	Kursk, Smolensk, Vladimir, Tver, Yaroslavl, Bryansk, Ryazan, Kostroma **, Ivanovskaya ** regions

2016	**More than 90 thousand rubles.**	**From 65 to 90 thousand rubles.**	**Less than 65 thousand rubles.**
	Moscow *, Voronezh, Lipetsk Tambov, Belgorod regions	Moscow, Kursk, Kaluga, Tula, Tver regions	Yaroslavl, Oryol, Smolensk, Vladimir, Bryansk, Ryazan, Kostroma, Ivanovo * regions

* leading regions that are significantly superior to other regions in terms of indicators, being leaders

** regions-outsiders, significantly inferior to other regions upon indications

The peculiarity of this approach is the allocation in addition to groups of leaders (Moscow) and outsiders (Ivanovo and Kostroma region in some years), the size of investments in which differs significantly from other subjects in the group. The grouping of regions in terms of investment per capita also highlights the high instability in a number of regions, which is a deterrent to long-term development of the innovation investment model. Thus, the Kaluga Region, one of the dynamically developing regions of the Central Federal District, was the leader in the 1st group in 2012, however, it fell into the 3rd group due to a significant decrease in the indicator in 2016. In general, the third group includes the largest number of regions in the period under study. In addition to the obvious leader - Moscow, the first group consistently included Voronezh, Lipetsk, Tambov and Belgorod regions. Moscow region is the leader in the second group, Tula region is stable and Kursk region is stable too with the exception of 2015. The number of regions in the group with the lowest investment potential became higher in the period under study - the Ryazan, Yaroslavl and Smolensk regions were consistently included in their composition in comparison with 2012.

The formation of groups among regions according to certain criteria allows them to be compared by other determining socio-economic indicators, for example, by GRP and retail volume (RV), estimating how the investments are related to them and what percentage of indicators in absolute value is concentrated in a particular group. At the same time, we did not use the indicators of Moscow and the Moscow region in the process of such an assessment, which have significant specifics in economic development, many times exceeding other areas of the Central Federal District in terms of absolute indicators of social and economic development.

There is a direct and very close relationship with GRP and RV per capita, as evidenced by the value of the correlation coefficient when analyzing the availability of regions for investment in per capita terms (Table 3): between investments and the correlation of GRP was 0.83; between investments and RV - 0.88. Thus, per capita investment is indicator of higher GRP and RV.

Table 3: The main economic indicators of development per capita in 2016 by groups of regions of the Central Federal District, thousand rubles.

Groups	Region	Investments	Gross regional product	Retail volume
1 group	Voronezh	116.0	352.4	208.6
	Lipetsk	110.7	395.8	195.5
	Tambov	102.7	331.5	182.5
	Belgorod	92.6	442.0	192.3
2 group	Kursk	79.9	298.6	168.8
	Kaluga	78.9	330.0	174.8
	Tula	74.9	317.9	171.1

	Tver	69.1	263.1	165.2
3 group	Yaroslavl	64.5	340.0	162.0
	Oryol	63.5	272.7	156.9
	Smolensk	62.8	269.7	160.4
	Vladimir	56.5	257.6	144.0
	Bryansk	51.0	221.1	180.2
	Ryazan	45.4	280.6	151.2
	Kostroma	40.9	243.3	144.4
	Ivanovo	22.1	167.1	144.1

There is also a differentiation in terms of the volume of absolute values of investment, GRP and RV for groups of regions of the CFD in 2016. 44.7% of the total CFD investment in absolute terms is accounted for one group of regions of the Central Federal District with a high investment security per capita, while the group includes only 4 regions with a GRP of 38.7% and RV of 35.9% %, which confirms the predominant position of these regions due to their largest contribution to the economic development of the Central Federal District. About 1/4 of the indicators studied is accounted for 2nd group which also consist of 4 regions. The largest 3rd group, comprising 8 regions of the Central Federal District, in total is equal to the number of regions included in Groups 1 and 2 and contributes to the formation of GRP in the amount of 36.3% of the GRP structure of the CFD and 39.1% of RV, with the volume of investment in 29.7% of the total. Thus, we see that the volume of investment is distributed logically, in accordance with the economic contribution of regions to the economy of the Central Federal District (Table 4).

Table 4: Size and structure of socio-economic indicators in 2016 by groups of regions of the CFD

Groups	The number of regions	Units	Investments	Gross regional product	Retail volume
1 group	4	Billion. rub.	649.6	2312.0	1201.7
		%	44.7	38.7	35.9
2 group	4	Billion. rub.	371.7	1487.9	837.8
		%	25.6	24.9	25.0
3 group	8	Billion. rub.	430.7	2167.5	1308.5
		%	29.7	36.3	39.1
Total	16	Billion. rub.	1452.0	5967.4	3348.0
		%	100.0	100.0	100.0

Investments not only determine the economic state and further development of individual regions and the country as a whole, but also create a basis for improving the quality of life of the population, which will be expressed in increasing life expectancy and reducing mortality. At the same time, in-

vestments affect social indicators both directly and indirectly. Thus, investments in health care (both public in the development of public health institutions and private ones in medical centers and offices) directly influence the improvement of the functioning of public health services, which allows improving the quality of life of the population. According to Aganbegyan (2017), the fact that in terms of relative weight of total health expenditure from all sources within the GDP Russia ranks 91st out of 190 countries of the world spending two or more times less than 25 developed countries and 50 per cent less than 30 developing countries, determines a significantly higher mortality rate in Russia than that of all the developed nations, as well as a number of developing countries, and a significant potential for reducing mortality and related opportunities for the country's socio-economic development.

Also, investments, which are, in the opinion of a number of scientists (Solovyova, Pozhidaeva, Zyukin, 2016; Sapir, Karachev, Zhang, 2016), determining for solving national security issues and implementing the program of import substitution of agri-food and pharmaceutical products, allow improving the quality of life of the population, because high-quality food and medicines are produced. In developed countries with a high standard of living such products are expected to meet special quality requirement while the well-off population of those countries forms a demand for it. Therefore, investments aimed at creating competitive food and pharmaceutical products indirectly affect the improvement of living standards, primarily life expectancy. In addition, the development of these areas, as well as other sectors of the economy, contributes to the improvement of economic processes: jobs are created, which increases the average salary of the population, a demand for high-tech products is created, profits in business is generated, and the state's revenues are increased by tax revenues. All these economic indicators eventually determine the improvement of the quality of life, namely, investments are the generation of economic processes. Therefore, their concentration in the region, which can be expressed in terms of their value per 1 person, will depend not only on economic development, but also on social development, which will result in a decrease in mortality and life expectancy of the population.

This is confirmed by the results of the correlation analysis, in which the influence of investment on the main demographic indicators (birth rate, mortality and life expectancy) was pairwise estimated. Thus, the correlation coefficient indicates that the relationship with the death rate is inverse, and with a duration of life - a direct one. At the same time, the indicators are increasing (correlation coefficient between investments and mortality increased from 0.51 to 0.71, between investments and life expectancy - from 0.48 to 0.6), characterizing the transition from close to very close stochastic communication (Table 5) .

Table 5: The value of the correlation relationship between investments per capita and demographic indicators in the regions of the Central Federal District in 2012-2016

Years	Birthrate	Mortality	Lifetime
2012	-0.15	-0.51	0.48
2013	-0.18	-0.69	0.55
2014	-0.13	-0.70	0.62
2015	-0.14	-0.74	0.66
2016	-0.11	-0.71	0.60

This proves that the positive effect of investment can affect the socio-economic development of the region for a long time. It can be noted based on these studies that there is a correlation between the value of investment and the development of human potential. Moreover, these two elements are complementary, providing a dynamic development of the socio-economic state of the country as part of the transition to a knowledge economy, activating economic processes. The fact that the stochastic relationship is not close to the functional one is determined by the different structure of investment by industry.

At the moment, there is a disproportion in the structure of investments, where there is a scarcity in the sectors that are the basis for the formation of new knowledge and human development, as well as high-tech industries that consume this knowledge. At the same time, investments in the financial sphere, which are inherently speculative and short-term, dominate, therefore it is important to ensure the activation of investment activity in the sectors that form a high level of human potential development and its implementation in the practice of the real sector of the economy, primarily in high-tech production.

In accordance with this, it is important to achieve a concentration of investments aimed at implementing projects that determine the development of the real sector of the economy and ensure the improvement of the quality of health care, education and science. To do this, it is important to review the current monetary policy, which creates favorable conditions for investing in the financial sector, and not for enterprises in the real sector of the economy. Speculative financial operations have only a short-term effect and do not allow the activation of socio-economic processes, while the development of industrial enterprises and the implementation of social projects are contrary to this. In such a situation, the stimulation of investment activity and the use of tools that motivate a business to follow the path of an innovative investment model of development depends on the system of state strategic management. Stimulation of investment activity is determined by the prospects for a rapid increase in the supply of long-term money, which depends on the policy of The Central Bank of the Russian Federation. In addition to the financial factor, effective administrative support for industrial entrepreneurship at the regional level contributes to investments, which in particular can help solve the problem of import substitution. The role of the state at the macro level is manifested through the planning of the number of trained specialists of higher and secondary specialized education that will provide skilled labor, as well as funding of science that creates a basis for further commercializing ideas.

Conclusion

A grouping of the regions of the Central Federal District was made in the work in terms of the investment volume per capita, where three groups, a leader and outsiders were identified. Voronezh, Lipetsk, Tambov and Belgorod regions are in the 1st group with high investment security per capita. This is confirmed by the largest contribution of these regions to the economy of the Central Federal District in terms of GRP and RV. Kursk, Kaluga, Tula and Tver regions are in the second group with average investment rates, which account for about 1/4 of the volume of the total GRP and RV in the CFD, which causes 1/4 of the investment in the economy of these regions in relation to Central Federal District. Yaroslavl, Oryol, Smolensk, Vladimir, Bryansk, Ryazan and Kostroma regions are in the 3rd group of regions for investment security, which in sum bring in some indicators less contribution to the economic development of the CFD than 1st group of regions. Ivanovo region and Kostromskaya region in a less degree are outsiders among the regions of the Central Federal District. In general, the investment support for the regions of the Central Federal District varies quite a lot, therefore, it is necessary to differentiate, taking into account the social specifics and the economic basis for further social and economic development of the CFD.

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Analysis of Investor Sentiments and Macroeconomic Variables Effects to Islamic Stock Index in Indonesia

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Abstract

This study examines the level of exposure Islamic stock price indices in Indonesia to the relative change in investor sentiment index and macroeconomic factors. This study observes the influence of investor sentiment represent by Consumer Confidence Index (CCI), and several macroeconomics variables such as Indonesia Composite Index, industrial production index, consumer price index, exchange rate, money supply, and interest rates to the price of Jakarta Islamic Index. It conducts the ordinary least square (OLS) test with the monthly data from January 2006 to June 2016. Surprisingly, the study reports that CCI statistically shows significant influence in Islamic Price Index in Indonesia. This result raises the debates on sharia complaint requirement on Islamic capital market instruments since speculation is prohibited in Islam and sentiment investor allows the price to change more than the fundamental condition. Apart from that, other variables such as Indonesia Composite Index, and money supply are also found significant to affect Islamic Price Index in the case of Indonesia.

Keywords : Investor sentiment, Consumer Confidence Index, Islamic price index return

Introduction

Efficient Market Hypothesis (EMH) mentioned that the efficient market is always fully reflect all available market information (Fama,1970). But in the last few years appear some criticism about the hypothesis of the efficient market. One of the phenomenon that prove the failure of the EMH is the 2008 global financial crisis (Subramnian, 2010).

On the year 2008 global economic crisis, bubble burst phenomenon occurs in the stock market . *Bubble* is the condition where the price deviations in the financial assets far exceeds the intrinsic value of the asset (Shefrin and Statman, 2011). The story begins from BNP Paribas announcement to freeze some securities related with the high risk mortgage in the United States. Afterwards, 2008 global economic crisis is happened and affected many countries, including Indonesia (Bank Indonesia, 2009). It is also reported that on that year, Indonesia stock market index was experiencing massive decline until exceeds 11 percent. To prevent the situation from being worsened, stock market authority was forced to stop stock market activity for three days. Stock market crash is the proof which bubble burst phenomenon can be found in the Indonesia stock market. Shefrin and Statman (2011) said that during the crisis, which the bubble burst phenomenon take place, efficient market hypothesis does not apply. This is due to the phenomenon of *bubble* occurs as a result of asset price deviation from its fundamental values. It can be concluded that the 2008 financial crisis shows the existence of market inefficiency.

In an efficient market, components of the stock price consists of the value of the asset in place plus the value of growth opportunity (Reuer and Tong, 2007). However, in the inefficient market, there are other variables that also contribute to stock market prices, which is investor sentiment (Baker and Wurgler, 2007). Investor sentiment is investor belief about the future cash flow and the investment risk which is not based on fundamental information (Baker & Wurgler, 2007). Investor sentiment can hampered arbitration mechanism and will cause the *mispricing* in the stock market.

In the development of stock market, new stock instrument emerges along with the Islamic finance development. Index which is containing *sharia* stocks in Indonesia is named Jakarta Islamic Index (JII) The problems of investor sentiment is not just can only happened in conventional stocks only, it also can affect the sharia stocks. Rashid et al. (2014) stated theoretically several causes why the sharia stocks cannot have the significant

relationship with the investor sentiment. First, speculation in any type is categorized as unlawful (not allowed) in Islam. Another reason is the sentimental investors valuing rumours more than the market fundamental information (Baker & Wurgler, 2007).

Rethinking *Sharia* prohibition of stock to have a significant relationship with investor sentiment, it creates the question whether the investor sentiment become a significant factor that influence Jakarta Islamic Index? Therefore, this research is discuss about how investor sentiment that approached through *Consumer Confidence Index* proxy (Qiu & Welch, 2006), macroeconomic factors and their influence towards Jakarta Islamic Index (JII) return.

Previous research on investor sentiment had been done by Brown & Cliff (2004), Baker & Wurgler (2006), Finter et al. (2012), and Rashid et al. (2014).Those research mostly have the focus of the discussion of investor sentiment influence in the conventional stocks. Meanwhile, this research has focused on the investor sentiment effect to the Islamic stock return just like Rashid et al. (2014). This research is the development of research Rashid et al. (2014) which is testing how the influence of *consumer sentiment index*, macroeconomic factors, and its effects on the sharia stock index price in Malaysia, namely the *FTSE Bursa Malaysisa Hijrah Index.*

The difference between this research and Rashid et al. (2014) is this research will use the Indonesian sharia stock index (JII) and the longer research periods which is 2006-2016. This research will see how the investor sentiment effect to Islamic stock index in Indonesia by adapting Rashid et al. (2014) the approach. This research use *Consumer Confidence Index* (CCI) as the proxy for the investor sentiment, CCI is an index based on a survey of the expectations of the consumers in the future about their economic situation. Meanwhile, for the Islamic stock index variables, this research is using Jakarta Islamic Index (JII)

In addition, researchers will also include macroeconomic variables such as the Indonesia Composite Stock Price Index (IHSG), *industrial production index*, the interest rate, *consumer price index,* the exchange rate of the rupiah against the US dollar and the *money supply*. This is due to the fact that investor sentiment presence will not hide the fact that macroeconomic factors have a strong influence on stock returns (Rashid et al. 2014).

Theoretical Framework

In recent years, Islamic finance emerged as an alternative to conventional finance. Selim (2008) said that there are three main principles of Islamic finance in relation to economic fundamentals. The first principle is called "The Principle of Universal Complementarity. This principle gives each individual in the economy (such as savers, borrowers, consumers, producers, government and private industry) a complementary and mutually agreed role in achieving the highest social welfare. The implication is, there is no uniformity in the interest rate but the distribution of profits and risks which are in accordance with investment performance. The second principle is the prohibition of usury, which is the prohibition of predetermined fixed interest rates among economic agents. The third principle is the fundamental about justice in institutions called *al-hisba*. This principle guarantees all levels of society have the same rights. One example is, every economic agent receives a different but decent reward, in the form of salary or rent.

Every Islamic financial instrument must conform with Islamic law. Ahmad and Hasan (2006) stated that Islamic law was derived from the Qur'an and the Hadith of the Prophet Muhammad. Basically, all transactions and contracts in Islamic financial transactions are allowed as long as there are no restrictions that stated in the Islamic law. The implication for this rules is every modern financial contract which is is not mentioned in the Islamic Sharia rules is permissible if it does not conflict with the Qur'an or Sunnah, or based on the *ijma'* ulama, *qiyas*, as well as *maslahah mursalah* (consideration of general rules that apply), and also free from any crime. (Ahmad and Hasan, 2006).

As an alternative to the interest-based financial system, the Islamic financial system recognizes equity financing model. Chapra (1985) states that in large amounts, all financing in Islamic economics and finance should have an equity-oriented financing where the capital provider recognizes a share in the profits or losses of the financed business. Financing model like this does not only divide equitably the return from the overall investment between the capital provider and the entrepreneur, but also the transfer and distribution of risk from the investment to the capital provider, rather than putting the overall risk to the entrepreneur. The example of the equity-based financing models in Islam is Islamic stock.

In the context of the capital market speculation, Chapra (1985) tells in his research about how to create an ideal Islamic stock markets. One of the main points being mentioned is the importance of reducing the practice of speculation on capital market. It aims to diminishing the influence of unhealthy movement that occurred in the capital market and also poins out the efficiency in the primary and secondary market. Both of these are needed

in order to actualize the ideal practice of *equity financing* in compliance with the values of the Islamic finance. Furthermore, Chapra (1985) states that to achieve this goal rational behavior in the stock market is required, along with the justice in dividends distribution to increase investor trust with the *sharia* stock. Irrational behavior such as speculation, creates excessive prices movement because of excessive buying when there is price increasing expectation, or excessive selling when there is price decreasing expectation. Baker & Wurgler (2006) defines investor sentiment as the tendency of an investor to speculate.

Based on previous literature, there is no definite agreement regarding the definition of investor sentiment. Black (1986) first introduced the concept of investor sentiment through the concept of trader noise. From this concept, there are several behavioral finance-based models developed by other researchers, namely: De Long et al. (1990) who tried to see the effect of irrational trader noise on stock price determination. Regarding investor sentiment, Shleifer (2000) defines investor sentiment as heuristic-based behavioral beliefs or practical rules rather than Bayesian rationality in making investment decisions. This occurs when investor preferences and beliefs fulfill psychological evidence compared to standard economic models.

Some researchers said investor sentiment as the tendency of investors to trade in the noise rather than fundamentals (Black, 1986; De Long et al., 1990; Shleifer & Vishny, 1997; Baker, Wurgler & Yuan, 2012), while other researchers mention investor sentiment as excessive expectations from the participants in the capital market, which is consists of optimistic investors (*bullish)* or pessimistic investors (bearish), where they expected the share price above or below average. (Shefrin, 2008; Brown & Cliff, 2004).

Shiller (2000) said that generally investor sentiment data refers to simple expectations of price changes or indicators of expectations themselves. Although useful, such data cannot capture important elements of investor thinking. This is because most of the people do not have the right measurement of expectations for future changes in a certain period of time. Shiller (2000) distinguishes two types of investor sentiment measurements. First, measurement of investor sentiment derived from price or quantity in the market, under the theory associated with them with sentiment. Secondly, measurements based on investor voting. Put / call ratio, short interest ratio, and close-end discount fund (CEFD) become part of the first group of sentiment indices measurements. Meanwhile, a survey was conducted for investors to measure sentiments such as the American Association of Individual Investors (AAII), the University of Michigan Consumer Sentiment Index, and the Investor Intelligence Index (II) which predicts market price corrections, being part of the second group of sentiment indices measurements.

Brown and Cliff (2004) also use two basic types of sentiment measurement, consists of direct and indirect measurement of sentiment. Market sentiment measured through direct measurement of sentiments was obtained through direct surveys. In their study, direct sentiment measurements used the AAII and II indexes. Meanwhile, indirect measurement of sentiment is created through financial data and can be categorized into four groups. (1) indicators based on current market performance (2) Indicators based on certain trading activities (3) indicators based on derivative trading activities (4) discount (CEFD). Qiu and Welch (2006) also distinguish two types of measurements, namely measurement of surveys based on investor polling, and financial measurements based on data and financial indicators. They examined the consumer confidence index and the Close-End Fund Discount (CEFD) as two different investor sentiment proxies.

Aside from these two categories of sentiment measurements that have been mentioned, there is a third type of measurement which is based on pure market data or investor survey. This type is called meta-measure. Generally, this measurement is based on a mixture of many opinions. Ciccone (2003) used the opinions of analysts as a human-level measure of investor sentiment. Antweiler and Frank (2004) examined the phenomenon of messages posted in the internet stock message board, it was found that the increase in the number of message posted caused an increase in trading volume and volatility. Das, Martinez-Jerez and Tufano (2004) use the sentiment indicator in the form of "e-information", which uses a variety of language processes based on the comments in the online discussion room. The study analyzes the determinants of sentiment and disagreement, and traces the relationship between news, e-information and stock returns.
This study uses a direct measure approach in measuring investor sentiment. This measurement uses investor sentiment proxy, namely Consumer Confidence Index. Consumer Confidence Index (CCI) is arranged based on a survey about expectations of respondent business conditions, conditions of employment and family income within 6 months. Curtin (2000), and Qiu and Welch (2006) said that the Consumer Confidence Index focuses on five questions:

- Respondents' opinions regarding their financial condition compared to a year ago
- Respondents' opinions regarding their financial condition a year from now

- Respondents' opinions regarding business conditions in a country as a whole for the next year
- Respondents' opinions regarding the economic conditions in a country over the next five years
- Respondents' opinions regarding the assessment of current condition as a time to buy household items, such as furniture, refrigerators, or television

Intrinsically, consumer confidence is quite similar to investor sentiment. Many investors have a tendency to be bullish on the economy when they are bullish on the stock market and vice versa (Qiu and Welch, 2006). De Long et al. (1990) states the measurement of consumer confidence requires the identification of consumers as individual retail investors whether they have similarity with the noise trader. More precisely, whether an investor who acts on investor sentiments has a behavior similarity to a consumer. Therefore, to qualify as a proxy of investor sentiment, consumer confidence and investor sentiment must have a positive correlation. Qiu and Welch (2006) prove that the results of the consumer confidence survey are well-correlated with investor sentiment.

There are several studies which used Consumer Confidence Index. Fisher and Statman (2003) found a negative correlation between consumer confidence and stock return in one month, six months, and 12 months later period, but the results were not statistically significant. Gormus and Gunes (2010) found granger causality relationship between stock prices and real exchange rates against CCI but not vice versa. Ferrer et al. (2014) examined the case studies of two stock price falls from the stock market (correction of internet stock prices booming in 2000-2002 and falling of stock prices in 2007-2009 when the start of the global financial crisis). It was found that CCI relations and stock prices were universally not positive. Furthermore, this literature also found no information effect, but it can identify a better relationship between consumer expectations about future household finances and stock market fluctuations.

The Data and Research Methodology

The stock return variables used in this research, which is JII (*Jakarta Islamic Index)* and also The Composite Stock Price Index (IHSG) are the secondary data which is listed in Indonesia Stock Exchange. This stock index data obtained from *google finance.* Meanwhile, for macroeconomic variables such as *industrial production index* , *consumer price index*, the exchange rate, *money supply*, as well as investor sentiment variable (*Consumer Confidence Index)* all taken from *euromonitor*. But there is an exception for interest rate variable, where data is obtained from the website of Bank Indonesia. Using Rashid et al. (2014) approach, this research uses quaterly data with the longer observation period, which is from the Q1 2006 until the Q4 2016.

The dependent variables use in this research is the *closing price* of JII (*Jakarta Islamic Index*. Because the data obtained from *google finance* have daily frequency, then further processing is needed to transform data into the *monthly average.* Price in financial market usually have return form, therefore this research used *log difference* process in order to transform stock price into return form. Independent variables used in this research is the investor sentiment and macroeconomic variables. For investor sentiment, proxy used is the *Consumer Confidence Index (CCI)*. Qiu and Welch (2006) has proved CCI qualify as the proxy for investor sentiment. The use of *Consumer Confidence Index* as the sentiment investor proxy in this research is based on the approach used by Rashid et al. (2014). Rashid et al. (2014) using *Consumer Sentiment Index* as proxy investor sentiment. Although it has a different name with the *Consumer Confidence Index,* but both variables have common meaning where both the index is talking about the expectations of consumption patterns and the economic situation from consumers perspectives. The macroeconomic variables used is the *industrial production index, consumer price index,* the exchange rate of the rupiah against the US dollar, *money supply*, and the interest rate (using BI Rate). The authors use the *consumer price index* to substitute the inflation data which is not available in the monthly frequency.

The research model used in this study adopted from (Rashid et al., 2014), with some modification used in this study. This study uses the foundation of the model proposed by the Arbitrage Pricing Theory (APT). Ordinary Least Square (OLS) regression method was used to see the relationship between dependent variables and independent variables. The main objective of OLS itself is to estimate population regression functions in the form of a sample regression function with the highest accuracy possible (Gujarati, 2004). The accuracy of the estimation is obtained by the OLS method by taking the distance from the data point to the regression estimation line, making it quadratic form, and minimizing the total number of the quadratic area (hence it called least-square) (Brooks, 2008). The purpose of using Ordinary Least Squares model is to get a parsimonious model,

which is a model that fulfill the assumptions of the CLRM (Classical Linear Regression Model) and has a good fit with the theory (Brooks, 2008).

The research model used in this research have an objective to test *Consumer Confidence Index* as proxy investor sentiment and macroeconomic variables effects to return of JII. The equation of model is :

$$\Delta logJII_t = \alpha + \beta_7 logCCI_t + \beta_1 \Delta logIHSG_t + \beta_2 BIRATE_t + \beta_3 logIPI_t + \beta_4 logMNS_t + \beta_5 logCUR_t + \beta_6 logCPI_t + \varepsilon_t \quad (1)$$

$\Delta logJII_t$ = Log difference/return from JII index in t period
$logCCI_t$ = Log from the consumer confidence index in the t period
$\Delta logIHSG_t$ = Log difference/return from the Jakarta composite index in the t period
$BIRATE_t$ = BI Rate in t period
$logIPI_t$ = Log from the industrial production index in the t period
$logMNS_t$ = Log of the money supply in t period
$logCUR_t$ = Log of the exchange rate of the rupiah against the US dollar in the t period
$logCPI_t$ = Log from the consumer price index in t period

This research test classical assumption of *Ordinary Least Squares* in order to get estimates results which have *Best Linear Unbiased Estimator* (BLUE) condition. Three assumption test which is done in the research is *multicollinearity* test, *heteroskedasticity* test and *autocorrelation* test. To test the multicollinearity, this research uses the matrix correlation between independent variables. If there are multicollinearity problems on the variables, the treatment can be done is either dispose one variables that have high correlation or transform two variables that have high correlation into the ratio form.Meanwhile, heteroscedasticity test used in this research is *White's General Heteroscedasticity Test*. Next, autocorrelation test conducted *Breusch-Godfrey (BG) test.* To solving heteroskedasticity and autocorrelation problems, this research uses a procedure called *Newey-West.* Brooks (2008) states that *Newey-West* solution is an alternative way to resolve the residual problems, which is modify the *standard error* of estimation. In addition, this procedure can also resolve heteroscedasticity problems at once.

Discussion and Implication

Table 1 is a statistical summary of the data used in this study. The differencing and log transformation process is done to the data used in this study. But the data displayed in descriptive statistics are still raw data. The average stock price from JII in the period 2006-2016 is 489.46, this value is quite low compared to the average of the IHSG, which is 3384.9. The standard deviation value of the stock price is a measure of stock price volatility. The standard deviation value of JII is 150.9, while the IHSG standard deviation value is 1305.5. When compared to the average of each IHSG and JII, the magnitude of the deviation was not greater than the average. It shows that the volatility of share prices for 10 years is still quite low. Another interesting thing is the average value of investor sentiment proxy, which is Consumer Confidence Index, that shows a value of 104.39. This shows the level of public trust is quite high, where each value above 100 can be categorized as an optimistic condition perception. For skewness indicators, all variables have a right skewness distribution, this is because the skewness value of these variables has a positive value. Regarding the issue of kurtosis, the distribution of data from variables CCI, CPI, Currency, Money Supply, JII stock prices, and IHSG stock prices has a platykurtic form (the normal distribution curve has a fat or short tail), this is due to value of the kurtosis is less than 3. Meanwhile, data distribution from the BI Rate and IPI variables has a leptokurtic form.

Table 1: Descriptive Statistics

	PJII	CCI	PIHSG	BIRATE	IPI	MONEY_SUPPLY	CURRENCY	CPI
Mean	489.4635	104.3897	3384.904	7.625	11.65556	6.49E+08	10293.25	105.0802
Median	522.5659	106.8	3691.093	7.5	11.65	6.05E+08	9459.4	104.3
Maximum	722.19	120.6	5518.675	12.75	21.2	1.18E+09	14404.2	136.6
Minimum	194.326	76.4	1230.664	5.75	0.1	2.70E+08	8532	76.2
Std. Dev.	150.9536	11.28835	1305.523	1.704039	3.415531	2.47E+08	1617.925	17.95757
Skewness	-0.413566	-0.453113	-0.177893	1.512196	-0.292415	0.249735	0.988223	0.139691
Kurtosis	1.980816	2.145948	1.650467	5.083058	4.648535	1.800592	2.563513	1.933087

Testing the assumption of non-multicollinearity is done by looking at the correlation between independent variables. To decide whether there is a problem of multicollinearity the correlation value between two carriable in one equation is inspected. If the correlation value is greater than 0.8, then multicollinearity problem exists.
To detect autocorrelation problems, researchers used the Breusch Godfrey Serial Correlation method. This study uses F-stat and Obs * R-squared measurements to determine whether autocorrelation problems exist. Table 2 is the results of Breusch Godfrey Serial Correlation testing. The result shows that the model used in this study rejected the null hypothesis, using both F-stat and Obs * R-squared calculations. So, it can be conclude that the model used has autocorrelation problems, therefore this study uses the Newey-West method, which is a way to overcome residual problems that experience autocorrelation problems by modifying the standard error of estimation.

Table 2: Breusch Godfrey Serial Correlation Testing

F-Stat Prob.	Chi-Square Obs*R-squared Prob.	Results
0,0310	0,0264	Tolak H0

Meanwhile, to detect a violation of homoskedasticity assumptions in the model, a method called White Test is used. F-statistic and Obs * R-squared values is used as a reference to determine the violation of homoskedasticity assumptions. Table 3 is a summary of White Test results. The result shows that the model used in this study rejected the null hypothesis. Therefore, it can be concluded that the model used in this study has heteroskedasticity problems. To overcome the problem of heteroskedasticity, this study uses the Newey-West procedure. This procedure develops variance-covariance estimators that can be consistent for autocorrelation and heteroskedasticity problems. Therefore, besides being able to overcome the problem of autocorrelation this method can also correct the problem of heteroscedasticity.

Table 3: White Test Heteroscedasticity Testing

F-Stat Prob.	Chi-Square Obs*R-squared Prob.	Results
0,000	0,000	Tolak H0

To see the relationship between investor sentiment, macroeconomic factors and Islamic stock index, then the *Ordinary Least Squares (OLS)* regression *test* is done. The table 4 shows the results of multiple regression model that describes the relationship between them.The data consists of 126 observations. In general the models above can explain the variation in the dependent variables significantly at the 1 per cent level. From the result of adjusted R-squared, it can be seen 67,42 percent variation on stock price JII changes can be explained by the model. In addition, a statistical model of this research is valid to view the effect of the independent variables against dependent variable. This can be seen from the results of the *joint test* which have strong signicant level of 1 percent, with the F-statistics is 43,77.

Table 4: Regression results

Dependent variables : DLOGPJII		
Independent variables	**Drag coefficient**	***P-value***
Intercept	0.087657	0.5714
LOGCCI	0.089644	0.0419**
DLOGPIHSG	0.735447	0.000*
BIRATE	-0.002536	0.3714
LOGIPI	-0.002158	0.5817
LOGMONEY_SUPPLY	-0.040056	0.0597*
LOGCURRENCY	0.035899	0.279
R-squared	0.689973	
Adjusted R-squared	0.674209	
F-statistic	43.76872	
Prob(F-statistic)	0.0000	
Durbin-Watson stat	2.400553	
Ket : *** significant at the 1 % level		
** Significant at the 5 % level		
* Significant at the 10 % level		

From regression results it can be found that relationship between *Consumer Confidence Index* with Jakarta Islamic Index (JII) return is positively significant. This is caused by the unpredictable noise traders belief resulting in the risk on asset prices creation, which is prevent the rational arbitrageur actions to restore the price to the equilibrium. Therefore, the price can deviate significantly from fundamental values even though there is no fundamental risk (De Long et al. 1990).. This results is consistent with the definition of investor sentiment itself, where excessive expectations from capital market participants strengthened the increasing expectation (*bullish)* or decreasing expectation (*bearish*) on the stock price (Brown & Cliff, 2004; Shefrin, 2007). These findings id suitable with Rashid et al. (2014) where investor sentiment proxy has significant positive relationship with the Islamic stock price in Malaysia. Other research using the *Consumer Confidence Index* as proxy of investor sentiment also supports the findings of this research, Qiu and Welch (2006) found that the *Consumer Confidence Index* has a positive relationship with return spread from small businesses and return spread between retail investors and institutional investors. Chen (2015) also find that the *Consumer Confidence Index* and stock returns have positive relationship, this can be seen from the *Consumer Confidence Index* variable positively significant influence the hotel industry stock in Taiwan.

This research is also consistent with Rashid et al. (2014), in the context of the effect of investor sentiment significantly affect the return of Islamic stock. Furthermore, this findings shows that the development if Islamic stock market in Indonesia tend to not follow the *sharia* principle. An indication which shows the stock investment decision taken by investors is not based on the market fundamentals but still based on the investor sentiment. This is violating the Islamic principles that required a Moslem to invest with verifying the information obtained and is not fixated by excessively pessimistic or optimistic expectations.

The Indonesia Composite Stock Price Index (IHSG) has a significant positive effect to the JII returns. This shows that the JII and IHSG tend to move in the same direction. In Malaysia, this fact occurs because the high proportion of *sharia*-compliant stock from from the entire stock listed in Malaysia (Albaity and Ahmad 2008). If we see the proportion of Islamic stocks in Indonesia within the entire stocks that are registered in Indonesia Stock Exchange (BEI), it can also be seen a big enough proportion namely 65 percent.

Good thing that can be learned from the similarity of the movement of conventional and *sharia* stocks is proving the proportion of *sharia*-compliant stocks in Indonesia is big enough, but the bad thing is that kind of movement

proving the weakness of *screening* done in the selecting *shar'ah*-compliant stocks. In other words, performance of *sharia* stock index and conventional share index tend to be the same. This similarity will have a bad effect, because the Islamic stocks which is expected to have better performance compared to conventional stocks, in the end do not have significant performance differences. That fact can creates a bad impact for the economy, such as triggering the financial crisis (Albaity and Mudor, 2012)

Next, the relationship between BI Rate and JII stock return is does not have significant relationship. This result is consistent with Yusof and Majid (2007) who found that the interest rate does not have a significant influence on the *sharia* stock index in the United States and Malaysia. Although, generally on the conventional stocks the relationship between the interest rate and stock price is negative (Mukherjee & Naka, 1995), but there is a postulate in Islamic teachings that say the interest rate is not a significant variable in explaining stock returns (Majid and Yusof, 2009). These findings indicate the movement of the *sharia* stock returns in Indonesia is not influenced by the interest rate and it is conform with the postulate that reject the significance of the interest rate in explaining the *sharia* stock return. Yusof and Majid (2007) said this fact is caused by the Moslem investors who not only pursuing the maximum profit objectives, but they also consider the *sharia law* concerning the stocks.

The money supply effects to stock return is a empirical question and can have a negative sign because of its influence to discount rate (Mukherjee & Naka, 1995). However, that negative effect may be countered by increasing economic stimulus features which will have an impact on the increasing level of stock price. Regression result shows that money supply variables has a significant impact in explaining the *sharia* stock price, with the 10 percent level of the significance. The result is not consistent with Rashid et al. (2014) which found the level of money supply have a significant positive relationship with the Islamic stock price in Malaysia. But the result is consistent with Madjid (2016) who found that the level of money supply have a significant negative impact on the *sharia* stock price in Indonesia. The explanation for this findings is increasing level of inflation uncertainty which is resulting in decreasing level of *sharia* stock price.

Industrial Production Index (IPI) and exchange rate does not have significant relationship with the returns of Jakarta Islamic Index (JII). For IPI-JII return relationship, the absence of significant relationship between them is can be caused by 2007-2008 economic and financial crisis.. Severe economic crisis, causes the production levels are not able to affect the movement of the stock price. Meanwhile, the explanation for exchange rate and JII return relationship is the Indonesia level of trade openess still could not give enough boost to increase the capital inflow to Indonesia. Moreover, the unsignificant relationship could be caused by difference in capital control degree and financial liberalization level between each countries. (Nieh & Lee, 2001) .

Conclusion

The purpose of this research is to see the significance of the effect of investor sentiment proxy(*Consumer Confidence Index*) and macroeconomic factors towards Islamic stocks returns in Indonesia during the period of January 2006 until June 2016 . From the regression results analysis there are two big conclusions that summarizes this research . First, investor sentiment proxy namely *Consumer Confidence Index* has a significant positive relationship effects towards Jakarta Islamic Index return. This result indicates that the development of sharia stock markets tend to not comply the *sharia* principles, in the context of the *sharia stock* market that is free from the investor sentiment. These findings demonstrate that the Indonesian investors taking Islamic stock investment decisions is not based on the fundamental information but still affected by investor sentiment. This is not in suitable with the obligations of a Moslem that must perform the information verification in investment action and is not excessively focused on optimistic or pessimistic expectations.

Second, the macroeconomic factors relationship with the Jakarta Islamic Index return is examined. The macroeconomic factors variables used is Composite Stock Price Index (IHSG), money supply, Industrial Production Index (IPI), exchange rate and interest rate (inflation is not inserted in the regression analysis because it has high correlation with other independent variables variables), The regression result shows that IHSG has significant positive influence towards JII returns. Meanwhile, the money supply have a negative significant influence of JII stock returns. However, interest rate, industrial production index (IPI) and the exchange rate does not have a significant impact on JII stock returns.

The limitations of this research lies in the usage of Jakarta Islamic Index (JII) only. The stocks that listed in Indeks Saham Syariah Indonesia (ISSI) is not included in the observation. Besides, this research is did not explored rational and irrational sentiment behavior. Further research can focusing on analyzing past experience of investor sentiment to Islamic stock returns in Indonesia. In addition, it is important to know whether if any causation between investor sentiment and Islamic stock returns in Indonesia. Finally, shock from the investor sentiment towards Islamic stock returns in indonesia can be examined further. These recommendation is need

further exploration, considering this research finding that prove investor sentiment movement is affect Islamic stock returns in Indonesia.

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The Development Model of Creative Industry in Indonesia: Fashion Subsector with System Dynamics Approach

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Abstract

The creative industry is a new industry that has great potential to develop. Indonesia has its strength to develop this industry through its diversity of geographic uniqueness. Fashion subsector is one of the sub-sectors that have a significant influence on economic growth in the creative industry. However, along with the development of technology and market demand, the fashion industry is continually struggling to exist. To be able to analyze such rapid changes, actors in the fashion industry can use the system dynamics approach. This study will analyze what variables that play a role in ecosystem changes in the fashion industry. The results of the analysis can provide appropriate recommendations for policy options that can be taken in the industry conditions that have been displayed. We see that the development of the fashion industry in Indonesia is centered on the big cities of Jakarta, Bandung, Padang, Makasar, and Bali.

Keywords: System Dynamics, Creative Industry, Fashion, Modeling

Introduction

The role of the creative industry is increasingly significant in sustaining national economic growth. The results of the study show that in countries with higher welfare levels, starting to have a changing trend, the number of input resources is no longer a dominant factor in determining the total growth of the economy, but rather by creativity and innovation (Simon J. Evenett, 2002; Shahid Yusuf, 2003). Therefore, it is natural that the development of the creative industry is much more rapidly in a relatively developed country such as Great Britain. Some major Asian countries have already begun to experience structural changes related to the major sectors that contribute to the economy from previously manufacturing-centered to the business sector and creative industries (Yusuf and Nabeshima, 2005).

From 1981 to 2006, the creative industry sector in the UK has increased by about 3.3% well beyond the 0.8% UK sectoral growth rate in the UK. while regarding employment; the trend also increased from 7.1% in 2001 to 8.4% in 2004 and 8.7% in 2010. In line with the United Kingdom, in the United States, the creative industry sector has a flat rate the annual growth rate in the range of 6.3% in the period 1977-1997.

Similarly, Indonesia, based on data from the Ministry of Tourism and Creative Economy (Kemenparekraf) 2010-2013, creative industry contribution to GDP is estimated at 7.1%, and to the overall export value of 6.1%, and to the employment of 10,7%. Badan Ekonomi Kreatif (Bekraf) Infrastructure Deputy, Hari Santosa Sungkari, said that by 2019, the government expects a 12% spike in creative industry contribution to GDP (Singgih, 2017). Furthermore, the other expected contribution is the 10% export increase and the absorption of 13% (Singgih, 2017).

Literature Review

Creative Industry

The idea of the creative industry is built on the particular contexts and phenomena found in 'developed' countries, especially in North America, Europe and Australia (Fahmi, Koster and van Dijk, 2016). Currently, many other countries that are not involved in the context and phenomena in developed countries also begin to adopt the idea as a tool for national and local development (Fahmi, Koster and van Dijk, 2016). These countries are beginning to realize that the creative industry is a very strategic engine of economic growth, job creation, and social cohesion (Pratt and Jeffcutt, 2009). The creative industry has become something newly represented as a significant and rapidly growing set of industries that draws attention to the right policy (Potts and Cunningham, 2010). While some questions and problems still exist in 'definition coherence' (Flew *et al.*, 2010), the creative industry has become one of the fastest growing sectors of the global economy (Bae and Yoo, 2015).

Fashion industry research that has been done by Potts & Cunningham formed four models of the dynamic relationship between the creative industry and other economic sections. Four paper models are four possible answers to this question: (1) welfare, (2) competition, (3) growth and (4) innovation (Potts & Cunningham, 2010). Each of these possibilities becomes a very different policy model: in (1) a welfare subsidy is required; in (2), standard industry policy; in (3) investment and growth policies; and at (4), innovation policy is the best (Potts and Cunningham, 2010).

Creative Industry in Indonesia

The concentration of industry moves from western countries to developing countries in Asia because it can no longer compete with the low cost in China and Japan's industrial efficiency (Departemen Perdagangan RI, 2013). Developed countries begin to realize that today they can not rely on supremacy in the industry anymore, but they have to rely more on creative human resources, and then in the 1990s began a new economic era that intensified information and creativity, popularly called the Creative Economy driven by an industry sector called Creative Industries (Departemen Perdagangan RI, 2013).

Countries develop creative economic competence in their way by existing capabilities in the country (Departemen Perdagangan RI, 2013). The creative industries usually form geographical groups, often in big cities, where they can benefit from large markets and various activities and people (Fahmi, Koster and van Dijk, 2016). The existing conceptual and empirical contributions have determined that regional social and economic arrangements are critical to the creative industry and that these place-based characteristics create conditions that enhance creativity and entrepreneurial behavior (Florida, 2002; Lee, Florida and Acs, 2004; Clare, 2013).

Fashion Industry

In Indonesia, it is difficult to place the fashion industry in either the creative industry or traditional culture (Fahmi, Koster and van Dijk, 2016). One might expect the fashion industry to continue to develop new styles and designs and, thus, is different from traditional craft activities (Fahmi, Koster and van Dijk, 2016). However, in reality, the fashion industry in Indonesia is a combination of traditional creations and culture.

Fashion is one of the subsectors in the creative economy and is one of the creative industries that provide a great economic contribution to Indonesia. The term fashion refers to industrial activity has been described in the book of Creative Industries Development Plan of 2008, Ministry of Commerce as follows; Creative activities related to the creation of clothing design, footwear design and other fashion accessory design, fashion clothing production and accessories, fashion product line consultancy, and distribution of fashion products (Departemen Perdagangan RI, 2013).

In recent years, fashion has faced many challenges in responding to various changes in its market. The evolution of purchasing behavior and the increasing importance of reactivity are just some of the major aspects affecting the rationalization and reorganization of corporate fashion strategies (Christopher *et al.*, 2012). Changes in fashion trends, short product life cycles, tough competition from low-cost labor countries, and the growth of emerging market stars have deviated from traditional industry business models (Abecassis-Moedas, 2006). The adoption of worldwide production and supply networks has been the company's practical response to their recently changed needs (Macchion *et al.*, 2015). The fashion industry is described by different and complex supply networks, both regarding the fragmentation of production activities and the geographical spread of actors involved (Macchion *et al.*, 2015). The industry is also worth studying because of the context of the uncertainty in which competing for fashion companies (Macchion *et al.*, 2015). Today, fashion companies not only have to face the challenges posed by demand uncertainty but also have to adapt to a new competitive environment (Priest and Priest, 2006).

Over time, the role of entrepreneurs in the economy and its contribution to economic change, as well as their creativity, innovation, entrepreneurial and managerial aspects are changing. The fashion brands for their part strive for innovation, differentiation, and attractiveness (Ünay and Zehir, 2012). This is because fashion business is basically a forward-thinking sector and one of the core characteristics of fashion brands is the innovation that has become an important aspect of the fashion business over the centuries (Ünay and Zehir, 2012).

System Dynamics (SD)

System dynamics is a complex system learning method with micro model simulations on computers to learn the dynamics of complexity, design policy, and design effective policies (Sterman, 2000). This method was initiated by Jay W. Forrester in 1961 at MIT (Massachusetts Institute of Technology, USA). At the beginning, this method is better known as Industrial Dynamics which means, "a method of reciprocal learning in industrial activity to show how organizational structure, policy amplification, and related delay in interaction decisions provide mutual relationships within it" (Forrester, 1995). A decision of the agent in a system will provide mutual relationships with agents and other variables in the system, it can lead to something anticipated and something not anticipated (Sterman, 2000). The System Dynamic method has two diagrams for system modeling, Causal Loop Diagram (CLD) and Stock Flow Diagram (SFD).

The system dynamics model that is being used in this study is the further development of the previous study from "*Supporting Small Medium Enterprises planning through the use of a step-by-step System Dynamics model building process A Case Study from Leather Handicraft at Tanggulangin, Sidoharjo, East Java, Indonesia"* paper by Subroto and Bivona (2009). The previous study shows that the creative industry is a market-driven ecosystem. This model is being proved by the informants who were interviewed during the study. This study will look deeper on the fashion industry itself by modifying the basic model of the creative industry in Indonesia that has been developed before.

Research Methodology

System Dynamics Application

We followed SD framework steps which are Problem, Hypothesis, Analysis, Policy, and Implementation that are applied to this research, which is the standard research framework in System dynamics in the application of modeling and simulation methods. In the stages, the Problem will explain the background of the problem and the reason why the problem needs to be researched. In this stage will also be reference data using historical data to see the behavior. The next stage is the Hypothesis, will be developed a mental model which is a dynamic hypothesis. Mental models will be made first by the author's understanding and basic assumptions that the author has. Then this hypothesis will be fixed according to the real condition with the help of a predetermined source by doing an In-Depth Interview. Development of the model begins by determining the various variables contained in the mental model is then assisted by using CLD (Causal Loop Diagram).

After the completion of the CLD model, it is possible to develop a formal model using the Stock and Flow Diagram (SFD). In the Analysis stage, we do some tests on the formal model to check the structure and behavior when compared to real conditions. If the developed model has represented the real condition, then it can be done the fourth stage of Policy. This stage will be done several times simulation in various conditions of different trends. This simulation can develop various policies that can be applied by the government. Moreover, in the last stage, Implementation, the impact of the implementation of the new policy will be explained, both regarding cost, conformity with organizational conditions, risks due to persistent elements of uncertainty, and other matters that must also be considered.

Data Collection Technique

The data is divided into three categories based on the source; (1) primary data, in the form of data obtained from research or raw data not previously interpreted as interviews in audio, video and transcript format; (2) secondary data, in the form of data obtained from other sources such as text, books, articles, or other secondary sources; (3) tertiary data, in the form of data obtained from tertiary sources such as bibliography and search engine media (Blumberg, Cooper and Schindler, 2014). This study uses primary data as the primary source and is supported by secondary and tertiary data.

This research uses In-depth interview method and literature study in data collection technique. The in-depth interview is done by interviewing directly related informants engaged in the fashion industry. A literature study was conducted to create the initial framework of System Dynamics by studying the development of the fashion industry in Indonesia and globally. After conducting In-depth interviews to get a real condition, literature studies are again conducted to support the data obtained by using sources such as articles, newspapers, textbooks, and also the media search engine.

The first thing to do before doing an In-depth interview is to determine the number of informants. This study uses non-probability sampling because the approaching is subjective, that is choosing based on certain criteria. The method used is purposive sampling with judgment sampling type, that is sample selection with criterion made by research. The selected criteria are the fashion industry businessmen in Jakarta, Bali, Bandung, Makassar, and Padang areas that have more than one year of experience.

Interview with a businessman in the field of fashion is done to get a mental picture of the model approaching the real condition of the fashion industry in Indonesia whether it is the background of the designer, cost structure, and the way of marketing done by each businessman. While interviews conducted with a student majoring in fashion design is done to get detailed data about the cost of education and educational process undertaken. Informants who successfully interviewed are:

1) 42 businessmen in the fashion industry who has had experience running the fashion business for more than 2 years and became the main informant in this research. The main informant meets the research criteria and can provide the required data with a certain limit.
2) 1 Student majoring in fashion designer who has been educated more than 7 semesters or final level students to provide information related to educational programs that are undertaken comprehensively

Data collected from In-depth interviews are models of the fashion industry in Indonesia, parameterized data such as cost structure and percentage of investment, and constraints faced during running a business in fashion.

Results

Causal Loop Diagram (CLD)

The Causal Loop Diagram (CLD) model in Fig 1 is an early model developed by the authors. This model is a qualitative model of a system in the fashion industry. This model was developed by

studying ecosystem from environment of fashion industry which done by literature study and result of in-depth interview. Since no previous research has discussed the dynamic system in the fashion industry, this model is based on the authors mental model rather than based on a previous research model. In this model can be found eight loops and 20 variables.

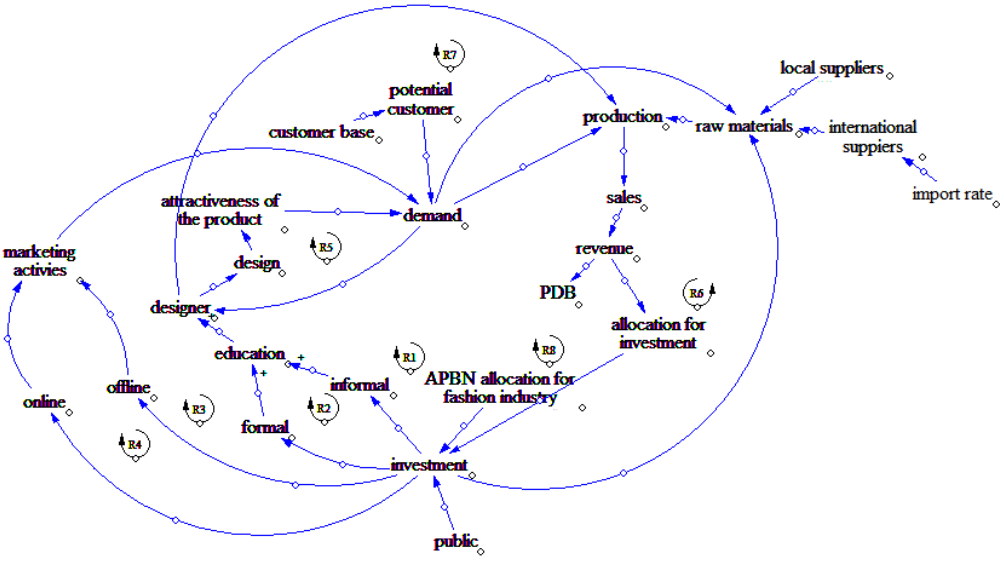


Fig.1 : Causal Loop Diagram

Loops

The Causal Loop Diagram (CLD) model is based on the literature study that is read and is also completed by checking by interviewing relevant sources. CLD creative industry can be seen in the picture CLD in the picture is a big picture of the existing system in the creative industry in fashion subsector. In the CLD there are eight loops which are a Reinforcing Loop on each loop that exists. Each relationship between variables is positive. This has the meaning that the increase in one variable will make an increase in the variables it influences, and vice versa.

Current Situation Analysis

After validating the model, the real situation of the fashion industry in Indonesia can be known by running the SFD model that has been created. In this model, it appears that the variable 'production' has a very big role to be able to determine the growth of the fashion industry. The 'production' variable uses the MIN formula of 'the desired production' and also the capacity possessed by each factor of production. It appears that production in the fashion industry depends on the capacity of 'expected demand' as well as 'HR Capacity.' This phenomenon can also be seen in Fig. 2.

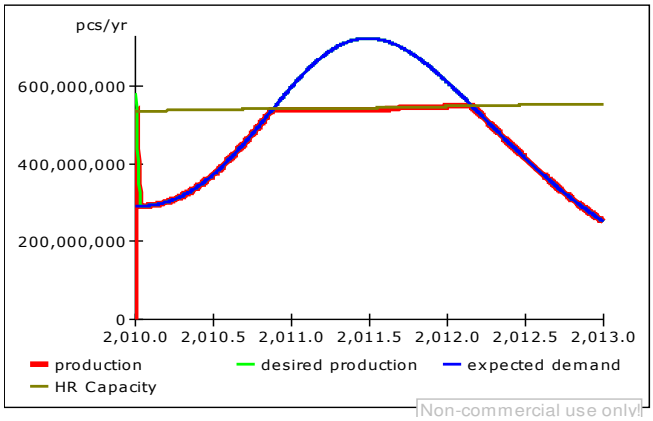


Fig. 2 : Production, Desired Production, Expected Demand, dan HR Capacity

In the 'Adoption Rate for Customer' section, this model uses the standard model of SIR (Susceptible, Infection, Recovered). The SIR model is chosen because it can describe the activity of the consumer which ultimately affects other consumers to be the customer through the review given or word of mouth. In this customer, part ignored repeat buying behavior so that the behavior that occurs is overshoot and collapse. This Behavior affects 'Expected Demand' and 'Desired Production', so sales are also overshot and collapse as the 'Potential Customer' has been adopted as 'Customer' as can be seen in the Fig 3.

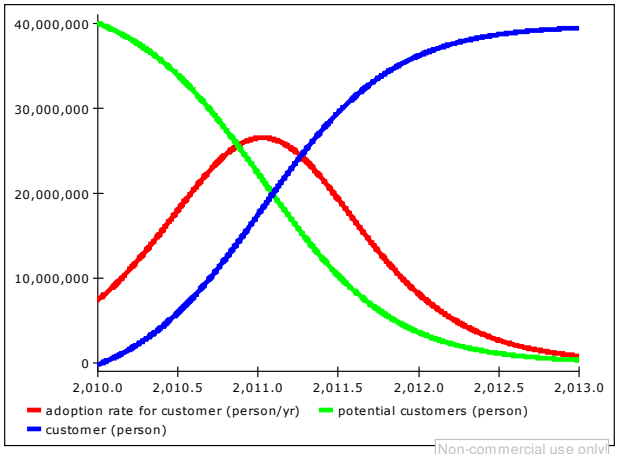


Fig. 3 : The adoption rate for Customer, Potential Customer, Customer

Regarding recruitment of designers or business people in the fashion industry, the number of designers in Indonesia is quite a lot. This is because the fashion industry is one industry that many enthused by businessmen. Several informants also said that they do not need a very long time to be able to learn design and business. Most of them do not have formal education about design. This leads to faster recruitment through informal education. Although after starting a business they still must adjust, that is not a big problem. Apart from the educational side, designer recruitment was influenced by the demand factor on the market. Businesspeople see the opportunity demand so interested to plunge into the fashion industry. It is also shown in figure 4.

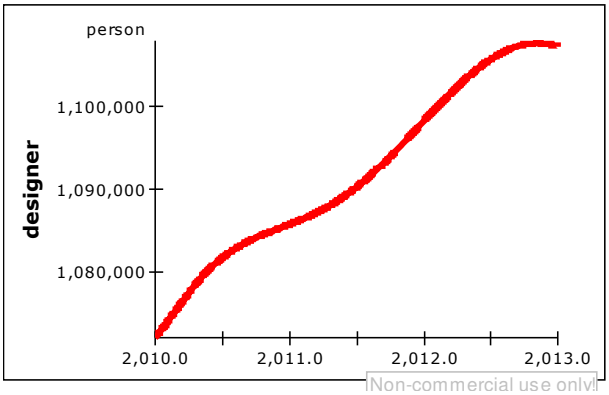


Fig. 4 :Designer Stock in Indonesia

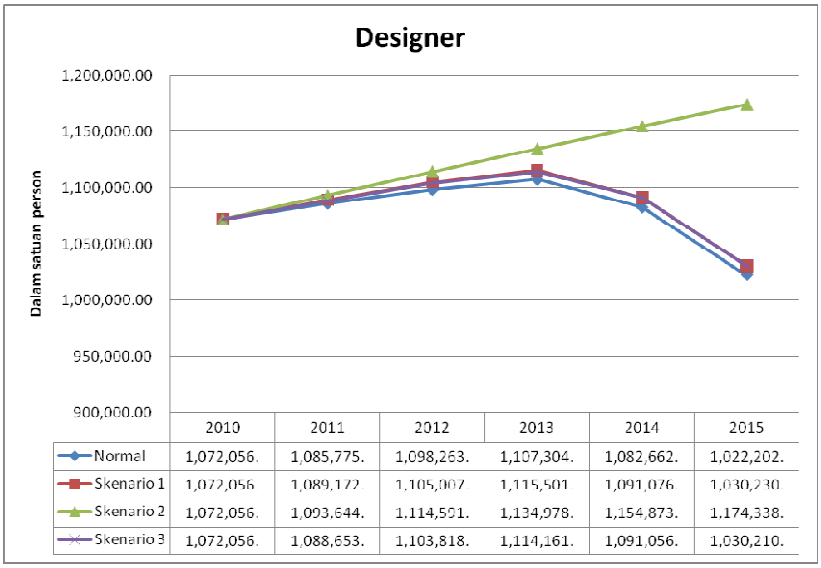
For raw materials, the fashion industry does not get so many problems encountered. Some informants said that the raw materials they use are already available in the subscription suppliers they buy. Difficulties that are taken only when the goods purchased are imported goods and subject to import duties so that the cost they spend is greater. So, the production of this model is strongly influenced by marketing activities and the number of designers. Production will be the minimum value between the three inputs such as desired production, available materials, and HR capacity as can be seen on the Table 1.

Table 1 : Comparison between Desired Production, Raw Material per Production, Production, dan HR Capacity

Tahun	Desired Production	Raw Material per Production	Production	HR Capacity
2010	584,845,835.65	182.50	182.50	536,028,000.00
2010.5	370,378,655.03	16,511,000,567.99	370,378,655.03	540,876,415.22
2011	586,120,395.92	538,727,141.00	538,727,141.00	542,820,294.90
2011.5	714,681,746.78	540,734,008.76	540,734,008.76	544,850,568.08
2012	612,774,658.83	13,293,089,519.27	548,536,877.47	548,536,877.42
2012.5	419,957,760.25	76,947,296,195.33	419,957,760.25	552,088,355.33
2013	257,126,841.03	165,358,153,054.94	257,126,841.03	552,830,884.27

Discussion

In the scenario analysis in the Fig 5, the parameter to be indexed is the stock of 'Designer'. This parameter is used because the growth of the designer or company become one of the benchmarks in the growth of creative industries in Indonesia. For that, made some scenario to accelerate the growth of designer in Indonesia.



	2010	2011	2012	2013	2014	2015
Normal	1,072,056.	1,085,775.	1,098,263.	1,107,304.	1,082,662.	1,022,202.
Skenario 1	1,072,056.	1,089,172.	1,105,907.	1,115,501.	1,091,076.	1,030,230.
Skenario 2	1,072,056.	1,093,644.	1,114,591.	1,134,978.	1,154,873.	1,174,338.
Skenario 3	1,072,056.	1,088,653.	1,103,818.	1,114,161.	1,091,056.	1,030,210.

Fig. 5 : Number of '*Designer*' at all scenarios

Scenario 1: Adding more 'Online Rate'

In this scenario, selected variables 'Online Rate' and 'Offline Rate' as a variable that can be changed. This variable is chosen because it can increase the marketing activity so as to increase the adoption rate of the marketing and affect the desired production which will improve the recruitment due to the increasing demand. In this scenario 'Online Rate' is increased from the normal condition of 0.5 to 0.7 and the 'Offline Rate' decreases 0.5 to 0.3. After the simulation with this scenario is executed, it appears that the number of designers increases from the normal state. The increase of this scenario is said to be enough to increase by 0.31% in 2011, 0.61% in 2012, and 0.74% in 2013 compared to normal conditions. After 2013, the prediction of this scenario is the trend will drop until 2015. This prediction is possible if there is no innovation, so the adoption of the customer will fall.

Scenario 2: Adding more '*Price Discount*'

This scenario chooses to raise the 'Price Discount' variable as a variable that can be changed. This variable is chosen because it can increase the 'Contact Rate', then increase the 'adoption from reviews', so it can increase the demand. This variable is raised from the normal state of 0% to 5%. After the simulation with this scenario is executed, it appears that the number of designers increases more rapidly than other scenarios. This is because every 'customer' provides a review to more people when discounts are held so that products adopt new customers more quickly. This increase in customers will also increase market demand for the product so that with good market conditions many people are interested to plunge into the fashion industry. Designer growth every year can also be said to be significant with an increase of 0.72% in 2011, 1.49% in 2012, and 2.5% in 2013 compared to normal conditions. The prediction of this scenario after 2013 is the trend will continue to rise until 2015. This is because the price discount will increase the contact rate of the customer, so the customer adoption will always increase.

Scenario 3: Adding more *'Marketing Rate'*

This scenario chooses to raise the 'Marketing Rate' variable as a variable that can be changed. This variable is chosen because it can increase 'Marketing Activity Rate' so it can increase the demand. This variable is raised from the normal condition Rp60.000.000, - to Rp70.000.000, -. In the cash simulation results will be negative because the expenditure is too large. So that in order to be a draw,

made adjustments by lowering the 'Raw Material Rate' which originally Rp120.000.000, - to Rp100.000.000, -. After the simulation with this scenario is executed, it appears that the number of designers increases but the increase is not as much as two other scenarios. The increase in designer growth generated by this scenario is 0.21% in 2011, 0.51% in 2012, and 0.62% in 2013 compared to normal conditions. The prediction of this scenario after 2013 is also dropping like the first scenario.

After the simulation with this scenario, the 'Designer' stock from year to year experienced an increase compared to normal condition. The second scenario 'Designer' improvement is the most significant compared to the other two scenarios.

Conclusion

Making CLD and SFD fashion industry in Indonesia conducted during the research process by continuously evaluated and requested a picture of the real conditions that occur to the informant. There are limitations in conducting validation test in this research that is related to aggregate data owned by one industry in Indonesia. Also, this study has one-time buy assumption or only one purchase in a certain time period, which is three years and has not included the activity of repeat buying conducted by existing customer. Therefore, this simulation model cannot be used with longer simulation period. However, this model has answered the scientific questions underlying this research.

In general, it can be concluded that the model developed in this research can describe a fashion industry ecosystem in Indonesia in facing the dynamism of demand and dynamism in production factor capacity in Indonesia. The result, the model can be said to be valid and describes the real condition, as well as the conclusions of various other validation tests that have been done previously in section 4.4. The interaction of each variable can also be seen in the CLD and SFD developed, and from the CLD and SFD it can illustrate the complexity of feedback among variables in the fashion industry in Indonesia.
In this study, the restrictive policy that can be applied is the policy that the internal actors of the fashion industry can take. For that option policy is chosen which aims to accelerate the growth of 'Designer' from year to year. For that purpose there are three options that have been selected as policies taken by the internal actors of the fashion industry especially for the fashion entrepreneur in Indonesia. Option with the second scenario is the most effective compared to other scenarios. However, note also the impact that will be given if increasing 'Price discount' whether it will have side effects for the whole business such as profit decline and so forth.

Subsequent research can develop a model in this research or create other models related to industrial fashion in Indonesia by using this model as a reference. To develop the model in this study, further research can begin by considering the various limitations and assumptions that exist. Limitations of this study are:

- Lack of aggregate data owned by industry. Some variables are assumptions or averages of the literature study data owned by researchers.
- Not to include repeat buying activities conducted by existing customers. So just holding on to one-time buying activity.
- Not to include the activities of competitors that will hamper the system from customer adoption

It is expected that further research can get more comprehensive data related to the limitations of the study. However, as Sterman (2000) says, we cannot model the entire system, but rather models that fit the research objectives and problems encountered.

Acknowledgments

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Development Model for Creative Industry in Indonesia: A Case from Leather Craft Cluster in Magetan District by Using System Dynamic Approach

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Abstract

This study has a purpose of modeling the industrial leather craft cluster development by dynamics system approach. The construction of the model based on a research study by Afonso, Monteiro, & Thompson (2012) that adopted in *Concept of Creative Industry Development Planning in Indonesia with Quad Helix Model Approach* for analyzing how the role and actors can influence the development of the industry. The actors of this approach are *Government, Business, Academic,* and *Civil Society. System Dynamics Approach* is a way to analyze parts of the system that have interactions and emerges for specific goals. This study also takes insights from the diamond model of cluster development by Porter (1998). Small Medium Enterprises (SMEs) Production influenced by the amount of *Desired Production* and *Capacity Planning.* The most business unit in the cluster industry has the form *Home Industry or SMEs* that have small to medium business scale. The simulation is run in 3 scenarios and compared with base scenario. Thus, we found that labor availability and labor productivity are the primary dynamics source of the situation to develop the cluster.

Keywords: Creative Industry, Clusters, Quad Helix Model Approach, System Dynamics.

Introduction

In the countries with higher levels of welfare begin to change the trend, which the amount of natural resources is no longer the dominant factor in determining the total growth of the economy, but rather to the creativity and ability to innovate (Simon J. Evenett, 2002; Shahid Yusuf, 2003). In a research study by Yusuf and Nabeshima (2005), some major Asian countries are beginning to make change their economic structures, the economy of state from previously centered on the manufacturing sector, begin directed to the creative business and creative industry. In Indonesia, the creative industry has a big contribution to national income. Leather and Leather Product industry is part of the creative industry especially for a leather product in the form crafts, fashions, and footwear. Fit on *The National Industrial Development Master Plan 2015 - 2030*, this sector is included in national priority sector and *non-oil and gas* sector that have a significant contribution to national export and Gross Domestic Product (GDP). Indonesia is included in five big players in the world market of leather and leather products, and leather furthermore leather product and footwear industry occupy the 10^{th} position from 23^{rd} priority industries that contribute 4.5% of total export commodities from non-oil and gas.

One of leather craft cluster in Indonesia has been developed in Magetan district, in East Java since colonial period precisely in the war of Diponegoro in 1830, and developed rapidly in 1970 in *New Order Era.* Magetan is perfect clusters that develop tanning industry, crafting industry, and footwear industry. It was developed from traditional vegetable tanned with traditional tools to chemical tanned with semiauto tools. *Magetan Cluster* still has so many problems that influence the level of increasing industrial rate. Most of the enterprises form a *home industry* in small quantity product and use simple management. The primary purpose of this study is to map with a system dynamic models to represent the real conditions and using to analyze the problem and the solution in this cluster with a simulation.

Theoretical Review

Creative Industry

The Creative Economy was introduced by John Howkins (2001) in his book *Creative Economy: How People Make Money from Ideas*, he defines the Creative Economy as transactions of creative products in the form of economic goods or services from creativity and has an economic value. Definition of the Creative Economy by UK Department for Digital, Culture, Media, and Sport (DCMS): those industries which have their creativity, skills and talent through generation and exploitation of intellectual property (DCMS, 2001). Currently, the Indonesian government through Presidential Regulation No. 72 of 2015 the creative industry sector is divided into 16 subsectors that have been adapted to the creative industry definition by UK DCMS task force 1998. These 16 subsectors include: (1) Architecture, (2) Interior Design, (3) Visual Communication Design, (4) Product Design, (5) Film, Animation, and Video, (6) Photography, (7) Craft, (8) Culinary, (9) Music, (10) Fashion, (11) Application and Game Developer, (12) Publishing, (13) Advertising, (14) Television and Radio, (15) Performing Arts, (16) Fine Arts.

Creative Industry in Indonesia

UNIDO (2001) defined clusters as sectoral and geographical concentrations of enterprise that produce and sell a range of related or complementary products and have common challenges and opportunities. These concentrations can conduct external economies such as the emergence of the specialized supplier of raw materials and components or growth of a pool of sector-specific skills and foster development of specialized services in technical, managerial and financial matters. Porter (1998) said that there are four determinants that influence the development of an industrial cluster known as the diamond model, including: (1) input factor (2)) demand conditions, (3) related and supporting industries, and (4) corporate and context strategies (context for firm and strategy).In the Identification Book of Cluster Success Indicators published by Bank Indonesia (2014), the success of cluster development programs can be evaluated and monitored by several criteria. In Cluster Initiatives Green books (Orjan Solvell, Goran Lindqvist, 2003) describes the criteria for cluster performance assessment, including a. Increasing of cluster competitiveness (indicator: innovation, technology, branding), b. Cluster growth (indicator: cluster expansion), c. Achieving the objectives of the cluster development program.

Quad Helix Model

The government of Indonesia is currently using the Quad-Helix theory model, and this described in Indonesia's Creative Economy Development Plan (RPJP, 2014), entitled *Creative Economy: Indonesia's New Strength Towards 2025*. The quad-helix development model is improved from the triple helix model. Triple helix development model explains that necessary synergy between three actors of economic development based on innovation, there are academic, business and government. In quad helix approach exist role of civil society for fit up the triple helix model thus the concept of Quad Helix is the development from triple helix concept that integrates the role of academician, entrepreneur, government and civil society in its activities based on creativity and knowledge (Afonso, Monteiro and Thompson, 2012).

System Dynamics (SD)

In the book '*Simulation using Pro-Model'* by Harrell, C., and Ghosh, B.K. and Bowden (2000) explain that the *system* is a collection of elements that work together to achieve a particular goal. The system consists four elements: entities, activities, resources, and control which determine who, what, where, when, and how entities are processed. System dynamic is a method that facilitates learning from a complex system and it often simulated with a computer to learn dynamic complexity, understand the limits of a policy, and design a more effective policy (Sterman, 2000). Industrial Dynamic was first introduced by Forrester (1961) at the Institute of Technology Massachusetts.

Industrial Dynamic is a lesson on the feedback characteristics of industry activities to show how organizational structure, amplification (related to policy), and delay (in decisions and actions) interact and influence the company's success. Industrial Dynamics considers the interaction between the flow of information, money, orders, materials, people, and capital equipment in the company, or in an industry or the national economy. System dynamic emphasizes multi-loop, multistage, and non-linear feedback characteristic (Forrester, 1961). Subroto and Bivona (2009) used the system dynamics perspective to support the SMEs growth in leather craft industry in Sidoarjo where they proved that SD could be used to understand the complexity in this business.

Research Methodology

Leathercraft cluster industry in Magetan divided into two main sub-systems, Tanner Industry, and Craft Industry. These two subsystems will be clarified again into several interconnected subsystems and form more complex systems. The tannery industry is supporting industry for the leather craft industry because it just provides raw materials. This research will focus on the Development of the Craft Industry as part of the creative industry. The existence of external factors from consumers, government, and physical condition of the non-physical field took part in the development of leather craft industry in Magetan. This research is done with the division into four stages of penetration, including; (1) preparation stage of the research; (2) modeling stage with qualitative and quantitative methods; (3) simulation stage of industrial development; (4) analysis of the simulation results to determine the policies to be taken by stakeholders.

Primary data collected by verbatim to obtain information directly with nonprobability sampling. Samples were chosen in subjective characteristic but select on some criteria. Judgment sampling type selection for each sample member is based on criteria previously set by the researcher (Cooper and Schindler, 2011). The samples taken are the leather industry players (business owner or the craftsmen). Criteria of craftsmen such as business run more than five years, have more than five workers and already own brand. Addition samples from tanning entrepreneur and staff of Technical Services Unit of Leather and Leather Products (UPT Leather and Leather Products of Magetan). Location of craftsmen in leather craft center of Jalan Sawo and Jalan Imam Bonjol, Magetan, East Java.

The model will be conducted in the Causal Loop Diagram and Stock and Flow Diagram. To create the best model required data analysis and validation test. Barlas (1994) explains that validation is important for a system dynamics methodology which contains qualitative and quantitative approach. There is there types of validation test; Direct Structure Test, Structure Oriented Behavior Test, and Behavior Pattern Test. The simulation will be run in some scenarios, and the result will be a suggestion and conclusion.

Result

Causal Loop Diagram

After conducting verbatim activities and looking at literature studies as well as historical data, the first model created is a Causal Loop Diagram model, which can be seen in the Fig 1 below:

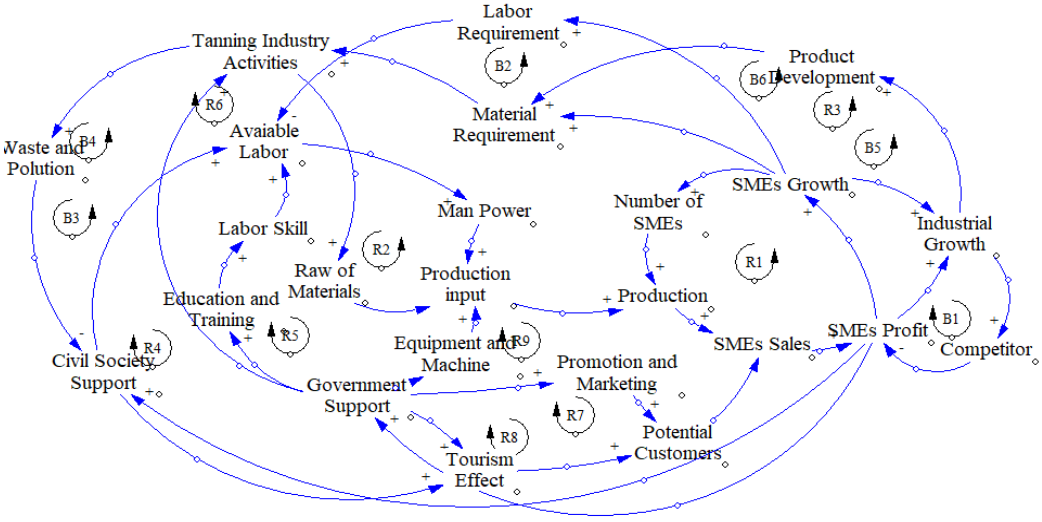

Fig 1. Causal Loop Diagram of Leather Industry Cluster

In the above figure, there are several loops of 6 balancing loops and ten reinforcing loops. From all exist loop, the main loop is Balancing Loop B2, Reinforcing Loop R1, and Reinforcing Loop R4. Balancing Loop B2 is a cycle that starts from *SMEs Growth - Labor Requirement - Available Labor - Man Power - Production Input - Production - SMEs Sales - SMEs Profit*. Reinforcing Loop R1 is a cycle that starts from *Production - SMEs Sales - SMEs Profit - SMEs Growth - Number of SMEs.* Reinforcing Loop R4 is a cycle that starts from - *Civil Society Support - Available Labor - Man Power - Production Input - Production - SMEs Sales - SMEs Profit.*

Stock and Flow Diagram Model

Two factors will determine how many products will be produced. There are Capacity Planning and Desired Production. Production, Inventory, and Sales are measured in *pcs/da* (pairs of products per day). Capacity Planning describes the production capabilities that craftsmen have. Desired Productions describes the number of products expected to produce base on demand. Calculation of Profit, Revenue and Cost Sales can generate income for entrepreneurs. Profit will affect to SMEs establish the rate because entrepreneurs think that profit is the main reason to build a business. Capacity Planning, ranging from raw material capacity, labor, and production equipment. In working handicraft products, there are two divisions: *upper division* and *assembling and finishing division*. Kind of Machines for production is Sewing, Skiving, Pressing, Spray Gun, and Oven. Most production is done by hand or semi-auto (still need workforce control and support). Each machine has production capacity, and some machines define by some labors which can operate. In this research, machines have no depreciation in simulation periods. The government has a significant role in providing machine because of its affordability. The government also have to provide a small interest loan for SMEs.

The main material for the product is leather that produced and supplied by Tanner Industry in Magetan. Tanner Industry continuously produces leather for the domestic and external market. Percentage demand from the local market is very small, if we compare to another market only about 4-7% from total production absorbed by local industry (Magetan Cluster). Supporting Material providing by distributors and it also the reason why the development of the new product is very slow than other clusters. Customers need and want are main aspect of R&D, in the case material also determine how new product will be developed and succeed in the market. Amount of leather supply for local crafter is very safe for the long-term, but the tanner industry has a big problem in wastewater treatment. Wastewater treatment installation provided by the government has crossed the safe line amount of waste, so the leather production cannot be allowed to increase currently.

Some existing SMEs and labor a can be used as a reference in viewing industry development also look at the total financial value or Regional GDP. Labor is the main input in the leather craft industry because most of the production process is entirely done by hand or must be monitored by humans. The lack of labor makes the number of available labors for each SMEs is limited. The amount of labor is affected by recruitment and resign, and in this model, recruitment is driven by how much the salary levels can be earned when entering the industry. Number of SMEs (entrepreneurs) strongly influenced by the want become an entrepreneur; it affected by how much profit will be earned.

The desired Production is a sum of three requests: *Tourism, Reseller, and Online Marketing* which each have different consumers. Magetan is a tourist area where visited by many tourists every year, and often tourists make handicraft products as souvenirs. Tourists are the main visitors and buyers in the showroom of craftsmen. The increasing of tourists supported by the government's role such as the construction of roads and other facilities. Civil society also supports to increase the desire of tourists to visit. Most of the Sales are brought by resellers who buy product continuously and in large quantities. Resellers generally come from outside of Magetan, contact and contract with reseller come from meetings during exhibitions or through loyal customers. Resellers contact remotely, view products by catalog or online, and make long distance purchase transactions, but sometimes resellers come directly to the production site. The business community has a role in coordinating large quantities of orders to be made by some craftsmen. Currently, the role of the community is less well-felt, due to incorrect community management. Also, some craftsmen have also used digital media or online media to offer and sell products, but it still needs to be improved. The inimitability of online media is due to the lack of knowledge related to the limitations of craftsmen in managing customized production with fast product processing. So not all buyers of digital media can fulfill their wishes.

In the simulation explained that the total amount of goods produced there are variable costs in the form of labor costs and raw material costs used. The amount of wage payment is determined by how much the product produced by the worker means that the wages received are not fixed. The raw material is also adjusted to the number of production units produced in one production period.

Simulation

In this study, the simulation was conducted in base scenario and three scenarios based on policies to be taken by stakeholders. The base scenario run with the inputs obtained from the actual data, so this proves whether the model can represent the actual conditions in the field. The first scenario assumed that there are efforts to improve the welfare for workforce and improvements for working conditions. Impact of this scenario, people's interest to become workers as a profession will increase or in other words interest in the salary offered can increase. The impact of increased interest will increase the number of workers entering the labor market. On the other side, the allocation budget for the worker will reduce the interest of prospective employers to form SMEs; this is because the potential profit they earn will be reduced. Generally, in this growth will increase and number workers on a short-term and production also increase but after some year production will be over capacity. In the second scenario, we make product demand higher by improvement through online media and tourism. In the third scenario, researchers focused on finding the role of government in increasing worker productivity. With increasing worker productivity, the worker's income increases and the company's production increases. The overall simulation result can be seen in the below figures from Fig 2 to Fig 7. These all figures show the different track between the base scenario and another developed scenario.

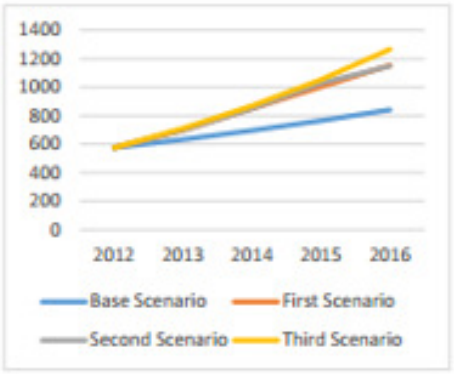

Fig 2: Number of Labor

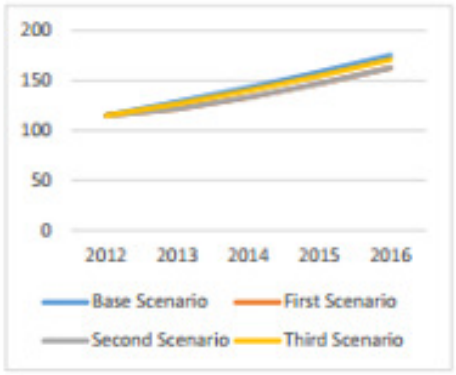

Fig 3: Number of SMEs

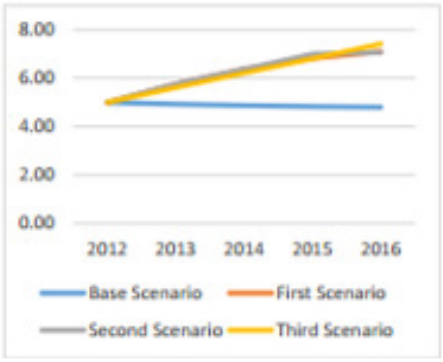

Fig 4: Number of Available Labor

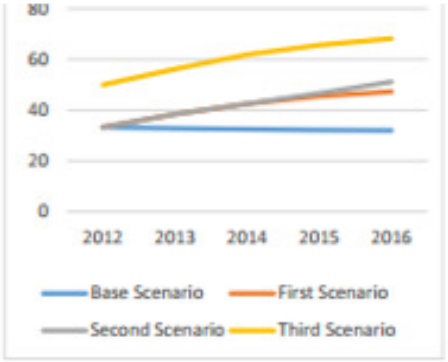

Fig. 5 : Capacity Planning

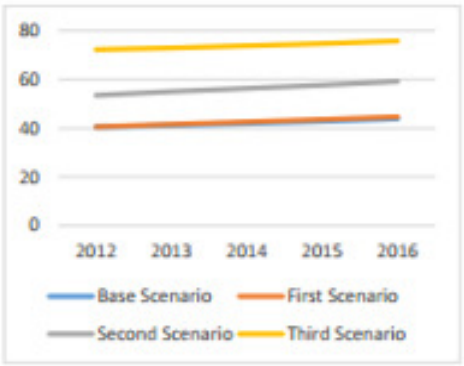

Fig 6: Desired Production

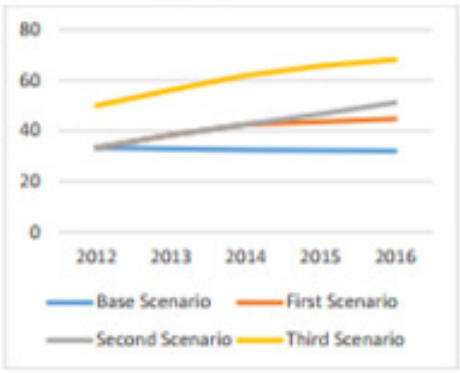

Fig 7: Production

Validation Test

Validation in this study is used to ascertain whether the built model can represent the actual events. The validation test used in this study is based on the validation of the model used by Barlas (1994). The easiest and best way to test validation is to compare between the simulation results and the historical data. By comparing the results of historical data described in the previous section, the literature review, results of interviews with the leather industry players, in this case, are employers or craftsmen-built models have given the same conclusions where the main problems faced by SMEs are labor problem. Main cause is the number of people who are interested in the profession in the field. In the validation test, we see the similarity of graph pattern between Domestic GDP and Total

Production in Basic Scenario which both shows exponential growth. However, we also found there are unbalancing growth between some labors absorbed and the number of SMEs exist, so the available labor continuously decreases. This fact and this case very similar with base simulation.

Conclusion

The development of dynamic system model is done by paying attention to the situation by the actual condition through in-depth interviews with persons who are the players in leather craft business and in this industry. We have done developed a model that can describe the real condition with a precise and clear. Although there are limitations in the data collection so that the need to make input data that is assumptive, but the simulation results of the model built in this study has met the objectives of the study and answer questions made at the beginning of the study.

Leathercraft cluster in Magetan is very dynamic because it is influenced by various kinds of variables that come from parties with their respective roles. In accordance with the theory of the creative industry development model in Indonesia, the Quad Helix model of the leather industry craft industry in Magetan is done by Government, Academic, Business, and Civil Society. Relationships between parties are also by the cluster theory development model, where there is a relationship between one party and other parties whom all have the same goal despite the interests of each. The description of the variables can be seen in the discussion in the previous chapter precisely on the Causal Loop Diagram and the Stock and Flow Diagram model.

From the model simulation results can be illustrated that at present and in the future aggregate industrial conditions in the industrial cluster of leather craft has increased but in business units or craftsmen who produce stagnated production even tends to decline, this is because the amount of labor is limited. Thus, the policy that stakeholders should take is to seek to increase the number of trained and skilled workers to meet demand.

Acknowledgment

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The Model of Craft Subsector's Development within Indonesia's Creative Industry: A System Dynamics Approach

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Abstract

The creative industry is one of the industries in Indonesia that has great potential to develop. Through the uniqueness of Indonesia's culture and its geographic uniqueness, Craft subsector in the creative Industry is one of the sub-sectors that have the central role in the economic growth of the creative industry. However, along with the development of technology and market demand, actors in the craft industry is still facing some of the problems in its business development. The purpose of this paper to analyze the problems and to find solutions for craft subsector in the creative industry in Indonesia, through the system dynamics approach, this method will analyse what variables that play a role in the craft industry ecosystem through primary and secondary data which are collected from literature review, statistic data and in-depth interview. The paper also considers some scenarios which possibly can boost up the development of this industry, at the end of this paper, can be known that the best scenario is to lower the raw material price, the government may provide kind of subsidy for this industry through the raw material price.

Keywords: Creative Industry; Craft Industry; System Dynamics; Development Model

Introduction

At present, the role of industry is significant in economic growth. The results show that the higher level of state performance will have a different tendency that power input is no longer the dominant factor in determining the amount of economic growth, more determined by the creativity and the ability to innovate (Simon J. Evenett, 2002; Shahid Yusuf, 2003). Therefore, fair, growing, industrial, creative, far more sharply in a relatively developed country like the UK. It is also caused by creative industries that are different from other industries, other industries such as agriculture, responsibility more dependent by natural resources, and better industry on human resources. Several major economies in Asia have begun working with crucial sectors that contribute to the economy of the manufacturing sector and the creative sector(Yusuf and Nabeshima, 2005).

From 1981 to 2006, the creative industry sector in the UK has increased by about 3.3% well beyond the 0.8% UK sectoral growth rate in the UK. while regarding employment; the trend also increased from 7.1% in 2001 to 8.4% in 2004 and 8.7% in 2010. Similarly, Indonesia, based on data from the Ministry of Tourism and Creative Economy (Kemenparekraf) 2010-2013, creative industry contribution to Gross Domestic Product (GDP) is estimated at 7.1%, and to the overall export value of 6.1%, and to the employment of 10.7%. Lebih detail, based on creative economic statistics data Indonesia 2016, explained that since 2010 to 2015, creative economy GDP experienced an average increase of 10.14% each year, from Rp 525.96 trillion to Rp 852.24 trillion. This value, of course, contributes to the national economy of about 7.38% to 7.66%, which is dominated by three subsectors, namely culinary, fashion and craft.

However, behind its high potential, business actors in the Industry still facing various obstacles and problems that cause the less optimal development of the business. Therefore, through this research, the authors formulate some problems that will try to be answered, namely:

1. What is the background, experience, circumstances, and conditions of business people in the creative industry of the craft sub-sector?

2. What are the obstacles and problems faced by the perpetrators of the creative industries business of the craft sub-sector?
3. How is the model of creative industry development in the craft sub-sector?

This research focus is done through the creative industry business sub-sector craft. The craft sub-sector referred to in this research is quite extensive and refers to Badan Ekonomi Kreatif (BEKRAF), all kinds of handicrafts produced by human hands or handicrafts that are not mass production. This research focuses on Java and Bali because the creative industry is still concentrated in Java and Bali and is done from February 2018 until June 2018.

Literature Review

Creative Industry

The concept of Creative Industries came into existence in the late 1990s, initially emerging as a discourse on UK policy which, when further explored, came from the decision of the British Labor government, Tony Blair, to form the Creative Industries Task Force, as an activity of the Department of Commerce Culture, Media and Sport (DCMS) UK (Flew and Cunningham, 2010). The creative industry is defined as an industry born or derived from the creativity, skills, and talents of an individual who has the potential of wealth and creates employment through the generation and exploitation of intellectual property (DCMS, 2001). Understanding creative industry according to DCMS England this is much adoption by countries in the world as a guide in developing the creative industries in the country, one of Indonesia. Indonesia gained an understanding of the concept of the British creative industry through the creative bilateral cooperation between the UK and Indonesia (Fahmi, Koster and van Dijk, 2016).

There is an opinion about the different definitions of creative industries in Europe and Asia. In the Europe, the creative industry is something related to art, whereas many cases in Asia, especially in China, reinforce the claim that the creative industry is the center of "new China" which can move at very cheap cost but can go beyond the global manufacturing center (Flew and Cunningham, 2010). Also, UNESCO and UNDP (2013) state that creative industries in developing countries generally have different characteristics or characteristics with developed countries where usually in developing countries creative industry is something that is associated with the craft but not associated with the rights intellectual property (Fahmi, Koster and van Dijk, 2016).

At the beginning of the emergence of the Creative Industry concept developed in the UK, the definition of the classification of creative industry subsector is considered not clear because it appears to be heterogeneous (Flew, 2002). Related to this, the creative industry is defined as an industry that produces goods and services widely related to culture, artistic and entertainment value (Caves, 2003). A sociologist, Paul Hirsch adds that goods or services produced in the creative industry must have symbolic elements of higher value than their material value (Friedman and Jones, 2011). Until now the definition of what is included in the creative goods or output produced by the creative industry itself is still much debated, according to Hirschian, creative goods cannot be differentiated only by price but also about acceptance and consumption, production process and so on (Friedman and Jones, 2011).

On January 20, 2015, Indonesia formally established the BEKRAF with an initial focus on creating a Strategic Development Plan (Renstra) of creative economic development for the period 2015-2019. Bekraf's vision is to make the creative economy a new economic force for Indonesia. Therefore, to make it happen, Bekraf has a mission to build a creative economic ecosystem that can encourage the growth of the creative economy business, to increase value added per company, and to encourage the creative products of Indonesia Berjaya in the global market (Narjoko, Anas and Aswicahyono, 2015). Also, the Indonesian Ministry of Trade believes that in order to develop this creative economy, it is believed that collaboration between various actors who play a role in creative industries such as intellectuals, businessmen and government is an absolutely fundamental requirement (Ministry of Trade, 2013).

Craft Industry

According to the BEKRAF, Indonesian's craft subsector is seen from its dimensions covering all handicrafts made from wood, metal, leather, glass, ceramics, and textiles. Deeper, Handicraft Subsector can be interpreted by two approaches, etymologically and conceptually. Etymologically, the Dutch are "kracht" and also the Swedish "kraft" which has the meaning of "strength". Then in English is known as the word "craft" whose understanding develops from "skill, art, science and talent", to "trade, crafts, calling" and ultimately means "something made or built". While in the Indonesian language comes from the word "diligent" which means working earnestly (Narjoko, Anas and Aswicahyono, 2015).

In Bahasa Indonesia also known the word "*kriya"* which means the work made by hand. The word *kriya* has a meaning to do something with the aim to produce objects or objects that have artistic value. Furthermore, due to various developments, *kriya* and *kerajinan* become very similar, even the definition of BEKRAF also mentions that *kriya* and *kerajinan* are the same things. *Kriya* and *kerajinan* are very similar but have a slight difference. The art of craft is more concerned with exploring personal expression based on the source of inspiration of original ideas and ideas from the maker, from now on referred to as a craftsman. While the art of *kriya* has the power associated with products made by many people as activities that are home industries. The process of making is done in groups, which then the maker called the crafter, either separately between production houses and in a studio group

Based on social assumptions, the idea of a craft, whether in practice or as an idea, is both deemed to be related to gender and national ideology which in the end is subject to critical educational implications because it is perceived as teachable skills (Brett, 1989). There is an opinion on the concept of creative industry in Indonesia, especially about craft sub-sector or craft which stated that the craft industry or craft in Indonesia in the form of business and work is not in accordance with the understanding of creative industries according to UK DCMS which emphasizes the potential of economic value and intellectual property rights (Fahmi, Koster and van Dijk, 2016). A cultural economist, David Throsby, (2008), based on his observations, says that the difference between the culture industry and the creative industries is due to the difficulties of differentiating the definition of 'culture' and 'creative' whose current definition is beginning to mix (Flew and Cunningham, 2010).

System Dynamics

System dynamics is a system learning method that from a complex system that is simulated simply is usually done with a computer to learn the dynamic complexity, understand how to design a policy, and design an effective policy (Sterman, 2000). This method was introduced by Jay W. Forrester (1961) at the Massachusetts Institute of Technology, USA. A decision of an agent in a system will have an effect on mutual relationships on agents and other variables in the system, which can lead to many anticipated or unanticipated things (Sterman, 2000). Since its inception, System dynamics has emphasized multiloop-related, multistage, and non-linear bait-feeding relationships (Forrester, 1961). Furthermore, System dynamics method has two diagrams to perform system modeling, namely Causal Loop Diagram (CLD) and Stock Flow Diagram (SFD).

Research Methodology

To understand the methodology used in this study, the author first determines the type of research to be performed. According to Kotler and Armstrong (2014), explorative research is a study that has the purpose to collect initial information that will assist researchers in establishing and formulating hypotheses. Kotler also explains in his book that the fundamental difference between explorative research and descriptive research is in the design, exploratory research has more unstructured and standardized research steps such as descriptive research, as more flexible and can be changed in accordance with the situations found during the research. In this study, the type of explorative research is chosen because the tool used by the researcher is a dynamic system where the hypothesis is made using causal loop diagram whose source is based on data obtained in the field, i.e. in-depth interviews conducted with some informants. The interview was conducted with 46 informants.

Analysis

Causal Loop Diagram

The Causal Loop Diagram (CLD) model was created as the author's original hypothesis, CLD was also made based on several literature reviews and further developed or proven by primary data through direct interviews with informants. In this initial CLD which is the initial hypothesis, there are thirty variables and five main loops. The CLD is created with the aim of representing the real conditions of growth of the Creative Industry through its behavior as explained by some variables and loops.

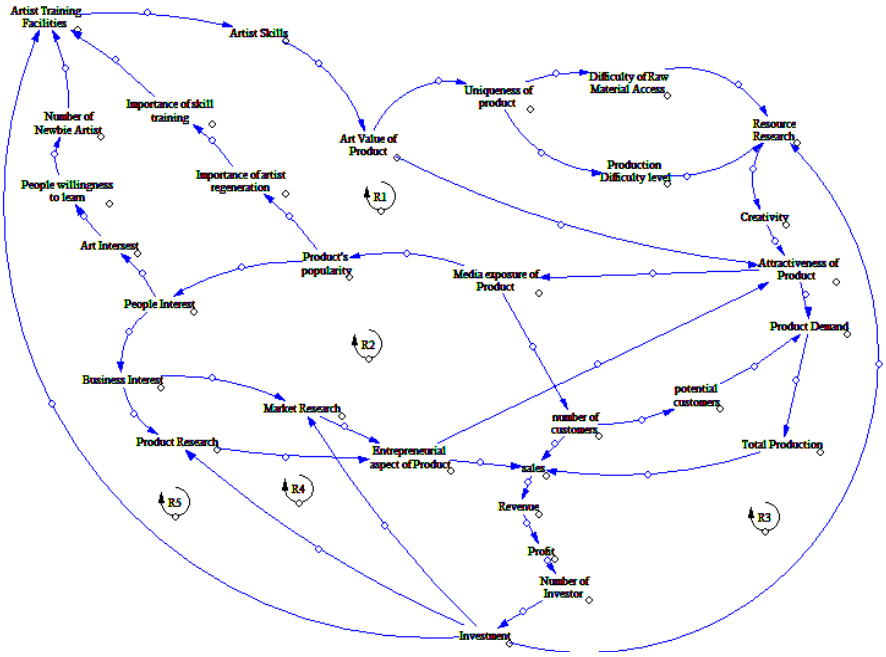


Fig 1: Causal Loop Diagram – 1

In Fig 1: Causal Lop Diagram-1, there are five loops which are all positive feedback loop types or self-reinforcing loops which means that loops tend to reinforce whatever happens in the system (Sterman, 2000). The description of the loop is as follows:

1. Art Attractiveness Loop (R1): This loop describes the cycle of how product attractiveness is reinforced by variables related to the artistic value of the product, some of which are Media Exposure of The Product, Product Popularity, People Interest, Art Interest, People Willingness to Learn, Number of Newbie Artist, Importance of Artist Regeneration, Importance of Skill Training, Artist Training Facilities, Artist Skill, Art Value of Product, Uniqueness Of Product, Difficulty of Raw Material Access, Production Difficulty Level, Resource Research, and Creativity.
2. Business Attractiveness Loop (R2): This loop describes the cycle of how product attractiveness is reinforced by variables related to the business aspects or business opportunities of the product, some of them are Media Exposure of The Product, Product Popularity, People Interest, Business Interest, Product Research, Market Research, Entrepreneurial Aspect of The Product, Sales, Number of Customers, Potential Customers, and Product Demand.
3. Resource Research Investment Loop (R3): This loop explains how investment cycles are reinforced by variables related to resource research, some of which are Creativity, Attractiveness of Product, Product Demand, Total Production, Sales, Revenue, Profit, and Number of Investors

4. Market & Product Research Investment Loop (R4): This loop explains how investment cycles are reinforced by variables related to product entrepreneurial aspects, some of which are Market Research, Product Research, Entrepreneurial Aspect of Product, Sales, Revenue, Profit, and Number of Investors.
5. Training Facilities Investment Loop (R4): This loop explains how investment cycles are reinforced by variables related to the development of an art training facility, some of which are Artist Training Facilities, Artist Skill, Art Value of Product, Uniqueness Of Product, Difficulty of Raw Material Access, Production Difficulty Level, Resource Research, Market Research, Attractiveness of Product, Product Demand, Total Production, Sales, Revenue, Profit, and Number of Investors.

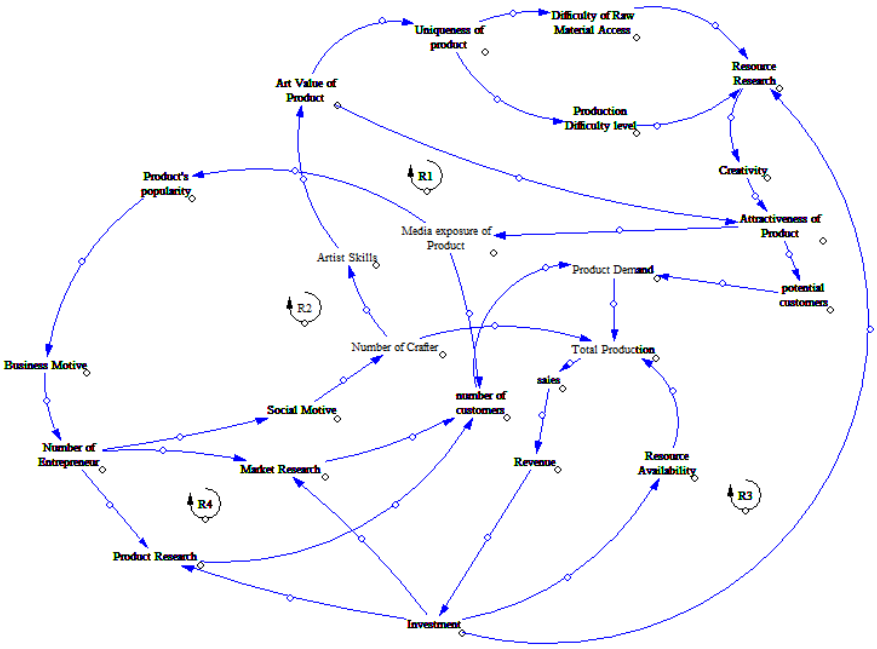
In-Depth Interview

After making the initial hypothesis in the form of Causal Loop Diagram, the authors conducted in-depth interviews with 45 informants who are business actors in the creative industry of craft subsector spread across the island of Java and Bali; the location was chosen because the business of creative industry is still concentrated in Java and Bali. Based on the results of interviews, there are several points that are considered important in making the model, namely:

1. Business people in this industry generally falls into two, namely Entrepreneurs and Crafter. Some business units in it consist of entrepreneurs and crafter at once, but not a few also in it only entrepreneurs, and crafter comes from outside the business unit.
2. Separate entrepreneurs with crafter generally have the motivation to give impact to the craftsman or Indonesian culture.
3. With the presence of entrepreneurs who have the motivation, the state of the creative industry craft subsector increasingly improved. This is due to the sluggishness of the industry due to a crafter who cannot sell their products. Therefore, with the presence of entrepreneurs, products made by crafter are getting easier and often sold.
4. Most of the business people say that many customers come from overseas, this is because the user or buyer of goods from the creative industries of the craft sub-sector is mostly a circle that prioritizes the value of art or care for the environment without too much care for high prices.
5. Crafter does not really care about the question of internal regeneration.

Reconstructed Causal Loop Diagram

Based on the results of depth interview with 45 informants, then the authors adjust the initial hypothesis with the results of interviews. Based on the interview results, in the following Fig 2 can be seen the forms of the Causal Loop Diagram becomes more straightforward in the crafter part. That is because based on interview result regeneration process is more natural than the initial hypothesis. However, it depends and influenced by the number of entrepreneurs who have a social motive to engage crafter in some areas that already have skill or ability derived of the family but cannot be a craftsman because he cannot be an entrepreneur or cannot sell homemade products. Therefore, entrepreneurs who come with high selling and marketing capabilities involve crafter to do the production so that it can give a social impact on the life of the crafter also preserve the culture that might be extinct if the crafter no longer makes the product.



Stock Flow Diagram

Furthermore, the author makes Stock Flow Diagram (SFD) with the aim to describe the existing system in the craft industry in a simple. The depiction of the system in SFD is divided into six subsystems, namely subsystem Investment, Marketing, Research, Resource Availability, Entrepreneur & Crafter, and Production. The SFD model can be seen in Appendix 1. Investment subsystem that the main investment source of this Industry came from the value of Revenue allocated for reinvestment and added with the amount of APBN allocation for the craft industry. Furthermore, the amount of Investment earned is allocated to the Research, Resources, and Marketing subsystems.

The Marketing Subsystem explains how investments are allocated to these subsystems to increase the number of subscribers. Investments are allocated to two types of marketing activities: exhibition or exhibition and online marketing. Furthermore, the amount of investment allocated to each marketing activity is converted into the number of subscribers using a conversion rate based on the assumption that any investment of a certain amount will result in one customer. Research subsystem explains how investments are allocated to this subsystem; investment is allocated to three types of research or research, i.e., research-related resources, product-related research, and market-related research. The allocation of investments in related research resources will then result in two things: the additional Human Resource and New raw material variation by converting some investments resulting in a new variety of resources.

The Resource Availability subsystem explains how investments are allocated to this subsystem. In the calculation of resource availability, the authors use the MIN formula with the assumption that in determining resource availability in the craft industry consider the capacity of the human resource and the price of raw material. Entrepreneur & Crafter Subsystem sub-system explains how entrepreneurs and crafter in the craft industry are increasing and decreasing. Based on the results of the interviews, we found that in the craft industry there are two businessmen namely entrepreneurs and crafter. The number of entrepreneurs in this system is derived from the marketing activities of exhibition and online marketing that of some customers there are several percents who see the business opportunity of the product so decided to become an entrepreneur.

Furthermore, the number of entrepreneurs affect the number of crafters significantly because of the social motive owned by the entrepreneurs, the social motives in question is the desire to engage craftsmen in their business to give a social impact on the life of Indonesian crafter. Customers Adoption Subsystem imply describes the process of customer adoption. In the craft industry, there is a targeted population that is the entire target market of the craft industry. This target market becomes potential customers affected by the adoption rate of one of the marketing activities of online marketing. After becoming a potential customer, the next will be the real customers affected by the adoption rate of the following three things which are Attractiveness of product, Exhibition and Customers reviews.

Lastly, Production Subsystem explains the process of production; there are two main components of expected demand and Inventory. Expected demand is directly influenced by demand rate where demand rate is the result of multiplication of customers adoption rate and normal buying rate. While the Inventory is influenced by Production which in this subsystem data processing using MIN formula between Resource Availability and Desired Production. Based on data processing in this subsystem, it can be seen on the graph that expected demand and production form goal seeking which means at a certain point, the amount of expected demand will remain or not increase again.

Next is the validity of the model by looking at the behavior of the model and comparing it with the company's historical data. In this study, the historical data used is the number of companies in the creative industries of the craft sub-sector from 2010 to 2013 compared to the simulation results of the first year until the 4th year on Table 1 and graphically in the Fig 3 for the number of an entrepreneur. On the Table 2 and in the Fig 4 can be seen the comparison between the historical number of workforce in the creative industries of the craft sub-sector from 2010 to 2013 and the simulation results.

Table 1: Behavioral Test - Number of Entrepreneur

	2010	2011	2012	2013
Historical Data	1054753	1063645	1071680	1076612
Simulation Result	1054753	1058117	1072377	1088503

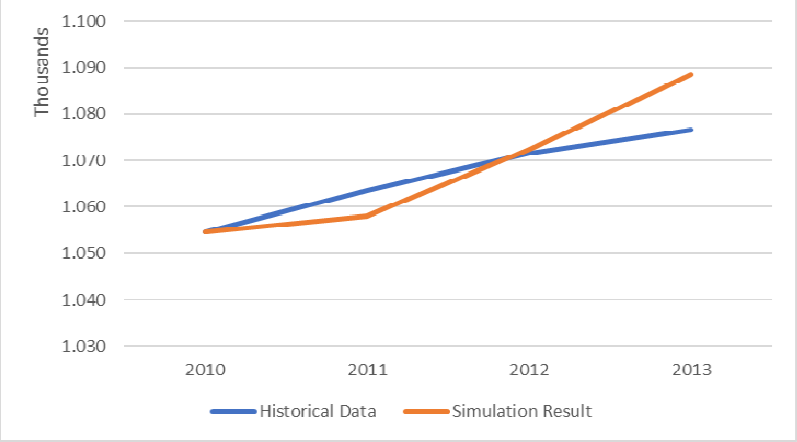


Fig. 3: Behavioral Test - Number of Entrepreneur

Table 2: Behavioral Test - Number of Crafter

	2010	2011	2012	2013
Historical Data	2909574	2988100	3077098	3109047
Simulation Result	2909574	2976643	3014396	3102992

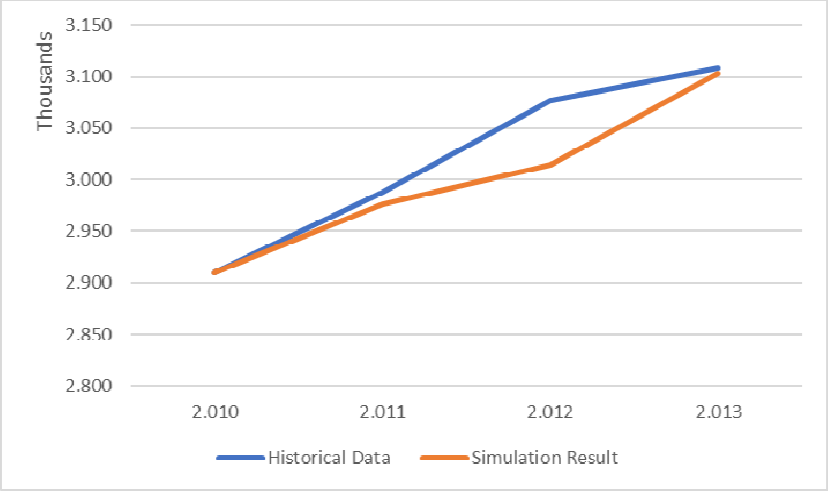


Fig. 4: Behavioral Test - Number of Crafter

The form of the comparison graph is not the same but the numbers are in the same range, this is due to the limitations of researchers in obtaining real data so that some constant in the model using the average assumption data. Also, because the comparable data is the number of companies and the number of entrepreneurs, then the amount is also different or not the same because not all entrepreneurs have a business license or meet company criteria.

After modeling and simulating, authors tried to make some policy scenarios that could be done in the creative industries of the craft sub-sector in order to increase income in the creative industry of the craft sub-sector. There are two scenarios created by the author; both scenarios are related to the raw material because based on model simulation, the amount of production in the creative industry is strongly influenced by raw material.

Scenario 1: In this scenario, the author tries to lower the raw material price this is done by reason because of the production process and resource availability cough on the amount of raw material not from the amount of human resource. After reducing 15% the price of raw material which is from Rp. 35.000 to Rp. 20.000 it can be seen on the Table 3 that the amount of revenue has increased.

Table 3 : Revenue lowering raw material price

Year	Revenue before lowering raw material price (Rp/year)	Revenue after lowering raw material price (Rp/year)
2010	7,714,623,175.19	9,990,608,745.36
2011	18,758,474,857.09	25,125,608,745.36
2012	35,560,071,085.31	49,885,391,239.88
2013	61,654,255,161.91	91,310,922,233.92

Scenario 2: It can be seen on the Table 4, the author tries to change the allocation rate of the investment, initially the proportion of allocations as follows: research 10%; resource 50% and marketing 40% converted into research 10%; 60% resource and 30% marketing. This is done by reason because one of the hallmarks of the creative industry is to have a goal not to satisfy the existing demand but to produce the product as best and as attractive as possible. Therefore, the highly influential aspect of resources for the production process is considered more important than the marketing aspect. Here are the results from scenario two where the amount of revenue also increases.

Table 4: Revenue before change the investment allocation

Year	Revenue before change the investment allocation (Rp/year)	Revenue after change the investment allocation (Rp/year)
2010	7,714,623,175.19	8,617,853,773.91
2011	18,758,474,857.09	21,241,039,525.61
2012	35,560,071,085.31	41,026,082,586.73
2013	61,654,255,161.91	72,713,618,610.38

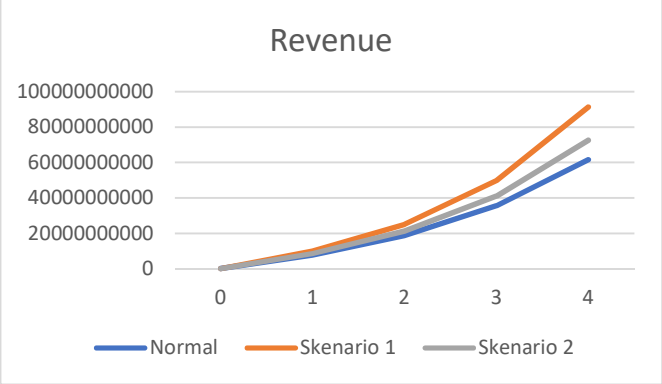


Fig. 5: Revenue Graph with Scenario

Conclusion

Creating a model using System Dynamics through CLD, in-depth interview and SFD making in Kriya industry has a purpose to describe and simulate the situation of Kriya industry in Indonesia. In this study, the authors have the limitation in the form of data to perform simulation, the data used is the author's assumption based on the results of in-depth interview and literature study, this happens because of the very wide and diverse creative industries sub-sector craft. Here are some conclusions from this research:

1. Based on the in-depth interviews, in the craft sub-sector, the businessman is usually not a craftsman, motivating businessmen to do business in the craft industry is usually related to the business opportunity found by the entrepreneur and supported by the motivation of the social impact business for cultural preservation or life from craftsmen.
2. Generally, it can be concluded that the amount of investment and the number of entrepreneurs have a very important role in this industry.
3. The next thing that has a significant role in the creative industry model of this craft sub-sector is the customer's adoption rate which is influenced by three things: attractiveness of the product, online marketing, and product review.
4. Lack of ability of craftsmen to do business, this causes craftsmen highly dependent on the existence of employers, skilled craftsmen cannot produce their products if there are no entrepreneurs who want to shelter or distribute the product. So that if one day the number of entrepreneurs in the craft sub-sector or one type in the craft sub-sector declines or does not

exist, then the type of product or craft can be extinct and the artisans will lose their jobs as craftsmen.

5. The target market that is not too broad, in the creative industry of the craft sub-sector, usually the target market is only those who are more appreciative of artistic, cultural values or prefer eco-friendly products. In Indonesia, the community is more in the direction of the low price. This craft industry tends to be more expensive because it has a high difficulty level of manufacture.
6. Related to the previous point, the role of government in expanding the target market can be said very little or hamper. It is because basically customer with the criterion usually is a foreigner or that come from other countries, but the export cost is very high, and its regulation is considered difficult for the entrepreneur. There is minimal shipment, while the characteristics of creative industry products are targeted directly to the customer (B2C). Moreover, when it is compared with other countries such as China and Thailand, the state government dramatically eases the regulation and export costs. This difficulty becomes a kind of bad luck for entrepreneurs in Indonesia because of competitor products from the country enter into Indonesia with a reasonably low price because it is only a replication. As an example, rattan bags made not from the original rattan but made of plastic that is processed into a similar rattan which certainly has a much lower price

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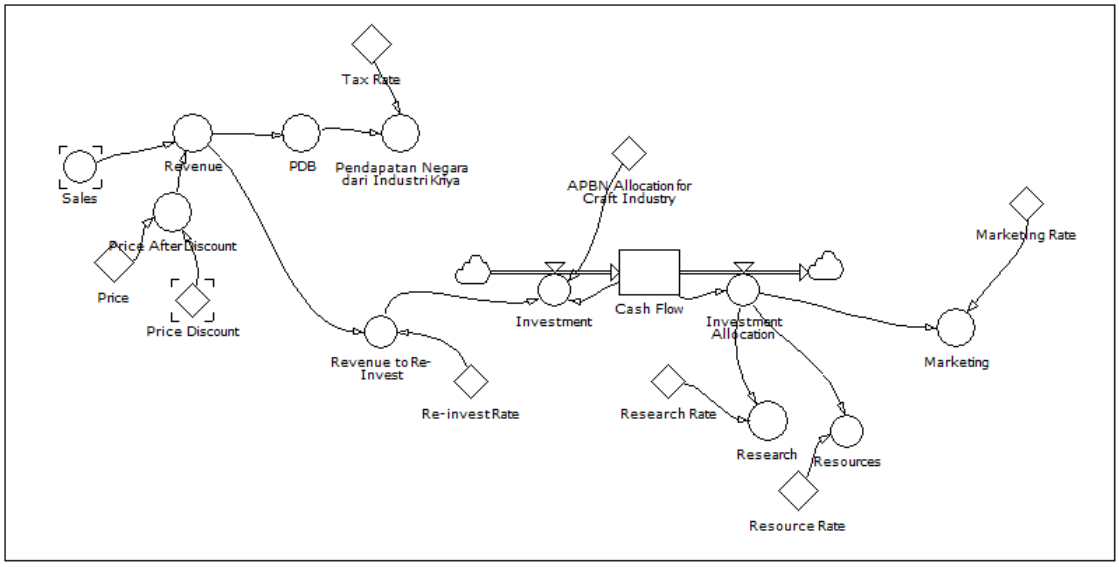
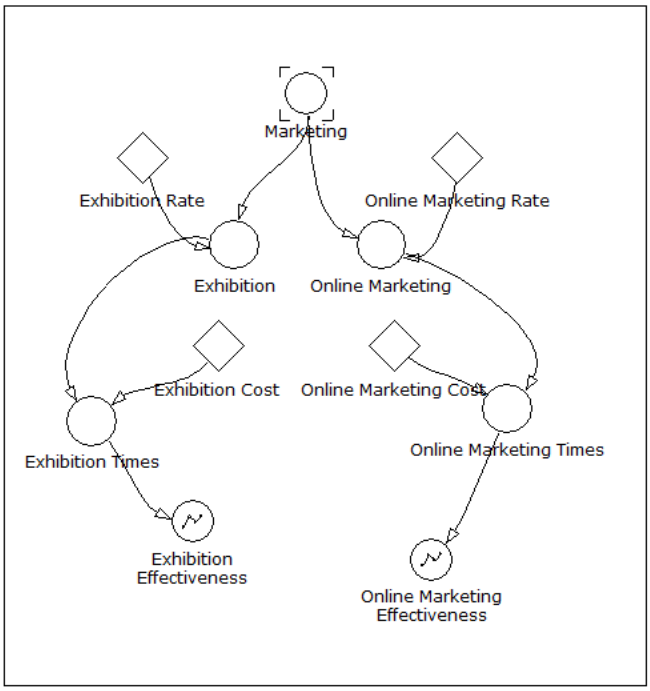
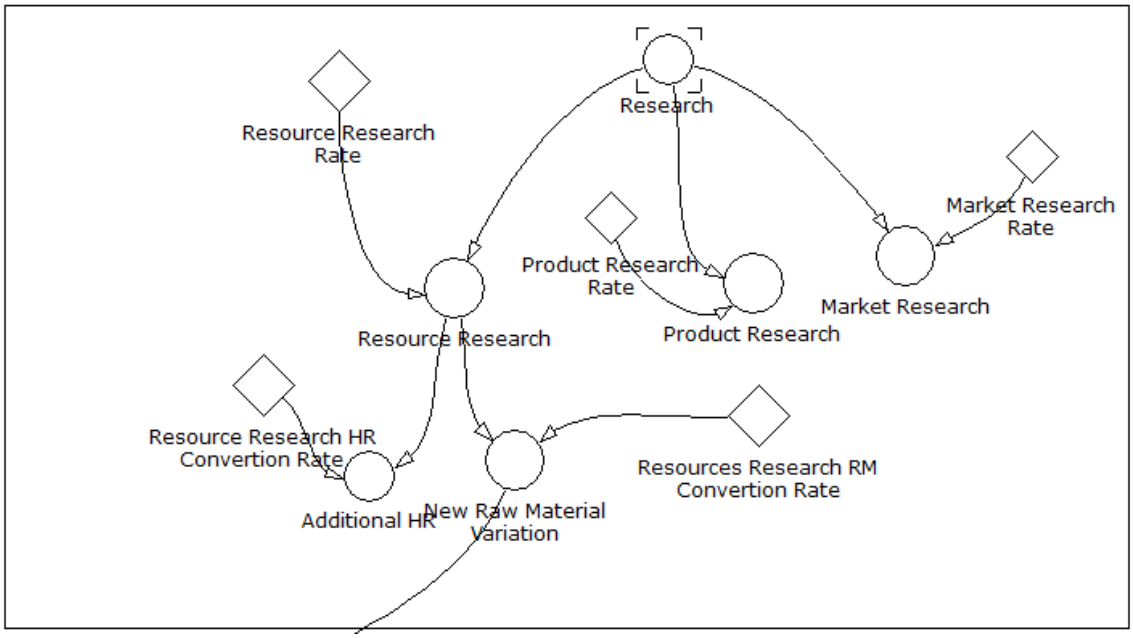
Appendix 1



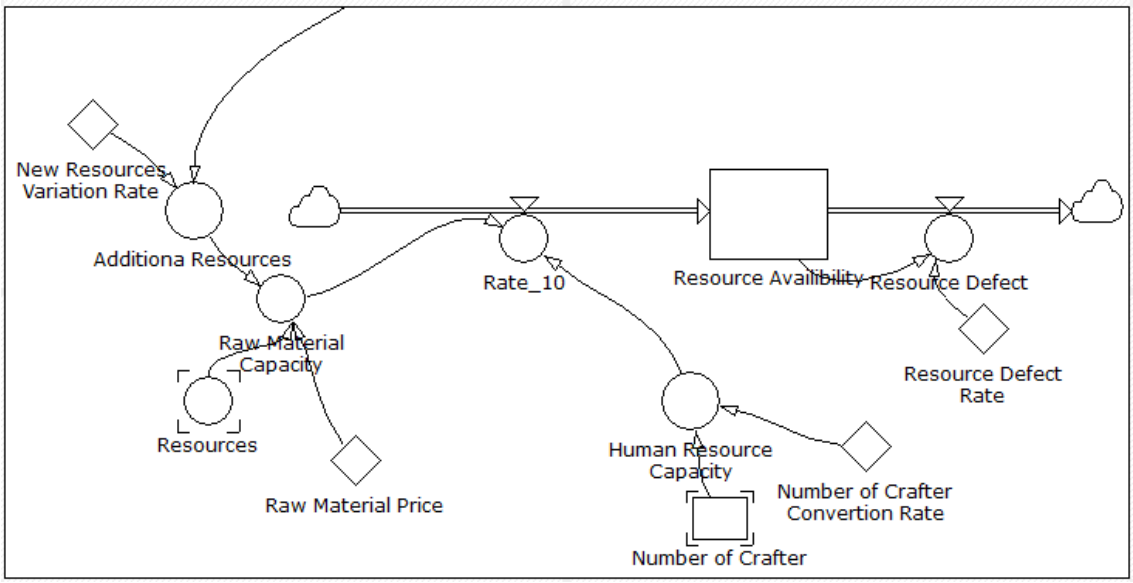
SFD - Subsystem Investment



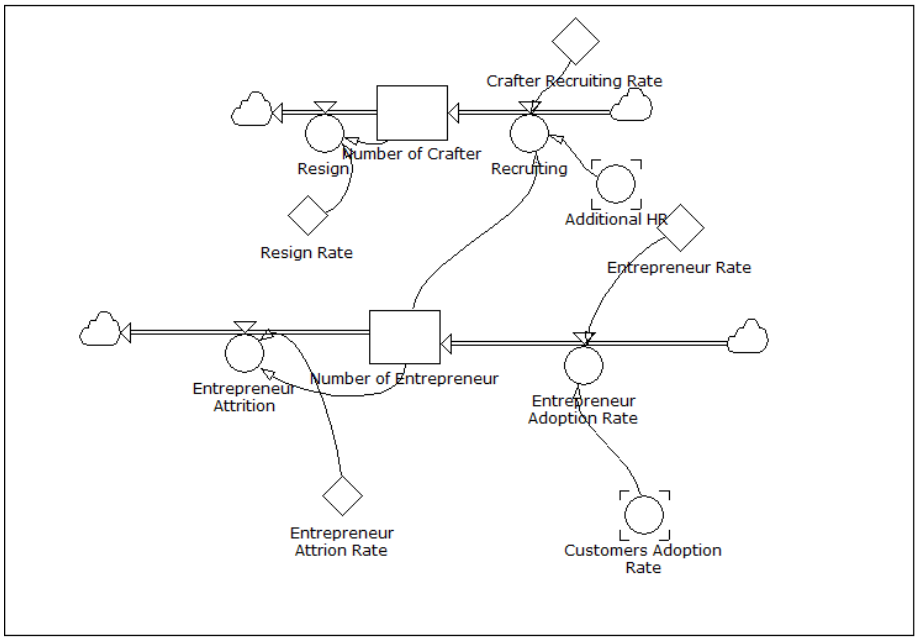
SFD - Marketing Subsystem



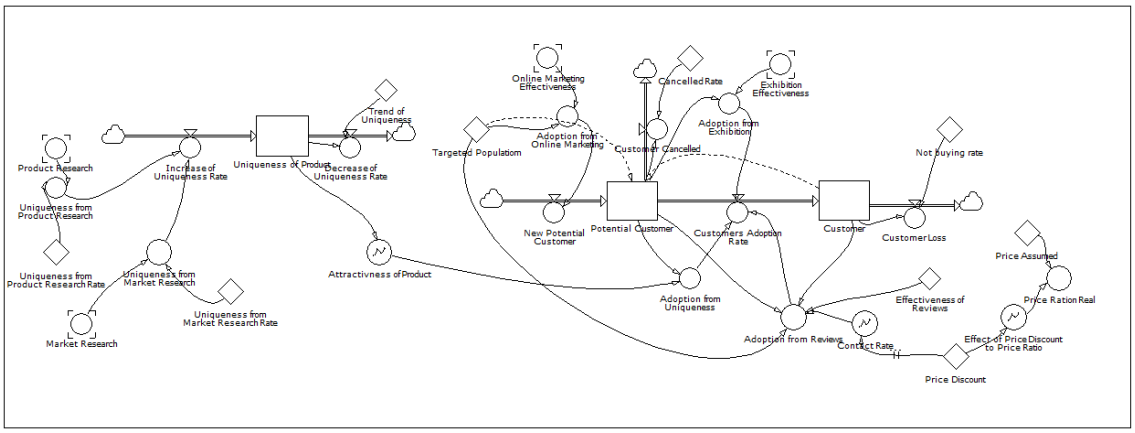
SFD - Research Subsystem



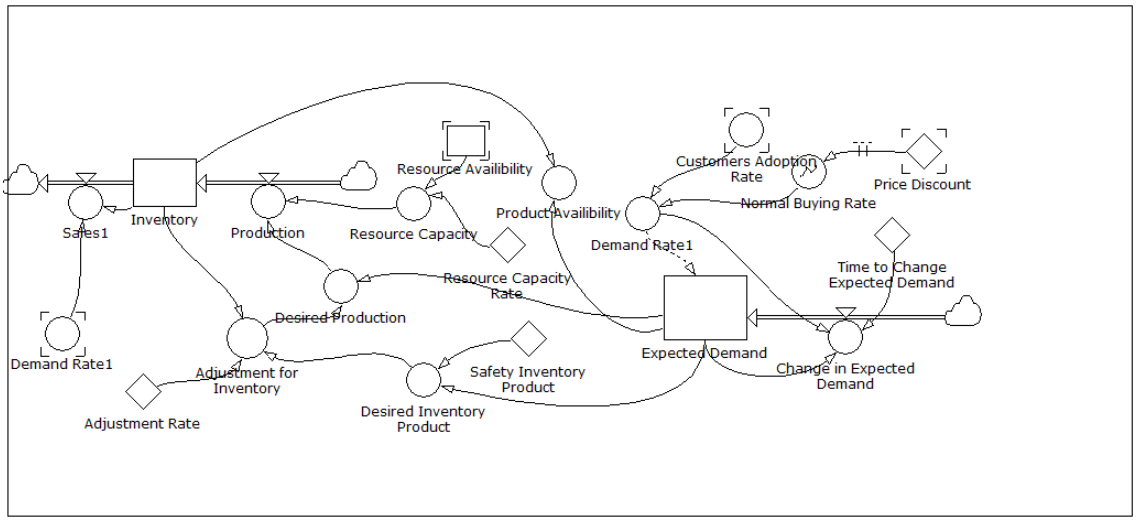
SFD - Resource Availability Subsystem



SFD - Entrepreneur & Crafter Subsystem



SFD - Customers Adoption Subsystem



SFD - Production Subsystem

The Development Model of Creative Industry Culinary Subsector in Indonesia: System Dynamics Approach

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Abstract

This research discusses the existing management system for the development of creative industries in Indonesia in the culinary sub-sector. This study was compiled by case study design by adapting the Lazuardi and Triady (2015) model. The purpose of this study is to provide different views in developing the creative industry through the system dynamics approach. The culinary industry itself is a promising industry in Indonesia and have become the number one contributor in many aspects for Creative Industry. The results of the analysis can provide appropriate recommendations for policy options that can be taken in the industry conditions that have been displayed.

Keywords: System Dynamics, Creative industry, Culinary Industry

Introduction

The role of the creative industry is increasingly significant in sustaining national economic growth. The study shows that in countries with higher welfare levels starting to have a changing trend: the number of input resources is no longer the dominant factor in determining the total growth of the economy, but rather by creativity and innovation (Simon J. Evenett, 2002; Shahid Yusuf, 2003). Therefore, it is fair that the development of the creative industry is much more rapidly in a relatively developed country such as Great Britain. Several major countries in Asia have also begun to experience structural changes related to the major sectors that contribute to the economy from manufacturing to the business and creative industries (Yusuf and Nabeshima, 2005).

According to the Indonesian Agency for Creative Economy or BEKRAF (2017), creative economic development in Indonesia is very strategic in various aspects such as well human resources, cultural diversity, and a large domestic market. Regarding demographic characteristics, it is very potential to develop the creative economy. The population with a high workforce can be directed to strengthen the local creative industries. The availability of creative resources (creative people) sourced from the high population will also be a great social capital for the development of the creative economy.

There are three research questions in this study:
1. What are the strategic issues and obstacles and constraints experienced by the parties involved in the creative industry culinary sub-sector?
2. How is the development model of the creative industry culinary sub-sector in Indonesia?
3. What recommendations can be produced in the context of developing sustainable products and services for these sub-sectors in the country, and what input can be given for priority product development?

Those questions will be a reference to meet the following objectives:
1. Identify strategic issues and analyze the obstacles and constraints experienced by parties involved in the business of the culinary sub-sector creative industry.
2. Modeling the development of the culinary sub-sector creative industry in Indonesia.
3. Produce recommendations in the context of developing sustainable products and services for these sub-sectors, as well as providing input for priority product development.

Theoretical Review

System Dynamics

According to Sterman (2000), system dynamics is a method that can help to learn a complicated system. Systems dynamics models are often simulated with computers to help us learn about dynamic complexity, understand the sources that limit a policy, and design more effective policies. This method was initiated by Jay W. Forrester in 1961 at the Massachusetts Institute of Technology, USA. He introduced this method with the name Industrial Dynamics which means a method of reciprocal learning in industrial activity to show how organizational structure, policy amplification, and related delay in interaction decisions provide mutual relationships within it (Forrester, 1961). Forrester's original convention was to use sources and sinks for each type of flow and to depict rate variables by valves since these were a direct physical analogy of the control function of such variables. Today, however, system dynamics diagrams are almost entirely based on the digraph principles of control engineering (Wolstenholme, 1982). System dynamics generally use two diagrams to describe the state of a modeled system. Both diagrams are Causal Loop Diagram (CLD), used as a mental model, and Stock and Flow Diagram (SFD), used as a quantitative model in this research.

Creative Industry

The creative industry is an analytic definition of the components of the economic industry where creativity becomes input and the content or intellectual property rights are the output (Potts and Cunningham, 2010). The term creative industry was introduced by the UK DCMS (Department for Digital, Culture, Media and Sport of United Kingdom) Task Force Report and Mapping 1998 with the definition of Industries derived from individual creativity, skills and talents, and which have potential wealth and employment creation through the generation and exploitation of intellectual property and content (DCMS, 2001). Meanwhile, according to the Ministry of Trade of the Republic of Indonesia, creative industry is an industry derived from the utilization of creativity, skills, and talents of individuals to create welfare and employment through the creation and utilization of the creative and creative power of the individual.

Creative economy development in Indonesia systematically began with Presidential Instruction No. 6 of 2009 on Creative Economy Development, which succeeded in formulating Indonesia Creative Economy Master Plan 2009-2025 by the Ministry of Trade of the Republic of Indonesia (Indonesian Agency for Creative Economy (BEKRAF), 2017). In its development, through the issuance of Presidential Regulation No. 72 of 2015, creative economy products are classified into 16 sub-sectors by the Statistics Indonesia (BPS or *Badan Pusat Statistik*), which are then detailed into 206 5-digit Classified Indonesian Business Class Classification These 16 subsectors include: (1) Architecture, (2) Interior Design, (3) Visual Communication Design, (4) Product Design, (5) Film, Animation, and Video, (6) Photography, (7) Craft, (8) Culinary,(9) Music, (10) Fashion, (11) Application and Game Developer, (12) Publishing, (13) Advertising, (14) Television and Radio, (15) Performing Arts, (16) Fine Arts. Through the same Presidential Regulation, the Government of Indonesia formally established the Indonesian Agency for Creative Economy (BEKRAF or *Badan Ekonomi Kreatif*) on January 20, 2015, which was preceded by the issuance of Presidential Regulation Number 6 of 2015 on the Creative Economy Agency.

Subroto and Bivona (2009) in their research use a step-by-step system dynamic building process to support small, medium enterprises (SMEs) in business planning. The research that conducted on leather handicraft company in Tanggulangin, Sidoarjo, Indonesia, can be used to understand the net of cause-and-effect relationships underlying company financial and non-financial results. This system dynamics model can also be integrated with the financial reports, such as Balance sheet, Income Statement, and Cashflow statement so it can help young entrepreneurs to develop a sustainable-growth SMEs and create more employment in the long run.

Culinary Subsector

Indonesia is one of three countries that include the culinary sub-sector in the creative industry sector along with Italy and the United States in two states (Washington DC and Mississippi). In Italy, there is a food and wine industry subsector within their Cultural and Creative Industries. Whereas in two states of the United States namely Washington DC and Mississippi, there is a sub-sector of culinary arts in the creative industry. According to the Study Team and Ministry of Tourism of Creative Economy, culinary is defined as preparation, processing, presentation of food products, and beverages that make an element of creativity, aesthetics, tradition, and/or local wisdom; as the most important element in improving the taste and value of the product, to attract purchasing power and provide experience for consumers (Lazuardi and Triady, 2015).

To provide a thorough and deep understanding of the creative industry, in particular, culinary sub-sector, BEKRAF has made a roadmap to an ideal condition which is an expected condition occurs in the future and is the best practices of countries that have advanced culinary industry. Other than that, it should also be understood the actual condition of the culinary in Indonesia to understand the dynamics that occur (Lazuardi and Triady, 2015).

For that, BEKRAF creates a Map of the Culinary Ecosystem which is a system that describes the interdependent relationship between each role in the creative value creation process with the surrounding environment that supports the creation of creative value. There are four components: 1) Creative Value Chain, 2) Nurturance Environment, 3) Market, and 4) Archiving.

Methodology

To obtain a comprehensive result, this research will collect primary data by doing in-depth interviews to creative business actors in the culinary sub-sector and secondary data from national statistical data, mainly from Statistics Indonesia, as well as various policies of government institutions related to this sub-sector. This research requires data from literature studies as the initial framework of research models and also supports in developing models to answer scientific questions. As the initial framework of the research model, literature studies are conducted by studying previous research or other similarly researched research. After having a basic picture, it will be adjusted to the real conditions, either by adding, subtracting, or changing the mathematical equations of existing variables.

The in-depth interview will be done by determining the number of informants. The method used is a semi-structured interview and open question, where a list of questions is prepared in advance based on the results of literature studies but is an open-ended question, so the resource person answers according to the knowledge he has and the real conditions he knows. This study uses a nonprobability sampling method because the approach used has subjective properties, namely the selection of samples is done based on a specific criterion. The method used is purposive sampling with judgment sampling type, by selection of sample member on criterion made by the researcher (Cooper and Schindler, 2011). The criteria that will be applied in the sample selection are entrepreneurs in the culinary industry that belong to the criteria of MSMEs (Micro, Small and Medium Enterprises) by the UU (*Undang-Undang* or statutory law) No.20 of 2008 on Micro, Small and Medium Enterprises and non-MSMEs entrepreneurs as a comparison. Interviews in this study successfully conducted on forty-six (46) informants who have become culinary business actors.

Then, qualitative analysis is performed to identify the relevant variables of the primary data while quantitative analysis is done based on secondary data and other data that support. The approach used is system dynamics perspective which emphasizes the making of a dynamic model based on the causal relationship between the relevant variables identified from the primary and secondary data sources. The system in the Culinary Industry will be modeled using a Stock Flow Diagram by dividing it into five subsystems namely Government, Education Development, Industry, Business Asset, Marketing, and Workforce. The formation of this subsystem is an adaptation of the Culinary

Ecosystem Map model by Lazuardi and Triady (2015), as well as interviews with culinary entrepreneurs.

Historical Data

In recent years, the creative industry has continued to show positive development trends. One of the benchmarks is the increasing GDP figures from 2014 to 2016. The culinary industry is the subsector with the most significant contribution to the total GDP of creative industries with an average contribution of 41% per year.

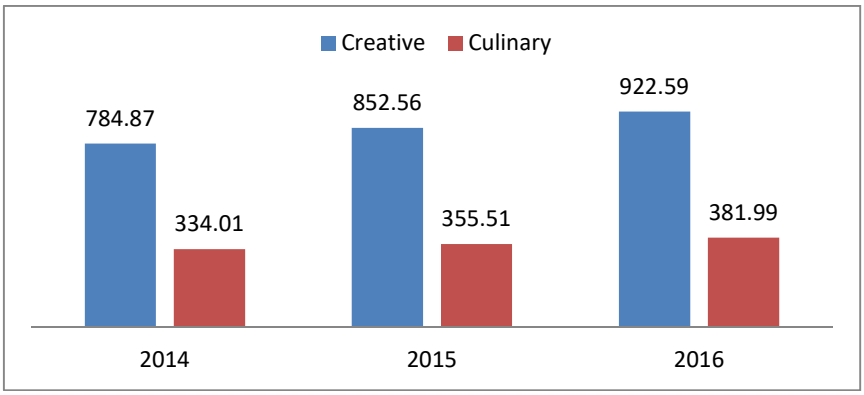

Fig. 1: Culinary Subsector Contribution to Creative Industry GDP (in Billion Rupiah)
Source: Indonesian Agency for Creative Economy (2018)

Growth trends in GDP in creative industries and culinary sub-sector is not separated from the number of workers who also continues to increase each year. The culinary sub-sector became the most significant contributor to the total workforce in the creative industry with an average contribution of 43%.

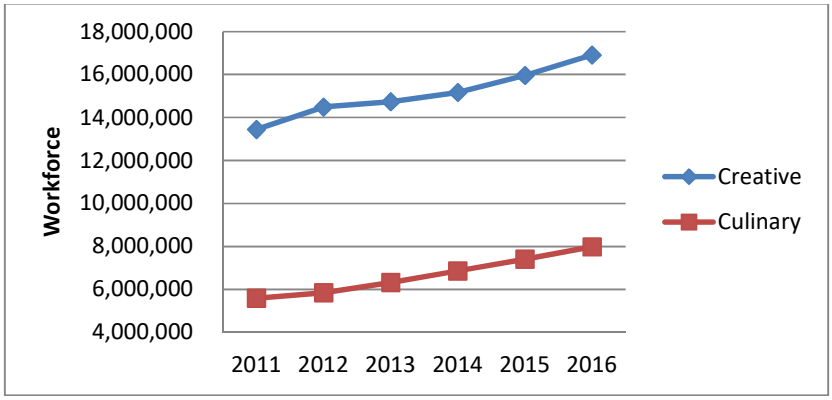

Fig. 2: Creative Industry Workforce
Source: Indonesian Agency for Creative Economy (2018)

However, unfortunately, the positive trend is precisely not in line with the amount of state budget given to the BEKRAF. After getting a large fund injection from 2016 to 2017, the budget for BEKRAF has declined the following year by 17% as can be seen on the Table 1.

Table 1: Budget for BEKRAF

Year	State Budget for BEKRAF (in Billion Rupiah)
2016	346.8
2017	906.4
2018	746.2

Source: Indonesia Financial Note and RAPBN of 2018

Analysis

Causal Loop Diagram (CLD) in this study is a mental picture of the culinary industry model in Indonesia. The CLD was formed based on interviews with processed informants and literature studies from various sources, which can be seen in the Fig 3.

In the CLD model in Figure 3, there are several loops in the form of 2 Balancing (B) loops and 8 Reinforcing (R) loops. The focal point of this CLD is Loop R4 and R5:

1. Reinforcing Loop 4 (R4). This reinforcing loop is a cycle of Government Spending (*APBN*)– Capital (*Pemodalan*) - Entrepreneur Base - Business Creation (*Penciptaan Usaha*) - Production Rate - Supply - Sales - Revenue - Income from Tax - R&D - APBN.
2. Reinforcing Loop 5 (R5). This reinforcing loop is a cycle of Government Spending (*APBN*) – Training (*Pelatihan*) - Entrepreneur Base - Business Creation (*Penciptaan Usaha*) - Production Rate - Supply - Sales - Revenue - Income from Tax - R&D - APBN.

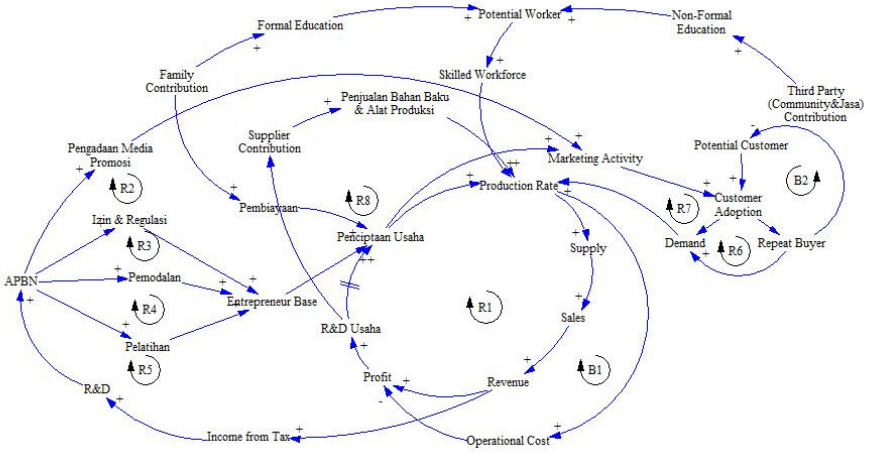

Fig. 3: Causal Loop Diagram of the Culinary Industry in Indonesia

To be able to do a simulation, it is necessary to make a development model of Stock and Flow Diagram (SFD) based on CLD above. The depiction of the SFD model is made by dividing it into several sub-models that are basically interconnected with each other. As explained before, the SFD will be divided into five subsystems namely Government, Education Development, Industry, Business Asset, Marketing, and Workforce. The focal point of this model is Government, Industry, and Workforce subsystem.

Government Subsystem

This subsystem shows how Government, in this case, BEKRAF, works to develop the creative industry. The APBN given to BEKRAF is assumed to be channeled by 40% for the development of the culinary industry. The figure is used based on the average contribution made by the culinary sub-sector to the creative industry. Then the funds are divided into six based on the deputies that are covered by BEKRAF namely R&D, Funding, Infrastructure, Marketing, Regulation, and Relation. The R&D will be used to develop Education Development Subsystem and Funding will be used to develop a Business Asset sub-system.

This subsystem also calculates the state income through taxes, obtained from the gross income value of the culinary industry. The existence of taxes in this subsystem is crucial because it is used as a way for the government to get additional funds to provide an additional budget to BEKRAF after in 2018 budget is lowered.

Workforce Subsystem

Workforce subsystem is a simple overview of how labor development processes occur along with an overview of worker productivity. The increase of labor comes from educational outcomes done in the Education Development subsystem and growth follows the trend that occurs in real conditions. In this subsystem, there is also a calculation of the additional productivity that can be generated from training activities held by entrepreneurs through the allocation of their asset for R&D.

Industry Subsystem

This industry subsystem model describes merely the production line in the culinary sub-sector on an industrial scale per year. The production process is done by looking at the minimum value of two things that affect the production rate: the capacity of labor and demand. Once determined, the production is performed with a number of these minimum numbers and a decent yield will be sold to consumers to generate revenue. The price of the goods changes with the annual inflation rate.

Validation: Behavioral Test

Validation in this study is used to make sure whether the model can represent the actual events. The validation test used in this study is based on the validation of the model used by Barlas (1994) on the system dynamic model. The easiest and best way to test validation is to compare between the simulation results and the historical data we have.

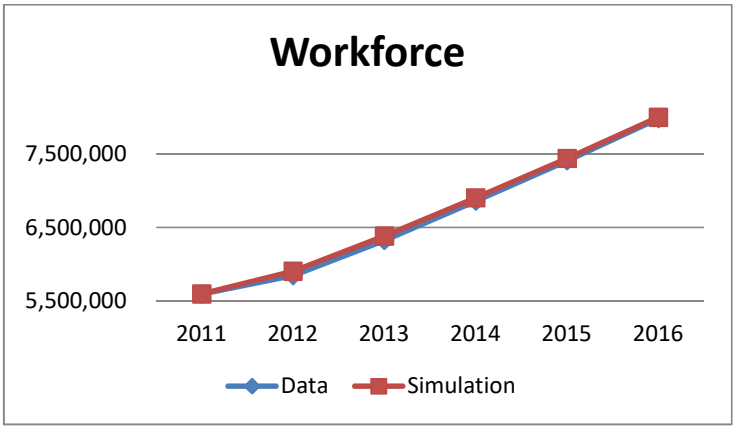

Fig. 4: Behavioral Test

We use auxiliary labor as a reference mode; it can be seen that there is a similar trend between data and simulation results. Therefore, it can be said that the model made has passed the validation test and increase our confidence to move to the next section: policy scenario building.

Policy Scenario

In this scenario analysis, three variables become the parameters: 1) Total workforce 2)HR capacity, and 3) APBN for culinary industry. Total workforce is used because it is a parameter commonly used to describe industrial growth. HR capacity is used as the basis for the number of goods to be produced. Last, the value of the APBN is used to see the effect given due to the enacted policy.
Two policies will be implemented: Education Development and Direct Investment. Variables modified in running scenarios are R&D rate and Funding rate on Government Subsystem. Both variables are chosen because it is a variable that becomes the beginning of industrial development through each subsystem that is involved in the scenario.

Here are the input table for each scenario:

Table 2: Scenario Policy

Variables	Base Scenario	Scenario 1 (Education Development.)	Scenario 2 (Direct Investment)
R&D Rate	0.190	0.250	0.130
Funding Rate	0.117	0.057	0.177

The following is the result of the run scenario:

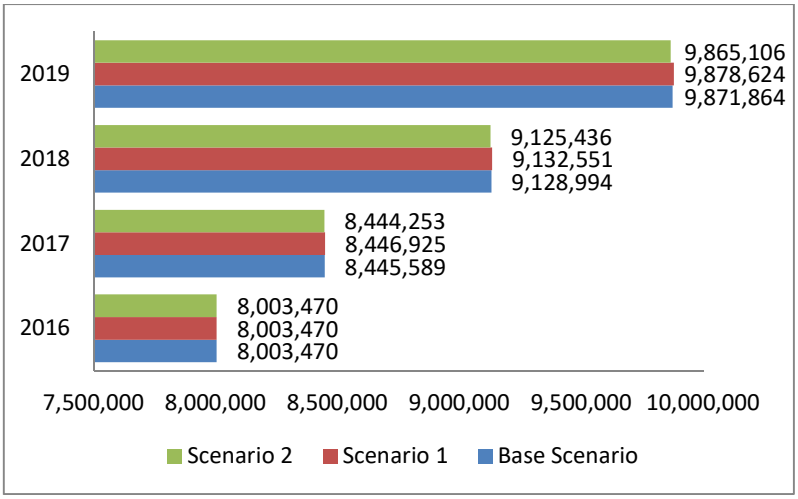

Fig. 5: Policy Impact on Total Workforce

From Total Workforce perspective, the annual growth occurring in the number of Total Workforce from the first scenario is higher than the second scenario. Even the annual growth in the second scenario is lower than the base scenario. This is due to changes in R&D rate variables will directly affect the number of workforces, so it is reasonable if the first scenario in this case more successful than the second scenario.

Table 3: HR Capacity (unit per year)

Year	Base Scenario	First Scenario	Second Scenario
2011	27.016.612.048	27.016.612.048	27.016.612.048
2012	28.820.035.375	28.827.646.657	28.812.424.086
2013	31.592.140.103	31.611.113.257	31.573.168.324
2014	34.605.271.083	34.639.747.844	34.570.808.068
2015	37.702.796.878	37.755.308.994	37.650.305.782
2016	40.954.572.534	41.027.182.331	40.882.005.492

From HR Capacity perspective, we can see the same trend as in the previous parameter: the increment of annual growth in the first scenario is higher and the second is lower than the base scenario.

Table 4: APBN for Culinary Industry (Rupiah per Year)

Year	Base Scenario	First Scenario	Second Scenario
2011	238.760.000.000	238.760.000.000	238.760.000.000
2012	281.947.284.683.	281.946.487.760	281.948.081.605
2013	415.647.864.133	415.714.030.656	415.581.699.104
2014	475.902.920.196	476.064.113.782	475.741.747.355
2015	500.008.651.485	500.278.999.388	499.738.377.830
2016	527.138.961.651	527.544.689.550	526.733.412.855

In the third parameter, there is also the same trend as the two previous parameters. However, it can be seen in the second year that the amount of APBN that can be allocated in the first scenario is lower than the second scenario and the base scenario. This suggests that the second scenario can only provide short-term effects on the growth of the culinary industry.
So, referring from the scenario simulation results, it can be concluded that a better policy to be taken by BEKRAF is the policy of Education Development.

Conclusion

Research on the development of creative industries culinary sub-sector has a goal to find out the strategic issues that exist, create models using system dynamics method to describe the real conditions in the industry and provide policy recommendations to the parties involved in the development of creative industries culinary sub-sector. This research has limitations regarding supporting data due to the breadth of research subjects, so it needs to set some assumptions to be able to run the research.

Based on the results of literature study and the results of the in-depth interview, we found several issues faced by the parties involved in developing creative industries culinary sub-sector, among others, the government and business actors. For the government, the issue faced is how to develop creative industries, including the culinary sub-sector, to be able to achieve predetermined targets. The indicators on the development have been set in the Strategic Target Performance Indicators which include growth in the value of Gross Domestic Product and employment. The closest targets to be achieved will be evaluated in 2019.

For business players, the issue they face is to expand their business, based on infrastructure, target markets, and operations; and the government can provide open training to business actors. To conduct this training, the government should make the micro business actors as the primary target because they dominate the culinary industry. After the business actors develop, the government can return the value of tax rate which was downgraded through PP No. 23 of 2018 from 1% to 0.5%. The

potential for acceptable tax revenues from the culinary industry is enormous so that if maximized, the tax can be reused to raise budgets to the declining BEKRAF by 2018. If it can be well channeled, the increase in the budget could be a stimulus to accelerate the pace of industrial growth creative including the culinary sub-sector. It also is proven by the simulation that have been done in the Analysis Section. The growth in APBN reflects the amount of taxes gained from the culinary industry.

Acknowledgment

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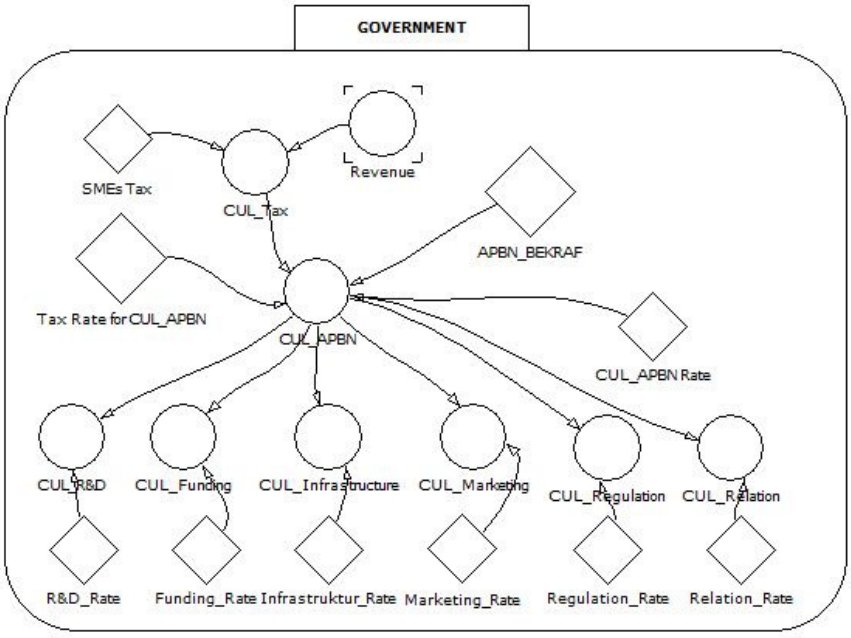
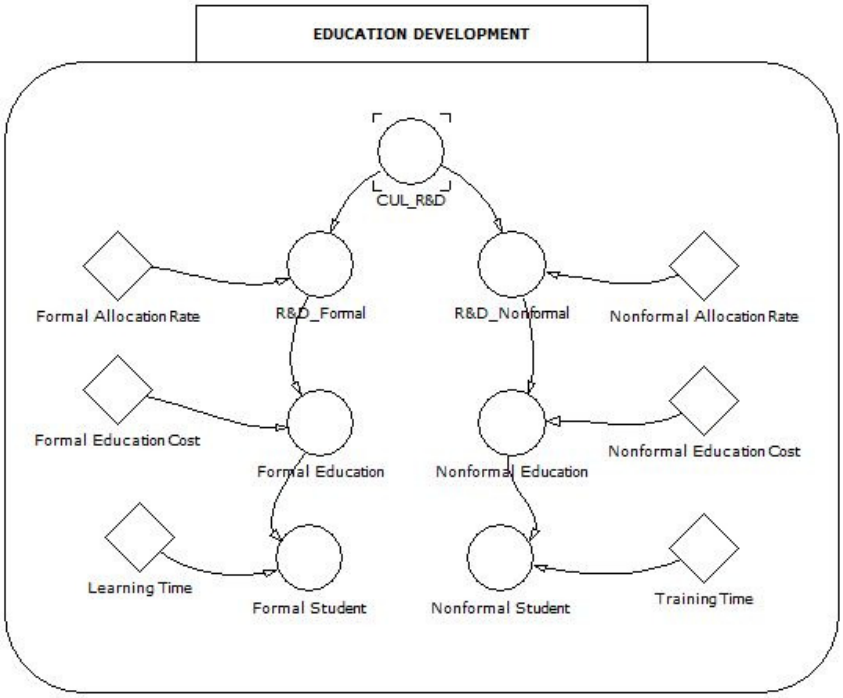
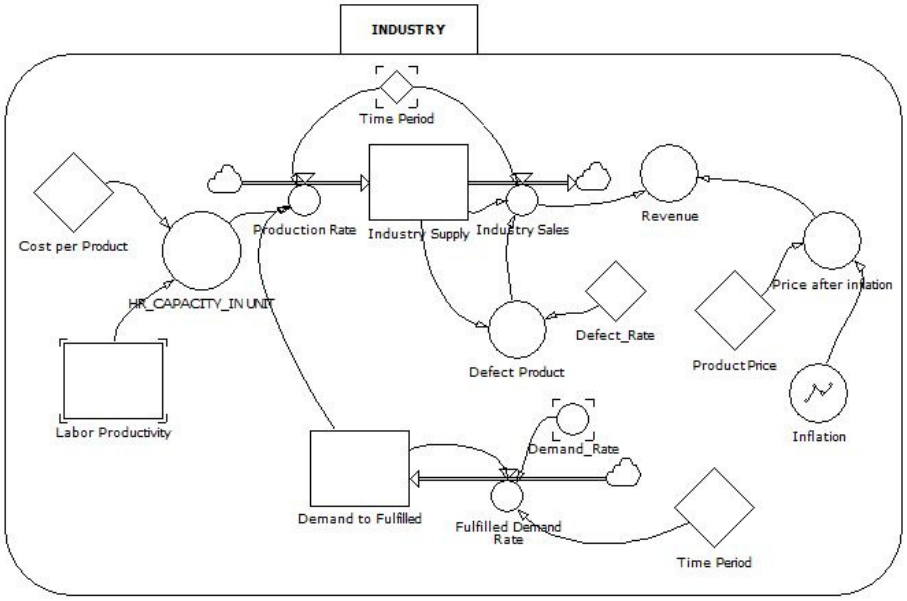
Appendix 1: Government Subsystem



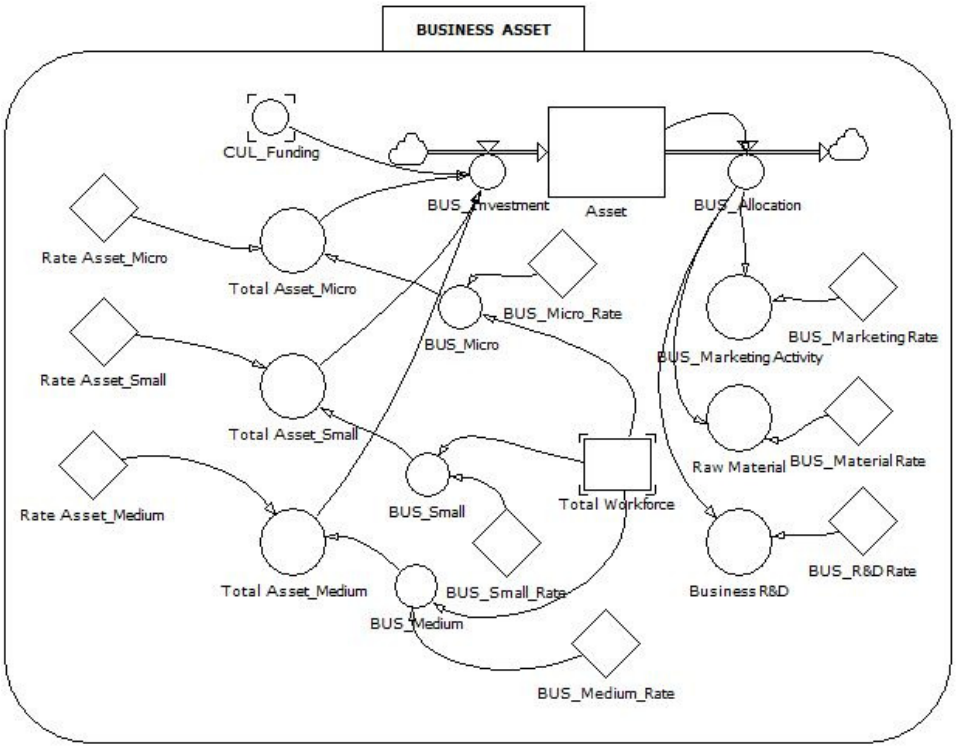
Appendix 2: Education Development Subsystem



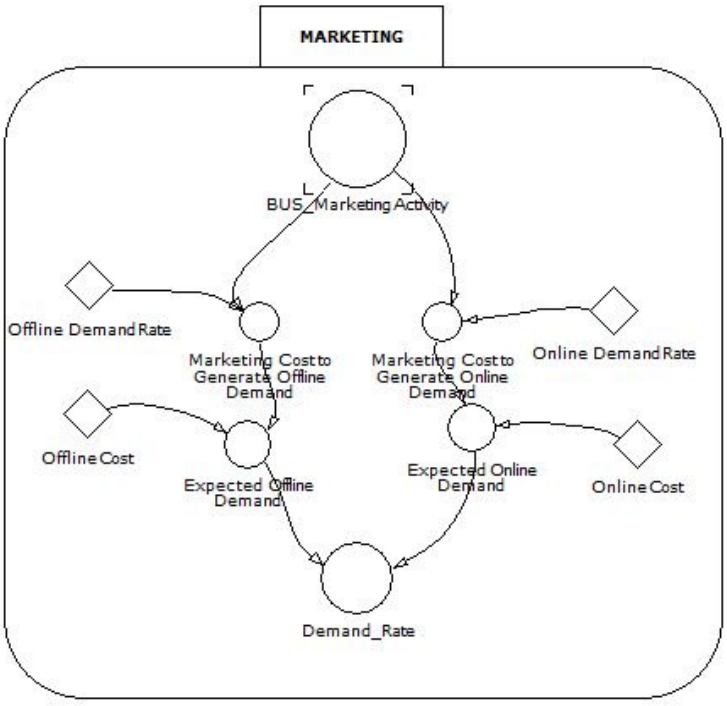
Appendix 3: Industry Subsystem



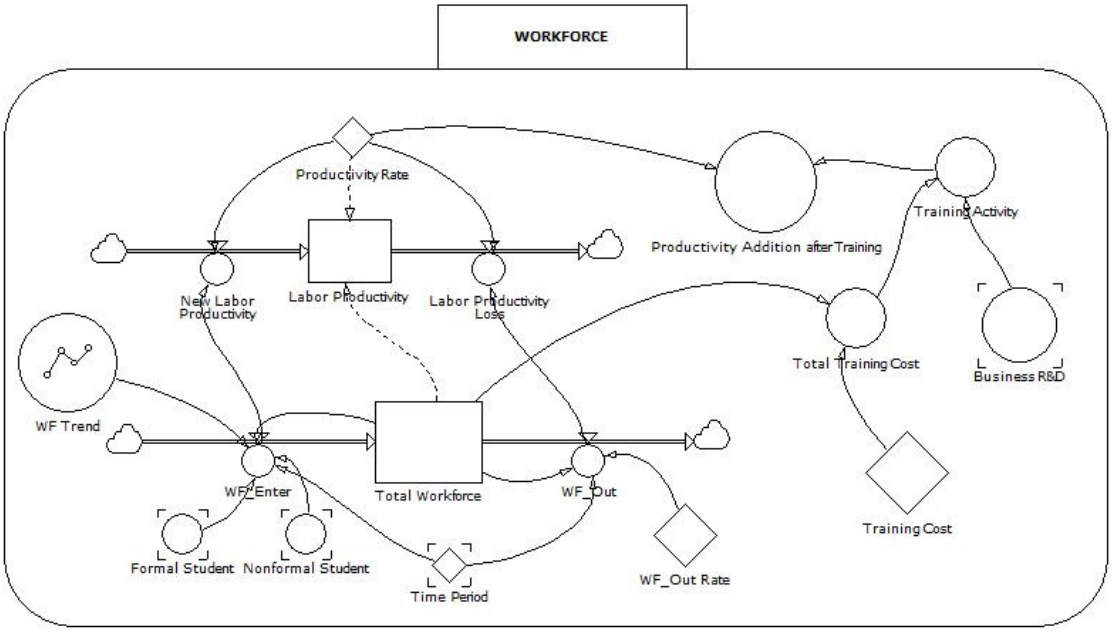
Appendix 4: Business Asset Subsystem



Appendix 5: Marketing Subsystem



Appendix 6: Workforce Subsystem



Appendix 7:

Total Workforce			
Year	Base Scenario	Scenario 1	Scenario 2
2011	5.596.084	5.596.084	5.596.084
2012	5.906.465	5.907.794	5.905.137
2013	6.385.664	6.388.974	6.382.353
2014	6.906.551	6.912.564	6.900.539
2015	7.441.759	7.450.916	7.432.605
2016	8.003.470	8.016.128	7.990.820

Specificities of The Public of Literary Festivals in The Segment of Cultural Events

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Abstract

This article aims to contribute to the deepening of scientific knowledge about the specificities of the public of literary festivals in the segment of cultural events. The objectives of this research are: Identify and ascertain how the sociodemographic characteristics of participants in literary festivals relate to their motivations with the event and verify the existence of a market niche faithful to literary events. To achieve the defined objectives, 226 validated questionnaires were gathered from participants in the literary festival "Correntes d'Escritas, 2018", held in the city of Póvoa de Varzim, between February 21 and 24, 2018. The main findings of the study confirm the hypotheses associated with the objectives presented. These finding indicate that this audience is very satisfied with the organization of the event and with the event in general, they highlight the cultural dimension of the experience and intend to return and recommend the event.

The results obtained constitute an important instrument to raise awareness of the entities responsible for the organization of literary events, not only of the event "Correntes d'Escritas" but also of other similar events, for the adjustment of the design, planning and coordination of these events according to the specificities of this public, resulting in greater benefits for the regions involved.

Keywords: Events; Event tourism; Literary events; Literary festivals; Motivations; Satisfaction.

1. Introduction

The tourism sector is a major industry on a global scale and has shown a great growth in the last 60 years, raising from 25 million international tourists in 1950 to 1323 million in 2017, and it is estimated that by 2030 this number will rise to 1800 million, according to UNWTO, 2017. In Portugal, the tourism sector is of extreme importance for the national economy, continuing to be in 2017 the main export sector. According to the national tourism organization “Turismo de Portugal”, in their document "Turismo em Portugal, 2017" tourism revenues represented 7.8% of GDP, 18% of global exports, 50.1% of services exports and 28% of goods exports. Turismo de Portugal, in its document "Estratégia Turismo 2027"

(2017), highlights the "Artistic-Cultural, Sports and Business Events" as a means of reducing seasonality, both in the domestic market and abroad.

The city of Póvoa de Varzim, home of "Correntes d'Escritas" literary festival, is located on the coast, in the Northern Region of Portugal, in the District of Porto. In Póvoa de Varzim, the number of overnight stays of national tourists increased from 69,500 in 2012 to 77,315 in 2016, which means a growth of 11.24%, however the weight of national tourists compared to international tourists (emphasis on the Spanish, French, British and German markets) decreased from 52.10% in 2012 to 44.77% in 2016 (Figure 1).

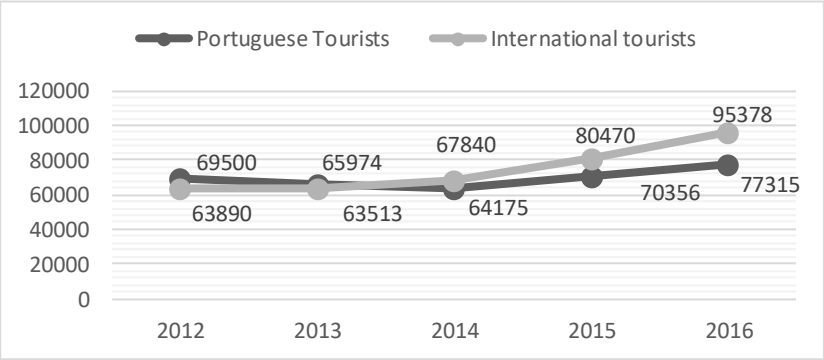

Figure 1: Number of overnight stays for national and international

Tourists between 2012 and 2016

Source: Tourist Office of Póvoa de Varzim (January 2017), adapted.

The development of events in the tourism sector is an indisputable reality and evident throughout the world. For over 20 years destinations have assumed festivals and events as a main tourism product (Getz, 1991). Today, several places have carefully developed their image as festivals and events destinations (McKercher, Mei, & Tse, 2006), as is the case of Edinburgh in Scotland, Tamworth in Australia, Goteborg in Sweden, Stratford and Niagara-on-the-Lake in Ontario, Canada and the village of Óbidos and Madeira Island in Portugal. This has been achieved mainly through hallmark events and mega-events, these are often strongly supported by the government and many times developed for tourism purpose (Dimmock & Tiyce, 2002).

The festival “Correntes d'Escritas” is an annual meeting of Iberian expression (Portuguese and Spanish) writers, taking place in February in Póvoa de Varzim since 2000. It´s fully organized and managed by the city´s public officials, it’s of free entry and open to the whole community. The writers come from countries and continents where the Portuguese and Spanish languages are spoken, from the Iberian Peninsula, Central and South America, Lusophone Africa and even Asia. Since its beginning, this event has grown and gained more and more reputation year after year and is today one of the biggest literary events in Portugal. During the event, several books are released by the authors and their publishers (Camara Munipical da Póvoa de Varzim - website). The literary festival "Correntes d'Escritas", classified as a "Hallmark Event" by Frost (2012) and Getz & Page (2016), for being an event with a historical periodicity, now in its 19th edition, and due to the growing importance, that the event has conquered over the years it’s today a brand name of Póvoa de Varzim. The city, being the first to hold a literary festival in the country is known as the cradle of this kind of festivals in Portugal. The event "Correntes d'Escritas"

continues to be the literary event that opens the literary year in the country, since it is held every year at the end of February.

Recognizing the growing importance of cultural events in the distribution of tourist demand throughout the year (Light, 1996; Kuusik, Nilbe, Mehine, & Ahas, 2014), this research aims to contribute to the knowledge of literary festivals at a national level, within event tourism. This study presents two general objectives, on one hand it seeks to ascertain and confirm the existence of a niche market for literary festivals, and, on the other hand it intends to help define the characteristics of this audience, such as the motivations that bring them to the event.

This paper is divided in three parts. The first part, the literary review, emphasizes different approaches to the definition of literary events and the different motivations for visiting literary festivals. The second part describes the research methodology, the choice of the festival "Correntes D'Escritas", Póvoa de Varzim as the selected event, the methodology of data collection and the results of the research are presented and discussed. The third and final part, the conclusion, discusses the innovative perspective introduced in the analysis of the literary festivals, from a tourism perspective.

2. Literature Review

According to Getz and Page (2016), events are inherently hedonic social experiences, which serve as a means for people with similar interests to join and interact, whether for business, leisure or other purposes. Carlson et al. (2016) concluded that holistic customer experiences in group-oriented event tourism are critical in creating value perception and consumer satisfaction with the experience. Pleasure, curiosity, and enduring involvement were found as the main constructors of the individual experience. Sutton (2016), states that the events evolved from mere commodities, intended only to increase the portfolio of attractions offered by a destination to become strategic marketing tools designed to attract tourists, assisting in the promotion, positioning and brand creation of these destinations.

For the participants events provide opportunities for leisure, social or cultural activities outside and beyond their daily experience. Today's events are planned to excite, stimulate, fuel expectations and inspire motivation in the traveler, offering satisfaction and motive of celebration. Getz and Page (2016) group tourism events into four main categories (figure 2).

Getz and Page (2016) further segment events by type (size), periodicity, market segment and value, into:

a. "Mega-events" of international dimension, requiring large infrastructures, global coverage of the media, the capacity to displace large numbers of people and present great value for the destination;

b. "Hallmark Events", a term originally used by Ritchie and Beliveau (1974), should be reserved for permanent events that are associated with the brand of their destination. Should involve traditional values and become permanent institutions in that they achieve goals for both the resident community and tourism and are of great value;

c. "Regional Events", may occur only once or be periodic; medium, regional or national interest and medium value;

d. "Local Events", may present a single or periodic occurrence; regional or local interest and are low in value.

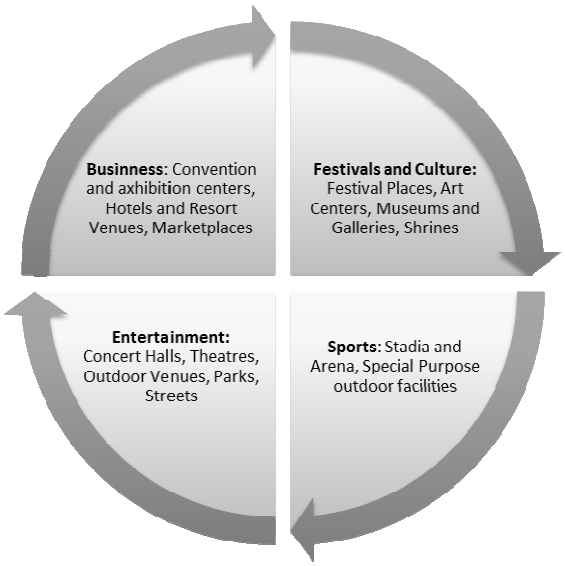

Figure 2: Typology of planned events and venues

Source: Getz e Page (2016), adapted.

For Getz & Page (2016) 'Local' and 'Regional' events, which occupy the base levels of the portfolio pyramid are problematic from a tourism perspective, for some of these events have tourism potential that can be developed but require some investment. Events are increasingly important, and experiences are at the core, being cultural, sports or business events. Despite the increase in virtual contacts, people attend events because they want the live and share the experiences that events can create (Richards & Lanuza, 2017), essentially positive emotions. The literature suggests that event tourism is increasingly a key component of a destination's marketing strategy, and to meet the experience needs of contemporary tourism, event organizers must add extra value and create the extraordinary (Sutton, 2016). Driscoll (2015) states that the connection with literary culture is not simply intellectual but also personal, intimate, and emotional. His study looks at how participants connect and participate in a major cultural literature festival through a sentimental analysis using the twitter online tool and questionnaires. Weber (2015) studied personal experiences at literary festivals through information extracted from online weblogs to conceptualize the diversity and complexity of the experiences of this audience. This author concluded that participants seek a collective and social experience often accompanied by a mission of a more personal nature, focused on the writer and taking the form of an intense investment in their own personality as well as in their work, or rather their personality as an extension of their work.

3. Methodology

A quantitative approach was considered appropriate for the research methodology. A survey was used as the data gathering technique for this investigation. Based on the studies of the following authors: Connell, Page & Meyer (2015); McKercher et al. (2006); Oliveira (2017); Getz (2008); Leiper (1990); Dwyer et al. (2010); Ulvnes & Solberg (2016); Ziakas & Costa (2011); Pettersson & Getz (2009); Oh, Fiore, & Jeoung (2007); Pine & Gilmore (1999); Mehmetoglu & Engen (2011); Geus, Richards, & Toepoel (2016); Wood & Masterman (2008); Cuadrado–García et al. (2017); Panfiluk (2015); Li & McCabe (2013); Yu & Turco (2000); Getz (1991); Dimmock & Tiyce (2002); Frost (2012); Getz (2016); Gezt & Page (2016); Carlson et al. (2016); Sutton (2016); Ritchie and Beliveau (1974); Richards & Lanuza

(2017); Driscoll (2015); Weber (2015); Turismo de Portugal (2017), the main objectives of this study are presented:

I. Identify and ascertain how the sociodemographic characteristics of participants in literary festivals relate to their motivations with the event. Associated hypothesis:
H1 – There's a relationship between the participants' profile and the motivations that bring them to the event.

II. Confirm the existence of a niche market true to literary events. Associated with this objective are the following hypotheses:
H2 – There's a positive relation between the number of participations in the event and the number of participations in other literary festivals.
H3 – There's a positive relationship between the number of participations in the event and the intentions to return and recommend.

For the survey application methodology, the direct or non-probabilistic sampling method was used. The data was collected in and during the event "Correntes D'Escritas" literary festival, at Póvoa de Varzim, in February 2018. Within the methods of direct or non-probabilistic sampling, the convenience sampling method was used, in which the sample is selected according to the availability of the elements of the target population. For an estimated population of 8 800 visitors and a sample size of 226 elements, table 1 presents the descriptive data analysis of the respondents' characterization.

Table 1: Respondents' Characterization

Gender	**Frequency**	**%**
Female	151	66,8
Male	74	32,7
Other	1	,4
Total	226	100,0
Age (years)	**Frequency**	**%**
Between 15 and 18	8	3,5
Between 19 and 25	12	5,3
Between 26 and 35	19	8,4
Between 36 and 65	134	59,3
Over 65 years old	53	23,5
Total	226	100,0
Education level	**Frequency**	**%**
9th grade or less	2	0,9
High School	47	20,8
College Degree	177	78,3
Total	226	100,0
Residence	**Frequency**	**%**
Portugal - In the region	140	61,9
Portugal - Outside the region	77	34,1
Abroad	9	3,9
Liquid monthly income (individual)	**Frequency**	**%**
Under 601€	14	6,2
Between 601€ and 1000€	27	11,9
Between 1001€ and 1500€	47	20,8
Between 1501€ and 2000€	61	27,0
Over 2001€	39	17,3
NA	38	16,8
Total	226	100,0
Professional activity	**Frequency**	**%**

Employee	84	37,2
Liberal profession/entrepreneur	30	13,3
Student	17	7,5
Unemployed	7	3,1
Retired	74	32,7
Other	14	6,2
Total	226	100,0

Source: Compiled by the authors

4. Results

The results obtained for the research hypotheses formulated in this study are presented below.
Objective I: To identify and ascertain how the sociodemographic characteristics of participants in literary festivals relate to their motivations. Associated hypothesis:
H1 – There's a relationship between the participants' profile and the motivations that bring them to the event.
Regarding the relation between Motivation and Residence the proof value is greater than 5% for dimension "1. Motivations" and for the remaining items, there are no statistically significant differences between the two genders. Regarding Residence, the proof value is greater than 5% for dimension "1. Motivations" and for the remaining items, there are no statistically significant differences between the categories of residence. The motivation "Mot2. Get to know the authors' latest works" is higher for residents abroad, motivation "Mot3. Interact with people with the same interests" is higher for residents abroad and lower for residents in the region, motivation "Mot4. See and be seen" is higher for residents abroad and lower for residents outside the region, the differences observed being statistically significant.

Table 2: Descriptive statistics and Kruskal-Wallis test: Relation between Motivation and Residence

		N	Average	Standard deviatio	KW	p
1. Motivations	Portugal - In the region	139	3,01	0,50	3,24	0,198
	Portugal - Outside the region	75	2,94	0,42		
	Abroad	9	3,22	0,41		
Mot1. Meet the authors	Portugal - In the region	129	3,28	0,67	0,15	0,927
	Portugal - Outside the region	72	3,28	0,56		
	Abroad	9	3,33	0,50		
Mot2. Get to know authors'	Portugal - In the region	126	3,30	0,70	8,42	* 0,015
latest works	Portugal - Outside the region	67	3,25	0,64		
	Abroad	9	3,89	0,33		
Mot3. Interact with people with	Portugal - In the region	120	2,88	0,78	6,61	* 0,037
same interests	Portugal - Outside the region	70	3,09	0,78		
	Abroad	9	3,44	0,53		
Mot4. See and be seen	Portugal - In the region	104	1,45	0,86	11,64	** 0,003
	Portugal - Outside the region	65	1,28	0,63		
	Abroad	8	2,25	1,04		
Mot5. Leisure / relax / chande	Portugal - In the region	109	2,89	0,89	1,65	0,437
daily routine	Portugal - Outside the region	67	2,72	0,93		
	Abroad	7	2,57	1,27		
Mot6. Cultural enrichment	Portugal - In the region	137	3,61	0,59	0,66	0,721
	Portugal - Outside the region	75	3,67	0,50		
	Abroad	9	3,56	0,53		
Mot7. Other	Portugal - In the region	6	3,83	0,41	0,01	0,942
	Portugal - Outside the region	12	3,75	0,62		
	Abroad	0	.	.		

*p – significance level * p<0,05 ** p<0,01 Source: Compiled by the authors*

Regarding age categories, the proof value is greater than 5% for dimension "1. Motivations" and for the remaining items, there are no statistically significant differences between age categories. Motivation "Mot2. Get to know the authors' latest works" is higher for the ages 36 to 65 years and over 65 years, the differences observed being statistically significant. In the sample, the dimension "1. Motivations" is higher for over 65 years and lower for ages 26 to 35 years, motivation "Mot1. Meet the authors" is higher for the ages 36 to 65 years and lower for ages 19 to 25 years.

Table 3: Descriptive statistics and Test t: Relation between Motivations and Education Level

	Teste t	p
1. Motivations	1,042	0,299
Mot1. Meet the authors	1,254	0,211
Mot2. Get to know the authors'	-0,025	0,980
latest works		
Mot3. Interact with people with	1,573	0,117
same interests		
Mot4. See and be seen	0,139	0,889
Mot5. Leisure / relax / change	-0,384	0,702
daily routine		
Mot6. Cultural enrichment	-0,579	0,563
Mot7. Other	-0,375	0,713

Source: Compiled by the authors

The proof value is greater than 5% for dimension "1. Motivations" and for all items, there are no statistically significant differences between education levels.

Table 4: Descriptive statistics and Kruskal-Wallis test: Relation between Motivations and Professional Activity

	KW	p
1. Motivations	13,26	* 0,021
Mot2. Get to know the authors'	11,75	* 0,038
latest works		
Mot4. See and be seen	6,68	0,245
Mot5. Leisure/relax/change	5,41	0,368
daily routine		
Mot6. Cultural enrichment	9,76	0,082
Mot7. Other	3,40	0,493

*p – significance level * p<0,05 ** p<0,01 Source: Compiled by the authors*

Regarding Professional Activity, the value of evidence is higher than 5% for the remaining items, there are no statistically significant differences between the categories of professional activity. The dimension "1. Motivations" is higher for Retired; "Mot2. Get to know the authors' latest work" is higher for Retired and lower for Student, the differences observed being statistically significant. In the sample, the motivation "Mot1. Meet the authors" is higher for Other; "Mot3. Interact with people with the same interests", "Mot4. See and be seen" and "Mot5. Leisure /relax/change daily routine" are higher for Student; "Mot6. Cultural enrichment" is higher for Student, however, the observed differences are not statistically significant.

Table 5: Descriptive statistics and Kruskal-Wallis test: Relation between Motivations and Income

	KW	p
1. Motivations	3,22	0,522
Mot1. Meet the authors	6,45	0,168
Mot2. Get to know the latest works	9,08	0,059
Mot3. Interact with people same interests	0,49	0,974
Mot4. See and be seen	6,77	0,149
Mot5. Leisure/relax/change daily routine	3,96	0,412
Mot6. Cultural enrichment	2,79	0,594
Mot7. Other	3,33	0,504

Source: Compiled by the authors

The proof value is greater than 5% for dimension "1. Motivations" and for all items, there are no statistically significant differences between income categories. In the sample, the dimension "1. Motivations" is higher for intermediate incomes (€601 to €2000), motivation "Mot2. Get to know the authors' latest works" is higher for incomes Between €1001 and €1500 and Over €2000; "Mot6. Cultural enrichment" is higher for the incomes from €1001 to €1500, however, the observed differences are not statistically significant. Therefore, in relation to the hypothesis "**H1** – There's a relation between the participants' profile and the motivations that bring them to the event", we can summarize the following relationships.

Table 6: Frequency Table: Hypothesis H1 Relationships

Variable	**Motivations**
Gender	There is a relation in the items Mot1, Mot2, Mot6 and Mot7 (higher for the female gender)
Residence	There is a relation in the items Mot2 (higher for residents abroad), Mot3 (higher for residents abroad and lower for residents in the region) and Mot4 (higher for residents abroad and lower for residents outside the region)
Age	There is relation in item Mot2 (higher for the ages 36 to 65 and for over 65 years)
Education level	There is no relation
Professional activity	There is a relation in this dimension (higher for Retired and lower for Unemployed) and in item Mot2 (higher for Retired and lower for Student)
Income	There is no relation

Source: Compiled by the authors

The analysis of the relationship between the participants' characteristics and their motivations conclude the following: The female gender shows a significant higher motivation in "meeting the authors", in "getting to know the authors' latest works" and in "cultural enrichment" than the male gender; the retirees show a higher motivation for "getting to know the author's latest works" in comparison with the other professional groups; the participants from abroad showed higher motivations for "getting to know the author's latest works", for "interacting with people with same interests" and for "seeing and being seen" when compared with residents from the region and from outside the region.

Objective II: Investigate the existence of a market niche true to literary events. Associated with this objective are the following hypotheses:

H2 – There's a positive relationship between the number of participations in the event and the number of participations in other literary festivals.

Table 7: Spearman correlation: Relationship between the number of participations in the event and the number of participations in other literary festivals

		Number of Participations In the event
Number of participations in other literary festivals	Correlation Coef.	0,154
	Proof value	* 0,021
	N	226

*p – significance level * p < 0,05. Source: Compiled by the authors*

There's a statistically significant positive relation between the number of participations in previous editions of the event and the number of participations in other literary festivals, therefore, we can conclude that the hypothesis H2 is verified.

H3 – There's a positive relationship between the number of participations in the event and the intention to return and recommend.

Table 8: Descriptive statistics and Kruskal-Wallis test: Relationship between behavioral intention and the number of participations in the event

	Number of participations in the event	N	Average	Standard deviation	KW	p
5. Behavioral intentions	1st time	60	2,77	0,41	13,53	** 0,004
	2 to 3 times	40	2,87	0,27		
	4 to 6 times	35	2,90	0,23		
	More than 6 times	89	2,94	0,20		
Beha1. Return in the next editions	1st time	58	2,81	0,44	8,95	* 0,030
	2 to 3 times	40	2,90	0,30		
	4 to 6 times	35	2,94	0,24		
	More than 6 times	87	2,97	0,18		
Beha2. Recommend the event	1st time	58	2,90	0,41	1,29	0,733
	2 to 3 times	40	2,93	0,35		
	4 to 6 times	33	2,97	0,17		
	More than 6 times	89	2,97	0,18		
Beha3. Consider the destination on the next trips	1st time	53	2,60	0,63	8,16	* 0,043
	2 to 3 times	37	2,76	0,43		
	4 to 6 times	31	2,74	0,58		
	More than 6 times	81	2,86	0,38		

*p – significance level * p<0,05 ** p<0,01 Source: Compiled by the authors*

The test value is greater than 5% for behavioral intention "Beha2. Recommend the event", there are no statistically significant differences between the categories of the number of participations in the event. Dimension "5. Behavioral intentions" and the behavioral intentions for "Beha1. Return in the next editions" and for "Beha3. Consider the destination on the next trips" increase with the increasing number of participations in the event, the differences observed being statistically significant. In the sample, the behavioral intention of "Beha2. Recommend the event" also increases with the increasing number of participations in the event, however, the observed differences are not statistically significant.

Regarding to hypothesis "H3 – There's a positive relationship between the number of participations in the event and the intentions to return and recommend", we can conclude that dimension "5. Behavioral Intentions" and the behavioral intentions for "Beha1. Return in the next editions" and for "Beha3. Consider the destination on the next trips" increase with the increasing number of participations in the event.

5. Conclusions

Tourism has become the major industry in many counties and seasonality in this sector is a major problem most of these destinations need to tackle with (Connell et al., 2015). Events have become increasingly important as a tool for both increasing the number of visitors and for distributing them throughout the year and the regions. Both the public and private sector have been investing in mega-events and hallmark events as marketing strategies to create a positive image and brand names for their destinations. Festivals of all kinds are continuously growing in number and in themes in most countries, therefore it's crucial those responsible for the organization and management of these events to regularly monitor and fully understand their public, who they are (profile), what drives them to events (motivations), what aspects of the event satisfy them the most, what dimension of the experience they most value, their overall satisfaction, their intention to return and recommend, and also understand the inter-relationship that exist between these variables (Carlson, Rahman, Rosenberger, & Holzmüller, 2016; Chen & Chen, 2010) .

The descriptive analysis of this study shows that the participants of literary events seek mostly "cultural enrichment" and "meeting the authors"; are very satisfied with the event overall, especially with the organization and with the debates; nearly ¾ are repeating the event and more than half have also participated in similar events; and show strong intentions of returning and of recommending the event. The major findings of this study show that there are relationships between the participants' profile and their motivations, and their intention to return and recommend.

This investigation leads us to conclude that there is a market segment loyal to literary events. The study showed a positive relationship between the number of participations in the event and the number of participations in other literary festivals, that is, visitors who have been coming to the event edition after edition also participate in other similar events. The intention to return and recommend increases as the number of visits to previous editions also increases, that is, those who have participated in a big number of other editions of the event tend to demonstrate greater intention of returning and recommending. As with other investigations (Panfiluk, 2015) this study confirms that historic and periodic events increase loyalty attitudes.

For the development of future investigations, we suggest that this study should be applied to other literary festivals both in Portugal and in other countries as so to confirm the results of this investigation. Similar studies should also be applied to the numerous other events that take place in the city throughout the year as so to better organize an event portfolio for the region.

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Images of Well-Being in Everyday Communication

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Abstract

This study addresses the images of well-being that are represented in Russians' daily communication. The authors identified four paradigms (functionalist, radical-structuralist, radical-humanist, interpretative) and 37 metaphors of well-being that circulate in the modern discourse of science. Particular images of well-being were derived from the metaphors of well-being. The social network Instagram, where Russian users post visual and textual content, served as a source of data for the analysis. It was found that Russian users tend to associate well-being with strong positive emotions, such as happiness, joy, pleasure, and love; and also link well-being to experiences (travel, rest, and entertainment) that are outside the framework of daily routines. As regards other components of well-being, they play a minor role in everyday communication.

Keywords: wellbeing, happiness, paradigm, metaphor, image, social network, everyday communication

Introduction

Over the past half century, the concept of "well-being" and a variety of related concepts, such as happiness, quality of life, etc., has drawn significant attention in scientific and public discussions. There are three branches of knowledge, where the issue of well-being is being discussed, viz. philosophy, science and public policy (Rodogno 2015). At the same time, we leave aside the interpretation of well-being proposed by religion, although it was in religion where the issues related to "the good" and "the good life" became a subject of discussion. However, there is also a sphere of existence, where well-being and happiness play a significant role, i.e. it is everyday life. Everyday well-being and happiness, unlike rationalized knowledge, cannot be described with any logical schemes, but they are immersed in the pure present (Colebrook 2003). This is an element of feelings, which is closer to the animal nature of humans. There is obviously a gap between the theory of well-being and everyday life, as the theory requires consideration of the entire life or some significant part of it, whereas everyday life is a stream of individual experiences and fragments, which make its integrity illusive. Nevertheless, both the theory and everyday life have a common element that enables us to trace the images of well-being and happiness in theory and everyday life. This common element is metaphor, where philosophical and scientific discourse descends to the level of images from the tops of abstract concepts, whereas the discourse of everyday life ascends to this level from the depths of undifferentiated experiences and primal emotions.

Paradigms and Metaphors

Paradigm analysis was actively used after the appearance of the famous work of T. Kuhn 'The Structure of Scientific Revolutions' (1996). Despite the discussions and criticisms of this approach, which unfolded in the 1960s and 1970s, the method of research was actively used in various fields of science. Paradigm analysis was also acknowledged by social sciences (Alexander 1982; Giddens 2006;

Ritzer 2011). However, the specificity of the social science allows simultaneous existence of various competing paradigms. According to von Wright, this particular feature of social sciences reflects the influence of ideology. From his perspective, there are no paradigms, as suggested by Kuhn, in social sciences, but there are only competing ideologies (von Wright 1971).

Nevertheless, in our view, there are several successful examples of the use of paradigm analysis in the social sciences. One of the examples of using this approach to solve applied tasks is the study of organization theory, which was performed by Burrell and Morgan (1979). Morgan (1980) suggests focusing on the metaphorical or philosophical meaning of the concept 'paradigm'. In this sense, paradigm analysis makes it possible to disclose the underlying assumptions that characterize one or another worldview. According to Morgan, each meta-theoretical paradigm represents an alternative reality, the image of which is expressed by means of various metaphors.

Burrell and Morgan distinguish two dimensions for constituting the paradigm matrix: order-conflict debate and regulation-radical change dimension. At the intersection of these two dimensions, there are four basic paradigms of sociology (functionalist, radical-structuralist, radical-humanist, and interpretive) and 15 different metaphors of organizations that are used to characterize the organization. The functionalist paradigm is based on the assumption that society is something that really exists and is of systemic character. 'Society' is oriented to the production of order and the current state of affairs. The interpretive paradigm considers society as a result of subjective and inter-subjective experience of individuals, not as something real. The radical-humanist paradigm is also based on the assumption that reality is socially created and socially sustained. However, those social and psychic processes of creating reality that direct, limit, and control human minds are more important for radical-humanists. The fourth and the last paradigm is the radical-structuralist one. This paradigm views society as a dominant force and as a real entity, embodied in some material form and existing objectively regardless of the human perception. This reality is characterized by internal conflicts between its elements, which entail inevitable changes in the system as a whole.

Between (1) the paradigm as a system of fundamental ideas related to the nature of reality and epistemological principles and (2) research methods that are used in specific studies, there is another component, viz. metaphors (Morgan and Smircich 1980). Metaphors play a significant role in human cognition (Black 1962; Lakoff and Johnson 1980) and in scientific cognition (Brown 1977; Ortony 1979). Metaphors are employed both in scientific research and in everyday communication of people. Thus, a metaphor is a form of representation of knowledge that is simultaneously present in two discursive worlds, i.e. in the space of scientific discourse and in the discourse of everyday life. This intermediate position of the metaphor, which allows the metaphor to penetrate different discursive worlds, ensures interesting opportunities for using the metaphor as a research tool, especially for social sciences. Analyzing metaphors that people use, we can understand their ideas about social objects.

It should be noted that attempts to conduct a discursive analysis of certain aspects of well-being have already been made earlier (Ganesh and McAllum 2010; Spratt 2017). With this in mind, in the framework of our study we pursue a more ambitious goal, which is to study metaphors of well-being in everyday discourse.

Paradigms of Well-Being

The paradigmatic approach that Morgan employed to analyze the theories of organizations is applicable to the study of well-being theories. Paradigms in this case reveal the metaphorical image of well-being, which is latently supported and reproduced in studies by supporters of certain theories. Our next step is to compare the images suggested within the framework of scientific discourse with the images that people produce in the course of their daily communication. An analysis of social networks enables us to perform this comparison. First, we determine the basic paradigms and images of well-being (good life) that exist in modern social sciences, and then find out what metaphors are revealed by these images.

Turning to the analysis of the image of well-being in different paradigms of sociology, it is important to mention that from the perspective of the functionalist paradigm, well-being is a fully objective

characteristic of human life. Well-being also corresponds to such functionalist concepts as 'health', 'welfare', and 'needs'. Similarly to well-being, these concepts – within the functionalist paradigm – acquire the status of ontological objects, actually existing and empirically fixed, thus, the reification of well-being happens. Here, well-being has a clear structure and appears to be a result of an action of a certain order and a product of the system of relations between its structural components. Well-being appears as a kind of aggregate, which combines individual essences-elements acting as 'building blocks' of well-being. The combination of these essential elements constitutes an objective order, i.e. an ontological system that determines life of each particular individual.

The objective 'system', external in relation to the individual and formed by different social institutes such as economy, healthcare, education, law, etc., produces well-being of a particular individual. In this regard, activity of the state, which regulates these institutions and thereby manages the well-being of its citizens is of great importance. Quantification of the well-being of the functionalist paradigm is based on the assumption that the greater the magnitude of its separate elements is, the greater the well-being is. The functionalist paradigm often exploits such abstract statistical concepts such as 'population', 'morbidity', 'mortality', 'GDP', etc., which reflect the structure of an order resulting in well-being. A particular individual as a unique person, with his or her concrete historical existence, is erased and eliminated in framework of this paradigm by the system of uniform statistical indicators.

The second paradigm is the interpretive paradigm. It treats well-being not as a real state of some existing object, which is generally constructed statistically, but as a result of a person's inner experience. According to the interpretive paradigm, well-being is a consequence of the subjective experience that arises from the interaction of individuals with each other, with social and state institutions, and so on. Well-being is essentially the sum total of the individual experience of life perception at some point in time. Therefore, the subtle and ephemeral states of human soul, caused by emotions, personal experiences etc., are so important in the context of the interpretive paradigm. The image of well-being in the framework of the interpretive paradigm is associated with such states of human soul as happiness, delight, pleasure, and satisfaction. Attention to the inner emotional state and the study of the mechanisms of maintaining positive mood determine the specificity of application of the assumptions of the interpretive paradigm. These principles are prevalent, first of all, in psychology. It should be noted that within the interpretive paradigm, there are also competing directions that propose various metaphors of happiness. At the present time, the most popular theories are hedonistic and eudaimonic theories (Deci and Ryan 2008).

The highlighted features of the interpretive paradigm can be seen in the example of the popular concept of Subjective Well-Being (SWB). The basic principle of this concept is to determine well-being of an individual by examining his or her judgments related to satisfaction with life in general, with separate important areas of life (e.g. work or family life), and the balance of positive and negative affects (Diener 2000). Since an individual occupies the central position in the interpretive paradigm, these are emotions and feelings of a particular individual that play a crucial role in estimating the degree of well-being, but not abstract statistical indicators.

The third paradigm is the radical-structuralist paradigm. The radical-structuralist paradigm focuses on problems that are not specific to well-being studies and affect a wider range of social problems. In the radical-structuralist paradigm, the image of well-being is revealed through such concepts as equality, freedom, equal rights, political rights, justice, power, discrimination, etc. The radical-structuralist paradigm is characterized by closer attention to the issues of morality, justice, and political order. Hence, according to the radical-structuralist paradigm, well-being appears as a problem of unjust (discriminative) distribution of goods among different population groups. In this case, the very nature of goods is treated in the same way as it is done within the functionalist and interpretive paradigms. For example, studying the well-being of working women, Connerley and Wu (2016), use the concept of subjective well-being, projecting it onto working women as a social group.
In this case, problems associated with the discrimination, which is performed by one group of people (viz. working men) against another group, move to the forefront issues. As a matter of fact, the main task of these studies is the explication of various factors affecting the discrimination and oppression of some social groups by others.

Finally, the fourth paradigm is the radical-humanist. The principles of this paradigm are closely intertwined with the principles of the radical structuralist paradigm and are often not distinguished within particular empirical studies, due to their similar philosophical roots (e.g. psychoanalysis, Marxism of the Frankfurt school, etc.). The radical-humanist paradigm is embodied in images associated with liberating the individual from various forms of ideology, searching for true existence, and dispelling illusions and delusions about the meaning of human life. Accordingly, studies performed in the frames of the radical-humanist paradigm are often of critical nature. For example, Greco and Stenner (2013) demonstrate a Foucauldian view on 'happiness dispositif', assuming that this phenomenon is aimed at manipulating and controlling people's behavior in modern neo-liberal reality. Ahmed (2010), who holds a psychoanalytic position, criticizes the modern discourse on happiness as the object of desire, which is produced by positive psychology. Etzioni (2018) criticizes the liberal concept of "happiness" for its amoralism.

It should also be noted that boundaries between the paradigms are rather conditional. Empirical studies often resort to indicators and characteristics of well-being that relate to different paradigm matrices. An example of this cross-paradigm mixing is the Happy Planet Index (2018), which simultaneously engages the elements of three paradigms: well-being (calculated on the basis of the self-reported data on the life satisfaction of residents of a particular country, i.e. happiness reports), life expectancy (data on the average life expectancy), inequality of outcomes (calculated as a relationship between life expectancy and the life satisfaction indicator for each country), and ecological footprint. Nevertheless, theoretical studies, where attempts are made to draw distinct boundaries between these paradigms, occasionally occur (Veenhoven 2001; Raibley 2012).

Study of Well-Being and Social Networks

As regards empirical studies of well-being aimed at measuring this phenomenon, in this case, the variety of all well-being theories can be divided into two large groups, viz. theories of objective and theories of subjective well-being (McGillivray and Clarke 2006). In objective theories, well-being is measured, using statistics, primarily, on income and consumption. In addition, they often incorporate data on non-economic aspects of well-being, e.g. on gender equality, on stability, etc. Subjective theories measure well-being with regard to people's judgments about their lives, which are collected by means of surveys or psychological and sociological experiments. Besides, in recent years, an increase in the number of studies related to information technology development has been registered. For example, studies of happiness use technologies of automatic recognition of human emotions depicted on images (Dhall, Goecke and Gedeon 2015). One of the areas of studying well-being is the study of well-being, using data obtained from social networks.

Initially, since the emergence of social networks such as Facebook, etc. researchers have drawn attention to the relationship between activity in social networks and various aspects of well-being, such as social capital (Burke, Marlow and Lento 2010), marriage satisfaction (Valenzuela, Halpern and Katz 2014), depression (Appel, Gerlach and Crusius 2016), loneliness (Song et al. 2014), social support (Lee, Noh and Koo 2013), etc. Moreover, social networks have a dual effect on subjective well-being of users, that is to say they can reduce it in one case, and increase in another (Clark, Algoe and Green 2018). With this in mind, researchers attempt to use social networks as an independent tool for evaluating well-being. Considering the fact that social networks have been playing an important role in people's daily lives in the last decade, these attempts seem to be very priductive.

For example, Hao et al. (2014) used machine learning technology in order to determine the subjective well-being of social media users. Chen et al. (2017) resorted to a linguistic analysis of status updates on Facebook users' pages to predict users' subjective well-being. Wu et al. (2015) used data from the Sina Weibo social network to design the City Happiness Index. Wang et al. (2014) studied Facebook users' profiles for a year and developed the Facebook's Gross National Happiness Index, analyzing the number of positive and negative words that users used on a daily basis. Obviously, the number of studies in this area is only increasing.

As a rule, researches of well-being in social networks are focused on studying users' emotional state. Indeed, this information can be obtained from user accounts, and thus it is as reliable as data from surveys. Therefore, this direction of well-being studies is developing in the framework of the interpretive paradigm. Using social networks analysis, it is significantly more difficult to evaluate well-being contributing factors that are crucial within other paradigms.

Method and Data

The proposed method of studying well-being in social networks includes several stages. At the first stage, we identified the key metaphors corresponding to each of the four paradigms. Those metaphors were then operationalized with a set of linguistic markers that represented a particular metaphor in the sphere of everyday discourse (Table 1). We could not find linguistic markers corresponding to the metaphors of the radical-humanist paradigm, because this approach is mostly philosophical and critical. As a result, we obtained only three sets of linguistic markers corresponding to the three paradigms, viz. the functionalist, the radical-structuralist, and the interpretive ones. When identifying the linguistic markers, we referred to metaphors of each paradigm. In other words, for the functionalist paradigm, we used markers that reflected the situations and objects of the external world with respect to the individual, as well as the functional activity (e.g. sport, health, work, career, travel, relaxation, etc.); for the interpretive paradigm, markers that reflected positive emotional states, viz. happiness, pleasure, love, harmony, etc .; for the radical-structuralist paradigm, markers that reflected a person's judgments about the position of the individual in society (e.g. equality, freedom etc.)

Table 1: list of paradigms, metaphors, and linguistic markers

Paradigms	Metaphors	Linguistic markers
Functionalist	Welfare Health Needs satisfaction Development Success, Wealth Prosperity	sports, gym, bodybuilding, powerlifting, power, willpower, spirit power, strength, building, fitness training, exercises, health, healthy eating, healthy lifestyle, healthy living sport is life, sport family, travel, relaxation, friends, art, music
Interpretive	Happiness Pleasure Delight Joy	happiness, joy, pleasure, harmony, personal growth, development, energy, life, well-being, euphoria, emotions, positive, delight, good life, hugs, love, relationships, feelings, romantic, life is wonderful, forever
Radical-structuralist	Equality Liberty Equal rights Rights Justice Power Discrimination	liberty, equality, equal rights, feminism, sexism, chauvinism, independence, self-development, equity, freedom of choice, down with stereotypes, stereotypes, gender equality, morality, animal rights, human rights, children's rights, justice, humanity, compassion, dignity
Radical-humanist	Criticism Ideology Illusion Meaning of life	

At the third stage, we used the specialized InfoWatch Kribrum service for social media monitoring and analysis to collect messages (viz. captions and comments on photos, images and videos posted by users on that day) containing the relevant linguistic markers within the social networking application *Instagram*. The choice of Instagram was explained by the fact that each message there is accompanied with a visual image, which enabled us to refer to a visual image, when encoding messages, if it was necessary to specify the content of a message. We analyzed Instagram messages only in the Russian language. The data was collected for one day on July 1, 2018. At the final stage, we manually filtered all the messages. We analyzed only messages of those users who published no more than 4 posts on Instagram on that day in order to minimize the number of advertising messages. Then, we manually selected only those messages that were not advertisements. The remaining messages were coded with regard to the presence of linguistic markers. Since one message could contain several markers, the total number of assigned markers was bigger than the number of messages.

It should be noted that in the course of this study, it was necessary to reject the component approach that dominates in studies on well-being. The initial list of linguistic markers consisted of 217 terms. However, when processing the data, some markers, which representing a certain component of well-being, were found unsuitable for the purpose of obtaining the relevant information. This occurred due to the fact that the messages that contained those markers were pure advertisements. We encountered the described situation, for example, when processing linguistic markers that reflected the metaphor of welfare (wealth, fortune, money, etc.). Consequently, we had to exclude those components from further analysis. Moreover, we failed to operationalize some other components that traditionally attribute well-being to the functionalist paradigm, e.g. level of income, education, life expectancy, etc. Therefore, in the case of the functionalist paradigm, we focused only on some components of health, relaxation, travel and family, which are sufficiently easy so as to operationalize in the form of linguistic markers. In the course of analysis, some markers were grouped into more general semantic clusters (e.g. noun and verb forms of 'love').

Results

At the first stage, we collected 331,291 messages; then, after filtering, 137,315 messages left (41.5%). After analyzing the filtered messages and encoding them with linguistic markers, the messages were grouped into large semantic clusters (families), which included thematically and semantically similar metaphors (Tables 2 and 3). The most frequent messages appeared to be those that characterized the most intense expression of positive emotions (happiness and / or delight, pleasure, joy, etc.). Next, we formed semantic clusters that characterized love and merely positive emotions, as well as a cluster, which contained reports of positive experience of relaxation (entertainment, relax, travel). All the other semantic clusters were less numerous. For instance, the term “well-being” itself was mentioned in the messages only 161 times.

Table 2: frequency distribution of the basic well-being metaphors

Interpretive paradigm	
Linguistic marker	**Number of messages**
Total	158,269
happiness	37,867
joy	16,531
pleasure	6,468
delight	1,397
energy	3,172
harmony, friendship	2,387
romantic	2,305
love	35,491
relationships	3,620
emotions	15,689
feelings	5,093
positive	2,219
hugs	1,604
development	941
personal growth	4
life	22,602
well-being	161
Functionalist paradigm	
Total	42,164
travel	5,781
finance	427
health, sport	3,529
family	4,278
entertainment, relaxation	23,723
career	163
food	4,263

Radical-structuralist paradigm	
Total	2,460
stereotypes	240
equality	34
equal rights	15
feminism	36
sexism	4
chauvinism	0
gender equality	2
morality	15
humanity	52
compassion	37
justice	123
dignity	103
self-development	409
rights	31
liberty	1,254
independence	105

Table 3: frequency distribution of metaphors in semantic clusters

Metaphors	Number of messages	Semantic cluster
happiness joy pleasure delight	62,263	happiness
love romantic relationship	41,416	love
entertainment, relaxation travel	29,504	relaxation experience
emotions feelings positive hugs	24,605	positive emotions
life	22,602	life
energy harmony friendship	6,277	harmony
family	4,278	
food	4,263	
health sports	3,529	
liberty independence	1,359	liberty
justice dignity self-development rights	666	justice
development personal growth	945	development of personality
finance	427	
stereotypes equality equal rights feminism sexism chauvinism gender equality	331	equality
well-being	161	well-being
morality humanity compassion	104	moral senses

Conclusion

Thus, we investigated the reflection of well-being metaphors in the everyday communication of people based on data from social networks. Due to the complexity of data analysis, we managed to trace the data only for one day. The abundance of advertising messages that do not reflect people's opinion caused significant difficulty in processing the data. It was also impossible to create relevant groups of linguistic markers for a large number of well-being metaphors. Nevertheless, the obtained results enabled us to draw conclusions in relation to a certain clear pattern, which consists in the following: in everyday communication, well-being is associated with strong positive feelings, such as happiness, pleasure, love, etc., as well as with experience (i.e. entertainment, travel, relaxation, etc.) that, as it may be presumed, stimulates these feelings.

From our perspective, this inference is rather trivial, but very significant. On the one hand, this it shows the difference between the everyday feeling of well-being and the theories that are created in the framework of the Science of Well-being. In people's everyday communication, well-being is predominantly, coupled with those experiences and feelings that are significantly different from people's everyday world. In everyday communication, well-being means experiencing something new, which is beyond people's usual and everyday experience. On the other hand, we see that well-being is associated with feelings and experience, i.e. with internal subjective states, on which the interpretive paradigm is focused. The problem that arises here is how this subjective state (happiness) is treated within this paradigm.

Eventually, in everyday communication, happiness is something superior to everyday life, transcendental in relation to life here-and-now. This understanding of happiness differs from well-being theories that seek to evaluate happiness precisely at the level of the everyday world. Undoubtedly, these are emotions, which are experienced by an individual differently and, accordingly, require different research approaches.

In conclusion, it should be noted that we assumed the chosen research method will allow us to obtain comprehensive data on the welfare of the people. But as it turned out, people are directly inclined to speak for the most part only about those aspects of well-being that relate to subjective well-being. We believe that this result allows us to make two conclusions. On the one hand, our method was limited. People would be most willing to talk about their positive emotions, but prefer to remain silent when it comes to living conditions – material well-being, work, etc. On the other hand, perhaps we should draw theoretical conclusions and abandon the linear approach to understanding well-being. We believe that there are at least two levels of well – being-superficial, emotional and happy, and deep, connected with living conditions. On the one hand, we can easily find the first level in everyday communications, and on the other hand, the study of the second requires more subtle methods of research.

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Investigating the Patterns of Loyalty Points Redemption in a Loyalty Program at a Bank: The Case of a Commercial Bank in Lebanon

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Background

The Lebanese banking industry includes 142 banks in total, divided into small, medium and large-size, privately owned commercial banks; investment banks; Islamic banks; Some of these are 100% Lebanese and they total 32 banks while the remaining ones are foreign and mixed banks. (Banking control commission of Lebanon, n.d.). This industry is regionally renowned for its openness and endorsement of the country's liberal economy, especially with the expansion of the Lebanese banks in diverse countries around the world through their branches, affiliated companies, subsidiaries and representative offices, not to mention their profound ongoing relationships with corresponding banks worldwide (Association of banks in Lebanon, 2018).

To enhance customers' loyalty, banks implement rewards programs for their existing clientele, and intensively market these programs in order to penetrate new markets. Almost four out of five bank clients admit that they choose their primary bank based on its' proposed rewards program (The Financial Brand, 2016).

With respect to international practices, the types of loyalty programs in the banking sector differ from one institution to another. Some banks offer a points-based system where the enrolled members collect points and then exchange their balance for discounted items from a catalogue, or redeem their points for free flights, electrical equipment, vouchers and others (Liu, 2009). Other financial institutions reward their loyal customers with discount rates on some products they specify. The clients are selected based on the number of products they have obtained from the bank or the actual value of their ongoing business with the bank.

Among the 32 purely Lebanese owned commercial banks, twelve banks are known to be publically advertising and promoting their respective loyalty programs to their clients. Reward programs in Lebanon vary in offered redemption types such as cashback whereas loyalty program members are immediately credited with a certain amount of money in return for their collected points over time, travel miles, gifts, vouchers, donations, merchant discounts to free bank products or services, or even sometimes a combination of some or all of these categories.

The chances of the consumers to remain in relationship with the firms that offer points-based loyalty programs increase with the expectancy of future rewarding occasions given that the cardholders will be able to redeem their points with free rewards at a later stage (Lemon, White, and Winer, 2002).

In this paper, we study the case of a Lebanese Commercial Alpha Bank, operating in the Lebanese market for more than 50 years. For confidentiality reasons, this bank will be referred to as Bank X. Bank X offers both retail and business banking services, ranging from debit and credit cards, personal and housing loans to business and corporate loans. The management of this bank has decided to join the trend

of loyalty programs in Lebanon in 2016 to promote the retention of its existing clientele, boost their spending on their credit cards, and attract new potential clients through interesting offers available exclusively on their loyalty program.

Bank X's loyalty program offers the cashback, miles, gifts, vouchers and donations categories. This program is constructed on a points-based system whereas it only counts the collected points by credit cardholders obtained from the amount of money spent on their credit cards, used at merchants POS (point of sale) transactions: ATM cash withdrawal transactions on debit cards are not taken into consideration in this particular system. Specifically, in this loyalty program, for each one dollar spent on any POS machine, 1 loyalty point is collected, equivalent to 1.5 miles, as arranged and regulated by the bank's management.

Consequently, this research will provide the bank's marketing and customer service departments with insightful findings to build a proper customer journey map that would eventually take the loyalty of the bank's clients into consideration, and carry it forward for effective implementation. Not to dismiss the research findings stating that low points redemption rates among banks were due to lack of communication from the banks that offer these programs as well as complicated redemption procedures, leading to the idea that clients sometimes face information asymmetry when dealing with different banks (Liu, 2009).

This analysis will show whether the success of the loyalty program at this bank, measured by the changes in the expenditures of the existing clients on their credit cards, is based on a set of pre-defined demographical and other banking related variables that will be discussed in a different section.

Previous research has shown that demographical characteristics are related to a customers' loyalty; consequently, this paper will analyze the demographical factors of the clients who are enrolled in the current loyalty program and have redeemed their points in any of the mentioned categories at least once through this program.

Review of Literature

As a result of the increasing use of credit cards as an electronic payment method among customers, the financial industry is witnessing a huge competition among financial institutions (Subramaniam and Marimuthu 2010); encouraging the banks to advance in their services as well as attempt to comprehend their customers' preferences (Ming-Yen Teoh, Chong and Mid Yong, 2013). Banks are finding new ways to make their operations more lucrative by encouraging their clients to obtain new credit cards offering additional customer benefits and rewards in order to gain access to new intact markets. Commercial banks around the world have adopted the Loyalty Programs trend and created different versions of reward offerings to further engage their clients in financial transactions and encourage them to increase their credit cards expenditures. (Chakravorti, 2003). In 2006, Breitkopf concluded that card holders are using less ATM machines for cash withdrawal transactions due to the hefty charges the banks impose and are progressively using their cards for POS transactions: in fact, clients are becoming increasingly aware of the benefits of collecting loyalty points and benefiting from cashback rewards due to their POS transactions. Bolton, Kannan and Bramlett, in the mentioned study conducted in the year 2000, found that the clients, who were members of the credit card loyalty programs at financial firms, gave less attention to their previous bad experiences with these firms once making new business decisions versus those who were non-members. Yet, their study did not prove that the loyalty programs of these firms increased the retention of their members, nevertheless they detected that there was an increase in the consumption on credit cards among members rather than non-members of these programs. Likewise, according to Carbo-Valverde and Linares-Zegarra (2011), the average spending on credit cards versus cash is larger for the clients who possess cards with loyalty programs.

The characteristics of members in a loyalty program might affect the relationship between their redemption behavior and their purchasing. (Dorotic, Verhoef, Fok and Bijmolt's, 2014): clients who are active members of loyalty programs may react in different ways to the programs depending on their

usage or expenditure, their own previous involvement in the program or even their demographical factors (Kim et al., 2001; Liu, 2007; Bolton, Kannan, & Bramlett, 2000; Leenheer et al., 2007; Lemon & von Wangenheim, 2009; Magi, 2003).

The listed literature guided the researcher of this study to investigate the effect of the adopted independent variables on the total spending of the clients noting that increased credit card usage indicates advanced levels of client loyalty at the bank, whereas the cardholder is collecting more points loyalty points with every purchase on his/her card.

Liu (2009) specified that: "most of the studies related to credit card point-reward programs have been conducted in developed countries, where they are well-established" (p.405); therefore, this statement points toward the need to further research this topic in under-developed countries like Lebanon.

The main research questions intended for this analysis are as follows:

- Is there a correlation among client characteristics such as frequency of redemption of points, total points redeemed on certain reward category and the amount spent on credit cards after the inception of a loyalty program?
- Does the credit card spending, vary significantly with respect to demographical factors like gender, marital status, job occupation and income range?

There is an important aspect into this research with a growing need to dissect these research questions to expose the factors behind the increasing spending on credit cards by a client at a commercial bank in Lebanon, all while looking closely at demographical factors and other client characteristics that will be of necessary use to bankers to tailor their customer retention programs effectively.

Procedures and Methodology

At Bank X the clients have the ability to redeem their collected loyalty balance at any point in time through any reward category they choose. Thus, the total spending on credit cards by clients is perfectly equivalent to the number of loyalty points collected per each loyalty program member. The demographical variables to be studied at the cardholders' level have been deduced from different studies, mainly from Seiler, Rudolf and Krume 2013, studying a set of demographical variables such as: gender, age, education type and level and income range, and their influence on loyalty will be all observed in relevance to the value of growth and achievement in one's life. In this study, the authors found that generally, women who pursue growth and achievement in their lives tend to become less loyal to one institution than men. Supporting studies also observed that females generally seek variety more than males (Mitchell and Walsh, 2004). However, females made transactions on their credit cards in numbers that outperformed those made by males (Lenormand et al., 2015), reconfirmed in a study that concluded similarly: women are expected to spend more on their cards than men do (Sobolevsky et al., 2016), signifying that women are more loyal than men to the bank they deal with: From the bank's perspective, increased card usage means the clients have accumulated further loyalty points, since effective loyalty programs offered on credit cards are more likely to encourage clients on using these cards as their payment method (Ching and Hayashi, 2008), therefore, leading to this research's first hypothesis:

H_1: Cardholder's accumulated loyalty points vary with subject's gender.

Similarly, the same study of Seiler et al. (2013) have found that advanced age leads people to become less loyal to their respective bank, especially when they give more importance to growth and achievement in their lives as they age. On the contrary, studies by Homburg and Giering (2001) and Evanschitzky and Wunderlich (2006) stated that people show more loyalty as they grow older. Similarly adolescents were found to favor credit cards over carrying cash money to settle their payments since this modern digital method grants them more payment flexibility (Kim and DeVaney, 2001), only meaning that an increased usage of credit cards will lead to further collection of loyalty points for this age group. Bank X should

then take into consideration the age of cardholders to check whether the program members are adolescents or adults. This reflection leads to this paper's second hypothesis:

H_2: *Cardholder's accumulated loyalty points vary with subject's age.*

As for the customer's education level, the direct relationship between the total credit card spending of customers in relation to their education background type and level was not conclusive, only indicating that this criterion needs to be further researched to examine the effect of education on customers' loyalty. Consequently, this paper will try to extract relevant information to this factor, setting grounds for the third hypothesis:

H_3: *Cardholder's accumulated loyalty points vary with subject's education level.*

With respect to their last factor, income range; Seiler et al. (2013) deduced that individuals who are after personal growth and achievement and earning high incomes are less likely to be loyal to their current institution. Yet, individuals who earned relatively high manifested significantly higher credit card acquisitions (Devlin, Worthington and Gerrard, 2007). Hence, the bank is further interested in studying the total credit card spending of high earners, formulating the forth hypothesis in this research:

H_4: *Cardholder's accumulated loyalty points vary with respect to subject's income.*

Khare (2013) recognized the marital status as a demographical element affecting spending behavior of individuals with differences among single and married people; confirming Limbu and Xu's study (2012) about the credit cards expenditure differences among married and non-married people (namely single, widowed and divorced): Married people showed higher usage on their credit cards than those belonging to the second category. That being so, a cardholder's marital status and total credit card spending investigation lead to the next formulated hypothesis:

H_5: *Cardholder's accumulated loyalty points vary with respect to subject's marital status.*

For the reasons stated above, this paper will study these factors specifically in relevance to the Lebanese market while including some additional elements that the authors of this paper find significant to add depth to other findings, such as: category in which client's points were redeemed each year (2016 and 2017), redemption frequency of client each year (2016 and 2017), customer's job position (as of 2017) and country of residence (as of 2017); consequently leading to the remaining hypothesis to be tested in this paper:

H_6: *Cardholder's accumulated loyalty points vary with respect to subject's choice of points redemption category in 2016.*

H_7: *Cardholder's accumulated loyalty points vary with respect to subject's choice of points redemption category in 2017.*

H_8: *There is a significant linear relationship between frequency of points redemption by client in 2016 and client's accumulated loyalty points.*

H_9: *There is a significant linear relationship between frequency of points redemption by client in 2017 and client's accumulated loyalty points.*

H_{10}: *Cardholder's accumulated loyalty points vary with respect to subject's profession.*

H_{11}: *Cardholder's accumulated loyalty points vary with respect to country of residence.*

The study of the mentioned factors will be insightful in detecting the changes occurring on cardholders' expenditure rates on their credit cards during the period in which the loyalty program at the bank has been introduced (early 2016) and ongoing, therein hopefully indicating trends and key aspects of the trends behind such a program.

Research Strategy and Methodology

The strategy approach to make this research is a longitudinal case study, where the total spending of the bank's clients was taken into consideration for two consecutive years after the inception of the bank's loyalty program.

The research methodology selected for this paper comprises of the use of secondary archival data concerning the cardholders' spending on their credit cards since loyalty program inception (early 2016) and demographical factors in a regression model. SQL database was the main tool to collect the raw data, backed by Microsoft Excel software used to load the collected information and deploy it in an overall worksheet. The filtered information was processed through SPSS (Statistical Package for Social Scientists). The data used in this research was collected from Bank X after obtaining the consent of the bank's management, under full confidentiality agreement to ensure clients' privacy due to the banking secrecy regulations that forbid access and publishing of similar delicate information. The obtained data is categorized as archival, considered to be one of the most convenient types for studies similar to this one, and known to increase, objectivity, reliability, validity and robustness of the findings versus other known research methodologies like questionnaires or observations. Nonetheless, the gathering of the archival data can reveal itself uneasy due to the probabilities of receiving blank spots in the huge amounts of data entries leading to possible inaccuracies, overlaps or inaccessible elements.

Population and Sampling Procedures

The loyalty program in this study has been introduced by Bank X early on in 2016. The gathered data starts from early 2016 (since program inception) until end of 2017. Therefore, the extracted information covers all cardholders active in the bank's loyalty program whether they are resident in Lebanon or anywhere abroad. Active reward program members acquired after end of 2017 were omitted since the retrieval and analysis of relevant data started by end of 2017 and was only finalized by March 2018. The selected sample, which is same as the population is considered to be highly illustrative for the purpose of this research due to the large and diversified categories of data collected for each client. The total population size is 2,960 enrolled clients in bank X's loyalty program, leading to an exact sample size of 507 clients who redeemed some or all their points using this program, for at least once.

Findings and Analysis

The investigation on the average spending on credit cards by the individuals distributed according to the country of residence determined that 93.6% of the cardholders actively enrolled in the loyalty program are currently living in Lebanon, while the rest are scattered around 10 other countries around the world. Even though the majority of active members of this program are in Lebanon, two other countries showed an average spending higher than the one observed for Lebanon. After reverting to the original data input, the researchers determined that the average credit card spending observed for Saudi Arabia and the UAE, belong to 6 customers in Saudi Arabia and 7 in the UAE. This result demonstrates that cardholders, even when abroad, spend increased amounts on their cards and accumulate more loyalty points. It was actually determined that 2 out of 7 clients from UAE joined the program by mid of 2016 whereas the other 5 joined early on in 2017 and redeemed their points more than once. As for the clients living in Saudi Arabia, all 6 of them joined the program in 2017 and redeemed their collected points more than once. The observed results thus lead to the non-rejection of the following hypothesis:

H_{11}: *Cardholder's accumulated loyalty points vary with respect to country of residence.*

Metric Variables

The four moments of a distribution for the remaining metric variables will be described and interpreted in this section to test the normality of the chosen sample. To name the metric variables: Frequency of redemption in 2016 and 2017, total number of points redeemed in Miles in 2016 and 2017, total number of points redeemed in Cashback in 2016 and 2017, total number of points redeemed in Gifts/Vouchers in 2016 and 2017, Gender, Average Annual income, Age, Marital status, Education level and Segmented profession and finally, the dependent variable of this study: the total spending on cards of active loyalty program members until 2017. The majority of the tested variables proved to be not normally distributed, the remaining variables were kept even though they were not normally distributed since the program at Bank X has been introduced early 2016, and the data gathered reached until end of 2017. In two years, the observations have not yet had enough time to become normally distributed, in order to display accepted ranges of skewness and kurtosis. Moreover, heteroscedasticity tests are used to check if there is a systematic variation in the error residuals across the set of measured values in a multivariate distribution. All tested variables proved to be homoscedastic as their p-values scored more than 5% on the Glejser test, except four variables with p-values lower than 5%: Cashback points redeemed in 2016 and Miles points redeemed in 2017, educational level and income range, considered heteroscedastic. Since the loyalty program at Bank X was introduced in early 2016, it was expected that the clients display different redemption behaviors across rewards categories due to lack of information about this program. In fact, before 2016, the Bank rewarded its clients only with Cashback paid by end of each year. Thus, clients joining the program from its inception were only familiar with the cashback category, and therefore frequently redeemed their collected points through it. In 2017, the clients grew more knowledgeable of the program's features and offers and hence executed further redemptions through the Miles category, explaining the heteroscedasticity of the points redemption 2017 variable. Not to mention that the clients also come from varied educational backgrounds and income levels, while it was noticed that the frequency of redemptions in 2017 scored six times higher than 2016, meaning that a lot of new clients joined the program in 2017, explaining the heteroscedasticity of these two demographical variables.

Non Parametric Tests

A variation analysis conducted on demographical variables studied such as: gender, marital status, education level, and segmented profession showed variations in the number of observations within each variable as follows: Man = 317 vs. Woman = 137; Single = 112 vs. Married = 312 vs. Divorced/Widowed = 30; Up to Baccalaureate 2 = 132 vs. Bachelor = 236 vs. Masters/PhD = 83; ADEJL = 48 vs. BEPP = 124 vs. CCOTR = 158 vs. DM = 92 vs. UN = 32. For the reader's reference, ADEJL consists of Architects, doctors, Engineers, Judges and Lawyers, all grouped under one segment of professionals. The second segment, BEPP is made of Bankers, miscellaneous employees, painters and professors, while the third one CCOTR groups the Consultants, Contractors, Owners, Traders and Real estate brokers under one profession segment. Last but not least, the DM segment consisting of Directors and Managers and the UN is for Unemployed or Retired clients.

Since gender consists of 2 main components, the Mann-Whitney non-parametric test was used for this variable. The three remaining variables were tested using the Kruskal-Wallis H-test since they are formed with more than 2 components. The discussion of the tests' results follows:

Gender: The obtained Z score (-2.161) indicates that there is variation in the total spending on credit cards among men and women, with significance of 0.031 ($p<5\%$) to reject the null hypothesis of the U-test: the distribution of Y (16-17) is the same across categories of Gender. Likewise, the t-test designates that the total spending of men ($106,885) exceeds the total spending of women ($64,595). These findings do not match with those of Sobolevsky et al. (2016) who concluded that women are likely to spend more on their cards than men do. However, as mentioned in the literature review, increased card usage leads to increased accumulation loyalty points, meaning that men tend to accumulate more loyalty points than women do, leading to retain this research's first hypothesis:

H_1: Cardholder's accumulated loyalty points vary with subject's gender

Marital Status: Concerning the marital status, the results of the Kruskal-Wallis H-test resulted in a p-value less than 5%, clearly implying that the total spending on credit cards is not the same across the different categories: single, married and widowed/divorced, thus rejecting the null hypothesis.

With the aim of depicting the differences among the single, married and divorced/widowed clients in terms of their spending on their credit cards, a Mann-Whitney U-test was conducted on each pair of categories.

The collected outcomes show that the highest Z score was observed when difference was computed between Single and Married clients (-5.102), followed by the Z score of difference between the Single and Divorced/Widowed clients (-2.789), and lastly between Married and Divorced/Widowed clients (-0.251) all at 5% significance level. The conducted t-tests indicate that married clients spent the most on their credit cards during 2016 and 2017 ($113,757), followed by Divorced/Widowed cardholders, with an average spending of $89,880 on their cards, leaving the single clients at the end with an average of $40,566 spent. The discussed above indicate that Married cardholders spend the most on their credit cards, confirming Limbu et al. 's study in 2012 that observes a higher spending on credit cards from married people, which designates that married clients accumulate more loyalty points than other marital status categories, leading to retain hypothesis five:

H_5: Cardholder's accumulated loyalty points vary with subject's marital status.

Educational Level: As for this variable, it has been first tested using the Kruskal-Wallis H-test that revealed a p-value level of 0.687 (p>5%), leading to retain the null hypothesis and proving that there is no difference in credit card spending across clients with different educational levels.

Previous studies were not able to determine the relationship between the loyalty of a bank's client and his/her educational level in terms of credit card spending. Consequently, setting grounds to reject the third hypothesis:

H_3: Cardholder's accumulated loyalty points vary with subject's education level.

Segmented Profession: Reference to the variable regarding the segmented professions of clients, the Kruskal-Wallis H-test returned with a p-value less than 5%, meaning the null hypothesis is to be rejected and indicating that there is difference in the credit cards spending across the different segments of professions in the sample, therefore the Mann-Whitney U-test was conducted on each pair of profession segments: The non-parametric test conducted on profession segments 1 and 2, BEPP and CCOTR resulted in the highest Z-Score, indicating that there is a significant variation between both segments, confirmed by the p-value less than 5%. The average total spending on credit cards for the BEPP (banker, employee, painter, professor) segment indicated $54,114 during 2016 and 2017 and revealed itself to be the lowest spending segment in this research. On another hand, the segment CCOTR, mainly including business owners, contractors, traders etc… exhibited the highest mean of total spending on their cards, at a mean of $132,449 during 2016 and 2017. Surprisingly, the second highest scoring among profession segments was the UN segment which is mainly formed out of unemployed and retired clients. This result underlines the necessity of further research to be conducted regarding this matter. In-light of the above, it is then assumed that the total spending of clients on their credit cards varies with the type of their related profession. Self-employed professionals like contractors, traders, real estate brokers…etc. tend to show increased levels of expenditure on their cards, therefore leading to augmented amounts of loyalty points accumulated through this bank's reward program. Subsequently, ***H_{10}: Cardholder's accumulated loyalty points vary with respect to subject's profession*** is then retained.

Regression Analysis: Testing the Constructed Model

The linear regression model used for this research comprised of metric variables, where some of them were originally of nominal nature and then turned into metric variables in order to integrate them in the equation.

The frequency of redemption 2016 and 2017, the total number of points redeemed in 2016 and 2017 in their respective categories and age are all metric variables and presented no issue in integrating them in the regression model. As for the variable related to gender, all men were denominated as 0 and women as 1 in the individuals' category, while in the companies' category, every observation showed N/A (not applicable) since companies have no indication on the gender and this variable was therefore omitted in the companies' category of observations. Similarly, the marital status variable was turned into a metric variable after assigning 0 to single clients, 1 to married and 2 to the widowed and divorced together. Relevant to the education level of the client, observations showing levels equal to or below Baccalaureate 2 (consistent with the Lebanese education system) were grouped under the denomination 0, bachelor levels grouped under the denomination 1 and Masters and PhD levels under 2. Last but not least, the gathered information about the professions resulted in the grouping of observations under 4 different segments: ADEJL were denominated as 0, BEPP, are denominated as 1, CCOTR are denominated as 2, DM denominated as 3 and UN, denominated as 4. Lastly, the income range of each observation has been individually clustered under one average income range group, described as below: Clients with an annual income range slightly lower or equal to $25,000 have been grouped under the first average income group: $25,000. Clients earning annually between $25,000 and $50,000 were all assembled under the second average income group of $40,000 (almost average of both extremes has been taken for each created range); clients making between $50,000 and $100,000, assembled under income range of $75,000, and earners between $100,000 and $200,000 under the range of $150,000. Similarly, clients earning annually between $200,000 and $400,000 were gathered under the 5th income range of $300,000 and finally those earning more than $400,000 and up to $600,000 per annum, were convened under the last income range group of $500,000, turning this variable into metrics.

After running the regression, the coefficients are reported in table 4.1

Table 4.1: Results of Coefficients of New Regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.896[a]	.802	.799	82927.971	1.885

a. Predictors: (Constant), AverageA.Income, gifts pts 17, gifts pts 16, cashback pts 16, miles pts 16, cashback pts 17, miles pts 17, FOR 16

b. Dependent Variable: Y (16-17)

The table above shows multiple insignificant variables to be removed one at a time, starting with the variables with the highest p-values, until p-value of all remaining are less than 5%. With each variable removed, a new regression was re-conducted to monitor the changes in the model summary and coefficients. At the 8th regression, all 8 remaining variables presented a p-level lower than 5%. These variables are hence represented in table 4.2 below, alongside their new coefficients related to this regression analysis:

Table 4.2: Final Regression and the Coefficients of Remaining 8 Variables

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	11535.396	5688.054		2.028	.043	2159.862	20910.931		
	FOR 16	-23171.631	11139.362	-.069	-2.080	.038	-41532.474	-4810.788	.408	2.453
	miles pts 16	1.216	.342	.115	3.557	.000	.653	1.780	.426	2.348
	cashback pts 16	1.840	.116	.382	15.840	.000	1.648	2.031	.763	1.311
	gifts pts 16	4.298	.699	.135	6.149	.000	3.146	5.450	.925	1.081
	miles pts 17	1.340	.042	.736	31.734	.000	1.271	1.410	.826	1.210
	cashback pts 17	.759	.101	.168	7.540	.000	.593	.925	.890	1.123
	gifts pts 17	.770	.384	.043	2.007	.045	.137	1.403	.984	1.016
	AverageA.Income	.123	.033	.090	3.766	.000	.069	.176	.786	1.273

a. Dependent Variable: Y (16-17)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	90.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	10372.788	18373.714		.565	.573	-19913.486	40659.062
	#active cards 16	-155.812	4515.794	-.002	-.035	.972	-7599.412	7287.789
	#active cards 17	337.226	4007.510	.004	.084	.933	-6268.544	6942.997
	FOR 16	-22448.053	11476.130	-.067	-1.956	.051	-41364.709	-3531.397
	miles pts 16	1.186	.375	.112	3.165	.002	.568	1.803
	cashback pts 16	1.834	.121	.381	15.145	.000	1.635	2.034
	gifts pts 16	4.205	.722	.132	5.825	.000	3.015	5.395
	FOR 17	159.095	5319.279	.001	.030	.976	-8608.928	8927.118
	miles pts 17	1.341	.048	.736	27.902	.000	1.261	1.420
	cashback pts 17	.756	.104	.168	7.265	.000	.584	.927
	gifts pts 17	.773	.390	.043	1.982	.048	.130	1.417
	Gender	6890.862	9025.061	.017	.764	.446	-7985.580	21767.303
	Age	134.620	340.178	.010	.396	.692	-426.113	695.352
	Marital Status	5466.062	8377.980	.016	.652	.514	-8343.765	19275.888
	Education Level	-6698.508	5885.085	-.025	-1.138	.256	-16399.176	3002.160
	Segmented profession	-3934.436	3856.807	-.023	-1.020	.308	-10291.796	2422.923
	AverageA.Income	.127	.034	.093	3.708	.000	.071	.184

a. Dependent Variable: Y (16-17)

To test for multicollinearity, the level of tolerance T and the variance indication factors VIF where VIF= 1/ T and T= (1-R^2) where both calculated for the remaining 8 independent variables, shown in table 4-8 as well. The absence of multicollinearity amongst the variables was verified since all Tolerance levels resulted in values above 0.2 as well as VIF lower than 10. As for R-squared (R^2), the coefficient of determination which determines the degree to which the independent variables trigger the variations in the dependent variable resulted in 0.802, signifying that the metric variables explain 80.2% of the variations in the total credit card spending per client, the dependent variable. Likewise, adjusted R-squared, which tests for the probability of increase in R^2 if additional variables were added to the regression, turned to be 0.799 or 79.9%, thus implicating that the addition of other variables to the equation will not provide further explanation for the variation in the dependent variable. The Durbin-Watson test resulted in a value of 1.882, indicating that the dependent variable is not auto-correlated to itself in time, where the tolerance area for this test is between 1.8 and 2.2. The results of R^2 and adjusted R^2 and Durbin-Watson test then validate the robustness of this model.

Discussion of the Findings

As presented in table 4-2, the results of the multivariate regression conducted on the individuals' category indicate that all remaining variables are positively and linearly correlated with the dependent variable Y: total spending on credit card of clients active in loyalty program of Bank X, except the frequency of redemption in 2016 which is negatively and linearly associated to Y. Furthermore, all resulted p-values are below 5% and presenting no multicollinearity concerns, thus allowing the analysis and testing of remaining hypotheses. The table also shows that the intercept β_0 is at 11,535, meaning that total spending of credit cardholder in 2016 and 2017 (Y) is equal to 11,535 USD when all independent variables are equal to 0. The below equation represents the final model summary of this research.

Final Regression Model

Y *(Total spending on card per Client in 2016 and 2017 in USD)* = 11,535 – 23,171 *(Frequency of Redemption 2016)* + 1.216 *(Points redeemed on Miles in 2016)*+ 1.840 *(Points redeemed on Cashback in 2016)*+ 4.298 *(Points redeemed on Gifts in 2016)*+ 1.340 *(Points redeemed on Miles in 2017)*+ 0.759 *(Points redeemed on Cashback in 2017)*+ 0.770 *(Points redeemed on Gifts in 2017)*+ 0.123 *(Average annual income of cardholder)* + Ɛ

Frequency of redemptions 2016: the frequency of redemption (FOR) in 2016 per client turned out to be negatively and significantly correlated to the dependent variable Y in a linear way with an unstandardized coefficient B of -23,171. This result indicates that for every increase of one unit in the FOR in 2016, the total amount spent per client decreases by 23,171 USD, while all other variables are held at 0. In this view, there is a significant linear relationship between the frequency of redemptions in 2016 and the total amount spent on cards in 2016 and 2017 and therefore H8 is retained: There is a significant linear relationship between frequency of points redemption by client in 2016 and client's accumulated loyalty points.

In fact, when gathering the data for this research, the management informed the researchers that the points collected by clients during 2015 were intentionally accumulated by the bank in order to give the customers the ability to benefit from the offered rewards once the program was to be introduced in 2016. Thus, during 2016, the clients were actually redeeming points collected since 2015 and the beginning of 2016 but did not have yet the ability to accumulate large amount of points by the start of the program, and therefore explaining the negative correlation between the frequency of redemption in 2016 and the dependent variable Y.

Total number of points redeemed on Miles, Cashback and Gifts in 2016: the standardized coefficients estimate of these independent variables being +1.216, +1.840 and +4.298 respectively, indicate the presence of a positive linear relationship between these three variables and total spending on cards in 2016 and 2017. The Miles, Cashback and Gifts 2016 are all combined under Points Redemption Category 2016, and therefore, the above cited results lead to the non-rejection of H6: Cardholder's accumulated loyalty points varies with respect to subject's choice of points redemption category in 2016. As a matter

of fact, all three category types proved to be positively related to the dependent variable, which signifies that the clients who redeemed their collected points during 2016 will spend more on their cards thereafter, agreeing with Verhoef (2003), stating that clients who participated in a loyalty program exhibit higher degrees of likeliness to stay loyal to the firm and willing to increase their business with the firm.

Total number of points redeemed on Miles, Cashback and Gifts in 2017: the weights of total number of points redeemed on Miles, Cashback and Gifts in 2017 displayed positive linear correlation with Y at +1.340, +0.759 and +0.770 respectively. Same as the above, these types of redemption are also pooled under Points Redemption Category 2017. The positive linear relation of this category with the dependent variable bring about the non-rejection of H7: Cardholder's accumulated loyalty points varies with respect to subject's choice of points redemption category in 2017. Remarkably, the Miles redemption category in 2017 exhibits a higher coefficient than its precedent in 2016, while the Cashback and Gifts categories coefficients decreased. While investigating the potential reasons behind these changes from 2016 to 2017, the management indicated that during 2016, the program was considered as new and was continuously under test by the customer service department to add exciting new features to its redemption categories. For instance, a new variety of gifts was uploaded to the program's website, as for the Miles, new travel destinations were added on the go with exceptional flexibility to answer the growing demand on this category. Shortly, the clients perceived the value in redeeming their points through Miles and not Cashback, thus explaining the rapid increase of this category on the account of the others, while an increase in frequency of redemption and number of new active clients in 2017 was observed, all indicating the increase of clients' loyalty to the bank through increased spending on their cards.

Average annual income of cardholder: the coefficient of this independent variable shows a value of +0.123, signifying that it has a positive linear relationship with the total spending of clients on their credit cards in 2016 and 2017, whereby the higher the income of the cardholder, the more the spending on the credit card, leading to retain another hypothesis; H4: Cardholder's accumulated loyalty points varies with respect to subject's income. This result endorses Devlin, Worthington and Gerrard (2007) literature in section 3.2 and contradicts with Danes & Hira (1990)'s study that found that lower income groups exhibit higher spending on their credit cards. Other studies that support the findings of this research include Khare (2013), Kim & DeVaney (2001) and Wang, Lu & Malhorta (2011). These findings indicate that clients with higher income are more likely to spend on their credit cards.

Conclusions and Recommendations

Summary of the Main Findings

The findings of paper revolves around the investigation of the total spending pattern per client at Bank X, a commercial bank in Lebanon, in consideration of client's gender, age, education level, average annual income, marital status, number of points redeemed per client in certain rewards category in 2016 and 2017, frequency of redemption in 2016 and 2017, profession and country of residence.

A descriptive approach on the country of residence determined the patterns of points redemption of clients in Lebanon and abroad and proved that client's accumulated loyalty points vary with respect to the country of residence, allowing to retain **H_{11}:** Cardholder's accumulated loyalty points varies with respect to country of residence.

Moreover, an analysis of variances (ANOVA) was conducted on some of the demographical variables like gender, education level, marital status and segmented profession. The most significant factors on total spending on credit cards in 2016 and 2017 per client from each variable respectively were male, married, and belonging to CCOTR profession segment, noting that the education level of the client tested as insignificant; all consequently allowing for the non-rejection of **H_1:** Cardholder's accumulated loyalty points varies with subject's gender; **H_5**: Cardholder's accumulated loyalty points varies with subject's marital status and **H_{10}:** Cardholder's accumulated loyalty points varies with respect to subject's profession and the rejection of **H_3:** Cardholder's accumulated loyalty points varies with subject's education level. The remaining metric variables were all plugged in a multivariate regression model: A

regression was conducted where 8 independent variables tested as insignificant (their p-value were above 5%).

Recommendations for Future Research

Few variables have not been included in this research, such as type of credit cards in client's possession, location of purchasing transactions, limit of credit card, and clients' other business activities with the bank. Consequently, the inclusion of similar variables in the designed model would serve as an enlargement of this research that may depict and discover other factors that affect a client's loyalty to a bank through the accumulation of loyalty points. It is also recommended to extend this research over a prolonged time period. Not to mention that the acquisition of larger and more diversified samples is recommended, as it may build upon the results of this paper and thus expose new findings in this field and add to the existing body of literature pertaining to this topic. And last, the inclusion of a factor analysis on listed variables might lead to the discovery of new factors affecting the success of a loyalty program at a bank.

On another note, the authors of this paper recommend the bank's management to invest in further modern statistical tools in order to make the process of collecting relevant data more feasible and less time consuming should the bank's strategy be changed to adapt to the changing needs of the clients and the ongoing ups and downs of the financial industry in Lebanon. The adoption of similar software arms the bank with unrivaled flexibility to shift from traditional marketing efforts to more sophisticated campaigns targeting specific client segments in order to increase customer loyalty.

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Psychological Contract and Confidence of Employees in Employers: Assessment of Labour Relation Conditions

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Abstract

The growing instability of labour markets, restructuring and job cuts, precarious employment and the flexibilization of personnel, cause the growing role of the psychological contract and employee confidence in the employer in modern labour relations. Based on some results of a sociological survey conducted annually among workers from five countries with different models of economic development, we examine the question: how the existing conditions of labour relations between employees and employers affect the fulfilment of the explicit and implicit aspects of the psychological contract. Based on the theory of the psychological contract and the transitional concept, we have examined the causes of inconsistencies in mutual expectations of both employees and employers, leading to mistrust, uncertainty and erosion in labour relations. The empirical data obtained in 2015-2017 from the survey of workers in different sectors of the economy allow us to define various forms of violations of the psychological contract, to make a comparative analysis of the trends in the studied countries, to identify similarities and differences. The article concludes that it is necessary for managers to understand the need to take into account the factor of trust when developing a strategy for managing human resources and the importance of the role of a psychological contract in personnel management.

Keywords: labour relations, psychological contract, trust, transitional contract

Introduction

Technological, social and economic developments, such as the need for the increased flexibility by both employers and employees, have resulted in the emergence of new forms of employment. These have transformed the traditional one-to-one relationship between employer and employee. They are also characterized by unconventional work patterns and places of work, or by the irregular provision of work.

The relationship between the individual and the company is divided into different connected dimensions:

- legal-contractual (given by the type of contract);
- social (linked to the personal / internal personal situation of the person);
- psychological (made up of mutual expectations);
- economic (synallagmatic exchange);
- emotional (emotional ties with the company, the group and other individuals).

On the basis of these elements the concept of organizational balance (Simon, 1997) arises, according to which the person will continue to work and to give a certain level of commitment (contribution) until he receives exchange of incentives and remuneration deemed fair.

People and the company establish relationships to meet each other's needs and achieve their goals. From an organizational point of view, the aforementioned 5 dimensions can be further classified as follows:

- exchange relationships (they involve transactions of goods and services: they are governed by economic utility);
- relations of power (one party can impose one's own will / interests to another, imply capacity / will to influence, are fundamental to internal organization, hierarchy relies on the asymmetry of power and conditions of superordination / imposition vs subordination / obedience);
- sharing relationships (the parties share information, knowledge, ideas, feelings and emotions, is the concept of "rowing from the same side").

It is commonly known that the interests and objectives of individuals do not always coincide with those of the organization; each of the three dimensions can therefore become a source of tension that determines critical issues in the relationship.

Given the particularity of the employment contract, the company cannot - except in special cases - specify a priori all the required behaviour. In the employment relationship, the term contract is used not only in technical-legal terms, but also symbolic (concept of psychological contract). The same concept of transaction extends to the exchanges of energy, information, knowledge, values, symbols, objects, consensus that intervene between the parts of the relationship. There is therefore a need to integrate the economic and the psycho-social and cultural dimensions, which implies a shift from the organizational structure and from the management / operating systems / mechanisms to the people. Possibility to identify self-control mechanisms / individual activation that push people to operate in the interest of the organization. Particularly important are the concepts of psychological contract, commitment, identification and involvement for the purposes of sharing relationships (Dolzhenko, Ginieva, 2015, Khanaeva, Lysenko, 2016, Mingaleva et al, 2017).

The psychological contract (PC) refers to an inner disposition to fulfil a technical-legal obligation or to live an organizational or social relationship with a spirit of collaboration, trust and a strong commitment so that the implicit and explicit expectations are satisfactory for both parties involved. The PC is based on the tacit elements of the employment relationship and represents the psychological leverage of the individual–organization bond (Table 1). The PC tends to increase the intensity of the link and to reduce the uncertainty about the roles played by different people, self-regulating personal investments on the organization (motivation "to give more").

As Guest et al (1996) noted, while employees' expectations remain the same (security, career, fair salary, interesting work, etc.), employers no longer consider it possible or obliged to provide all these benefits. On the contrary, they require a greater contribution from their employees and a tolerant attitude towards uncertainty and change, providing less in return, especially fewer guarantees and more limited prospects for career development.

It should be emphasized that the readiness or not the readiness of an employee and employer to comply with all the conditions of labour or psychological contracts depends on the balance of "trust - mistrust" in

their relations. It is trust that serves as the basis for mutual understanding and consent, and an indispensable condition for the delegation of authority, successful teamwork and, undoubtedly, determines efficiency.

Thus, it should be said that, at its core, the functions of the psychological contract are to ensure the predictability and reliability of labour relations based on trust and mutual obligations, which together enhance each other's actions. Therefore, it requires a deeper understanding and research of the processes taking place in the sphere of labour relations necessary to develop effective personnel strategies and more flexible, and therefore more relevant to the current situation of personnel policies.

Table 1: Typical obligations and expectations within labour relations

Employer-type		**Employee-type**	
bonds	**expectations**	**obligations**	**expectations**
- training - career - remuneration - proportionate to the results - good working relations - intrinsic contents of the work - fair treatment - security of the place	- commitment - competence - efforts - subordination - fidelity	- defend the company's image - work in a team - share the objectives - provide an acceptable performance - do not leave the organization before a certain time - be reliable and responsible - respect colleagues - accept changes and acquire new skills - availability for transfers and mobility - do not help the competition - availability for continuous improvement	- confidence in the company keeping its promises; - fair, equal and stable treatment of the employees; - employment guarantee; - opportunity to demonstrate competence; - expecting career growth and conditions for skill development; - inclusion into the labour process and opportunity to influence
TRUST			

Methods

The theory of the psychological contract, which is the basis for this research, distinguishes two main types: transactional and relational. Transactional contracts contain terms of exchange that can be specified in monetary terms, have a specific character, influence the employee's behaviour in the short term and significantly influence the formation of staff loyalty. Relational contracts refer to conditions that affect the relationship between an employee and an organization. The characteristics of this type of psychological contract are: a) stability: the employee is ready to perform all job duties to keep the job; the employer seeks to offer stable salaries and long-term employment; b) loyalty: the employee supports the company, demonstrates loyalty and commitment to its needs and interests, to be a good "citizen" of the organization; the employer seeks to support the welfare and interests of workers and their families (Quinn et al, 1996).

In practice, psychological contracts cannot be strictly divided into transactional and relational ones, since both are present. In addition, one should take into account the existence of a so-called transitional

contract, which in itself is not a form of a psychological contract, but becomes a reflection of the consequences of organizational changes and transformations that are in contradiction with previously established labour relations (Rousseau, Wade-Benzoni, 1994).

The empirical basis of the research, presented in the article, is the result of annual sociological surveys conducted by the authors in five countries. This paper presents a part of an on-going longitudinal research aiming at examining changing human resource management practices, as well as the underlying conditions of the transformation of the socio-labour sphere.
The comparative analysis is based on a survey carried out in five countries in 2015-2017. The survey consists of a number of questions which the respondents had to answer in a set format. The questionnaire includes ordinal-polytomous and dichotomous closed-ended questions with the open-ended options in some of them. The information was collected on random samples of companies from different sectors of the economy. The cross-country survey was conducted in cooperation with 1819 employees (in 3 years) in the Czech Republic – 374, Italy – 238, Latvia – 310, Pakistan – 420, and Russia – 477.

In total, the majority of them work in services (30.2%); with the others being involved in manufacturing (14.4%) and energy production (6.9%), trade (11.4%), education (6.6%), construction (6.1%), finance (4.9%) and others (19.5%). The aggregate sample of the respondents includes: 40.7% specialists; 20.8% manual workers; 18.0% line personnel; 11.5% middle managers; 4.4% top managers and 4.6% trainees. The survey covered 47.7% of men and 52.3% of women. The age structure of the respondents can be divided into two groups consisting of young people up to 35 years old (51.0%), and the rest in the 36-50 age group (49.0%).

Results

The balance of the psychological contract ensures the optimal correlation between explicit and implicit obligations and expectations. It leads to keeping promises by both sides of the employment relationship. It seems obvious that employers, who are interested in improving the efficiency of the work of personnel, should avoid obvious violations of their obligations to employees. Nevertheless, our survey shows that the problem remains relevant. Despite the decrease in the share of respondents in Italy, Latvia and the Czech Republic, who face dishonesty of employers, in the countries like Russia and Pakistan the number of dishonest employers even increased, according to the respondents' estimates (Fig. 1).

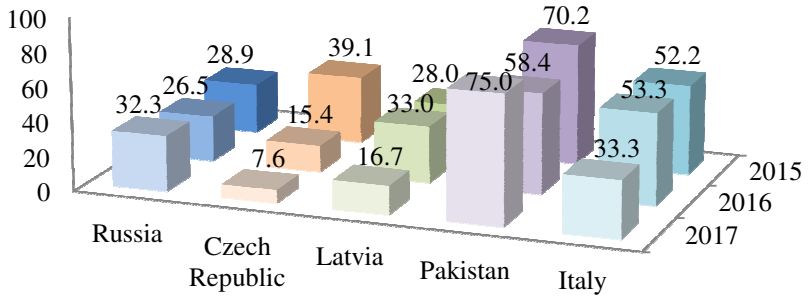

Fig. 1: The responses given to the question: "*Have there ever occurred cases of infringement, by the employer, of the terms of your agreement/contract with him/her?*", % of the respondents

The discrepancy between what is said and what is done undermines trust, generates a cynical attitude on the part of workers. Violation of the psychological contract is a destruction of confidence, leading to a

renunciation of obligations. If one of the parties does not keep its promises, the psychological contract is recognized as invalid, which inevitably results in a reduction or total refusal of obligations when employees no longer consider the continuation of the relationship as beneficial or promising.

Maguire identifies three main factors of fairness, which lead to a breach of the psychological contract if it is violated:
1) fairness in distribution, arising from the fulfilment of exchange obligations, which, as a rule, are reflected in concrete monetized results,
2) procedural fairness, perceived as the fairness of the procedures by which results are assessed,
3) fairness in interactions as a consequence of the evaluation of interpersonal relationships in the performance of the contract (Maguire, 2003).

When the respondents' were asked to clarify which obvious violations of the employment contract they encountered, they provided answers that helped to distribute these factors in the following way (Table 2).

Table 2: The responses given to the question: "*What form, exactly, did infringement, by the employer, take?*", % of the respondents

Response options	Countries														
	Russia			Czech Republic			Latvia			Pakistan			Italy		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Increase in the workload without a corresponding increase in wages	43.3	48.8	27.5	32.0	18.8	0.0	57.1	66.7	3.4	27.3	11.4	13.3	41.7	48.0	44.4
Non-payment of additional compensation for overtime	33.3	31.7	13.8	12.0	12.5	7.7	50.0	18.2	17.2	12.1	14.2	16.0	25.0	36.0	16.7
Failure to grant holiday time	16.7	17.1	10.0	12.0	25.0	23.1	35.7	3.0	34.5	24.2	21.4	12.7	8.3	12.0	5.6
Non-payment of the promised remuneration	30.0	9.8	7.5	4.0	25.0	15.4	21.4	6.1	6.9	0.0	7.1	16.7	33.3	20.0	0.0
Unjustified reduction of salary	20.0	22.0	7.5	0.0	6.3	0.0	21.4	6.1	10.3	27.3	17.1	8.0	16.7	8.0	11.1
Unreasonable delay in the payment of salaries/ wages (period of up to 1 month)	1.7	2.4	7.5	36.0	25.0	53.8	14.3	9.1	20.7	0.0	7.1	12.0	8.3	20.0	0.0

Unreasonable delay in the payment of salaries/ wages (period of more than 1 month)	6.7	12.2	8.8	8.0	0.0	0.0	7.1	3.0	0.0	9.1	11.4	4.7	33.3	20.0	0.0
Wrongful [unlawful] dismissal	10.0	2.4	6.3	16.0	0.0	7.7	0.0	6.1	6.9	0.0	10.0	16.7	33.3	20.0	22.2

The violation of fairness in the distribution can be observed in the responses of respondents in all the countries surveyed. Although the situation in these countries is not the same, it can nevertheless be identified as the most mentioned by all respondents are: the increase in the workload without a corresponding increase in the monetary compensation; not compensating for extra hours; and not providing proper holidays. However, we observed a generally positive trend of a decrease in such violations of employers' obligations for the period under study. By contrast, in the Czech Republic and Pakistan, the number of respondents' complaints about non-payment of the promised remuneration increased (from 4.0% in 2015 to 15.4% in 2017 in the Czech Republic, from 6.1% in 2015 to 16.7% in 2017 in Pakistan), as well as unreasonable delay in payment of wages for a period of up to 1 month (from 36.0% in 2015 to 53.8% in 2017 in the Czech Republic, from 0% in 2015 to 12.0% in 2017 in Pakistan). Also, the problem of unjustified delay in payment of wages appears to be growing in Russia (from 1.7% in 2015 to 7.5% in 2017) and Latvia (from 14.3% in 2015 to 20.7% in 2017).

Some forms of violations of procedural fairness are revealed in the respondents' answers to a question about management decisions that had a negative impact on the well-being of employees participating in the survey (Table3).

Table 3: The responses given to the question: "*What leadership decisions, which were taken over the past year, have an adverse effect on your well-being?*", % of the respondents

Response options	Countries														
	Russia			Czech Republic			Latvia			Pakistan			Italy		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Restructuring of my department and / or the company as a whole	18.2	12.9	20.3	34.4	25.0	13.5	18.0	8.0	10.0	14.9	12.5	12.5	13.0	20.0	40.0
Reducing my salary/wage	19.6	39.4	22.4	14.1	11.5	2.9	12.0	21.0	15.6	25.5	16.7	14.0	34.8	24.4	6.7
Forced reduction of working hours (against my wishes)	7.7	12.9	10.4	17.2	1.9	0.6	16.0	13.0	20.0	34.0	20.8	19.0	21.7	31.1	6.7

The reduction, or elimination, of a social package	7.7	3.2	7.3	10.9	13.5	6.5	16.0	6.0	3.3	6.4	15.0	10.0	13.0	24.4	16.7
Forced and unpaid holidays (against my wishes)	4.3	3.9	7.3	6.3	0.0	1.8	0.0	7.0	3.3	19.1	25.0	27.0	4.3	15.6	6.7
Other	46.4	29.0	37.5	25.0	46.2	74.7	52.0	43.0	62.2	0.0	0.0	17.5	0.0	0.0	36.7

The results of the sociological survey show that the respondents of all the countries surveyed most often note the restructuring processes as reducing well-being in the workplace. It should be noted that if in the Czech Republic, Latvia and Pakistan the number of respondents' indications for this period has decreased during the period under study, then in Russia there is a slight increase (from 18.2% in 2015 to 20.3% in 2017), and in Italy - their significant growth from 13.0% in 2015 to 40.0% in 2017).

The second significant problem is the reduction in wages, which, according to respondents' answers, was particularly pronounced in Russia in 2017 (22.4%), Latvia (15.6%) and Pakistan (14.0%). Respondents from the same countries note such factors as the forced reduction in working hours (from 16.0% in 2015 to 20.0% in 2017 in Latvia, from 7.7% in 2015 to 10.4% in 2017 in Russia, and from 34.0% in 2015 to 19.0% in 2017 in Pakistan). In Italy and Pakistan, the number of respondents dissatisfied with the reduction or abolition of the social package increased from 13.0% in 2015 to 16.7% in 2017 in Italy, and from 6.4% in 2015 to 10.0% in 2017 in Pakistan. Negative trends towards an increase in the responses related to the forced and unpaid leave of the interviewed workers are visible in Pakistan (from 19.1% to 27.0% in 2015-2017), in Russia (from 4.3% to 7.3% in 2015-2017), in Italy (from 4.3% to 6.7% in 2015-2017), and in Latvia (from 0% to 3.3% in 2015-2017).

Among the factors associated with the violation of the implicit conditions (assumptions) of the psychological contract, leading to feelings of injustice, disappointment, a decrease in the activity of the employee, and the productivity of his work, in our opinion, it is necessary to single out such conditions in the workplace that cause workers negative emotions and emotions. Due to the good, trustworthy relations with colleagues and management form an important part of the psychological contract. Their absence in the workplace is a violation of fairness in the interactions.

The distribution of respondents' answers to the question about sources of irritation and negative emotions in the workplace gives an idea of the forms of violations as obvious (working hours, working conditions, good relations in the team), and implicit (balance between work and personal life, personal well-being, cooperation and peer support, fair guidance) aspects of the psychological contract (Table 4).

Table 4: The responses given to the question: "*What is the source of your anxiety and negative emotions in your current job?*", % of the respondents

Response options	Countries														
	Russia			Czech Republic			Latvia			Pakistan			Italy		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Irregular working hours	19.9	16.8	16.1	40.6	29.8	20.0	26.0	22.0	16.7	6.4	10.0	3.5	13.0	15.6	20.0
High stress levels in the workplace	22.7	39.4	24.0	4.7	1.9	0.0	32.0	26.0	43.3	10.6	16.7	11.0	13.0	20.0	26.7
Excessive levels of stress and tension at work	19.0	20.0	19.3	35.9	8.7	0.0	30.0	21.0	13.3	14.9	0.0	3.0	0.0	13.3	10.0
Difficulty in combining work and personal life	16.6	18.1	16.1	46.9	29.8	28.8	14.0	12.0	7.8	0.0	6.7	2.5	34.8	28.9	40.0
Professional incompetence of the management	13.7	7.1	14.1	28.1	19.2	23.5	14.0	6.0	4.4	4.3	4.2	9.0	21.7	28.9	3.3
The complete absence, or insufficient levels of, company care about its employees	15.2	12.3	12.5	9.4	12.5	18.8	18.0	9.0	5.6	6.4	8.3	12.5	21.7	11.1	10.0
Negative (destructive) personality traits of the manager	13.7	11.0	11.5	12.5	5.8	1.2	10.0	9.0	8.9	6.4	8.3	17.5	34.8	28.9	20.0
Psychological pressure from the part of management	9.5	11.6	7.8	17.2	14.4	11.2	14.0	11.0	8.9	8.5	0.0	1.0	8.7	11.1	7.8
Bad conditions in the workplace	14.2	22.6	24.5	10.9	8.7	9.4	14.0	17.0	30.0	0.0	16.7	5.0	4.3	17.8	13.3

High staff turnover in organization	10.4	16.8	26.6	4.7	12.5	12.9	10.0	10.0	7.8	10.6	10.0	8.0	13.0	13.3	3.3
The complete absence of, or poor levels of, cooperation with the leader	8.5	5.8	12.5	7.8	25.0	18.8	8.0	3.0	5.6	8.5	8.3	12.5	13.0	15.6	10.0
The complete absence of, or poor levels of, cooperation with colleagues	4.3	7.1	7.8	3.1	7.7	11.2	6.0	5.0	10.0	4.3	12.5	10.0	21.7	20.0	6.7
Psychological pressure from the part of colleagues	2.8	5.2	9.9	9.4	6.7	4.1	2.0	3.3	18.9	8.5	8.0	11.0	4.3	8.9	0.0
Excessive competition among members of staff	3.8	3.9	10.9	0.0	6.7	1.2	4.0	4.0	10.0	10.6	0.0	5.0	8.7	8.9	6.7
Other	17.5	8.4	7.8	0.0	1.9	8.8	18.0	8.0	14.4	0.0	0.0	0.0	17.4	0.0	10.0

Long working hours, as well as a high level of stress and labour intensity, are among the violations of the psychological contract, which were the most frequently noted by respondents. Particularly noteworthy is the fact of the current negative trend in Italy: the number of responses increased in all designated positions during the period under study. Respondents of Russia, Latvia and Pakistan are more concerned about poor working conditions. The distribution of their responses in the period under study reflects a trend of worsening the situation. Thus, the share of those who noted the bad conditions in the workplace in Russia increased from 14.2% to 24.5%, in Latvia from 14.0% to 30.0%, and in Italy from 4.3% to 13.3% in 2015 and 2017, respectively. It is also necessary to pay attention to the factor of insufficiency/absence of care about employees by the company. According to respondents' answers, the situation is deteriorating in the Czech Republic (from 9.4% in 2015 to 18.8% in 2017) and Pakistan (from 6.4% in 2015 to 12.5% in 2017).

The list of violations of the implicit aspects of the psychological contract is led by the difficulty of maintaining a work-life balance. A significant part of respondents' answers is related to relations between employees and managers. Here, the spectrum of problems that determine violations of the psychological contract from the managers is revealed. For example, in 2017, almost a quarter of Czech respondents noted the professional incompetence of managers (23.5%), a fifth of respondents indicated a lack of cooperation with management (18.8%) and psychological pressure from managers (23.5%). Italian respondents (20.0% in 2017) are worried about the destructive character traits of managers. Employees of Russian organizations in 2017 more often than other respondents indicated problems of lack / insufficient cooperation with colleagues (7.8%), psychological pressure on their part (9.9%), and excessive competition between employees (10.9%).

The concept of a transitional contract allows us to look at the phenomenon from still another angle. Distinctive features of the transition contract are: a) distrust: the employee believes that the firm gives inconsistent and contradictory signals about their intentions, and does not trust the company; the employer does not give important information to employees and does not trust their employees;

b) uncertainty: the employee's expectations regarding the nature of their own obligations to the firm are uncertain; the employer believes that the position of the employee is uncertain in relation to the employer's future obligations towards him;
c) erosion: the employee expects to receive less future income from his contribution to the firm in comparison with the past and fears job-cuts in the future; the employer implements changes that reduce the employee's salaries and benefits, undermining the quality of working life compared to previous years (Rousseau, 2000).

Mistrust, uncertainty and erosion can manifest themselves in various forms. Some of these forms are reflected in the respondents' answers to the question about the presence of threats at the workplace for the future of their professional activities (Table 5).

Table 5: The responses given to the question: "*What type of threats to your future exist in your current job?*", % of the respondents

Response options	Countries														
	Russia			Czech Republic			Latvia			Pakistan			Italy		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Decline in job satisfaction	24.3	25.2	18.2	60.9	35.6	29.4	36.0	12.0	47.8	2.1	12.5	5.0	34.8	26.7	13.3
The absence of professional development	23.8	23.9	19.3	14.1	18.3	11.2	20.0	17.0	4.4	25.5	12.5	16.5	43.5	42.2	36.7
Reduction of wages/salaries and other, non-pecuniary, benefits	25.2	32.9	19.3	32.8	9.6	6.5	26.0	26.0	27.8	12.8	12.5	11.0	30.4	22.2	6.7
Job loss due to the economic crisis	20.5	27.1	26.6	17.2	7.7	1.8	26.0	42.0	35.6	8.5	16.7	15.0	60.9	44.4	40.0
Deterioration of one's physical health in the workplace	24.8	25.2	18.2	10.9	6.7	2.4	22.0	32.0	23.3	17.0	12.5	14.0	4.3	13.3	10.0

Loss of psychological equilibrium due to uncertainty in the future	8.1	11.6	8.3	17.2	22.1	15.9	18.0	23.0	21.1	17.0	8.3	14.5	43.5	35.6	13.3
Job loss due to the high level of competition among colleagues	3.3	3.9	14.6	7.8	10.6	6.5	2.0	6.0	8.9	17.0	8.3	24.0	7.8	4.4	0.0
Other	14.3	5.2	13.5	1.6	6.7	37.1	6.0	1.0	5.6	0.0	0.0	0.0	1.6	0.0	13.3

The decrease in job satisfaction, the lack of professional development, the reduction in the size of remuneration and the fear of losing their jobs due to the economic crisis are significant factors in the formation of the employee's distrust of the employer, uncertainty and erosion. The results of the survey in the countries studied are unequal. For example, the share of respondents' answers in Latvia regarding the decrease in job satisfaction in 2015-2017 increased from 36.0% to 47.8%, respectively. Despite the fact that in the Czech Republic this indicator decreased during the period under study, but still remains significant in 2017 (29.4%). The Italian respondents (36.7% in 2017) are more concerned about the lack of professional development. More often than not, the participants of the survey in Latvia (27.8% in 2017) and Russia (19.3% in 2017) reported a decrease in the amount of remuneration and benefits. The loss of work due to the economic crisis is of concern to respondents in all the countries surveyed, with the exception of the interviewed workers of Czech organizations. At the same time, in Latvia, Russia and Pakistan, the deteriorating situation for 2015-2017 is noticeable: from 26.0% to 35.6%, from 20.5% to 26.6%, and from 8.5% to 15.0%, respectively.

You cannot leave out the factor of expectation of workers to check their health regularly in the workplace. As the respondents in the countries surveyed show, this expectation is often not justified, and workers suffer from deterioration in their physical and psychological health. On the general background, respondents in Latvia are particularly noticeable, a fifth of whom in 2017 indicate both deterioration in physical health (23.3%) and a loss of psychological balance due to uncertain future (21.1%).

Conclusion

Today, many researchers say that the management of employee motivation essentially means managing the expectations of employees about what constitutes the main conditions of employment: fair pay, comfort in the workplace, good relations with colleagues, leadership impartiality, career, and training. According to Shaw (1997), trust is the belief that those whom we depend on will meet our expectations. Trust, as the basis of a psychological contract, should be considered as the social capital of an organization (Quinn et al, 1996). Trust is created and supported by the behaviour of managers and by improving mutual understanding of employee expectations from employers, and vice versa. The strategy for creating a climate of trust should be based on the understanding that workers would rather trust management if the leaders: 1) really mean what they say, 2) do what they say, i.e. their words do not disagree with the deeds, and 3) fulfil the terms of the agreement: keep the word and fulfil their part of the obligations.

The results of the research presented in the article indicate that violations of the psychological contract are found in different countries, regardless of the model of economic development used. It should be noted that the three-year monitoring period is not sufficient for far-reaching conclusions, so we can only talk about intermediate results. It can be argued that, given the growing instability of labour markets, the precariousness of employment and the flexibilization of personnel, the task of developing a climate trust strategy is being updated in the company, since this issue is directly related to the efficiency of hired personnel, with its willingness to demonstrate high performance and commitment to the organization, even not being the staff member with a long-term employment contract.

Obviously, the failure of employers to keep their promises and commitments to employees is a key problem, especially for such countries as Pakistan and Russia, where the problem for 2015-2017 only worsened, as well as Italy. Violations of the explicit and implicit aspects of the psychological contract, like the worker's distrust to the employer, uncertainty and erosion, are manifested in labour relations in many forms. In our opinion, there is an urgent need to achieve an understanding of the management of companies of the increasing role of the psychological contract, the importance of considering the factor of trust as social capital in the practice of human resource management.

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Open government between E- governance and social media

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Abstract

Romanian public institutions are recently involved in social media. A guide to the use of social media tools addressed to Romanian public administration employees emphasizes that the reluctance of public institutions to use social media is due mainly to the lack of training in this field. Sharing knowledge in the public sector is governed by strict rules, a clear sense of hierarchy with fixed reporting structures, standard operating procedures and laws, thus limiting the free flow of information along organizational boundaries.
he most commonly used technology-based communication channels are sites that typically run static information, offering limited interaction between citizens and institutions. In this context the main research questions of this study were established that new perspectives on how to put the community at the heart of decision making in government. We have tried to answer a series of questions about real citizen participation in the decision-making process and measure the potential for participation at Community level to see if citizen participation really works within government practice.
The main conclusion of our study was that eGovernment can deliver benefits by increasing transparency, and open governance involves social environments beyond opportunities and benefits requiring in-depth research not technically on the challenges of eGovernment, but rather socially as a perspective and paradigm shifts.

Keywords: e-Governance, open government, social media

Introduction

E-governance and digital governance are terms used to describe the use of information and communication technologies (ICT) to improve public services and increase citizens' participation in democratic governance (Alshehri, Mohammed;Drew, 2010). e- Governance was the dominant term in policy making in the European Union (EU); the term focuses on user-centric services that can be integrated to support the easy and efficient use of public services by citizens and businesses. And the benefits of economic growth policy are observable by increasing the quality of life and social welfare (Bodislav, Bran, & Petrescu, 2018).

However, recently, some researchers have proposed the term digital governance, a concept that extends the eGovernment model based on the notion of new services that can support the "open data" of the public sector as well as the community of public authorities and civil society that can develop. However, in line with the Single Digital Strategy for the European market, the term eGovernment is preferable. But there are also opinions that conclude that eGovernment is the cause of globalization and should be treated with reserve. (Burlacu, S., Gutu, C., & Matei, F. O. ,2018)

Various authors have developed interaction models for eGovernment and service delivery. Some models have four different phases or different types of interactions, others have five, but there is a high degree of consistency for at least three initial:

1) information (where citizens are given information such as downloading reports and brochures from websites);
2) interaction (where citizens have the ability to ask questions, complain, or search for sources of information);
3) transactional (where users can complete online all the different steps of a complex interaction).

One or two additional steps can be considered participatory (where citizens contribute to policy formulation); transformation or integration (when the internal governmental organization is changed due to the need to provide services in an integrated customer-based environment) and connection (combining the characteristics of both). In addition, interactions on eGovernment are sometimes categorized according to interactions between the government and other entities. Thus, government interaction with citizens is also called G2C (an example would be when citizens record income from corporate tax) . G2B is the interaction between governments and business (for example, when companies request authorizations) . Another type of interaction is G2G or interaction between governments.

These issues are important because IC & T transforms our society, future interactions with governments will become more and more online. The Boston Consulting Group conducted a survey in 2013-2014 among users in developed countries as well as in developing countries. The poll reveals that one-tenth of citizens have made online transactions and it is estimated that by 2020 one-third of transactions will be made online. Today, we can say that these predictions have been exceeded and more than half of the transactions are made online, and in some situations, such as company reports, they are made exclusively online.

Problems Identified

It is known that IT&C provides tools for fast and efficient data processing, including in public administrations, and efficient public services can lead to significant cost savings and the development of new types of services at the same cost. In 2012, the European Commission estimated that all EU public administrations using electronic procurement procedures could save at least EUR 100 billion a year and that eGovernment (online communication between citizens and governments) could reduce the cost of a 15- 20%. With an electronic tax system, it is estimated that Austrian tax authorities saved 2 EUR per transaction compared to conventional processing costs(Popescu, Pușcă, Enescu, & Petrovszki, 2009) (Cliza, 2011).

The cost reduction is enhanced by a strategy known as "digital default". The "digital by default" services are designed from the outset to be so compelling that anyone who can use them will choose to do so. This means that the vast majority of transactions will be managed electronically. Only a minority of citizens will have to communicate with the government through more expensive channels, such as paper forms, correspondence, face-to-face interaction in an office or on the phone. For example, the government's digital strategy, Britain estimates at that around 18% of its population, if necessary, will be helped by an "assisted digital service" where intermediaries act as an interface between the citizen and the digital service. Moving a variety of services on digital channels is ra expected to save the government to spend between 1.7 and 1.8 billion pounds per year. The European Commission estimates that a strategy of "digital default" could save between 6.5 and 10 billion per year at EU level.

More important than reducing government costs, however, is the opportunity to reduce administrative burdens. Administrative burdens are the costs that citizens and businesses have to meet the information and registration requirements established by government regulation (Cliza ., 2011, pp. 34-35). These costs can be reduced, making them faster and less expensive for citizens when they meet their obligations, such as license applications or tax payments. Reducing time and

effort is possible due to the convenience and speed of providing online information, integrated tools, ICT processes and the reorientation of information provided by citizens and businesses.

In a Eurobarometer survey , more than two-thirds of respondents noticed over the past three years introducing an option for their company to fill government forms on the Internet. Although not necessarily due to online services, four out of 10 respondents said they saw a reduction in time and effort needed to complete government forms, and one in four government departments responded more quickly. The amounts saved by reducing the administrative burden were also significant. For example, we estimate that at SIMPLEX program for administrative simplification and e-government in Portugal has generated savings of 56.1 million euros for citizens and businesses.

In reducing administrative burdens, two commonly discussed strategies are of particular importance:
- *"one time" recording of data* , which means that organizations and citizens need to provide common information only once. The information previously provided is reused for other applications, thus reducing the amount of work the citizen has. For example, data on the address or residence of a person entered as part of a driving license application could be used when seeking social assistance. Another advantage is that when a citizen connects to a public site, information navigation or functions can be personalized, saving time and effort. The European Commission estimates at that less than half of cases (48%), public administrations reuse information you already citizens or companies. Of course, public authorities need to take the necessary steps to adequately protect themselves data with character personal and to share data safely between different agencies, departments, or levels of government. However, the implementation of this EU-wide approach, with adequate data protection, should save around € 5 billion per year.

- *an approach such as "entire administration"* would be a complement to the unique strategy. In this approach, various public agencies work in their portfolio to create an integrated response to program management and service delivery. For example, a citizen reporting a death may need to contact a wide variety of different governmental actors, including the tax authority, the pension department, other social security administrations, the management agency, the passport office, and the local authorities. Similarly, someone who wants to set up a business may have to contact a number of public administrations to get the necessary records and permissions. An "entire administration" approach would aim to simplify these processes for end-users by coordinating the needs of the public authorities concerned, reducing duplication and integrating ICT-based services.

The State of Knowledge in the Field

According to some researchers, social media tools challenge a paradigm of traditional "exchange of information" and should increase the participation of all stakeholders in the process of creating, maintaining, delivering and sharing knowledge. Thus, social environments create the opportunity to increase the transparency of governmental structures by designing an environment to reduce corruption (Schein, E. H., 2004).

Although the social media offer great opportunities, given the increased transparency in public administration, there are many challenges the institutions need to overcome to successfully implement this new way of communicating. There are researchers who point out that lack of organizational resources can lead to confidentiality issues (for example, citizenship or anonymity on Twitter or Facebook when public authorities are contacted).
These issues are important, and public entities should address them before engaging in social media communication. In addition, Hoffmann (et al., 2014) points out that social media training depends on technological acceptance and digital trust at the employees' level.

To encourage public institutions in Romania to use social media, three different projects were initiated, each with its own approach:

1. Prepare the national e-Administration system in Romania. This project focuses on the provision of social services by public administration employees, as well as other specific tools for digitized governance.

2. Transparency and quality in public administration through social networks. This project involves a research report on how social media can contribute to increasing public engagement.

3. Digital Diplomacy. It is a long-term project designed to promote best practices in integrating new media communication strategies of public institutions.

At present, the principle of open government has become a major concern of public institutions and public managers due to the need to modernize and reform the public administration due to resource constraints and lack of accountability of public institutions. A good example in Romania is the National Institute of Statistics (INS). Since January 2014, NSI has implemented a communication strategy based on social media tools. In accordance with the guidelines of best practices in public administration, INS is now among the top institutions in Romania with a notable presence in the system.

The principle of open governance was introduced by the Treaty of Amsterdam in European administrative law. Article 1 of this law states that all EU institutions must make decisions open to citizens, who should be involved in government decisions. The draft treaty a Constitution for Europe (European Council, 2004) also provides, in Article 47: "The institutions, by appropriate means, give citizens and representative associations the opportunity to make known and to change public opinion in all fields action ... maintaining an open, transparent and regular dialogue with representative associations and civil society ". By introducing these principles into practice European public institutions, it has imposed a new approach to government institution.

It is important to note that the principle of open government has two distinct components. The first component concerns citizens' access to public information reflected in the principle of transparency. The second component relates to the mechanism and methods of participation of citizens in decision-making public institutions. Therefore, it is important to make a clear distinction between the principle of open administration and transparency, the first being wider than the second. Thus, from this point of view, transparency can be seen as a first step in the opening of the local public administration (Matei, A., & Iordache, L.,2016)..

Hilgers and the IHL have noted that transparency, involvement and reliability are just some of the benefits of so-called "open government projects" aimed at high citizen participation in solving public issues and creating value (Hilgers, D., & Ihl, C. , 2010).

Thus, public management should understand how to put such mechanisms and methods in the practice of public administration to increase citizen participation value in creating a public agenda that integrates programs and projects with EU support important services targeted for the public and broader community well informed and involved, which should be more support.

According to the OECD vision, citizen involvement in the opening of public administration has three components (Cliza, 2011):

1) access to information, understood as an essential condition for passive access to information at the request of citizens and active measures for disseminating information to citizens;

2) consultation, understood as a "mutual feedback relationship between citizens and government;

3) active participation is understood as a new frontier, a relationship based on the partnership between government and citizens actively involved in defining and structuring the policy-making process.

On the other hand, in line with the open US vision, this concept also includes three components:

1) the US government should be transparent by providing citizens with information about what their government is doing;

2) The US government should be participatory, involving citizens in the governance process, in order to increase the efficiency and quality of the decision-making process;

3) The US government should work together, involving Americans in the work of their government.

Analyzing these views on building the concept of open administration, one can see that there is a direct relationship between the concept of open public administration and that of citizen participation, the second being the basic element of the implementation of the first concept. A team of foreign researchers also highlighted the relationship between open and participatory concepts that open government implementation requires citizens who are motivated and committed to contribute to and participate in "open government projects." .

Regardless of the vision or the richness of the national legislative framework, the opening of local administrative institutions and the participation of citizens are still debated in the practice of local public administration and among scholars. Perhaps the most effective way to set the direction of public administration actions in community involvement has been highlighted. This is not necessarily represented by comprehensive legislation regulating these issues, but rather by professionals (public administrators and civil servants) experienced in public domain management.

On the other hand, Yetano, Royo, & These in 2010 suggested that legislation contributes to the promotion of advanced citizens' participation initiatives. Thus, the open public institution and citizen participation are not necessary regulatory issues, it probably seems to be a challenge to develop an institutional taxonomy that suits today's complex and multicentre society to reform the public administration for better accountability of institutions and a way to oversee democratic processes. Certain researchers, in their attempt to articulate the paradigm of a new public management in the early 1990s, have placed a strong emphasis on professional management. (Institutul de Politici Publice, 2008, pp. 40-42).

According to Vigoda-Gadot (2002), in the process of community opening, modern public administration institutions face difficulties in integrating the capacity to meet the needs of citizens, viewed as customers, and in effective collaboration with the community seen as a partner. These difficulties, according to the same author, result from the dual perspective of seeing the community as a client and partner. While the reaction is a passive and unidimensional behavior of public institutions, collaboration is a more active bidirectional behavior, a unification of forces between the two sides - the public institution and the community. Essentially, these difficulties highlighted by Vigoda-Gadot are related to the transition of the public institution from reagent to proactive behavior. This change requires, on the one hand, that the public institution should provide adequate methods and tools for active information, consultation and effective participation of citizens in the decision-making process. On the other hand, in addition to the efforts of public institutions, citizens should be willing to use these tools and methods to be informed, to express their point of view and to participate effectively in the decision-making process. (Institutul de Politici Publice, 2008, pp. 40-42).

The open public administration model is closely linked to the reform of traditional public administration and involves a two-dimensional relationship with citizens by integrating private management practices and concepts. Thus, community participation is an essential element in this model, ensuring this type of relationship, which can be analyzed in relation to the concept of market orientation, developed by two distinctive research teams in the 1990s for the business sector. Narver and Slater (1990), market orientation is a philosophy of business that ultimately creates superior value for customers. Over time, marketing and management researchers have approached the concept of market orientation as: (1) a business philosophy or management environment, (2) an organizational culture and / or (3) organizational behavior.

Research Questions

In the context described above, the main research issues of this study have been set with new perspectives on how to put the community at the heart of decision-making in public administration:

What is really the citizens' participation?
What do the empirical findings show?
How can the potential for participation at Community level be measured?
How can the principle of openness be implemented by the local government?
How can participation really work within local government practice?

Methods of Research

Over time, researchers have focused on defining the conceptual nature of citizens' participation, pursuing different research goals and adopting different names for this concept. referring to this diversity, the Bishop and Davis (2002) argue that the concept has been subjected to a series of definitions while other researchers consider that citizen participation is an emerging field involving many actors using different definitions and different perspectives (Rothstein & Stolle, 2007). As a result of diversity, different terms have been used to define citizens' participation in decision-making in public administration: "citizen involvement" and "civic involvement", terms used as alternative names for "public participation", "involvement" public involvement. "But whatever the name, public participation is identified as the" cornerstone "for democracy and the active interaction between citizens and public administration.

However, in recent decades, direct citizenship applications have grown dramatically at local, national and international levels throughout the world. In addition, Jacobi, Klüver and Rask (2010) stated that citizen consultations often result in results that are recognized as socially trustworthy.

Findings

Looking from the public institution, citizen participation can be seen as a management philosophy or management of public thinking on the decision-making process. This expertise community by collecting ideas, concepts, solutions and resources that can be mobilized at EU level to address the complex problems of the community.

Recommendations and Conclusions

While some countries have aggregated large amounts of information into central databases, it is more common for different levels or government agencies to cooperate through the exchange of information they hold. This means that different services must be interoperable, in other words, have the technical infrastructure and the ability to exchange data between their different applications. The absence of an entire administration approach may undermine the efficiency of eGovernment services and may hinder progress in reducing administrative burdens.

For example, the Danish Basic Data Scheme applies the "one time" principle for personal, business, property, address, geographic and revenue data stored in 10 different e-warehouses at different levels of government. Public authorities share these internal data in a secure way so that the burden on citizens and businesses on the provision of such data is reduced.

Potential savings for municipalities, regions and the central government amount to € 100 million per year by 2020. In addition, data is expected to be of superior quality (for example, a lower risk of data invalidity); making available to other parties unknown parts of these data for commercial use can also increase efficiency, open the door to innovative applications and stimulate economic growth. Extending this "unique" EU approach is expected to result in annual net savings of up to € 5 billion per year.

Looking at a process through the eyes of a citizen or business also offers a redesign opportunity or rethinking organizational structures and procedures to promote the efficiency of public services. This is especially true when different departments or agencies share data, services, and resources in a more integrated way and provide services that address the user smoothly from the beginning to the end of a particular process. In this context, ICT provides an opportunity to re-examine and reform

organizational structures. In fact, the online implementation of a public service is considered by the European Commission as one of the most important stimuli for public sector innovation. Finally, eGovernment can provide benefits by increasing transparency.

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The Role of Green IT for Sustainable Governance in Romania

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Abstract

In the first volume of Romania's development strategy over the next 20 years, a strategy developed and published by the Romanian Academy in 2015, school and education are the starting point. The natural resources, the strategic reserves that we use and what we leave to the future generations is the project 2. The Romanian culture between the national, proximity and universal localization, the multilingual Europe and the electronic culture, finds its work in the strategy of Romania only in the 9th project. These projects represent the vision of the Romanian Academy. They are well documented and desirable.

Another perspective is given by the data published by the National Institute of Statistics of Romania (INS). Yearly data show that the younger rate of early departure of the educational system oscillates around 20%, that is, one in five young people no longer attend school. In the digital age in which we live and, in the society, declared as knowledge-based, in Romania the share of people with computer skills is only 38% of which with a high competence level of maximum 10% over the last 10 years. All these data are published annually by the National Institute of Statistics.

The aim of our research was to correlate the two perspectives, to highlight key aspects of desire and possibility of a nation and identify possible ways of action that could be followed by future generations.
To carry out the research we have used as the main method of documentary analysis, to see if, at least in the specialized literature around the world, there are aspects that characterize the Romanian society as well.

The international tendencies found in the documentation have led us to study the green IT concepts to identify the role of these green technologies for sustainable governance in Romania.

Keywords: education, green IT, sustainable governance
JEL: H75, I24, Q56

Introduction

The Romanian Academy declared itself in the preamble of Romania's development strategy for the next 20 years (the "word before") as the highest scientific and cultural forum of the country, an institute of consecration and fundamental research in all fields of science, letters and arts. The strategy includes actually 11 projects proposed by the Romanian Academy. Project 1 entitled School and Education in the view of the Romanian Academy opens with a section called From where we start, a section that tries to capture the whole philosophy it develops throughout the whole project. The first paragraph of the section is an irony to the Romanian school: "Every moment we live has never been and will never be. And yet, what we teach to children in school is that 2 + 2 = 4 and that Paris is the capital of France " (Academia Romana, 2015).

he second paragraph of the section is intended to be a redefinition of the Romanian school's vision: "What we should teach is" what they are ". We should tell them: Do you know what you are? You're a miracle! You are unique! There is no child like you anywhere in the world. You can become a Shakespeare, a Michelangelo, a Beethoven. You have the ability to do anything. Yes, you are a miracle! "(Casals, P., 2007 apud. Academia Romana, 2015).

The third paragraph presents a new paradigm of learning in the 21st Century, the recommended paradigm and the Romanian school today: "The set of skills specific to the professional educator will increasingly focus on pedagogy expertise: a precise understanding of how people learn and the way in which learning opportunities must be designed to facilitate the process "(Hannon, V., 2009 apud Academia Romana, 2015).

The Romanian Academy presents the national education system as a state of the art and analyzes the main strategic axes from a methodological perspective of the SWOT type. Are seven strengths, over twice as many weaknesses, opportunities equal number of strengths and threats almost half that number. The first weak point of Romanian education is considered to be the unidentified and very unconscious image of the great grid of values that should accompany the formation of the future citizen of Romania (Androniceanu, A., & Burlacu, S. 2017), the future goal. It is also emphasized that this picture is not clear either for parents or for teachers.

The other two weak points identified by the Romanian Academy are:
- The dropout rate in Romania is very high for both disadvantaged categories and other school categories with educational characteristics and with normal psychological and social-familial potential.
- The discrepancy in the performance of rural students vs. urban students is one positioned, according to the latest OECD - PISA 2012 assessment, at the level of a school class.

As opportunities, the Romanian Academy highlights among others the following two:
- The Romanian educational system has human resources to support the re-establishment of its main structural elements, at the level of strategic counseling and assistance.
- The increase of the population aged over 30 years involved in educational processes is an important indicator for the solidity of the education system in our country; the target trajectory is to reach 20.25% in 2013, 22.17% in 2015 and 26.7% in 2020, as shown in specialized papers.

In order to define a vision for the national education system in Romania, the Romanian Academy considers that in 2035 the welfare of the world will increasingly depend on the capital of knowledge, and the challenge of perceiving and understanding the world around is a major one. The school will gain new valences, and universities will play a key role in shaping future specialists, will be perceived as significant geopolitical actors in advanced research, training, and cultural and civic experiences.

Literature Review

The lack of a global systemic perspective causes crucial inconsistencies in neo-Schumpeterian contributions that weaken the conceptualization of the role of non-core economies in technological change (Hurtado & Souza, 2018). This is just one of the perspectives in today's literature. From this perspective, neither global warming nor inequality will be resolved, but will only benefit from the basic savings and perhaps the required pace of capital accumulation will be recovered. It is estimated that if this is to happen, the "end of cheap nature" (Moore 2014; 2016 apud. Hurtado & Souza, 2018) could be postponed by another technological revolution, and another long-wave cycle could be taken at the cost of a global environmental imbalance and of a deeper global inequality. Researchers draw attention to the fact that the combination of ecological catastrophe and business opportunities through the carbon market and ecological technologies can be understood as part of the process of building a new frontier of commodification in the context of a long-term capitalist crisis.

The risk of not taking this perspective into account can lead us to the issue of Ukraine. It is well known that in the West, Ukraine is known as the land of scattered potential and, most recently, the scene of a proxy war between the West and Russia (Lutsevych, 2016). Some research suggests that what is often lacking in the analysis is that domestically the country is facing serious national and state challenges, and in order to support a democratic governance system, it is necessary to develop institutions, values and behaviors sustainable.

A special case of governance is Latvia. Recent research support over the last 25 years the rural population has decreased considerable. This discharge is the result of post-Soviet deindustrialization and large-scale migration made possible by the EU and exacerbated the financial crisis of 2008 (Dzenovska, 2018). It should be noted that Latvia is a lack of political protest, which led many to conclude migration and prevent political mobilization but leaving the residence should be seen in relation to transnational forms of power.

From a technological perspective, sustained governance can be supported by government transparency. Web site developers and administrators are key actors in transmitting government transparency. Although there are voices supporting the idea of continuing research into the role of web sites to increase the transparency of government decisions and sustainable population information, there are still insufficient studies to analyze how these sites can better contribute to delivering sustainable information (Bodislav, D. A., Bran, F., & Popescu, L. ,2018).. Some papers identify a number of determinants that can help developers and website managers increase online transparency on sustainability provided by regional governments. In an empirical study of 17 Spanish regional governments, technological factors (such as broadband availability and online compilation of information) as well as factors promoting transparency (such as convergence with the information society, accessibility and utility) or the volume of social, economic and environmental information published on their websites (Navarro-Galera, Alcaraz-Quiles, & Ortiz-Rodríguez, 2016).

The development of Web 2.0 tools brought hope to users in terms of sustainable content growth. Their analysis, however, reveals that the use of Web 2.0 tools has an essentially ornamental aspect and therefore it is rather necessary to increase the content disclosed, especially at the information level (Gandía, Marrahí, & Huguet, 2016). The results of the analyzes also show that although in certain situations there is a positive relationship between the transparency of Web 1.0 information and the presence of the city councils on social media in certain situations, as well as the intensification of their use, the effect on transparency is in principle an ornamental, focused on general information. It was also found that those urban councils that get better scores for Web 1.0 also have higher scores in Web 2.0, but focus more on promoting issues and less emphasizing information on entity management.

Another hope of developing a sustainable governance from the Open Government Data Movement (OGD). Although there are articles stating that it has expanded rapidly worldwide, with high expectations for substantial benefits to society. The same studies show that recent research has identified considerable social and technical barriers that continue to underpin these benefits. Some papers use socio-technological systems theory and a review of open data research and practice guidelines to develop a preliminary ecosystem model for planning and designing OGD programs. The findings of these papers present two empirical case studies from New York and St. Petersburg in Russia (Dawes, Vidiasova, & Parkhimovich, 2016). These studies have generated a general improved model addressing three questions: How can an open data program of a government stimulate and sustain an ecosystem of data producers, innovators and users? How and for whom do these ecosystems benefit? Can an ecosystem approach help governments to develop effective open government programs in different cultures and regions? The general model addresses policy and strategy, publication and use of data, feedback and communication, benefit generation and advocacy, and stakeholder interaction. It is concluded that an ecosystem approach to planning and design can be widely used to assess existing conditions and to consider policies, strategies and relationships that address realistic barriers and stimulate desired benefits.

These views are supported by many other studies that claim that open data platforms are hoping to promote democratic processes, but recent empirical research has shown that so far they have failed. These studies claim that the current open data platforms do not take into account the complexity of democratic processes, which results in too simplified approaches to designing the open data platform (Ruijer, Grimmelikhuijsen, & Meijer, 2017). Democratic processes are considered to be multiple and open data can be used for various purposes, with different roles, divergent rules and instruments by citizens and public administrators. The study conducted in this respect develops a model of

democratic use of open data, which is illustrated by a qualitative exploratory multiple case study that highlights three democratic processes: monitoring, deliberative and participatory. It is considered that each type of democratic process requires a different approach and open data design and concludes that an open context-sensitive design facilitates the transformation of raw data into meaningful information collectively built by public administrators and citizens.

Problem Statement

The analysis of the specialized literature in correlation with Romania's development strategy over the next 20 years and the data published by the National Institute of Statistics in Romania reveals a series of problems whose solving could lead to determining the role of IT for sustainable governance in Romania.

A main problem identified is the high rate of early departure of the education system by young people in Romania (figure 1).

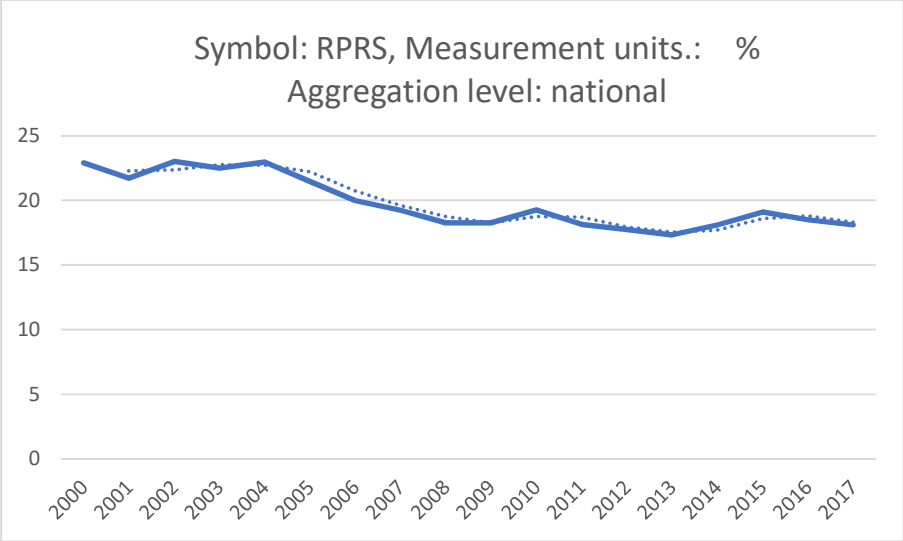

Figure 1: The rate of early departure of the educational system by young people and its trend over the next 3 years

Source: Processing of data provided by the National Institute of Statistics

Simulating the dropout rate trend using the specific functionalities in excel indicates a stabilization at 20% over the next three years și are forma $y = 0{,}0254x^2 - 0{,}8081x + 24{,}506$, , which is not very encouraging. The trend line represented in the graph in Figure 1 is calculated as a moving average over the period 2, This trend line option fits best with previous values and confirms the trend simulated by Grade 2 polynomial function.

Another problem is the low share of people in Romania who are competent in the use of computers or the Internet (figure 2).

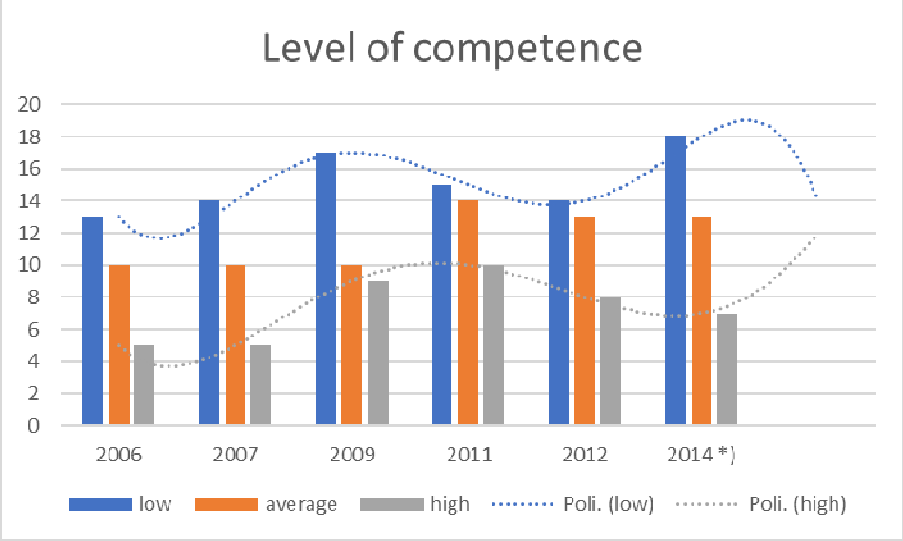

Figure 2: Share of people by skills in computer use

Source: Processing of data provided by the National Institute of Statistics

An analysis of the data in Figure 2 and the simulation of the next year's trend by specific algorithms using the Excel spreadsheet program leads us to the idea that the trend is encouraging. The share of people with low competency is decreasing while the trend is increasing in terms of the share of people who will have a high level of competence in computer use. This is also observed in the way of the new generations' interaction with the electronic computing systems.

A real problem can be represented by the conclusions reached by the team of specialists who developed the strategy of Romania's development, namely: "It is observed that in Romania the role of knowledge is not appreciated in the real value, and measuring the socio-economic performance of knowledge is a relatively recent trend ".

Aims of the Research / Research Questions

The aim of our research was to correlate the two perspectives, to highlight key aspects of desire and possibility of a nation and identify possible ways of action that could be followed by future generations. The questions we are trying to answer in our research are as follows:

1. If today's society, in a globalized world (Burlacu, S., Gutu, C., & Matei, F. O., 2018), is called the knowledge-based society, what's next?
2. What is the role of IT technologies being aware that they have greatly proliferated lately, more than education?

Research Methods

In an attempt to identify a research method that covers all possible objectives and to be both discreet, not having trouble reactivity (Sandor,S.D. 2013) and taking advantage of access to the national electronic scientific literature and research we found documentary analysis. Also, if we agree that the main objective of the research is understanding the phenomena and develop methodology involves options epistemological, philosophical and method conditions and concrete ways to use processes that are independent of the method than the techniques when deemed appropriate our research method of transfer of concepts (Crăciun, 2015) that involves taking the vocabulary from a domain and transplanting it into another field. Certainly, the transfer is not always from sciences considered "unevaporated" to "evolved" but also inversely; and we subscribe to the opinion of researchers who believe that this method highlights the relativity of any classification of the sciences.

Findings

The terms of environmental technology (envirotech), ecological technology (greentech) or ecotechnology (cleantech) are mainly used in the application of one or more ecological sciences, green chemistry, environmental monitoring and electronic devices to monitor, model and preserve the natural environment, and of resources. reduces the negative impact of human involvement. Internet sources indicate that the term is also used to describe sustainable energy (Bran, F., Rădulescu, C., & Bodislav, A., 2018) generation technologies such as photovoltaics, wind turbines, bioreactors, etc., and sustainable development is the core of environmental technologies. We also agreed that the term environmental technologies is used to describe a class of electronic devices that can promote sustainable resource management.

Sustainable government, as a combination of terms not found in the literature. But we find in the Department for Sustainable Development, which was formed by the Government Decision no. 313/2017 and operating in the stuff of the Romanian Government, under Prime Minister. According to the information available on the durabila.gov.ro development site, the department mainly has the following functions: coordination of the implementation activities resulting from the set of 17 SDDs of the Agenda 2030, planning and integrating the data and information communicated by the institutions with attributions in the field, reporting to the Government, elaborating or implementing the set of measures through sustainable development, the monitoring of the sustainable development indicators established at the level of the European Union and at the level of the United Nations, as well as the specific indicators, adapted to the conditions of Romania, regarding the possible gaps and the measures for their remediation, adjusting the national target targets and implementation deadlines as well as identifying new indicators depending on the actual and de facto situation found in the relevant EU directives in the field, in the relations with the ministries, the public administration authorities, as well as in the relations with the Romanian and foreign natural and legal persons.

Conclusions

According to the concept of concept transfer, in our research we will use the term green IT to designate those information and communications technologies capable of delivering through their functionalities a sustainable development of the data they own, and to use ecological technology (greentech) implicitly.

The role of green IT technologies for sustainable governance could be found primarily in the development of human resources. The current generation is willing to use new technologies in education (Burlacu, S., 2012) than to attend to school and attend classes boring. We are also in favor of the Romanian Academy, which, through the proposed Romanian Development Strategy for the next 20 years, considers that "The future society will increasingly focus on the individual and his needs, which will be more complex and varied in the context of diversity, equal opportunities, creativity, transparency and flexibility will be the most important values of the future society".

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Factors Affecting Undergraduates' acceptance of gamification apps: An survey study

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Abstract

The learning with gamification approach is one of the education paths to inspire the learner to learn by using the video game design and game elements in the learning. This learning approach brings a lot of benefits in teachng and learning by offering much more fun and interesting moment in the learning progrees, compare to the tradisional teaching and learning approach. Despite on the human behaviourism to understand the acceptance and adoption of a gamification, not much other model in different point of view is used to investigate the acceptance and adoption, such as the perspective of design principle. Therefore in this paper, the factors of gamification acceptance in term of design perspective is being proposed. Quantitative study have carried out on the proposed design perspective of acceptance model. The result showed that the proposed factors is suitable to be used for the acceptance study in gamification apps.

Keywords: Gamification, Gamification Acceptance, Acceptance,

Introduction

In the research study by Kapp (2012) and Dicheva et al.(2015), the gamification of learning is one of the educational paths to inspire the learner to learn by using video game design and game elements in learning. Nah et al. (2014) and Sandusky (2018) mentioned the educational path is viewed as one of the forthcoming teaching and learning approach that suitable for current younger generation, generation Z. Generation Z is defined as the people that born between 1995 to the year 2012. This generation is growing up with highly sophisticated media and computer environment. This makes them be more savvy and expert in technology. The main objective to use gamification as part of the educational path is to exaggerate the enjoyment and engagement experience between the learners and the gamification learning application, that created by media and computer environment. Therefore, the integration of the gamification into the generation z education seem to bring the positive effects.

The using of gamification in teaching and learning have noticeable benefits compared to the traditional teaching and learning approach. Lee (2016), Muniandy (2018) and Staufenberg (2018) mentioned that the taking the chalk and talk method as an example of the conventional method, the learners are not so attentive in class and lacking the motivational to study. Therefore, the teaching and learning approach with gamification is important to adopt, as it enables the 21st-century skills of the learners, such as critical thinking, collaboration, communication and creativity. In the aspect of abundant media presentation made available in a gamification application today, the gamification design and creator will have massive advantages and opportunities to develop the gamification for teaching and learning based on the suitable course learning outcomes, learning styles and learning domain.

Many studies have been completed to explore the effectiveness of gamification in education. Daghestani & Ibrahim (2018) have found that gamification enhances the learning performance and student's engagement. Gamification approach makes the teaching and learning more interesting and this leads to the engagement of the students with the learning content. Daghestani & Ibrahim (2018) commented that the integration of gamification help to enhance the completion rate of the Massive Open Online Course (MOOC). This situation happens because the integration of gamification help to enhance the retention rate of MOOC and make MOOC be more enjoyable to study. Besides that, gamification also have integrated into the training on emotional regulation as mentioned by Baer (2016). The integration of gamification into the training on emotional regulation give a positive flexibilities for the people to be trained in different emotional regulation setting. Other research also recognized the benefits of using gamification for learning, for instance Jo, Jun, & Lim (2018), Karagiorgas & Niemann (2017) and Veltsos (2017) , that stated gamification motives learning in the aspects of immediate criticism, skills encouragement, leverage change in attitude and demeanour.

The adoption of gamification in teaching and learning have been study for a long time. Generally, technology acceptance model (TAM), a research study used by Koivisto and Hamari (2014), Hamari and Koivisto (2015), and Bae, Chiu and Won (2017), and Unified theory of acceptance and use of technology (UTAUT), as used by Dečman (2015), Oliveira and Cruz (2017), Bharati and Srikanth(2018), and Filippou, Cheong and Cheong (2018) are used to measure the adoption and acceptance level of a gamification strategic. The TAM model and UTAUT model are used to clarify the end user intentions to operate an information system and subsequent usage attitude. 4 major usage attitude factors are used to evaluate the adoption and acceptance of the information technology namely, performance expectancy, effort expectancy, social influence, and facilitating conditions. Despite on the human behaviourism to understand the acceptance and adoption of a gamification, not much other model in different point of view is used to investigate the acceptance and adoption, such as the perspective of design principle. In research studies by Suh (1990), and Mayer and Fiorella (2014), The design principle is important as it guide the use of design elements of gamification. In addition, the knowing of design principle help to enhance the user experience too. Therefore, it is important to understand the factors in term of design principle that affects the gamification acceptance and adoption of the learners. The main objective of the study is to determine the factors of acceptance in gamification, in term of design perspective. This study help us to investigate how a learner accept the gamification in term of design principle.

Theoretical Background

Technology Acceptance

The original technology acceptance theory is divided for the Theory of Reasoned Action (TRA), which was introduce by Ajzen & Fishbein (1977). This social cognitive theory explains that the association between the behaviour, norms, beliefs, attitudes and norms factors. This theory show that each individual behaviour on using a technology is explained by the one' intention to perform the behaviour. This intention is affected by several determinants.

In the user acceptance study, it describes the user acceptance as "demonstrable willingness within a group of user that employ information technology for the tasks that designed to support". As in the research study by Dillon and Morris (1996), the main object of study is to understand the factors that influence the users to decide whether to use an information system or not. The factors that influence the users are divided into 2 category namely, systems' factors and users' factors. The acceptance that measure in term of systems' factor are included the usefulness, ease to use and enjoyment. Meanwhile the acceptance measurement in term of user' factor are included the experience, attitude and resource that they have access an information technology.

Generally, the technology Acceptance Model (TAM) is used to measure the acceptance of an information system. The acceptance model has being broadly applied into different kind of information system namely, e-learning, as mentioned in the research study of Mohammadi (2015), Tarhini *et al.*, (2016) and Al-Rahmi *et al.* (2018), and gamification apps, as mentioned by Almaiah,

Jalil and Man(2016), Wen (2017), and Yang, Asaad and Dwivedi (2017). Basically, TAM supported that the factor of usefulness and ease of use are the essential factors to predict the behaviour intention.

On the other hands, the unified theory of acceptance and use of technology (UTAUT) is another alternative acceptance theory that commonly used by the research to measure the acceptance of an information system. The purpose of UTAUT is used to explain the user intention to use an information system and subsequent usage behaviour. There are 4 constructs introduced by UTAUT namely performance, expectancy, effort expectancy, social influence and facilitating condition. Many studies have adopted this acceptance theory to investigate the acceptance rate of an information system application. Table 1 summary some of the acceptance studied done by the UTAUT model.

Cognitive Theory Of Multimedia Learning

The cognitive theory of multimedia learning explain how information, such as words and images, is being process in the learner's mind when using multimedia instruction. When the words and images are presented concurrently to the learner by using the multimedia presentation, 2 separate non-conflicting channel will be used to receive the information. The multimedia presentation of words and images will enter the sensory memorise through the hearing organs and visual organs. Next the selecting activity will be done in the memory to organise the received information in a verbal model and a pictorial model. Few "block" of information will be processed at a given time in working memory. The verbal model and pictorial model will integrated with human prior knowledge and this integration make a learning. Figure 1 shown the overall Mayer's cognitive theory of multimedia learning.

The cognitive theory of multimedia learning incorporates several concept and one of them is the science of instruction. The science of instruction is an area that looking into how to design a multimedia. This science of instruction is built on how people learn scientifically. There are some science of instruction aspects have integrated into the cognitive theory of multimedia learning. One of the aspect is name as extraneous processing. If an information is not relevel to the objective that require the human's cognitive thinking to be processed, then it is consider as the extraneous cognitive load. The extraneous information is not necessary as it limited the cognitive load which available in the working memory. This extraneous information will caused the inefficient learning and blocking the users to achieve the intended objectives. There are 5 principles to reduce the extraneous processing namely, coherence principle, signalling principle, redundancy principle, spatial contiguity principle and temporal contiguity principle.

Gamification Application Acceptance

Gamification application is an application that design with game elements. This game elements is used in design to improve user engagement, participation and loyalty. There are 7 key elements of a gamification application namely, flexibility, reward structure, clear rules, quests, feedback, badges and leader board. There are a lot of studies being conducted to investigate the acceptance of gamification application in different discipline. Zhang, Phang, Cai, & Zhang, (2017) studied the acceptance of mobile collaborative consumption using gamification design. The result of this study shown that the gamification as a promising way to be accepted by the people thru the encouragement of collaborative participation and the provided enjoyment experience. In the other study by Zhang et al. (2017) , it is proved that the gamification should be practise as a foundation design in the marketing context. In this study also proved that the intention to engage with a gamified brand is likely to lead to positive attitudes towards that brand of an items. Meanwhile, Tsay, Kofinas, & Luo (2018) have found out that the female students participants significant more compare to male students in gamification activities. In addition, this study also found out that the students with jobs engaged significantly more in gamification application compared to students without jobs. Although there are a lot of acceptance or adoption study of gamification have been done, none of the acceptance or adoption study is carry-on according to design perspective. In fact design perspective to investigate

the acceptance or adoption is important as it not only help to attract the attention towards your gamification application, it can also enhance the quality of message to be pass to the user.

Due to lack of investigation on gamification in design perspective, we seek to explore the perception of Malaysian B40 on using gamification as one their learning approach. We are targeting the B40 students because gamification is one of the most technologies to be used by the teenagers. This is due to easy access of Wi-Fi and internet as their daily job tasks. Thus we seek to investigate the possible design perspective on the acceptance of gamification.

Research Model and Hypotheses

Independent Variables and Dependent Variable

There are 5 independent variable which is derived from the principle of reduce extraneous processing. The first independent variable proposed in this study is coherence. This variable is define as "the learners learn better when additional none-related material is excluded from a multimedia presentation". All non-related material should be excluded as it will distract the preference of the learner, as mentioned in the research study of Bishop, Amankwatia and Cates (2008), Bishop and Sonnenschein (2012), and Byun and Loh (2015).

The second independent variable is Signalling. This variable is defined as "the learners learn better when some cues are added in the multimedia presentation". The cues is essential as it used to highlight the essential material to be focus by the learners, as mentioned by in the research study of Mayer (2017), Yahaya and Ahmad (2017) and Rosmani and Zakaria (2018).

The next independent variable is Redundancy. This variable is defined as "the learners learn better from graphics and narration then from graphics, narration and on-screen text". This variable is about should you duplicate the narrated text on-screen. In fact, the learners only able to process one visual information at a time. If a reading text is about the narration of the multimedia, the learners will not able to focus on the graphics simultaneously. However, if the narration is presented in audio then the learners eyes will able to focus on graphic that being explained. This research is done by Kalyuga and Sweller(2014), Scheiter and Eitel (2015) and Renkl and Scheiter (2017).

The fourth independent variable is spatial contiguity. The variable is defined as "the learners learn better if the corresponding words and images are presented near rather than far away from each other in a screen or in a page". If the corresponding words and images are near to each other, than the learner no need to use cognitive resource to visually explore the screen or page. In this situation, the learners will more likely able to holding the audio and visual together in working memory at the same time. This variable have explained in the reseacrh study of Altan and Cagiltay (2015), Craig *et al.*(2015) and Schroeder and Cenkci (2018).

The last independent variable is temporal contiguity principle. The variable is defined as "the learner learn better if the corresponding narration and animation are presented simultaneously rather than successively". If the corresponding narration and animation are presented at the same time with no delay, then the learners is more likely be able to hold the mental representation of the visual and audio representation in working memory at the same time. In addition, this help the learners to build the mental connections between the visual and audio representations.

In this study, the preference is used as the dependent variable. This study is carry on as the pre-implementation study. The method of this study is similar with Ibrahim, Yusoff, Khalil, & Jaafar (2011) where is used preference as the independent value in the pre-implementation stage. The overall research model is shown in Figure 1.

Based on the suggested theoretical support, the hypotheses is listed as following:

H1: The Coherence has a positive effects on the preference of the gamification.

H2: The Redundancy has a positive effects on the preference of the gamification.
H3: The Signalling has a positive effects on the preference of the gamification.
H4: The Spatial Contiguity has a positive effects on the preference of the gamification.
H5: The Temporal Contiguity has a positive effects on the preference of the gamification.

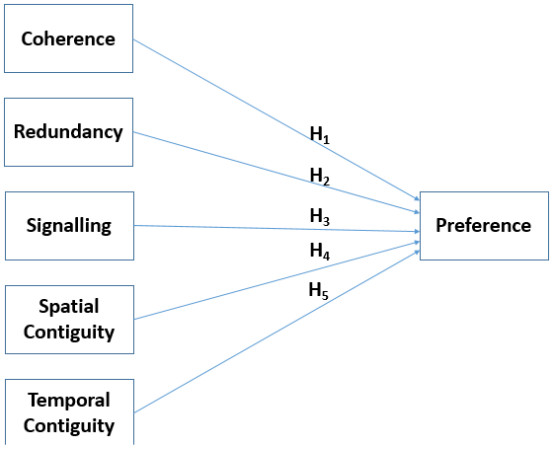

Figure 1: The Overall Research Model

The Procedure Of The Study

An online survey application is used to develop the survey question. This survey instruments was develop based on the Bourgonjon, Valcke, Soetaert, & Schellens (2010) and (Dillon and Morris, 1996) survey instrument. This survey study consists of 18 questionnaire items with 6 construct.

The list of survey item is listed as in Table 1

Table 1: the list of survey items

Constructs	Items
Coherence	COH1: I learn better when extraneous words are excluded rather than included.
	COH2: I learn better when extraneous pictures are excluded rather than included
	COH3: I learn better when extraneous sounds are excluded rather than included.
Redundancy	RED1: I learn better when cues that highlight the important materials are included.
	RED2: I learn better when the important keywords are highlighted.
	RED3: I learn better when the important items are highlighted.
Signalling	SIG1: I learn better from graphics and narration are presented together.
	SIG2: I learn better from video and narration are presented together.
	SIG3: I learn better from animation and narration are presented together.
Spatial Contiguity	SAP1: I prefer word and pictures are close to each other
	SAP2: I prefer word and pictures are in the same page.
	SAP3: I prefer word and pictures are in the same position.
Temporal Contiguity	TEM1: I prefer word and pictures present simultaneously.
	TEM2: I prefer word and pictures display continuously.
	TEM3: I prefer word and pictures display successively.
Preference	PRE1: If I have to choice, I would choose to follow the course which gamification are used for learning.

	PRE2: If I have to vote, I would vote in favour of using gamification for learning
	PRE3: I am enthusiastic about using gamification as one of my learning approach

Likert scale from 1 (strongly disagree) to 5 (strongly agree) is used in the survey. The sample size that we used is 380 B40 in Selangor, Malaysia, with 145(38%) female and 235(62%) male respondents.

Analytical Methods

In this study, a set of hypothesis is tested by using structural equation modelling (SEM) using the partial least squares (PLS) method. Smart PLS M3 version 2 is used in this analysis. PLS is used because it having the ability to model latent constructs under conditions of non-normality. As in the research study of Hair *et al.*(2014), and Rezaei and Ghodsi (2014), the bootstrapping technique was used to determine the significance levels of loading, weight and path coefficient. As recommended by Anderson & Gerbing (1988) , validity and goodness of fit for the measurement model was estimated before the structural relationships outlined in the structured model were tested.

Result

Common-Method Variance (CMV)

Common-method variance (CMV) indicated to "variance that is attribute to the measurement method rather than to the construct of interest". At in the data analysis step, one-factor has applied to control the common method variance. The outcome of the test cropped 6 factors accounting for 78.50 % of the variance. As no single factor accounted for the majority of the variance in the variables, we trust that the CMV did not pose a major threat for the data.

The Convergent Validity

The convergent validity is measured accordingly. This was examined through the factor loading, composite reliability and average variance extracted (AVE)(Hair, 2010). The overall measurement of convergent validity is displayed as in Table 2.

Table 2 the overall convergent validity results

Constructs	Items	Loading	Composite Reliability (CR)	Average variance extracted (AVE)
Coherence	COH1	0.9052	0.9081	0.7671
	COH2	0.8571		
	COH3	0.8645		
Redundancy	RED1	0.8919	0.9261	0.8068
	RED2	0.9184		
	RED3	0.8841		
Signalling	SIG1	0.8933	0.9230	0.7998
	SIG2	0.9165		
	SIG3	0.8727		
Spatial Contiguity	SAP1	0.8658	0.9030	0.7564
	SAP2	0.9101		
	SAP3	0.8315		
Temporal Contiguity	TEM1	0.8738	0.9041	0.7587
	TEM2	0.9041		

	TEM3	0.8339		
Preference	PRE1	0.9910	0.9862	0.9599
	PRE2	0.9910		
	PRE3	0.9567		

All loadings value for each item is more than suggested value of 0.6. this value is suggested by Chin (1998). The composite reliability values, which illustrate the degree to which the construct indicators indicate the latent construct, exceeded the recommended value of 0.7, suggested by Hair (2010), while the average variance extended, which reflects the overall amount of variance in the indicators accounted for by the latent construct, exceeded the suggested value of 0.5. This value is suggested by Hair (2010).

The Discriminant Validity

Next, this study examined the discriminant validity by comparing the square root of the average variance extracted (AVE) with the correlation between the variable. As explained in the research study of Hulland (1999), if the correlation between the different variable is lower than the square root of the AVE, the variables can be considered as distinct theoretical entities. Table 3 display the discriminant validity information of the study. It seems that the square root of AVE (value located at the bolded diagonal value in Table 3) of each construct is larger than its corresponding correlation coefficients which conforms the adequate discriminant of the study.

Table 3: the discriminant validation data

	COH	PRE	RED	SAP	SIG	TEM
COH	**0.8758**					
PRE	0.6660	**0.9797**				
RED	0.6094	0.8101	**0.8982**			
SAP	0.6100	0.8276	0.7824	**0.8697**		
SIG	0.6203	0.7935	0.8149	0.7853	**0.8943**	
TEM	0.5444	0.7545	0.7298	0.7751	0.7881	**0.8710**

Structural Model

Next, the investigation of the structural model and hypotheses is carry-on. The bootstrapping procedure with conduct to investigate the statistical significance of the weight of sub-constructs and path coefficients. 1000 iteration is used in the bootstrapping procedure. This procedure is suggested by Chin, Peterson and Brown (2008).

Figure shows the results of the structural model. The values in the figure show the standardized coefficients and their respective t-values. The corrected R^2 value in the figure refers to the explanatory power of the predictor variable(s) on the respective construct. All five dimension of reducing extraneous processing explains 78.85% of the preference to use gamification. With regard to model validity by Chin, Peterson and Brown (2008), the preference variable is substantially explain 78.85% of the variance in preference variable.

Structural Estimates And Hypotheses Testing

The overall result of the structural model and hypotheses testing are presented in Table 4 and Figure 2. The result strongly support all the 5 hypotheses of the study.

Table 4 : the overall structural model results

Hypothesis	Standard beta,b	Standard error	T statistics	Decision
H_1: COH →PRE	0.160	0.0367	4.3641	***Supported
H_2: RED →PRE	0.264	0.0585	4.5136	***Supported
H_3: SIG →PRE	0.122	0.0650	1.8824	*Supported
H_4: SAP →PRE	0.336	0.0631	5.3271	***Supported
H_5: TEM →PRE	0.118	0.0592	1.9911	**Supported

** p < 0.1, **p < 0.05, *** p < 0.01*

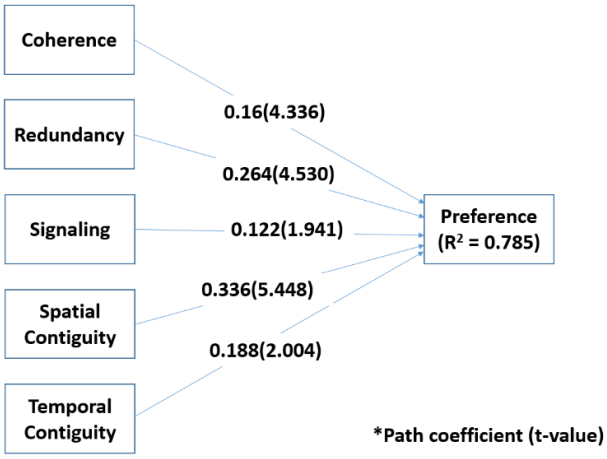

Figure 2 : the overall structureal model and hyoothesis testing results

H_1 which hypothesis that the coherence has a positive effects on the preference of the gamification was supported by result (H_1: b = 0.160, t = 4.3641, sig < 0.01). This results confirmed that the B40 have a positive perception of the coherence principle design in the gamification for learning purpose. H_2 which hypothesis that the redundancy has a positive effects on the preference of the gamification was supported by result (H_2: b = 0.264, t = 4.5136, sig < 0.01). This results confirmed that the B40 have a positive perception of the redundancy principle design in the gamification for learning purpose. H_3 which hypothesis that the Signalling has a positive effects on the preference of the gamification was supported by result (H_3: b = 0.122, t = 1.8824, sig < 0.1). This results confirmed that the B40 have a positive perception of the signalling principle design in the gamification for learning purpose. H_4 which hypothesis that the Signalling has a positive effects on the preference of the gamification was supported by result (H_4: b = 0.336, t = 5.3271, sig < 0.01). This results confirmed that the B40 have a positive perception of the Spatial Contiguity principle design in the gamification for learning purpose. H_5 which hypothesis that the Temporal Contiguity has a positive effects on the preference of the gamification was supported by result (H_5: b = 0.118, t = 1.9911, sig < 0.05). This results confirmed that the B40 have a positive perception of the Temporal Contiguity principle design in the gamification for learning purpose.

Conclusion

This study investigate the factor that affecting the acceptance of gamification apps. The 5 reducing extraneous processing principles is used to investigate the acceptance. This 5 principles is factor that formulated according to the design perspective. The factor formation were presented using PLS SEM. It is very interesting to note that the B40 from Malaysia highly interested with using game for their learning. In addition, they have a positive perspective to use gamification for learning. Their experience with gamification were probably used as a guide.

Out of 5 design factors being investigate, 3 factors were found significant on preference with the confidence level of 99%. This 3 factors namely Coherence (COH), Redundancy (RED) and Spatial Contiguity (SAP). 1 factor were found significant on preference with the confidence level of 95%. This factor is Temporal Contiguity (TEM). 1 factor were found significant on preference with confidence level of 90%.

Due to limited number of sample, this finding should be used with caution, Further studied are needed to conduct with more different perspective of design factor, several intuition and if possible, with the actual use of gamification.

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Transport Safety Management In Tourism

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Abstract

Transport safety is one of the basic conditions for the implementation of this service in tourism. As part of its tourism management, it has been given strong emphasis on a number of experiences and events that have evolved through traffic and events caused by internal and external factors. The level of transport is also affected by the economic level of the state, its legal maturity and the system of managing and executive bodies.

Keywords: transport, safety, tourism, traffic risks

Introduction

The safety of transport and transport systems is a condition in which the risk of damage to health or material damage is eliminated to an acceptable level. One of the prerequisites for the development of tourism is the transport safety. Transport safety in tourism is influenced by a number of positive and negative factors (Rak et al. 2014). Its management often leaves travel agencies as well as other legal or natural persons in transport companies, while the implementation of individual travel activities is very often a solution to traffic risks, which is a purely individual matter for a tourist participant and depends to a large extent on its knowledge, skills and experience, the degree of their mastery. Many cases are known where transport participants in tourism have no knowledge of existing threats and it has become fatal.

To the final destination from the place of residence and back, a travel participant can reach individual or collective transport depending on the means of transport used. As the statistics and surveys of travel agencies show, there is the most used road and air transport in the Czech Republic to realize tourism activities. Also, in terms of the breadth of the issue, the article focuses only on these two modes of transport.

Risk Factors For Tourism And Transport

Risk factors can generally be divided into internal and external. The internal risk in transport is mainly related to the factors inside the transport company, such as the technical and technological risks associated with the research and development of means of transport, their use and technology, the risk associated with the failure of workers, poor interpersonal relationships at the workplace, the company's management system, etc. External risks mainly relate to transport infrastructure to physically-geographic and health and hygiene conditions, as discussed in the following section.

Factors that may threaten tourism, whether they are influenced or uncontrollable, can be divided according to different criteria and authors (Fialová et al. 2016):

- Physically-geographic:
  - the impact of natural disasters such as floods, earthquakes, volcanic activity, forest fires, etc. (e.g. Strohmandl et al. 2016),
  - they arise unexpectedly, without prior warning,
  - they operate only a few minutes or hours,
    - the removal of the consequences can take several decades,
    - an example may be the tsunami wave in Southeast Asia of 26 December 2004, which has claimed more than 220,000 lives (including tourists), the destruction of the tourist infrastructure,
- political, economic and social:
  - e.g. political transport, terrorist attacks, war conflicts, etc.,
  - they act days, months and years (even short-term disruption of the region‘s stability may have long-term consequences),
    - examples are states such as Lebanon, Syria and Yemen that had been visited by plenty of tourists in the past,
- health and hygiene:
  - e.g. SARS illness, avian and swine flu, lack of quality drinking water,
    - they operate for years,
- technological along with human factor failure:
  - e.g. accidents and vehicle accidents, technological accidents,
  - the length of impacts is different (e.g. in the case of transport accidents the consequences are short-term, technological accidents are long-term),
    - e.g. Chernobyl nuclear power plant crash (today‘s Ukraine) nuclear power plant failure in Fukushima (Japan).

Risky places within tourism are usually informed by people in high-risk destinations, and a number of tourists change their holiday destination at the last minute.

Not every conflict (or natural disaster) must necessarily result in a loss of tourists. With the increasing popularity of travel and adrenaline activities, there is a trend of "war" or "conflict" tourists. They want to see with their own eyes and experience what is happening in the affected area. Even after the end of the crisis situation, a tourist destination can be created from the area concerned (Fialová et al. 2016). The most visited places include battlefields, former concentration camps (Auschwitz, Terezín, etc.), museums, cemeteries, battlefields (beaches of the Allies in Normandy).

Traffic safety in general (including tourism) is determined by the following factors (Sventeková et al. 2012, Pavlíček 1999):

- human factor (e.g. vehicle or bus driver, airplane pilot, trip participant, etc.),
- means of transport (passenger car, bus, airplane, ship, etc.),
- environment (legislation, meteorological conditions, transport infrastructure, etc.).

There are number of risks to tourism and transport within it, which can be caused by natural influences (naturogenic) or human activities (anthropogenic) and it can be affected negatively or positively.

The person may cause an extraordinary event (EE) unintentionally or deliberately. The causes of human failure are:

- disturbed health and physical condition,
- lack of judging abilities,
- lack of knowledge and experience,
- various transient emotional states,
- time pressure,
- abnormal mental states, etc.

Depending on the extent of the damage, the forces, and the means needed to bring about the normal state, they can be divided into (Sventeková et al. 2012, Pavlíček 1999, Soušek et al., 2010):

- accidental events which, by their scope, significantly impede traffic flow on the transport route or require extraordinary measures due to adverse weather and environmental impacts;
- emergency events, in which the functioning of the transport route is impaired, the forces and means of the Integrated Rescue System (hereinafter referred to as "IRS") in conjunction with the respective special services, forces and means of the transport sector are sufficient to restore the normal state. In order to bring about normal status, processed emergency plans are used,
- crisis events where the normal function of the transport sector or the entire transport system is impaired and the induction of the normal state is not manageable by the IRS, the special services and the means of the transport sector that are generally achievable. To re-establish the functionality of the system, crisis plans are used.

The EE classification by consequences is shown in Table 1.

Table 1: Classification of extraordinary events by extent of consequences

Level designation	EE number and type	Losses in human lives	Material losses [in CZK]	Disturbance in relation to the unity of the whole
I.	1. Fault	No	100	part of object (tool)
II.	2. Defect	No, or partial health threat	1000	object facility (single machine)
II.	3. Disorder	No, or health threat	10 000	part of object
II.	4. Incident	Individual or collective health	100 000	object

		threat		
III.	5. Accident	Some individuals	1 million	object with its closest neighbourhood (municipality)
III.	6. Serious accident	Some dozens of individuals	10 million	territory of a municipality with extended competence
III.	7. Disaster	Dozens, hundreds of individuals	100 million	territory of a region
IV.	8. Catastrophe	Hundreds, thousands of individuals	1 billion	territory of a state
IV.	9. Cataclysm	Ten thousands, hundred thousands of individuals	10 billion	territory of a continent
IV.	10. Apocalypse	Millions and more individuals	100 billion and more	world

Source: Sventeková et al. 2012, Pavlíček 1999, Soušek et al. 2010.

2 Extraordinary Events In Road Transport Within Tourism And Their Solution

The most widespread mode of transport in the tourism sector is road transport, both individual and collective. The reasons for its expansion are mainly related to the availability of means of transport, the relatively low price for fuel and motorway tolls, time spent in popular tourist destinations (Croatia, Italy, where the time is about 8 and more hours by location). Participation in the transport process in the context of tourism may be active on the side of its participants (by fulfilling specific tasks related to the operation of road vehicles, such as a passenger car or tour bus driver, etc.), passive (passengers in a passenger car or bus passengers) or accidental (indirect effects outside the immediate transport process).

In fulfilling the tasks in an active way, it is especially necessary for the drivers of any vehicle to become familiar with the relevant traffic regulations, with an emphasis on the differences in the Czech legislation, not only the target state but also the countries through which the route will lead to the destination.

In the analysis of EE in the field of road transport, it can be stated that this is mainly about incidents, exceptionally about the accidents. Long-term statistics show that the main causes of traffic accidents are (Sventeková et al. 2012):

- human and his failure in 85% (mediated to 95%),
- infrastructure and environment deficiencies in 10%,
- failure of vehicle construction in 5%.

The most tragic accidents of Czech buses (Blesk.cz, 2016), in which tourists died, can be classified e.g.:

- on 6 June 1995, the driver was unable to brake the bus in poor technical condition before turning to Kolárovice (the Slovak Republic), the bus was off the road and overturned, 17 people died in the accident;
- on 8 March 2003, the driver on the E55 road near the town of Nažidla not far from Český Krumlov collided with the right barrier and pulled the steering wheel. The bus was skewed,

overturned, and fell off a seven-meter cliff. 17 people died, 34 people were injured, 2 shortly after transfer to hospital and the last victim died of injuries in 2006;

- on 23 June 2012 the Czech bus with tourists crashed on the A1 motorway in Croatia. The bus, which belonged to Brno Atlas Adria Travel Agency, at the Sveti Rok tunnel hit a pillar on the left side of the road, broke through the barriers and overturned. The driver‘s micro spot was probably the cause. Fire-fighters said that there was no braking track on the road. The accident claimed 8 dead and over four dozen injured;
- on 21 June 2016, a bus accident with Aeolus travel agency clients in Serbia killed 5 people (including 2 Czech citizens) and injured 14 people (including 8 Czech citizens).

The biggest road accident in the world can be considered an accident that happened on 3 November 1982 in the Salang Tunnel in Afghanistan. As a result of the collision of two military vehicles, there was a fire in which over 2,000 people were killed (of which more than 400 Soviet soldiers, the rest were civilian casualties) (Katastrofy 2016, Zápařka, 2016)

To these EE which affected road transport, it is necessary to introduce the tragic event which happened on the Promenade des Anglais in Nice (France) on 14 June 2016, when the driver killed 84 people using a truck, injured 308 people, with 25 people ending up in the hospital and 52 in a critical condition.

Traffic accident is an event on the road, such as an accident or collision that has occurred or has begun on the road and which causes the death or injury of a person or damage to property in direct connection with the operation of the vehicle in motion (Czech Law no 361/2000)

Securing evidence is a significant factor that creates the prerequisites for a legal solution with an impact on road accident participants. Explaining and acting on the scene of an accident is marked by emotions that can be negatively manifested verbally and physically. Therefore, the content of each statement should be considered and limited to minimal explanation. Unfair admissions, consent to the second party’s abandonment of the incident, and similar steps may result in later unpleasant legal consequences, including an increase in self-inflicted blame.

3 Extraordinary Events In Air Transport Within Tourism And Their Solution

With the development of travel to distant destinations, air transport is increasingly used. In some cases, it is possible to save transport costs if we calculate, the cost of another mode of transport (e.g. road or rail) and time (it can be very variable), the price for air travel can be more advantageous. Frequently we meet so-called charter flights, which are low-cost and create a prerequisite for their use by the wider public, especially in the context of tourism activities. The increasing air traffic safety is influenced by the modern equipment of new aeronautical equipment, the rapid technical development of ground facilities, air traffic control automation and the growing professional level of flight crew, allowing air traffic to be increasingly less dependent on weather. However, air transport safety is still affected by the human factor, which appears to be the weakest part of the air transport and its failure is still the cause of most accidents. Compared with other modes of transport, however, air transport is one of the safest (Křivda 2007).

Air transport can be divided into:

- very short to short distances (range up to 1,500 km),
- short to medium distances (range up to 3,500 km),
- medium to long distances (range over 3,500 km).

Part of the mass air transport is also the so-called airbus transport. The idea of an airbus (“flying bus”) was realized already in 1930 in the USA. This term was used for an aircraft operating on local lines similar to buses. Airbuses can be used for short (up to 1,000 km), medium (up to 3,000 km), long (up to 10,000 km) and very long distances (over 10,000 km). Medium and long-distance

airbuses can be operated by states that have territorial assumptions (USA, Canada, Russia, EU, Japan, etc.) (Křivda 2007).

Flight preparation includes all operations that must be performed before the flight begins. Within this framework, the ability of the airplane to fly must be checked to see if the aircraft equipment and devices correspond to the intended flight, the correct distribution of the cargo and its suitability for air transport, the proper handling of all passengers, the readiness of the crew and the staff, etc.

A safe flight is considered to be any flight performed under specified conditions without endangering the health and life of the crew, persons and without damage to the aircraft and property. In order to ensure the safety of air transport, certain prerequisites (legal, personnel, technical, etc.) must be created.

The prerequisites of safety in the air transport system make its essential elements (Katastrofy 2016):

- aircraft crew (causal factor of all air accidents is reported to be about 60% of cases), e.g.:
  - on 7 September 2011 there was a pilot error in Russia to the Yak Services Jak-42 airplane collapse. At the start, the aircraft failed to pick up the speed and take off in due course, because the pilot was treading on the brake pedal for an incomprehensible reason during the start. It was off the ground at the end of the runway. Then the machine did not gain enough height, hit the antenna at a nearby building and collapsed to the bank of the Volga River where it broke. Part of the aircraft ended on the shore and part in the water. 44 people died;
- airplane (its design and maintenance are the cause of air accidents in about 20% of cases), e.g.:
  - on 3 March 1974, the Turkish Airlines McDonnell Douglas DC-10 aircraft, 15 minutes after the Paris start, opened and then retracted the rear cargo door. Under pressure pulls up the luggage, breaks the safety bulkhead and leaves even six passengers and their seats. The airplane is unmanageable and falls into the forest 32 km from Paris. It kills 346 people. The guilty person is a helper who has locked the cargo compartment door badly and has not checked if the locks of the lock have fallen into place. At the same time, however, it turned out that the door design was the technical deficiency of the DC-10 machine, which resulted in a ban on operating this type of aircraft in many countries;
  - on 25 May 1979, just after the start of the airport in Chicago, McDonnell Douglas DC-10 of the American Airlines aircraft dropped one of its engines, the aircraft leaned on the side by 90 degrees and collapsed. This was due to a faulty construction and neglect of maintenance duties during pre-flight inspection. In the accident, 273 people died;
- air traffic services (and in particular their part of air traffic management are identified as primary causative factors in just under 5% of fatal accidents).

Passenger and cargo handling operations can be divided into business, customs, passports, health and safety. Every passenger is required to enter the check-in at a specified time (in advance). The ticket at the airport should present a ticket and baggage at the same time. Here he will receive a boarding pass with a flight number and seat in the aircraft, which serves for easier orientation during the check-in process. For foreign flights, customs clearance takes place already in the customs area where customs and passport check-in, medical check-up and security check-up are carried out. At the same time, luggage is handled, which has to be marked and weighed. Passengers are entitled to carry a maximum of 20 kg free of charge. The weight above this limit must be valid. Luggage is served by each passenger personally. Their choice is free, everyone chooses their luggage.

According to the place of occurrence, air accidents are divided into:

- airport accidents - events due to technical or operational reasons that may affect safety during take-off or landing of the aircraft and consequently cause an accident, e.g.:
  - on 27 March 1977 at Los Rodes airport on Tenerife, there were a total of 583 people killed by the collision of two KLM and PAN-AM aircrafts Boeing 747 type;

  - on 19 August 1980 shortly after the launch of the Lockheed L-1011, Saudia aircraft broke out fire on the passenger board (from one passenger's portable stove), the aircraft returned to the airport in Riyadh, but after the landing the door or the emergency exits failed to open due to the overpressure in the cabin. 301 people were killed in the plane;

- air accidents near or outside the airport - the occurrence of technical or operational problems during the manoeuvre of approaching the aircraft before landing or immediately after its take-off, or during a flight, resulting in an accident, e.g.:
  - at the start of Air France Concorde aircraft on 25 July 2000, a tire (probably a component that fell from an aircraft before Concord) was ripped off during the launch of the aircraft. The parts of the broken tire broke the wing and broke the electric cables and fuel tanks. The start could not be stopped; the airplane was too fast and about a minute after the start crashed onto a hotel in Gonesse. 113 people died (including 4 people in the hotel);
- land aircraft accidents - incidents that occurred outside the time associated with the preparation, operation, care, maintenance, repairs or standing of an aircraft, with consequences of damage to health or death, or damage to or destruction of an aircraft.

A dangerous flight situation refers to situations where the safety of the crew, passengers and aircraft has arisen and persists. This situation may not last until the end of the flight, provided that the crew of the aircraft has taken adequate measures to eliminate it, or has passed away during the flight. Phases of a dangerous flight situation are:

- critical (only correct and immediate intervention by the crew or flight control authorities prevents the occurrence of an air accident),
- emergency (the aircraft crew cannot prevent disaster other than attempting to save people without the aircraft rescue),
- catastrophic (saving lives of people or aircraft cannot be implemented by any possible measure).

By relevance, the causes of accidents (activities, errors, events, circumstances or combinations thereof) can be divided into:

- immediate (crew or air traffic control authorities appear to be primary, based on which they should recognize a dangerous flight situation and begin an offense to prevent aviation accidents),
- main (primary events linking events, circumstances, events or activities causing a dangerous flight situation),
- co-occurring causes (less significant facts occurring and acting, as a rule, only under certain conditions).

Apart from the internal causes of occurrence of aviation events, extraordinary situations caused by external entities arise in air transport. The most significant ones can be classified:

- placement of a charge on board of the aircraft in any of its parts,
- placement of a charge in the airport terminal,
- passive hijacking of the aircraft (the place of origin is outside the territory of the respective state, the destination is outside or in the relevant state),
- active hijacking of the aircraft (the place of origin is in the territory of the respective state, the destination is inside or outside the territory of the state),
- intrusion of a person or a group of people into a check-in hall or other areas of the airport in order to commit a criminal offense,

- nonstandard situations (human factor failure, technical or technological accidents that occurred outside the air traffic system, natural disasters, environmental accidents, etc.).

At present, the security of civil aviation is most threatened by terrorism. Types of terrorist attacks against civil aviation (Sventeková et al. 2012):

- "classical" aircraft hijacking (possession of an aircraft and, in particular, passengers and crew as hostages where, under the threat of death or destruction of an aircraft, specific material or political goals are to be achieved),
- destruction of an aircraft during flight by an explosive device (so-called bomb on board), e.g.:
  - during a flight on 23 June 1984, over the ocean of about 100 km from Ireland, an explosion occurred in the front cargo area of the Air India Boeing 747 aircraft and its subsequent collapse into the sea. 329 people died (Katastrofy 2016);
- attack against passengers in the terminal by firearms or explosive devices (the so-called bomb in the terminal),
- attack against an aircraft during a flight from a country in the critical phase of the take-off and stop by portable self-propelled missiles,
- attack by explosive devices against airport technical and technological hubs (navigation devices, power generating plants, transformation and distribution facilities, warehouses and distributions of aviation fuels, etc.),
- attack against airline offices outside the airport.

Types of airline personnel and passengers in terms of endangering their own flight, other passengers, crew, cargo and aircraft:

- conscientiously threatening hijackers or suicides (calculated with the destruction of an aircraft including his own death), an example may be a suicide - the German Wings Airbus A320 the co-pilot on a flight from Barcelona to Düsseldorf on 24 March 2015, locked himself in the cockpit of the aircraft after the captain's departure, and directed the airplane above the French Alps to the mountains. In the event of a disaster, 150 people died (IDnes 2016);
- unconsciously threatening passengers (abuse by terrorist organizations, no suspicion or partial suspicion of illegal activity, naive passengers, partial naive passengers or deceived terrorists);
- direct co-workers, supporters or sympathizers of terrorist organizations (they know that they carry explosive substances but do not suspect that the shipment will explode independently of their will).

A passenger who fails to respect the rules of conduct on board of an aircraft or crew members and thus interferes with order and compliance with applicable regulations on board of an aircraft may be warned (orally, in writing). In the event of increased aggression, the passenger may be tampered by the airplane's staff and attached and disembarked from the aircraft after landing at the nearest airport, regardless of the landing location.

Full elimination of risks in the implementation of tourism activities is not possible. Factors that affect the level and safety of transport are diverse, yet they are often repeated and the most common factor responsible for risks is the human factor. Considerable attention should be paid to the issue of Risk Management in transport, in its known parts - risk analysis, classification, risk sources, risk management and risk mitigation methods.

The human factor - a person with his or her knowledge, experience, skills and physical condition influenced by the environment, but also by his or her health (psychic) condition - has a decisive influence on the realization of transport. Another factor is the condition of the transport corridor (corridor) and its surroundings, and the state of the vehicle itself is the next state. Accident statistics add up to 85% of the risks involved in transport to the human factor.

Transport management in tourism is a very extensive activity, which usually involves travel agencies to transport companies, respectively it is transferred to the individual performers of travel activities. However, it is essential to keep in mind that the goal of every transport is to secure the reaching of the goal, whether it is a trip to a tourist destination or return home, and it is necessary to observe a number of necessary principles that influence the prerequisite for a happy return.

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Innovative Approach to the Human Management: What Impact Does It Have on The General Performance of Businesses?

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Abstract

Technological and marketing skills, innovative capacity, competencies and human capital are currently the subject of increasing and frequent focus in the economic press and the managers' discourses, whereas researches and writings about management knowledge are outnumbering [6], also those about organizational skills [16], organizational knowledge [1], and in more general way about the immaterial investments. This transversal theme seems to be marking the managerial and professional studies supposing that the sustainable resources which are fundamentally at the service of businesses are increasingly arranged in terms of human capital.

The interest of researchers in this important component of the immaterial capital of a business, which surfaced since the beginnings of the 1990s, is due to the fact human capital has become an essential key to the competitiveness of the business itself.

In the current theoretical approaches, the intangible resources are in the core of the process of the value's creation. The increasing need of a new generation of analytical materials are experienced to assess the organizational performance from the perspective of managers, shareholders and investors just as the other interested parties [7]. Well known argued in favor of this just like the ones by the Scandinavian group Skandia, that compiled a list of the criteria focusing on human capital.

Keywords: human capital, performance, business, management.

Introduction

The former CEO of the company of Danone, Antoine Riboud had concluded his speech, which he delivered on October 25th, 1972, by saying: "we are leading our businesses with our hearts as well as our minds, as we do not forget that if the natural resources earth provide us with have limits, those of mankind are infinite if he is not to feel motivated."

This citation constitutes the subject of this article which tackles the interests in integrating the human factor as an essential key to the performance of a given business.

The concept of human capital, which owes a lot to the founding article of the Nobel Prize, was defined for the very first time in 1961 by a specialized economist in the field of development named *Theodore Schultz*, referring to the amount of competences, experiences and acquaintances.

The works of another noble prize winner named G. Becker completes in 1964 the first definition by adding details concerning personality, appearance and reputation, indicating that a business is a place of training and investing in the human capital. In recent years, the 72-year-old American Richard Thaler, who was awarded with a noble prize in economics in 2017 for having illustrated through his works, which devotes a human approach to discipline, how the psychological and social mechanisms modify our economic performance.

However, the subject of human capital did not get the attention it deserves, and those definitions given to this concept usually seem to be usually distant from the reality, to which the workers in a business are exposed, who do not perceive themselves. This is a due to the very few models that barely integrate the human dimension in the process of assessing the performance of a business.

Beginning with the idea of considering the human capital as the main generator of profit for a given business, the Swedish insurance company has built a new model, which represents currently the most accomplished form, when it comes to the tools of controlling that rely on the human dimension and would be in the core of the business's performance, and which is called the Scandia's navigator.

Nowadays, it is undeniable that there is a real passion for the issues related to the state of well-being at work; in the sense that companies are increasingly taking actions which are in line with this idea; this is evident in competitions like the "Great place to work" or "trophies of better conditions at work". The reasons lying behind such an interest are diverse and various: grabbing the attention of skilled people presenting benefits other than compensations that are purely financial, offering an innovative management, preserving the health of the collaborators, and strengthening teams through teambuilding games… hence, taking into consideration the state of well-being at work implies, more generally, more interest and care about the position of the human capital in business. In the same line of thought, big companies like Pepsico, Google… have already made the state of well-being one of the innovative strategic axes that are entirely a part of their general strategic policy. The policies which allow to improve the condition of well-being in a business are multiple: improving the usability in the work place [10], creating classes for sports, interviewing a nutritionist, and training managers specialized in the field of socio-psychological risks…

A given business has certainly objectives regarding economic profit and performance. Adopting a strategy of better working conditions in a business can totally and should be enrolled in that objective. The well-being in a business should be also a part of the overall strategy of the business itself. The challenge lies in the fact that the profit of a policy of better conditions in a business often remains obscure. However, human is surely the vehicle of performance at different levels: in terms of innovation, competitiveness and creativity.

The well-being at wok will be observed through the physiological, biological and psychological figures (conduct, health condition of collaborators…), and will have different effects on the business including: innovation, concentration, commitment and motivation, creativity, quality of the interpersonal relations, and the work atmosphere, these elements, which are extremely difficult to assess, are still indispensable and closely correlated with the economic performance of a given business. They are in fact factors which will affect the reputation of a given business, the presenteeism and absenteeism, the competitiveness and the quality of products and services.

Human Capital: Morocco's Real Treasure

A. Human Capital: shedding the light on the success of a concept

The concept of the human capital has been shaped by the works of the founding economists of Nobel Prize such as T. Schultz (1961) who defined human capital of an individual as the amount of skills, experiences, and knowledge which are accumulated throughout one's career starting with the academic one, followed by the diverse received trainings and occasionally past experiences [23]. Other works of the noble prize winner G. Becker (1964), who completed the first definition of the concept, added other elements pertaining to personality, appearance and reputation. The latter elements are the source of his competitive advantage. He indicated that a business is a site of training and investing in the human capital. In truth, these types of works are regarded as the starting point of this stream of research.

His Majesty the Moroccan King Mohamed 6th has highlighted in his speech addressing the Moroccan people, during the 61st anniversary of the King's and the People's Revolution, that the human resources remain "the real treasure" of Morocco and one of the essential components of the

kingdom's immaterial capital, as he stated that: "we have been keen to demonstrate and confirm the reputation of Moroccans who are known for their seriousness and devotion to work". He also stated that Moroccans: "have demonstrated their capacity to give and create the moment they are provided with the necessary means and the proper conditions to undertake any action, of any kind, big or small, be it intellectual or manual despite the prevalence of unemployment".

In another speech and on a different occasion, precisely on October 10th, 2014 and during the opening of the 1st session of the 4th legislative year of the 9th legislature, his Majesty the king has pointed out that: "human capital is Morocco's major force in all of it economic, social and political accomplishments and in terms of human rights too. Heed should continue being paid to training and qualifying a citizen who is proud of his identity and open-minded to the universal values, especially through the continuation of the educational system's reform.

The former CEO of the company of Danone, Antoine Riboud had concluded his speech, which he delivered on October 25th,1972, by saying: "we are leading our businesses with our hearts as well as our minds, as we do not forget that if the natural resources earth provide us with have limits, those of mankind are infinite if he is not to feel motivated."

However, these definitions given to the concept of human capital seem to be far away from the reality witnessed by the employees in a business, who do not properly perceive themselves as the capital that can be accumulated and transferred according to the situation of the business [14].

B. Human Capital: Classification

It is possible to draw up a classification of the concept of human capital which is composed of three categories that are as follows: general human capital, human capital dedicated to a specific task and human capital dedicated to a specific business. The first category, which general human capital, can be defined as neither specific to a given task nor to a business. It is in fact the amount of knowledge and the set of acquaintances and general competencies that are essentially interlinked by education and professional experience.

Whereas, human capital which is dedicated to a specific task basically encompasses professional experience and trainings. It corresponds to competencies that are specific to given working function.
As for the human capital dedicated to a specific business, it then corresponds to the acquaintances and competencies that are mastered by an employee based on a background consisting of collective knowledge specific to a given business.

I- The overall performance

A- Performance: a constant compromise

The performance of a business in the heart of its logistic chain is captured through the satisfaction of many objectives associated with the chosen strategy.

These objectives are based on a range of backgrounds. We of course speak of the strategic, tactic and operational objectives. This involves the declination of performance at the level of the three mentioned decisional stages [3]. To assess the degree of compromise of each objective, a business resorts to the assessment of its fundamental performance; it therefore relies on several performance indicators or systems of indicators.

1) The financial approach to performance

The assessment of performance in the logistic chains has become an issue which is often studied in the literature written about this matter.

The logistic performance can be analyzed through three notions with regards to effectiveness, efficiency and differentiation [11].

Mentzer and Konrad's (1991) consider "logistic effectiveness as the degree of compromise of the logistic objectives". This is translated for instance by the setting of objectives related to the reduction of the stock level, and respect of the delivery deadlines, etc. [2]

Efficiency is defined as the relation between the implemented resources and the obtained result [13]. It is "the capability to provide the client with the products and services demanded by him in an acceptable cost" [21]. Efficiency relies in fact on the capacity of the business to optimize the management of its logistic activities and assessment of 'the quality of the resources usage' [18]. Moreover, with the increase of competitive pressures, logistic activities should add value to the customer, and present the characteristics that distinguish them from competitors [8]. This is the question Langley and Holcomb referred to as the logistic differentiation which would allow not only to strengthen the logistic performance, but also to contribute to the intensification of effectiveness and efficiency when it comes to the implementation of logistic activities [25], [4].

2) The Social Approach To Performance

The social approach to performance is developed through the contributions of the school of human relations, that highlighted the human dimensions in the organization. The unifying pillar of this approach is conceptualized as follows: the attainment of the social objectives allows to fulfill the financial and economic purposes.

3) The Environmental Approach To Performance

The environmental performance is relatively a new concept which continues to be a complex topic and the source of numerous interpretations and subject to various perceptions [26.] In the field of environmental management, it is defined as: "the assessable outcomes of environmental management's system (SEM), in relation with the master of the environmental aspects per organism based on its environmental policy, objectives and purposes" [17]. The environmental performance is dependent on each business in the sense that it relies on the latter's environmental policy [19]. In fact, this policy pays heed to the mission, values, regional and local conditions that are proper for each business as well as the needs of its stakeholders [24].

The environmental performance can be analyzed according to four dimensions [12]: the improvement of products and process; the ties with the stakeholders; the regulatory compliance and financial effects and the environmental effects and the business's reputation. Yet this approach is criticized by Caron [27] who considers, within the framework of this modelling of performance, that the business's actors are poorly represented, adding that the overall quality of the environmental performance is overshadowed [28]. The environmental performance does not exist unless and until it could be assessed. In truth, according to Lebas [15], performance does not exist unless and until we can assess it, the latter cannot be at any rate limited to the knowledge of a result. Hence, it is necessary to evaluate the results obtained comparing them with the ones desired or the ones. [20]

B- The Management Functionality Of Supplies

The controlling of the workflows cannot be conceived by self-sufficiency and in the light of not being aware of the upstream. The logistics of supplying, which transferred through an intention to control the workflows in the business, constitutes a crucial element in the performance of a business, it is at the heart of the logistician's duty. The thing for him is about coordinating the order process to ensure that the deliveries are effectively inserted in the distribution and production-run of the business, and with regards to qualitative and financial criteria as well as time-based and material ones.

The logistics of supplies is a bridging function between the logisticians who should be a bridge of communication with the external partners (suppliers or their subcontractors), and domestic ones

(sales and production departments), without forgoing the overall consistency of the system they oversee.

The objectives of the supplying function differ from business in to another, for instance: improving the purchasing department, reducing the deadlines and the delays, increase the earnings or margin, minimizing the fees and enhancing the production system. Supplying will be overall controlled by three indicators which are: the service or the availability rate of products, the stock level and supplying fees.

Among the technical competencies embodied in the supplying function, one could mention: contributing to defining the product specification together with the set of the relevant services, search for and identify potential suppliers, applying the purchasing policy with the relevant services, taking part in the negotiations with the suppliers, playing the role of an interface between suppliers and internal departments, identifying the frequency and the volume of orders, overseeing the orders and checking the quality of supplies, organizing the receipt of products and guaranteeing a technological and regulatory foresight.

C- Human Capital :is Measured By Competence

The evaluation of the competencies of each business with a developed vision which is linked to the evolution of its function is a vital step. Among the concrete elements that permit to assess the good practices of human capital's management one could mention: the development of a business is essentially based on anticipating future or upcoming professions and the ability to analyze of creative expertise of value in the present market, as well as in the future. This competencies / expertise is reassuring and empowering the business and its shareholders.

Nevertheless, the implementation of this approach remains progressive. Obtaining a good monitoring system of expertise is about anticipating the progression of functions in the coming years, or future which every and each business lain challenge. For instance, one of the major problems encountered in the process of training within businesses is, for the present time, the influence of the digital transform. This completely shakes up the organization, but it is the responsibility of businesses to seek development in accordance with the new technologies.

II- Methodology

A- The collection of data

An empirical study has been carried out nearby businesses in different sectors (Industry, Metallurgy, Automobile and Services' sector) in Tangier, Morocco. This study revolved around the evaluation of human resources' expertise working in the field of supplying. The questionnaire has been sent to 23 businesses, but only 7 of them were sent back.

Table 1: Count of companies per sector

Sector	Industry	Metallurgy	Automobile	Services
Number of businesses for each sector	2	1	2	2

In the view of studying the proficiency's rate of the competencies and expertise relevant to function of supplying inside businesses located in Tangier, Morocco, the answers of the questionnaire handed to the managers of supply were deducted and analyzed. The latter need to able to show their knowledge and mastery of each competency, ticking one of the squares the questionnaire's table. The number of the obtained points leads us to estimate of the proficiency's rate per activity's category in a

general way. The answers differ according to the type of competency, but their value is identical within the four evaluation levels.

Table 2: Overview of the proficiency's rate of competencies/skills or expertise

Technical expertise	Personal skills	Professional competencies	Points
I master	I master	I know and I use	4
I practice	I'll do okey	I know but I do not always take it into account	3
I know	I have problems	I know a bit about it	2
I do not know	I cannot do it	I do not know	1

The calculation of the rate of proficiency is done by dividing the total points in different statements by the number of statements, multiplying the result by 100 to get the final percentage. Concerning the 100 competencies, the maximum score is 400 points while the minimum one is 100 points.

B- Results

Based on the answers of the received questionnaires, we have managed to collect and analyze data with the help of graphs and barometers to study the proficiency's rate of competencies / expertise. The average of the obtained proficiency's rates of competencies / expertise for the three types of competencies is drawn up in order to have a general rate of proficiency.

Table 3: The rates of proficiency for the three types of competencies/expertise in all the 7 cases

Categories of competencies/ expertise	The rate of proficiency for case						
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	N° 7
Contribution to the definition of the product specification and the set of relevant services	96 %	77%	84%	95%	72%	69%	89%
search for and identify potential suppliers	80%	54%	36%	47%	20%	89%	94%
applying the purchasing policy with the relevant service	86%	78%	55%	56%	100%	87%	64%
taking part in the negotiations with the suppliers	45%	87%	54%	46%	75%	89%	72%
playing the role of an interface between suppliers and domestic departments	84%	56%	44%	88%	68%	49%	77%
identifying the frequency and the volume of orders	97%	46%	93%	49%	48%	55%	68%
overseeing the orders and checking the quality of supplies	89%	45%	68	99%	78%	69%	87%
organizing the receipt of products	100%	88%	97%	78%	99%	100%	87%
Technical expertise	85%	66%	66%	70%	70%	76%	78%
Proficiency in communication and enhanced interpersonal skills	86%	78%	34%	65%	44%	68%	64%
Ethical conduct and – social responsibility	100%	100%	100%	100%	99%	100%	98%
Experienced leadership and professionalism	82%	66%	48%	89%	100%	79%	88%
Strategic thinking and tested application	78%	86%	88%	97%	65%	91%	38%
Behavioral expertise	86%	82%	67%	88%	77%	84%	72%
Stock management	35%	31%	21%	36%	55%	48%	28%
Market exploration	58%	69%	24%	87%	68%	78%	44%
Analyzing and negotiating	79%	65%	55%	48%	78%	56%	68%
Professional expertise	57%	55%	33%	57%	67%	61%	47%
The total proficiency's rate	76%	68%	55%	72%	71%	74%	66%

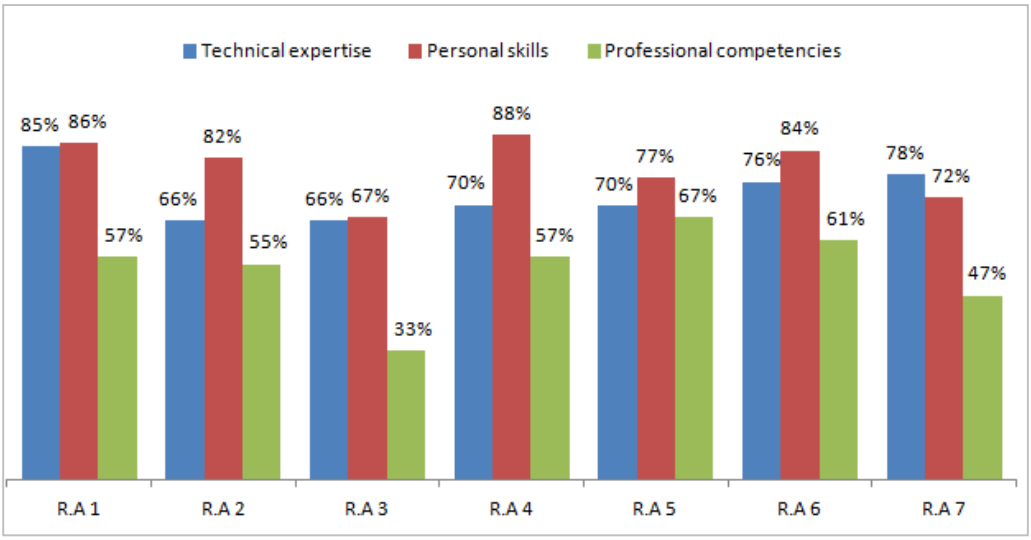

Fig. 1: Synthesis of mastery rates

Based on Fig 1. and Table 2, it is noticed that the 7 cases subject to study are quite different in the sense that there are supplying managers with a high level as far as expertise and acquaintances are concerned, and others with an average level, here lies the genesis of using this type of questionnaires to evaluate the exiting competencies in all the 7 cases. Hence, we will analyze the different results we will find.

As for case n°2, 3 and 7, the proficiency rate reached 68%, 55% and 66% which are below the average (which is estimated to be 69%), this elicits needs at the level of the business's management. By comparing the proficiency's rate of technical, behavioral and professional expertise, we have managed to indicate the proficiency of the behavioral competencies and the absence of the technical and professional expertise for the second and third cases, in addition to the proficiency in the technical and behavioral competence sand the absence of professional expertise in the last case (n°7).

The proficiency's rates for the first, the fourth, the fifth and the sixth case reached 76%, 72%, 71% and 74 % reflecting a robust domination of improved competencies.

These rates can correspond to a proficiency at the level of all of types of competencies or at the level of the recorded high scores in specific cases, bearing in mind that that the technical expertise constitute 85% of the standard rate. An individual with a such rate can be regarded as a leader in his proper domain. The possible improvements lie in the acquired knowledge at the level of competencies which have obtained average or low results.

In cases n° 3 and 5, we notice that the supplying managers have a shortage in "the prospection and identification of potential suppliers" with a low proficiency's rate estimated at 36% and 20%. This function is important in businesses, especially in industrial ones. It also aims at updating required information about the different fields of activities relevant to business, using existing and available resources about the market, building a data base, selecting potential suppliers, certifying suppliers, developing management resources and searching products.

We also notice that in the second and the fourth case, there is lack in the "identification of the frequency and volume of demand" with a proficiency rate estimated to be 46%and 49%. This operation is extremely important for the business and which is remarkably used in industrial businesses, logistic services and transportation companies. This type of operations includes monitoring and respecting models of stock management that the businesses promote; the calculation of the demanded quantities based on forecasts; the strategies aiming at reducing the stocks in the

supplying chain of the business; the management of provision of the surplus assets; respect of environmental constraints related to supplies; and controlling the flow of material.

Following the previously presented remarks, we suggest that those 7 businesses shall offer a comprehensive training on the operation concerning 'the prospection and identification of potential suppliers' to the management officials, beside another training regarding 'the identification of the frequency and volume of demands'.

Recommendations:

- Human capital is a means of profitability, which is rarely found in the businesses' accounts, yet it represents today 2/3 of the business's value.
- The failure in merging and acquiring are most of the times due to the underestimation of the human capital.
- Only 7% of the businesses do evaluate risks relevant to human capital.
- Attracting the attention of skilled-talented individuals through proposing beneficiary offers and purely financial compensations.
- Offering innovative management.
- Preserving the health of collaborators.
- Strengthening teams with the help of teambuilding games.
- Celebrating the International Women's day.
- Creating an atmosphere marked by cooperation, coordination and exchange of information inside the business.
- Encouraging the employees and motivate them to love working in the business.
- Considering the well-being at work implies more globally the interest in the position of the human dimension.

Conclusion

Taking into consideration the well-being at work implies the thoughtful interest in the position of the human dimension in business. It is the main issue put forward in the present article, which points out the crucial key role played by human resources and its impact on the overall performance of a business.

There is a referential study which focuses on reviewing human resources performing supplying tasks, beside calculating the expertise 's/competencies' proficiency rate of those resources.

The 7 businesses should draw up a strategy with regards to human resources to strengthen the human capital which is therefore an improvement of its strategy of competitiveness and performance.

In fact, the way a business would be able to build its future growth with its employees who would feel that their true value does not lie in the asset side, but rather in the liability one.

However, businesses should give the human capital its rightful place, and the absence of this is risk, which won't let them have their own 'Sullenberger', who is the pilot who has managed to land his Airbus plane on the Hudson river in New York on January 15th, 2009, saving the lives of 155 passengers.

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Determinación de Zonas Climáticas en la Frontera Norte de Chile Utilizando y Evaluando Técnicas de Clustering

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Abstract

El artículo describe un trabajo investigación que busca identificar zonas climatológicamente similares en el norte de Chile y colindante con las fronteras de Perú, Bolivia y Argentina. Para esto, se lleva a cabo un proceso de minería de datos que utiliza datos provenientes de una red de 82 estaciones meteorológicas instaladas en la zona, y sobre estos datos se aplican los algoritmos de clustering: AHC, PAM, FCM, K-Means, DBSCAN y SOM. Adicionalmente, el trabajo realiza una evaluación empírica de las técnicas de clustering utilizadas, aplicando indices apropiados y algunos criterios definidos con un experto, para así determinar el modelo que major representa el agrupamiento de zonas con climas similares. Se concluye en este trabajo, que es posible identificar estas zonas utilizando solamente los datos de precipitación, ya que la cantidad de estaciones meteorológicas que presentan series temporales de temperatura con calidad es muy baja.

Keywords: Minería de datos; clustering; climatología; registros climáticos; estaciones meteorológicas.

Introducción

La evaluación de la disponibilidad del recurso hídrico es un factor clave en la creación de estrategias eficientes para el óptimo aprovechamiento en las actividades humanas de un país (Alvarez y otros, 2009). En estos casos, es recomendable clasificar el territorio en regiones con características comunes, a fin de enfatizar las peculiaridades de cada región, y de esto modo, poder realizar una apropiada gestión territorial (Bravo y otros, 2012). Es fundamental, en estas situaciones monitorear el clima en las zonas de interés, para lo cual se torna importante contar con instrumentos y Estaciones Meteorológicas (EM), que proporcionen los datos necesarios para lograr este análisis. Una de las formas actuales que ha tomado relevancia al momento de llevar a cabo análisis climáticos, es a través del desarrollo de procesos de Minería de Datos (MD).

Al respecto, Ganguly y Steinhaeuser (2008) afirman que el descubrimiento de conocimiento en el área climática, implica principalmente un proceso de MD, ya que permite extraer patrones desde volúmenes masivos de observaciones y modelos relacionadas con el clima. También explican, que uno de los desafíos más grandes de la MD en este campo, es analizar eventos hidro-meteorológicos extremos, causados por el cambio climático.

Muñoz y Sánchez (2004), señalan que una de las prácticas comunes en climatología, es realizar el agrupamiento espacial de los sitios de observación, ya que permite resumir los datos climáticos de manera concisa. Es por ello, que los mismos autores presentan las técnicas de clustering como las más útiles dentro de la MD para estos casos, debido a la capacidad de agrupar e identificar patrones en este tipo de datos, principalmente porque se han vuelto una herramienta efectiva al momento de agrupar EM en zonas climatológicamente homogéneas, o para agrupar períodos de tiempo en grupos que reflejan la ocurrencia de eventos climáticos. Finalmente, estos autores mencionan que el

propósito de la técnica de clustering, es colocar objetos en grupos sugeridos por los datos no definidos previamente, de modo que los objetos en un grupo dado tienden a ser similares entre sí en algún sentido.

El artículo aborda un proceso de MD aplicado a datos climatológicos obtenidos desde 82 EM instaladas en la zona geográfica de estudio, que considera el norte de Chile y áreas colindantes con los países limítrofes como: Perú, Argentina y Bolivia. El objetivo del trabajo es caracterizar zonas climatológicas similares en esta zona geográfica, tomando en consideración registros de mediciones de temperatura y precipitación (PP). Lo anterior, para realizar una gestión territorial más eficiente en la zona. Como objetivos secundarios, por un lado, se consideran las zonas limítofes indicadas, con el propósito de observar si se logran diferenciar climáticamente. Y en segundo lugar, se realiza una evaluación de diferentes técnicas de clustering, en cuanto cual de ellas logra una mejor descripción de las zonas climáticas, considerando cuatro vistas minables (VM) de mediciones en el período de año 1983 - 2012.

Trabajos Relacionados

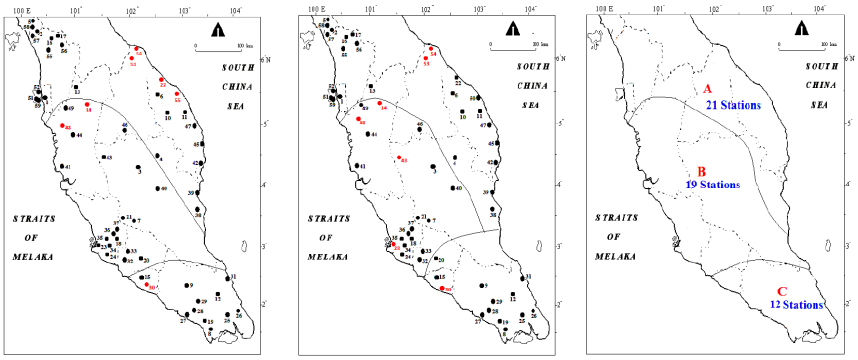
Existen diversos estudios, en los cuales se realiza análisis de registros climáticos utilizando procesos de MD, y en particular algoritmos de clustering. De los trabajos revisados y analizados, se destacan los de Ahmad y otros (2013), y el de Bernard y otros (2013) que se detallan a continuación. El primero, Ahmad y otros (2013) proponen un enfoque de agrupamiento jerárquico con el algoritmo AHC (Agglomerative Hierarchical Clustering) para la regionalización de Malasia Peninsular utilizando los datos de PP, dado que las distribuciones de lluvias son diferentes en la zona. Los autores en este estudio buscan agrupar las EM en Malasia Peninsular para reducir las masas de observación.

En la ejecución de esta investigación se consideran datos anuales de PP, correspondiente a 59 EM homogéneas dentro del período 1975-2010 siguiendo una metodología de tres pasos: (1) determinación del número óptimo de clústeres, (2) agrupación jerárquica de las EM según el número óptimo de clústeres obtenidos del paso anterior, y (3) selección del mejor modelo. En la primera etapa, aplican el algoritmo AHC utilizando la distancia Euclidiana para determinar el número óptimo de clústeres (k), cuyos resultados son evaluados con ocho índices de validación, entre los cuales está el índice de Davies-Bouldin, Dunn y Silhoutte.

Posteriormente, aplican nuevamente el algoritmo AHC, pero esta vez utilizando el número de clústeres óptimo determinado por cada índice de validación, combinando siete tipos de enlaces entre los cuales destacan: Average Linkage, Complete Linkage, Single Linkage, Weighted Linkage y Ward Linkage, que a la vez son combinados con las medidas de distancia Euclidiana, Mahalanobis, Manhattan (City Block), Minkowski, Correlation, Spearman, y Chebychev. Para finalizar, en la última etapa todos los modelos obtenidos de las combinaciones entre los diferentes tipos de enlace y medidas de distancia, se evalúan en base a factores como la geografía de Malasia y la segregación de EM en los grupos. Los dos mejores modelos logrados en este estudio se pueden visualizar en la Fig. 1(a) y Fig. 1(b), donde las EM de color rojo no son consideradas como parte de los modelos ya que presentan una ubicación errónea.

El primer modelo, corresponde a la Fig. 1(a) cuyos resultados se obtienen con Complete Linkage y la distancia Correlation, el cual divide Malasia Peninsular en tres partes que son el clúster superior, central e inferior. En el clúster superior, hay 21 EM de la zona norteña y del este de Malasia Peninsular, seguida por el clúster central que consiste en 19 EM, sobre todo de la parte occidental. El clúster inferior comprende la parte meridional de Malasia Peninsular con 12 EM en total. El segundo modelo que se observa en la Fig. 1(b), es la combinación entre Weighted Linkage con la distancia Correlation, donde Malasia Peninsular se divide también en tres partes, y básicamente tiene la misma división que el modelo anterior excepto por el número de EM. Finalmente, los autores concluyen que el número óptimo de clústeres para Malasia Peninsular es de tres (A, B y C) como se observa en la Figura 1(c), considerando que la combinación de Complete Linkage y la distancia Correlation es la

más adecuada para ajustarse al conjunto de datos. Esto se basa en la geografía de Malasia, la segregación de las EM en cada grupo y su simplicidad.



(a) (b) (c)

Fig. 1: Mejores modelos: (a) Complete Linkage con distancia Correlation. (b) Weighted Linkage con distancia Correlation. (c) Mapa de clústeres finales (Ahmad y otros, 2013).

El segundo estudio analizado (Bernard y otros, 2013), busca agrupar 92 EM en Francia empleando el algoritmo PAM (Partitioning Around Medoids), sobre registros horarios de precipitaciones en el periodo 1993- 2011. La VM consiste en los máximos semanales de precipitaciones por hora de las 92 EM, las cuales se seleccionan en base a la calidad de datos y homogeneidad, descartando aquellas que presentan precipitaciones menores a 3 mm. Los autores proponen utilizar PAM, porque es más robusto ante la presencia de valores extremos, a diferencia de otros algoritmos que se basan en la media como K-Means. También para su experimento realizan la comparación entre ambos algoritmos utilizando la medida de distancia Euclidiana para K-Means y F-madogram para PAM. Para evaluar sus resultados y determinar el número óptimo de clústeres, emplean el índice de Silhoutte.

Como conclusión, los autores explican que combinando el algoritmo PAM con la distancia Fmadogram, ofrece una perspectiva diferente para aquellos que estan interesados en identificar patrones espaciales o temporales en climatología estadística. También, que los grupos óptimos son entre cinco o siete, pero seleccionan finalmente el modelo de cinco grupos porque permite mantener el mapa interpretable y evita la sobre-parametrización, quedando los agrupamientos que se observan en la Figura 2.

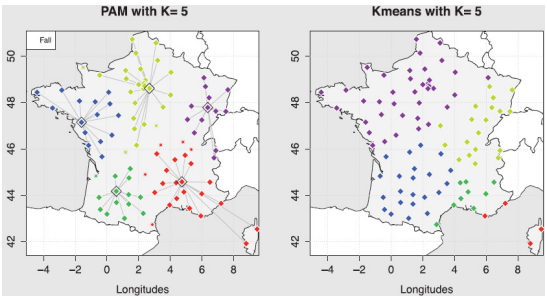


Fig. 2: Comparación de algoritmo PAM y K-Means para cinco grupos de EM (Bernard y otros, 2013).

Otros estudios revisados realizan análisis similares, pero utilizando algoritmos diferentes, por ejemplo, García y otros (2012), emplean el algoritmo SOM (Self Organizing Map) y FCM (Fuzzy C-Means). Steinbach y otros (2003), utilizan los algoritmos K-Means y DBSCAN (Density Based Spatial Clustering of Applications with Noise). Dikbas y otros (2012) aplican el algoritmo FCM

sobre una VM que considera la PP total anual, el coeficiente de variación de la PP total anual, latitud, longitud y altitud de las EM. Para evaluar los resultados del algoritmo FCM, utilizan el índice de Xie-Beni (XB). Mientras que Halkidi y otros (2001), utilizan el índice del Coeficiente de Partición (PC). Por otro lado, Halkidi y Vazirgiannis (2001), recomiendan el índice de S_Dbw para DBSCAN. Finalmente, Tian y otros (2014) recomiendan los algoritmos de K-Means, SOM, DBSCAN, FCM y AHC para el agrupamiento de datos meteorológicos.

Metodologías y Técnicas

El desarrollo del estudio, se realiza en base a las recomendaciones que entrega la metodología CRISPDM (Cross Industry Standard Process for Data Mining), la cual está compuesta por seis fases iterativas: Comprensión del Negocio o problema, Comprensión de los Datos, Preparación de los Datos, Modelamiento, Evaluación y Despliegue (Wirth y Hipp, 2000) (Chapman, 2000). Para efectos de este trabajo, el despliegue corresponde a las secciones de resultados y conclusiones del presente documento.

A. Comprensión del Problema

En esta fase, se determina el período y zona de estudio con la ayuda previa de las fases correspondientes a la comprensión y preparación de datos. La zona geográfica de estudio está delimitada por las coordenadas 15°S a 26°S y 59°W a 79°W, que corresponde al norte de Chile, principalmente la región de Tarapacá y zonas limítrofes con Perú, Bolivia, y Argentina.

En esta zona, producto de la especial topografía que presenta, existen seis elementos geomorfológicos: Litoral, Cordillera de la Costa, Depresión Central, Precordillera, Altiplano y Cordillera de los Andes (Lictevout y otros, 2013). Se caracteriza por la existencia de un desierto costero (0-900 msnm), la Depresión Intermedia (900-2200 msnm), la precordillera (2200-3500 msnm) y las mesetas semiáridas sobre los 3500 msnm, que en su conjunto forman lo que se denomina "Puna" o "Altiplano" (Sarricolea y otros, 2017). Esta zona presenta un clima árido y semiárido (Schulz y otros, 2012) (Sarricolea y otros, 2017) especialmente el Desierto de Atacama que tiene un clima hiperárido producto de una extrema falta de precipitaciones (Jungers y otros, 2013). También en las zonas costeras como en Arica (18 °S), Iquique (19 °S) y Antofagasta (23 °S) se presenta esta característica, ya que existen registros anuales de PP menores a 3 mm.

Los datos meteorológicos provienen desde 82 EM instaladas en la zona de estudio, y seleccionadas con las principales variables descriptoras de la atmósfera: Temperatura Media (TMED), Temperatura Mínima (TMIN), Temperatura Máxima (TMAX) y Precipitación (PP), en pasos temporales horarios y diarios. La ventana temporal que cubren los registros climáticos corresponde al rango de años 1983-2012. Las fuentes de información meteorológica son las siguientes:

- Observatorio de Agua (ODEA); administrado por el Centro de Investigación y Desarrollo en Recursos Hídricos (CIDERH) de la Universidad Arturo Prat (UNAP) de Chile.
- Sistema de Estadística Hidrológica en Línea; administrado por la Dirección General de Aguas (DGA) de Chile.
- SISMET; sistema administrado por el Servicio Nacional de Meteorología e Hidrología (SENAMHI) de Bolivia.
- Research Data Archive (RDA); administrado por University Corporation for Atmospheric Research (UCAR) y NCAR.
- Propietarios Directos; corresponden a instituciones públicas y/o privadas que entregan la información de sus EM.

B. Comprensión de los Datos

En esta segunda fase, se recolectan los registros de las mediciones de TMED, TMIN, TMAX y PP, originalmente desde 638 EM, a través de las diferentes fuentes de información mencionadas anteriormente. Para esto, se plantean algunas restricciones: (1) los datos deben tener una escala temporal horaria o diaria, 2) las EM deben contener datos de las cuatro variables meteorológicas, y (3) las EM se deben encontrar dentro de los límites de la zona de estudio. Se revisan los formatos de cada archivo de los registros recolectados, y se observan diferencias en la estructura y extensiones. También se analizan los metadatos de las EM, ya que con estos es posible conocer si la EM estuvo en mantención, fue reubicada o si ocurrió algún evento que pueda explicar los problemas en los datos.

C. Preparación de los Datos

Esta fase considera las tareas de: selección, limpieza, construcción e integración de datos, para obtener finalmente el conjunto de datos en un formato homogéneo. Estas tareas se diseñan con procesos semiautomáticos, utilizando el software de MD Knime, integrado con el lenguaje de programación R. Esto permite explorar y analizar la calidad de los datos, y así poder establecer reglas para su procesamiento.

En primer lugar, se procesan los datos horarios eliminando valores nulos, faltantes, extremos, y duplicados. También se extraen valores de horarios mínimos y máximos de cada día de la temperatura, para transformar los datos horarios a diarios, obteniendo series temporales de TMED, TMIN, TMAX y PP para cada EM. Se integran y restructuran las distintas fuentes de datos, eliminando columnas innecesarias, y se establece un único formato para las fechas, se transforman las unidades a °C. Para el estudio, se considera un valor extremo de la TMED, TMIN o TMAX, cuando tienen valores menores o iguales a -30°C, ó superior o igual a 50°C. Para el caso de la PP los valores son extremos, cuando son menores a 0mm ó cuando son superiores o iguales a 1000 mm.

Se filtran las series temporales para el período seleccionado 1983-2012. En este punto, es necesario analizar la completitud de las series temporales en las EM, y dado que los datos faltantes se encuentran eliminados, estos se detectan observando los saltos de tiempo y que corresponden a discontinuidades. Para evaluar la completitud de las series temporales, se implementa un índice de aceptación por cada EM y variable, el cual se calcula considerando la cantidad de años favorables sobre la cantidad total de años de una EM. Un año es considerado como favorables cuando tiene al menos un 80% de los registros. Como el índice de aceptación no asegura una cantidad mínima de años, las EM pasan por un segundo filtro, donde se aceptan solamente series temporales que tengan entre 10 a 30 años de datos, dado que la WMO (World Meteorological Organization, 2012), indica que se pueden calcular normales climáticas (estadísticos descriptivos) con al menos 10 años de información, los cuales finalmente conforman las VM.

Hasta este punto, el proceso solamente integra los datos y asegura la cantidad de estos, sin embargo, también se debe conocer si las series temporales son homogéneas. La homogeneidad, cobra relevancia dado que descarta series temporales que estén afectadas por situaciones donde una EM se ha cambiado de lugar, o porque tiene descalibrado algún sensor. Para detectar si una serie temporal es homogénea, se utilizan los métodos estadísticos recomendados por Deepesh y Madan (2012), los cuales corresponden a las pruebas de Von Neumann, Bartlett, Levene y Kruskal-Wallis.

Posteriormente, se realizan pruebas estadísticas de normalidad como: Kolmogorov-Smirnov, Lilliefors y Shapiro-Wilk, con las cuales se observa que los datos no siguen una distribución normal. Para todas las pruebas estadísticas, se considera un nivel de confianza del 95%. Con el propósito de mejorar, eliminar vacíos temporales y aumentar la cantidad de información en las EM, se aplica el método de Weighted Linear Combination (WLC) para rellenar series temporales (Barrera, 2004).

El método WLC propone utilizar el CC de Pearson, para ponderar el grado de relación entre la serie temporal de la EM que necesita ser rellenada, respecto a las EM que tienen registros potenciales para

completar los datos. Sin embargo, como los datos no siguen una distribución normal se reemplaza por el CC de Spearman (r_s). Para las series temporales que necesitan ser rellenadas, se aceptan como insumo los datos de las EM que presentan una correlación significativa (nivel de confianza del 95%), y que tengan un $r_s >= 0.8$ respecto a la EM que tiene el vacío temporal (González y otros, 2002).

Como parte del relleno de las series temporales, se suma un análisis geográfico de las EM que pasaron el filtro de correlación, para descartar EM que presentan correlación significativa, pero están ubicadas en unidades geográficas diferentes. Este paso se realiza utilizando el software de información geográfica llamado ArcGIS. Posterior al relleno de series temporales, los datos se someten nuevamente a las pruebas de normalidad y homogeneidad, para revisar si su comportamiento tiene cambios, y donde se detecta que todas las EM mantienen sus estados originalmente observados antes del relleno.

Finalmente, el resultado de esta fase es la selección de 82 EM de un total de 638, incluyedo cuatro VM que se calculan por cada EM, compuestas por valores acumulados para la PP y promedios para las temperaturas, adicionando atributos como la longitud, latitud y altura de las EM, así como con algunos estadísticos como el coeficiente de variación (Nazaripour y otros, 2011). Las cuatro VM definidas son:

- VM1: Valores promedios (temperaturas) o acumulados (precipitaciones) mensuales por cada EM.
- VM2: Valores promedios (temperaturas) o acumulados (precipitaciones), mediana, desviación estándar, valor mínimo, máximo y coeficiente de variación.
- VM3: Cálculo de valores promedios (temperaturas) o acumulados (precipitaciones) mensuales por cada EM, adicionando longitud, latitud y altitud de las EM correspondiente.
- VM4: Valores promedios (temperaturas) o acumulados (precipitaciones), mediana, desviación estándar, valor mínimo, máximo y coeficiente de variación, adicionando longitud, latitud y altitud de las EM correspondiente.

D. Modelamiento

Para agrupar las 82 EM y poder identificar las zonas climáticas similares, se consideran los algoritmos: K-Means, PAM, AHC, FCM, DBSCAN y SOM. Estos algoritmos son recomendados por Tian y otros (2014) para realizar agrupamiento con datos meteorológicos, y ampliamente utilizados en los trabajos que se explican en la sección de trabajos relacionados del artículo.

Para crear los grupos con SOM se considera el enfoque que comenta Cabanes y Bennani (2010), donde el agrupamiento se hace en dos partes. Primero se aplica SOM para calcular un conjunto de vectores de referencia (prototipos) que representan las medias locales de los datos, y después en la segunda parte, sobre estos vectores, se realiza la partición final utilizando un método de agrupamiento tradicional, que en este caso se considera solamente K-Means y AHC.

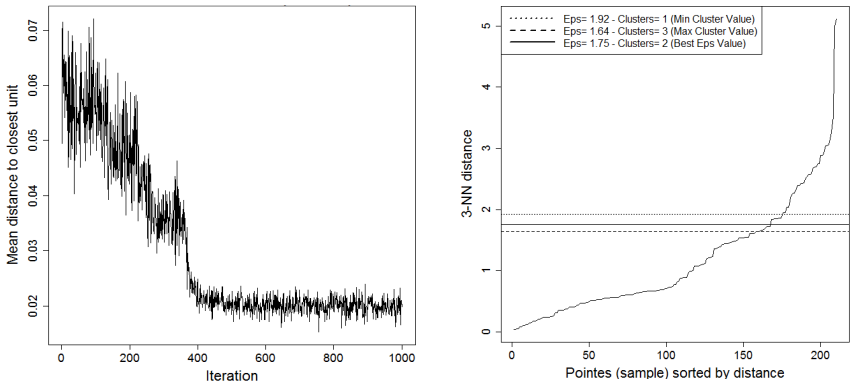
Dado que los algoritmos como K-Means, PAM, FCM y AHC, comparten un parámetro general que es el número de clústeres (k), se configuran en el rango de 2 a 25 para EM con PP, mientras que, para la TMED, TMIN y TMAX se maneja el rango de 2 a 10. Esto principalmente, porque las EM seleccionadas que registran PP son 70, y no se espera identificar más de 25 zonas climáticas. En el caso de las EM que registran temperaturas (TMED, TMAX y TMIN), su cantidad fluctúa entre 23 y 25, por lo que el valor de los grupos se condiciona a la mitad su cantidad. También, estos algoritmos se combinan con la distancia Euclidiana, Manhattan, Chebychev, Minkowsky ($p = 1.5$), Spearman y Canberra. En el caso del algoritmo AHC también se emplean los criterios de enlace Single Link, Complete Link, Average Link y Wards.

Por otro lado, al algoritmo FCM requiere que se configure el parámetro m que corresponde al grado de *fuzziness* (confusión), mientras que DBSCAN es totalmente distinto, ya que no es necesario entregar el número de grupo y medida de distancia. En este algoritmo se configura como parámetros los puntos mínimos (*MinPts*) necesarios para considerar una región densa (grupos) y el radio de la

vecindad (*Eps*), con esto el algoritmo es capaz de encontrar los grupos. Finalmente, SOM tiene como parámetros el número de iteraciones, tasa de aprendizaje, tipo de topología y vecindad.

Es por lo anterior, que se diseña un proceso semiautomático para probar todas las combinaciones posibles entre algoritmos, cantidad de grupos, criterios de enlace, grados de confusión, medidas de distancia y otros parámetros particulares de cada algoritmo según corresponda. Las combinaciones se evalúan promediando los índices de validación, lo cual permite elegir los mejores parámetros para que los algoritmos puedan crear los modelos de las zonas climáticas. En FCM, se utiliza el rango $1.5 \leq m \leq 2.5$ para las pruebas de parámetros con incrementos de 0.1, resultando como valor óptimo $m = 1.5$ para la mayoría de los casos. En SOM, se obtiene como configuración óptima 400 iteraciones con una tasa de aprendizaje de 0.05, en una topología hexagonal y una vecindad Gaussiana. En la Fig. 3(a), se puede ver un ejemplo de SOM con 1000 iteraciones, donde a las 400 se estabiliza. Esta configuración se aplica para los modelos que se obtienen combinando SOM con K-Means y AHC.

Para determinar los valores de *MinPts* de DBSCAN se considera la regla recomendada por Berthold y otros (2010), la cual establece que $MinPts = 2*(D-1)$, donde D es la cantidad de dimensiones del conjunto de datos. También (Berthold y otros, 2010) y (Vijayalaksmi y Punithavalli, 2010) mencionan que el valor de *Eps* se obtiene por medio de una inspección visual en los gráficos MinPts-distance (*k-distance*), el cual consiste en una curva donde el valor óptimo de *Eps* es cuando ésta cambia, un ejemplo de su aplicación es la investigación de Rahmah y Sukaesih (2016) quienes utilizan esta técnica.



(a) (b)

Fig. 3: (a) Entrenamiento de SOM con 1000 iteraciones para PP con VM1. (b) Gráfico k-distance para PP con VM1.

Por otra parte, se considera la recomendación de Goss y Nitschke (2014), para determinar el valor óptimo de *MinPts* el cual está dado por el rango $D + 1 < MinPts < (|db|)/2$, donde D es la cantidad de dimensiones del conjunto de datos y *db* la cantidad de registros. En la Fig. 3(b), se puede visualizar un ejemplo del gráfico *k-distance* con los tres vecinos más cercanos, donde la curva de los datos ordenados es cortada por tres rectas correspondiente a diferentes valores de *Eps*. Cada valor de *Eps* genera una cantidad de grupos distinta por medio del algoritmo, destacando que el valor 1.64 crea la mayor cantidad de grupos (tres clústeres) mientras que el valor 1.91 solamente obtiene un clúster. En base a esto, se adopta el criterio de seleccionar los valores *Eps* que logran crear la mayor cantidad de grupos.

E. Evaluación

Los modelos generados son evaluados con diferentes índices de validación, que miden la separación y compactación de los grupos. En la Tabla 1 se detallan los índices que se utilizan para validar cada algoritmo, sin embargo, también se considera en la evaluación otros factores como la geografía y la segregación de EM que se analizan junto a un hidrogeólogo experto conocedor de la zona de estudio.

Tabla 1: Índices de validación para algoritmos de agrupación utilizados

Algoritmo	Índice de Validación
K-Means, PAM, AHC, SOM (AHC o K-Means)	Dunn (*D*), Davies-Bouldin (*DB*), Silhoutte (*SIL*)
FCM	Xie-Beni (*XB*), Partition Coefficient (*PC*), Dunn (*D*)
DBSCAN	S_Dbw, Dunn (*D*), Davies-Bouldin (*DB*)

En la evaluación de los modelos se aplican los siguientes criterios proporcionados por un hidrogeólogo:

1. Selección del mejor modelo de agrupamiento que represente la segregación de las EM, en base al modelo conceptual de la distribución de la temperatura y PP en la zona de estudio. Existe previamente, un conocimiento de como se distribuyen estas variables en la zona, por ejemplo, para el caso de la PP, es de esperar que exista un agrupamiento de EM en el sector cordillerano, más no un agrupamiento entre estaciones de la cordillera y aquellas ubicadas en la zona costera, ya que los patrones que originan dichos eventos son distintos, generando a su vez diferentes tasas de PP.
2. Correspondencia del modelo conceptual de la distribución de variables con las características geográficas de la zona de estudio. Claramente se aprecia un aumento altitudinal de Oeste a Este, marcado por la presencia de una franja costera continua y la cordillera de los Andes, la cual se ve inferida por un gran Salar a la altura de la región de Antofagasta, generando particularidades que de igual forma se conocen previamente.
3. Valores de los Índices de validación para cada modelo obtenido.
4. Cantidad de grupos de EM (*k*). Dadas las particularidades que se puedan presentar, resulta conveniente considerar aquellas agrupaciones donde se genera una mayor diversificación de grupos, ya que esto permite identificar y controlar las particularidades de zonas climáticas.

Para que la evaluación se pueda manejar de una forma cuantitativa, considerando los criterios antes mencionados, los modelos son valorados numéricamente de acuerdo con el puntaje de la Tabla 2.

Tabla 2: Criterios para el análisis de resultados de los algoritmos de agrupamiento

Puntos	Descripción
1	Resultado con muy mala representatividad, generando dudas del agrupamiento sin posibilidad de justificar, y sin buenos índices de validación.
2	Resultado con mala representatividad, generando algunas dudas del agrupamiento sin posibilidad de justificar, y sin buenos índices de validación.
3	Resultado con regular representatividad, generando dudas del agrupamiento en algunos sectores puntuales sin posibilidad de justificar, y con índices de validación regulares.
4	Resultado con buena representatividad, generando pocas o ninguna duda(s) del agrupamiento en algunos sectores puntuales sin posibilidad de justificar, y con buenos índices de validación.
5	Resultado con buena representatividad, sin dudas del agrupamiento, y con índices de validación excelentes.

Resultados

Debido a la cantidad de combinaciones entre VM, algoritmos y configuración de parámetros (cantidad de grupos, criterios de enlace y medidas de distancias), se obtiene un total 4470 modelos.

Estos últimos, se expresan en forma de mapas para observar la geografía y la distribución de los grupos de las EM según su ubicación, ya que esto permite identificar visualmente las posibles zonas climáticas.

En las Tablas 3, se observan los cuatro mejores modelos evaluados por el experto para cada variable según los algoritmos, VM y parámetros, destacando en negrita el mejor de los cuatro. Como los resultados son extensos, los mapas, los resultados de los índices de validación y el detalle de la combinación de los algoritmos, distancias, VM y parámetros se pueden revisar en: http://acinfo.inf.unap.cl/~fgarcia/Clusters/.

Tabla 3: Algoritmos, distancias, VM y parámetros que entregan los mejores modelos

Variable	Algoritmo	Distancia	VM	*K*	Puntos
PP	K-Means	Euclidean	VM2	24	4.6
	PAM	Euclidean	VM4	25	4
	AHC (Ward)	**Euclidean**	**VM3**	**25**	**4.8**
	FCM (*m=1.5*)	Minkowski (*p=1.5)*	VM1	22	4.5
TMED	PAM	Spearman	VM1	9	3.9
	PAM	**Spearman**	**VM4**	**10**	**4**
	AHC (Single Link)	Canberra	VM2	10	3.6
	AHC (Average Link)	Minkowski (p=1.5)	VM3	10	4
TMAX	K-Means	Euclidean	VM2	10	3.8
	AHC (Average Link)	Maximum	VM1	10	3.8
	AHC (Single Link)	Euclidean	VM3	10	4
	AHC (Single Link)	**Euclidean**	**VM4**	**10**	**4**
TMIN	K-Means	Euclidean	VM4	7	3.2
	PAM	Minkowski (*p=1.5)*	VM2	10	3.3
	AHC (Ward)	**Euclidean**	**VM3**	**10**	**4.4**
	SOM (AHC-Average Link)	Euclidean	VM1	14	3.3

Considerando las cuatro variables y el mejor modelo de cada una de ellas para identificar zonas climáticas, destaca el modelo entregado por algoritmo AHC utilizando Ward con la distancia Euclidiana sobre la VM3 de la PP considerando 25 grupos (Fig. 4), dado que tiene una puntuación de 4.8 por parte del experto y muy buenos índices validación (*DB = 0.23* y *D = 0.36*).

Lo característico de este modelo, es que representa la mejor distribución de las EM porque genera clústeres que se encuentran uniformemente distribuidos, significando que son grupos no localizables aleatoriamente en toda la zona de estudio, sino que se distinguen clústeres de EM próximas entre si. Un ejemplo, es lo que la representación es más asertiva, ya que dicha agrupación homogénea sigue la distribución de algunas cuencas de inter ´es, como la del Salar de Atacama. A lo anterior se suma la identificación de los posibles microclimas en la zona del Litoral separando Tarapacá y Arica de Antofagasta, además de las EM agrupadas en Calama y en la Cordillera. En el caso de Bolivia se logra diferenciar las zonas de Tarija, Uyuni y la Paz.

Al momento de analizar las zonas climáticas con las temperaturas se vuelve más complejo, dada la baja cantidad de EM que lograron superar los filtros en la etapa de preparación de datos. Sin embargo, el modelo conceptual de las EM es más simple que para las PP porque la temperatura disminuye de costa a cordillera, implicando que las diferencias entre la máxima y mínima sean más notables hacia la depresión intermedia, y menos en el sector costero.

En el modelo de diez zonas climáticas para la TMED, se observa un agrupamiento que se relaciona con el modelo conceptual, ya que muestra claramente un agrupamiento de EM en la zona Costera, Depresión Intermedia, Precordillerana, Cordillerana, Altiplánicas y Llanura (sector oriental de la Cordillera del lado argentino). Este modelo lo genera el algoritmo PAM sobre la VM4, y considera como distancia el coeficiente de correlación de Spearman.

De forma general, lo que ocurre con la TMAX y TMIN no es muy diferente a lo que se observa en la TMED. En el caso de la TMAX con la VM4 se consigue generar el mejor modelo utilizando el algoritmo AHC combinado con el criterio de enlace Single Linkage y la distancia Euclidiana. Este modelo (*DB = 0.25* y *D = 0.67*) agrupa en un solo clúster las EM costeras, lo cual tiene relevancia dado que las máximas suelen tener un mismo comportamiento influenciado por la regulación térmica que ofrece el océano. De igual forma, se distingue un agrupamiento más uniforme, diferenciando las EM ubicadas en la Cordillera, Altiplano, Precordillera y en la Llanura, siguiendo de esta forma la influencia de la topografía en el valor de la TMAX. De todas maneras, este modelo mantiene un grado de incertidumbre, ya que las EM de Calama son consideradas en el mismo grupo que la EM ubicada cerca de Mejillones.

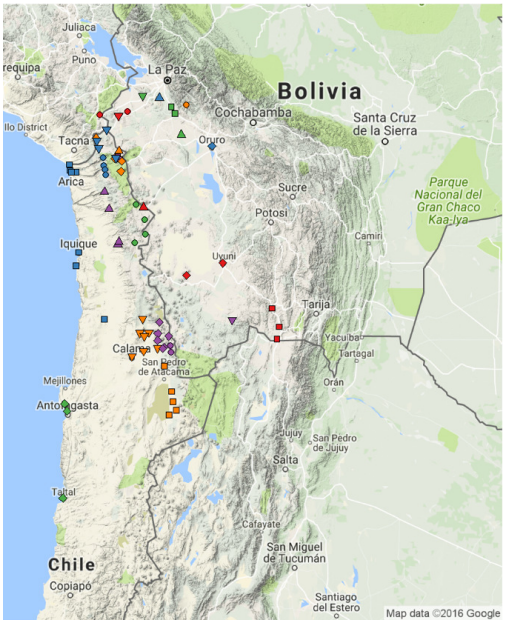


Fig. 4: Grupos de EM (K = 25) para la PP (VM3) con AHC (Ward Linkage) y la distancia Euclidiana.

Por otra parte, la TMIN presenta las mismas situaciones que la variable anterior, principalmente porque los valores extremos en la zona de estudio tienen un comportamiento influenciado por la topografía y la proximidad al océano. Debido a esto, los mejores modelos son los que simulan la distribución de las EM en grupos Costeros, Precordilleranos, Cordilleranas, Altiplánicas y de Llanura de forma uniforme, dado que los grandes dominios topográficos muestran una distribución uniforme en la zona geográfica.

Conclusiones y Trabajo Futuro

En la identificación de zonas climáticas similares por medio de la agrupación de EM, se determina que es posible definirlas utilizando los datos de la PP, pero no con las temperaturas. Esto, porque la cantidad de EM que presentan series temporales de temperatura con calidad es muy baja, para que los algoritmos de agrupamiento puedan construir modelos consistentes a los modelos conceptuales de la distribución de variables, dejando incertidumbres o dudas como posibles generaciones de microclimas.

El algoritmo AHC combinado con el criterio de enlace de Ward y la distancia Euclidiana, aplicado sobre las PP en la VM3, entrega el modelo mejor evaluado capaz de reconocer 25 zonas climatológicamente similares, logrando separar el Litoral, Depresión Intermedia, Precordillera, Cordillera, y algunas zonas de Bolivia.

En general, independiente de la variable el algoritmo AHC resulta ser mayoritariamente el mejor al combinarlo con la distancia Euclidiana y los criterios de enlace de Ward y Single Linkage. Esto se atribuye a que este algoritmo, a diferencia de los otros, puede considerar diferentes tipos de criterios para enlazar los grupos logrando una mejor formación de ellos. Por otro lado, para complementar, la VM3 para las PP y VM4 para las temperaturas permiten a los algoritmos entregar los mejores modelos, ya que en una geografía tan variada como la existente en la zona de estudio, las variables como la altitud, latitud y longitud de las EM permiten a los algoritmos diferenciar zonas con mayor facilidad.

Como trabajo futuro, se propone ejecutar nuevamente este estudio dentro de 10 años para analizar si la red de monitoreo de la región presenta una mejora y evaluar si es posible construir mejores modelos de las zonas climatológicamente similares, pero esta vez considerando una VM integrada con los datos de la TMED, TMIN, TMAX y PP, dado que esto actualmente no se puede realizar porque los datos no logran pasar los filtros dejando EM sin series temporales de temperatura o PP válidas para que se puedan integrar. Producto de lo anterior nace la posibilidad de realizar un estudio para confirmar los posibles microclimas que puedan existir, lo cual en un primer análisis se puede realizar con climogramas.

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IPO as a Mechanism of Investment Attraction to Small Innovative Enterprises

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Abstract

IPO is a valid mechanism of investment attraction to the companies. This instrument provides the possibility of further development of the enterprise. With the development of stock market, entrance to the stock market can be used not only by large companies; it is available to small innovative companies as well. Efficient IPO will allow the issuing company to acquire new assets, introduce new ideas and developments.

Keywords: IPO, stock market, innovative companies, financing, market capitalisation.

The development of the infrastructure space, along with economic and social space, can also be affected by the influence of innovation. The level of infrastructure development is an important characteristic of the region attractiveness for consumers, primarily investors, tourists, migrants, etc. Infrastructure matters for many factors of economic and social subjects of the region. The interested consumers of infrastructure facilities are very numerous, the infrastructure objects themselves are very diverse [1]. Thus, infrastructure development can be considered as one of the most important factors of increase of the competitiveness of regions of the Russian Federation.

Science and innovation have acquired special significance in the past few years. The world economy is focused on innovative development and needs innovations, this in turn leads to an ever-increasing demand for scientific developments and fundamental research. It should be noted that innovations in infrastructure become priority, continuous improvement of technologies for the production of goods and improvement of the quality of life lead to the need to change the infrastructure that act as a link between the creators of innovations and their consumers.

Acute problem of innovative companies that are seeking to enter the market with their ideas is the lack of financing of so-called "long money". This is mainly due to the specifics of innovation activity, sufficiently high degree of uncertainty and inherent risks.

The issue of attracting investments to the companies occurs as a result of the capital market is undeveloped, financial mechanisms need to be improved, a number of investors including foreign ones are not enough. Typically, financing is performed from the company's own funds, which are often very limited. Insufficient current assets force to use profit and depreciation charges for despatch of current exigencies, which adversely affects the strategic competitive capacity of the company.
Provision of financial resources to the company covers the money relations with other business entities, banks dealing with payment for products, supply of equipment, counterparty works, purchase of materials and components, payments to the founders, employees and government agencies.

Leading Russian experts (E.B. Lenchuk, G.A. Vlaskin – the RAS Institute of Economics) highlight the following main weaknesses of the system of financial support of innovation activity [1]:

1. Low volume of money spent by the state and private business for innovation activity.
2. Shaky correlation between the amount of innovation financing from the state and the private sector side.
3. Lack of mechanism for intended use of state budget funds for innovation.
4. Limited investment sources to innovations.
5. Underdevelopment of monetary and credit system for innovation support: low capitalization of banking sector and high rates of interest.
6. Lack in conditions for the expansion of domestic venture capital market and entrance of high-tech companies to the stock market.

Innovative infrastructure and support mechanisms of scientific activities have been generating in Russia, but they do not just produce the desired results in full. We have studied various mechanisms of investments attraction, but in this article we would like to enlarge upon more detailed point covering the entrance of high-tech companies to the stock market via IPO implementation. IPO (Initial Public Offering) stands for "initial public offering" of shares to a wide range of investors at a special exchange/ stock market. IPO is an effective mechanism for procurement of capital through the stock market. Russian stock market is relatively young emerging market. Thus with a view to develop a mechanism of support and investment of small and mid-capitalization innovative companies, in 2009 MICEX Group together with SC "RUSNANO" have established a new stock exchange segment - MICEX "Innovation and Investment Market" (hereinafter referred to as MICEX IIM).

MICEX IIM comprises three segments for companies with different degree of capitalization and maturity [4]:

1) IGC-1 */innovating and growing companies/* is intended for mature innovative companies. It allows you to conduct a public offering (IPO / SPO) and admits securities to the secondary treatment in all trading stages of MICEX Stock Exchange. All types of investors performing operations on MICEX Stock Exchange are available to the issuer.

2) IGC -2 is meant for innovative mid-cap companies and involves the use of stock exchange listing in special mode of negotiated deals for qualified investors.

3) Information board allows through over-the-counter placement to raise finance for innovative companies in the early stages of development, which are not ready to hold a full public offering.

The main advantages of MICEX IIM sector for innovative companies are the following:

- innovative company is permitted to carry out target service with investors;
- formation of a new image provides the company with special positioning, which allows to stand out among other issuers;
- PR - issuers support helping with the road-show implementation, organization of meetings with potential investors, rendering of assistance in the preparation of required documents;
- market-maker programs, analysis of investor base;
- publication of reports, presentations on the website of OJSC "Moscow Exchange MICEX-RTS";
- attraction of necessary funds for further development and implementation of innovative strategies and projects;
- possibility for the future of attraction of financial and bank resources with regard for the image;
- ability of procurement of additional resources against securities pledging;
- quotation and liquidity of shares on the stock exchange.

This method of attracting the financial investments requires from the company extra efforts and conformance to certain requirements: costs for preparing and carrying out of public offering at the stock exchange; loss of confidentiality; restrictions on freedom of action; execution of claims to be submitted to a public company; fiduciary responsibility (duty to work for the benefit of all shareholders).

When making a strategic decision on entering of an innovative company the public market, achievements of necessary economic and financial indicators act as important aspects. The company should not terminate its development; it is important to have developed large investment projects.

When selecting an investment medium in the market, investors draw attention to number of criteria. Several of them are as follows: clarity and rationality of business idea of innovative project; status of company, occupied in the market, in industry; ownership structure; availability of skilled and experienced management team; company's potential, possibility of increasing its value; transparent financial situation, etc.

The effectiveness of IPO implementation largely depends on how well the preparations within an innovative company are undertaken.

Table 1: Criteria affecting the evaluation of market capitalization of innovative company (developed by the authors)

Criteria	Activities
1. Business processes	1.1. Profitability 1.2. Customer support 1.3. Company's flexibility 1.4. Production upgrading 1.5. Product quality enhancing 1.6. Qualified staff
2. Property complex	2.1. Business assets security 2.2. Business investment value 2.3. Property risks 2.4. Company disposal value
3. Business potential	3.1. Corporate strategy 3.2. Possibility of expanding the geographical boundaries 3.3. Competent and efficient business plan 3.4. Communication of strategic plan with budget cycle 3.5 Development of new innovative projects
4. Management processes	4.1. Risk management (planning of risk management operations) 4.2. Quality management (internal audit, quality control and production management) 4.3. Innovative project management
5. Assets management	5.1. Creation of own cash flows 5.2. Formation of positive credit record 5.3. Effective application of invested capital
6. Non-property complex (company image)	6.1. Business dealing transparency 6.2. Information activity 6.3. Timely and reliable reporting 6.4. Dividend policy 6.5 Incentives policy

Strategy and operation of innovative company seeking to use stock market mechanism for investment attraction should be aimed at quality and transparent operation. Company policy should be centralized. An important aspect when entering the public market is a business valuation, which affects the price of shares offering, and, therefore, affects the ability of required amount fund-raising. In view of these reasons, the policy concerning company value increment is an important factor for innovation company.

Choice of stock exchange is a significant issue when making a decision on entering of innovative company the stock market. Figure 1 shows that two thirds of Russian companies are choosing to offer their shares in overseas stock markets. The most widely-spread stock exchanges are as follows: MICEX (Russian Exchange), London Stock Exchange (main market), and New York Stock Exchange. Access to overseas stock markets gives the issuing company a number of advantages and is joined with specific difficulties. The following features of placement in overseas stock markets should be noted:

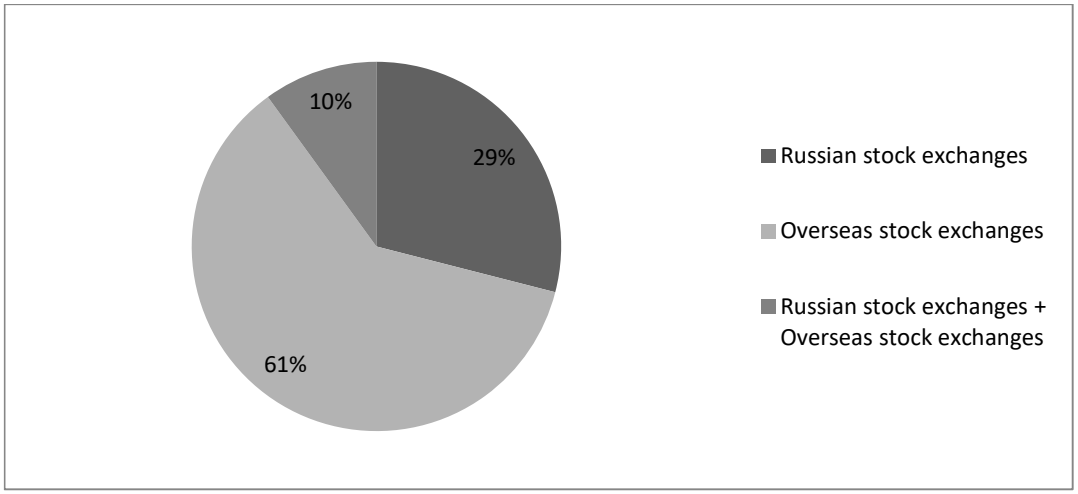

Fig. 1:Preferences of Russian issuers in selecting a stock market for shares offering in the course of 1996-2017 years (it is drawn up by the author on the basis of data analysis of Information and Analytical Website PREQVECA. Electronic resource. Access resource: http://www.preqveca.ru)

1) As was noted earlier, the market-value appraisal is very important at the company accedence to IPO. In foreign markets the company may receive a market-value appraisal higher by 3-5 times in comparison with the Russian appraisal.

2) Foreign stock markets are hundredfold more capital-intensive, more efficiently organized, as well as they are provided with a wider range of financing instruments and facilities that accurately meet the goals and objectives of the issuer, and they tend to finance even small-sized companies.

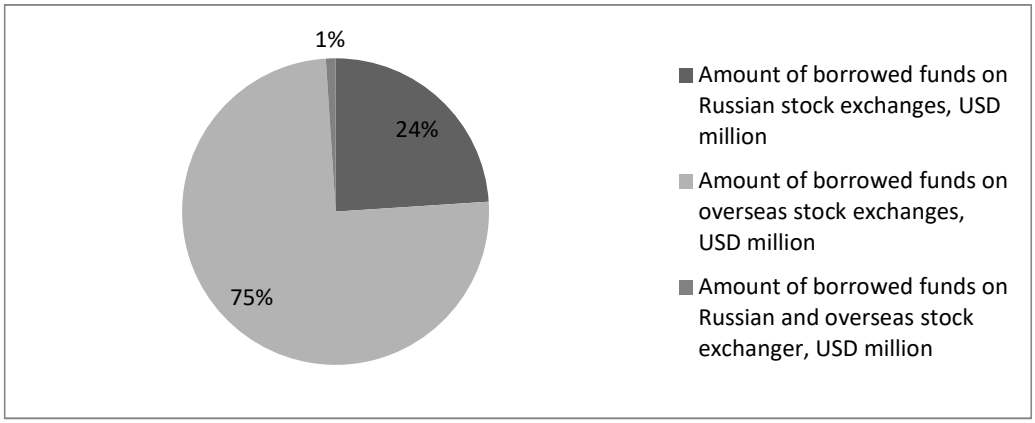

Fig. 2: Amount of borrowed funds from stock exchanges, USD mln. (it is drawn up by the author on the basis of data analysis of Information and Analytical Website PREQVECA. Electronic resource. Access resource: http://www.preqveca.ru)

In total, 296877216 USD million was attracted from Russian stock exchanges (73 companies), from overseas stock exchanges – 936610753 USD mln. (140 companies), the companies offering their assets on the other exchanges have attracted 42957 USD mln. (26 companies) (Fig. 2).

3) In foreign markets, shares liquidity has been increased, which is currently unavailable for Russian market (for the reason that it is still developing). Liquid realizable shares of Russian companies can act as a pledge for debt financing on major foreign stock markets. They can be used instead of cash for acquiring of other companies, payment for various services.

4) They are characterized by better conditions to maintain company management system: to raise a required amount of funds; it is able to issue a smaller number of shares that, in turn, allows to dilute shareholding of original shareholder much less. Moreover, sale of shares in foreign stock markets means their offering to various investors, who cannot and do not seek to control business of the issuer.

5) Issue of securities on overseas exchanges enhances company status and its prestige, contributes to credit enhancement, which in turn makes it easier to establish trade connections and borrow funds abroad, where borrowed funds may be cheaper and be provided for a longer period.

6) Increasing of economic security of company holders due to the fact that company has come under international administrative and political risks.

7) Most foreign investors prefer to carry out investments in securities of companies from emerging markets.

8) Increase of motivation and operational efficiency of staff. Many Western companies and major Russian ones apply shares as an incentive for employees.

9) High level of flexibility with respect to small and medium-sized companies. Such an example is London Trading Platform – AIM, which has easier requirements for issuers.

10) Shares offering abroad is more complicated and costly process. Companies planning to enter the overseas stock market should meet higher requirements for financial reporting, corporate management, requirements for disclosure of financial information and other data.

11) The process of company entering the stock market is quite long. This is due to many factors: legal regulation, offering process, company training and implementation of all necessary

requirements for company entering the public market. To a greater extent the companies are not prepared as required for shares offering, either economically or legally, as well as in terms of process management. Valuable time and essential funds are required for necessary changes within the company.

12) As research of foreign markets shows, company capitalization for its access to IPO should be: the United States (NYSE) - revenue (for last fiscal year) is 75 USD million, London Stock Exchange - 1.2 USD million (700,000 pounds), German Stock Exchange - 1.6 USD million (1.25 million euros), Hong Kong Stock Exchange - 1.6 USD million (1.25 million euros).

13) Certain dependence on market conditions, attention of investment community to the company securities appears in the company. This in turn requires careful strategic planning for further development of the company, implementation of new projects. Company need to maintain shares liquidity on the market, otherwise, the demand will fall, which in turn will result in decline of company market capitalization.

14) Lots of Russian companies are in fear of publicity, especially in foreign markets. This is due to the fact that companies want to protect themselves from unwanted attention from competitors' side and from possible prerequisites to takeover of market by other players. Openness, accessibility to information, and transparency are the requirements for accessing of company to the global markets.

At present creation of conditions and incentives both for increasing the growth of domestic investments and for attracting foreign investments is one of the strategic goals in Russia.

Having been ensured the flow of foreign capital, Russia can secure own general economic growth, improvement of enterprise innovation activity. It helps to strengthen its position in the world market, which in turn entails an opportunity for further development of high-tech segments of national economy.

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The Development of Small and Medium-Sized Enterprises under Current Economical Conditions

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Abstract

In this article I review the role of small and medium-sized enterprises in economy of industrial and developing countries. There is a focus on the functioning of small and medium-sized enterprises in Russia. Revealed factors with influence on the development of small and medium-sized business activities. Discovered the index system of describing commercial opportunities of small and medium-sized enterprises. Conducted the analysis of state support measures for small and medium-sized enterprises, performed its arrangement by classification groups. Paid special attention to motivating tax mechanisms of small enterprises, made classification of stimulation tools in tax assessment. Methodized basic ways of accounting procedures and financial statements set up the order of application and defined expectation effect from implementation of it. Results of this research can cause an impact on the development of small and medium-sized enterprises in countries with economical and accounting conditions and similar to Russia.

Keywords: small and medium-sized enterprises, governmental regulation, tax treatments, accountance.

Introduction

Economic downfalls noticed in global economy in recent times highly complicated the system of trade relationship between different countries and business organizations. The experience of developed countries shows that in recent years the role of small business in the economy has increased, and most enterprises have been classified as small and medium-sized enterprises (SMEs) – more than 95% (Bayramov et al, 2017).

Small and medium-sized enterprises are the main element of the modern market system of management, a guarantee of the effective functioning of a developed market economy. Small business is an important part of scientific-technical progress, the main supplier of jobs in all sectors of the economy Clark III and Moutray, 2004). Another important feature of the SMEs is that they create conditions for more equitable distribution of production capacity and property, and also help to mitigate income and wealth inequality between different population groups (Bayramov et al, 2017). The level of small and medium-sized businesses, the activity of entrepreneurs highly determines the level of country's democratization and the transparency of its economy.

The development of small business meets all necessary global trends in formation of mixed flexible economy, combination of different forms of ownership and its adequate model of enterprise, which implements a complex synthesis of competitive market mechanism and state regulation of large, medium and small production (Korosteleva, 2014)

Small and medium-sized businesses in Russia, as a new economic phenomenon two decades ago, nowadays become an integral part of the Russian economy. At the same time, representatives of

small business are rather die than appear. Small and medium-sized businesses share 20% of the total GDP in Russia while abroad only for small businesses this figure reaches 50% (Burkova, 2015). In developed countries, support for small enterprises is considered to be strategically important aim for economic development. So searching for measures to stimulate the development of small and medium-sized businesses is very important nowadays.

Literature Review

Understanding the relationship between business, economic growth and living standards has attracted many researchers to this issue. During the industrial revolution, large corporations based on economies of scale were considered to be the driving force of growth and development (Audretsch et al., 2000). As computer technology has developed in production, management and information, the role of economies of scale in many spheres of the economy has diminished. Many researchers (Love man and Sengenberger, 1991; Acs and Audretsch, 1993) found out a shift in industry structure from greater concentration and centralization towards enhancement of the role for small firms. There have been some changes in production technologies, consumer demand, and labor supply. Comprehensive documentation about changing the role of small business in economy was provided as well. (Brock and Evans, 1989).

Speaking about the importance of small and medium-sized enterprises in the economy, many researchers note (Kawai and Urata, 2001), that one of the crucial roles in promoting economic growth is to promote dynamism in the economy. Being flexible and versatile, SMEs can adjust to changing business environments better than large firms. In many cases it is SMEs that enter new markets first, and some of them become large as a result of successful operation. Duarte (2004) mentions in his article that, without a doubt, SMEs is crucial for the overall sustainability and health of an economy. Comparing the statistics of different countries, Taganova and Amukowa (2017) conclude: the greater the impact of SMEs on the national economy, the better the economic performance of the country and the competitiveness of its enterprises in the world market. Despite the quantity and importance of small and medium - sized enterprises, researches show that 60% of SMEs fail during the first five years of operation (Boachie and Marfo yadom Mensah 2005). Studies also show that it is hard for the SMEs to access finances from the financial institutions since they lack proper financial records as a requirement (William, 2008). Researchers note (Ruchkina et al, 2017) that the legal regulation burden remains a major impediment to the work of the SMEs, because smaller companies are not enough prepared to confront regulatory issues. It's necessary for public authorities to remove uncertainty and ambiguity in the interpretation of tax legislation from legal acts to create a clear, understandable and predictable microclimate in the legal and financial spheres.

Also the importance of state programs supporting small and medium-sized businesses (Hosťovecký and Poláčik, 2016) as well as the need to establish a balance between needs of regulators and interests of SMEs were noted (Ruchkina et al, 2017). It's necessary to note that the creation of enabling environment for SMEs, capable of providing quality services and competitive products at low prices has great importance for all countries of the world (Robu, 2013).

The status of small business in Russia. According to the results of continuous Federal statistical monitoring the activities of small and medium-sized businesses in the Russian Federation, there are 5 million business entities among small and medium-sized enterprises. This index includes both the number of legal entities and individual entrepreneurs who are employers of 18 million citizens. Twenty percent (and in some areas, even more) of Russia's gross domestic product is created by small and medium-sized businesses.

However, the contribution of small and medium-sized enterprises to the overall economic performance of Russia is much lower than in developed and even some developing countries. So, in Japan, the rate of participation of SMEs in foreign economic activity is at average level and consists about 50% of total exports, and in Italy the rate of participation of SMEs in foreign economic relations reaches 65% of total exports. In France, in the manufacturing sector, the export share of SMEs is equal to the export share of large enterprises. And in developing countries of East Asia it is

about 36% (Taganova and Amukowa, 2017). Small and medium-sized enterprises in the Russian Federation are primarily performed by micro-businesses (95 per cent of the total number of small and medium-sized enterprises). The number of medium-sized organizations is only 0.4 per cent.

Analyzing the number of small and medium-sized businesses at the beginning of 2017, we see a positive trend, which is confirmed by the data in figure 1.

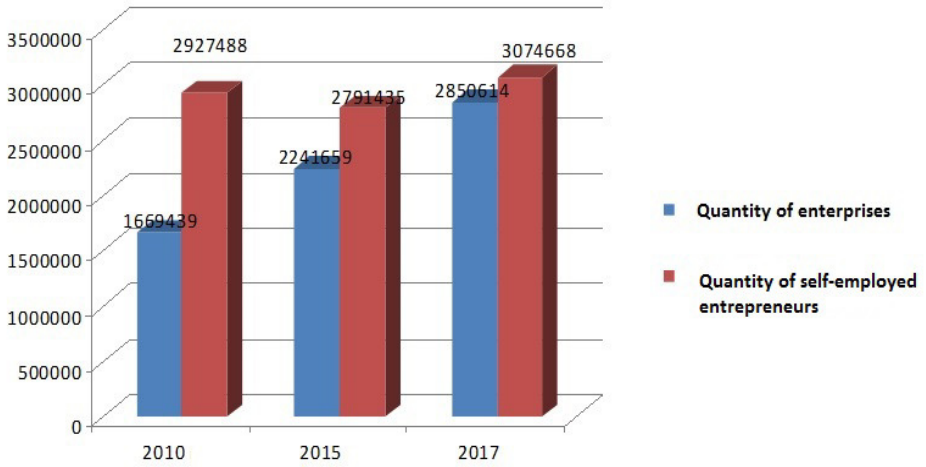

Fig. 1: Quantity of small and medium-sized businesses during the period from 2010 to 2017

It should be noted that the presented indicators do not disclose information about the actual conduct of business. While medium-sized enterprises are rather stable in operation, one third of small and micro-enterprises does not carry out any financial and economic activities. Если средние предприятия достаточно устойчивы в функционировании, то среди малых и микро предприятий одна третья часть не осуществляет финансово-хозяйственной деятельности. This index in self-employed entrepreneur sphere is 25% (Fugure 2.)

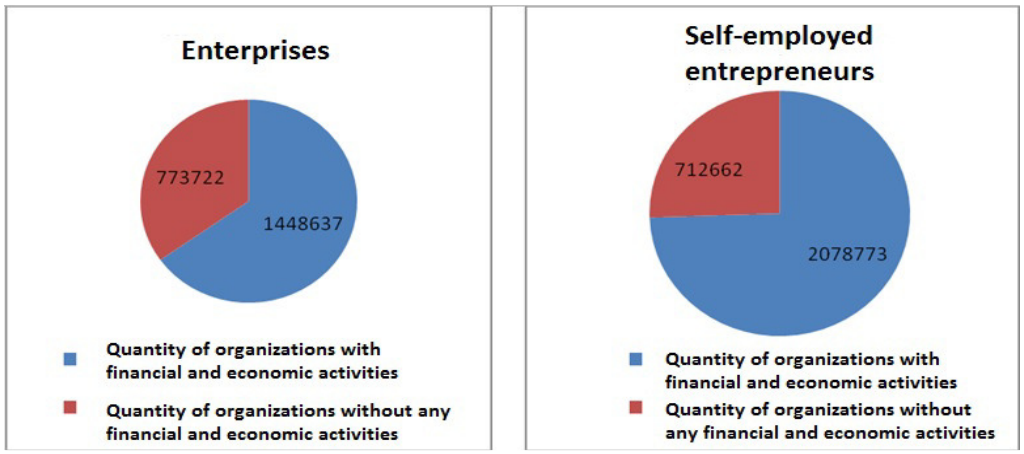

Fig. 2: Quantity of enterprises and self-employed entrepreneurs with and without financial and economic activities in 2015

The small business sector is concentrated mainly in the areas of trade and the providing services to the population. Small and medium-sized enterprises account only for 5-6% of total fixed assets and 6-7% of fixed investment in the country as a whole. In the strategy for the development of small and

medium - sized enterprises in the Russian Federation for the period up to 2030 is noted that labor productivity in small and medium-sized enterprises in the Russian Federation lags behind the level of developed countries (USA, Japan, the European Union) by 2-3 times.

According to some Russian scientists (Koneva, 2015), main reasons for this situation are: the inefficient usage of state support tools for small business; the presence of the negative impact of external environment; incomplete correspondence of small business management tools with its specifics.

In recent years, we have seen a negative trend in the development of small and medium-sized businesses. The share of small and medium-sized businesses in the turnover of Russian is being reduced progressively.

Changing in number of employees in units of small and medium-sized business demonstrates the reduction of business activity. In 2015 about 18, 4 millions of people worked there, 73% of them were enterprises worker and 27% were from self-employed entrepreneurs. According to the Unified register of small and medium-sized businesses in Russia at the beginning of 2017, 15.8 million citizens were employed in small and medium-sized businesses; it is 13.8 million and 2 million respectively. Even more illustrative reduction can be observed by comparing indexes of 2010 and 2017 (Figure 3).

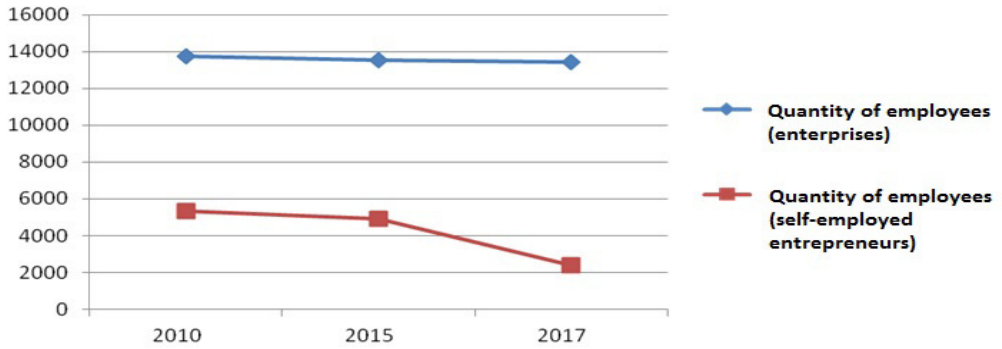

Fig. 3: Changing in number of employees, thousands

The development of small business is influenced by many factors, in particular, general economic conditions for the development of the state or region, the level of entrepreneurship culture, historical experience, the perception of entrepreneurship, the education level of entrepreneurs, time and money, administrative processes and barriers. Taking into account the variety of above-mentioned factors, it is possible to form a system of indicators to evaluate this impact (Table 1).

Table 1: Factors influencing on the development of small business

Factor	Description
Small business characteristic	- organizational-legal form; - purpose of structure; - occupation; - amount of business activity; - number of employees.
Financial resource availability	- availability of own financial resource; - credit interest rate, surety and pledge requirements, loan term; - availability of non-bank credit sources;

	- functioning of public programs to subsidize small business; - tax exemptions.
Property resource availability	- availability of fully owned property; - level of availability for buying or renting real estate; - price parameters of property.
Human resources availability	- salary level in small business companies; - development of consulting and outsourcing services; - provision of state subsidies for reimbursement of expenses for training, retraining and advanced training of personnel.
Legal operating procedures	- availability of normative legal acts for small business support; - functioning of legal and non-legal dispute resolution practice.
Control measures	- terms and complexity of business registration; - quantity of supervisory authority; - licensing of certain business activities; - frequency of control measures; - availability of using «vacation privilege».
Information sphere	- availability of legal and regulatory frameworks; - operation of consulting centers for small business support; - availability of public services, information portals for small businesses.
Competitive sphere	- availability of protective mechanisms in certain areas and sectors of the economy; - presence and direction of large business; - access to public contracts; - organization and allocation tenders for small businesses; - equal business conditions for all small businesses.
Safety level	- protection of proprietary right; - effectiveness of law enforcement authorities; - criminogenic situation in regions.

State regulation of small and medium-sized businesses. Supporting small business, the Government performs a number of priority tasks, including improving the welfare of the population, increasing the percentage of the middle class in the country, reducing unemployment in the state. Moreover, tax revenues from small businesses are the main means of replenishing the state budget in developed economy. Small and medium business increases competition, activates the economic initiative of citizens, what inhibits the growth of prices for goods and services, stimulates businesses for introducing new technologies and improve product quality. Taking into account international practice, state support measures can be classified into several groups (Figure 4).

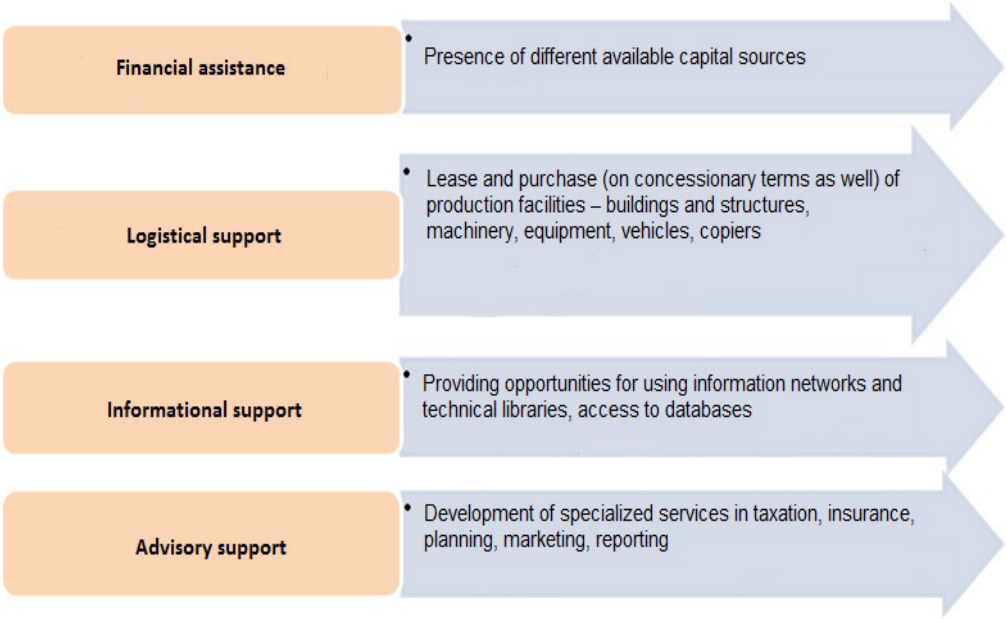

Fig. 4: State support measures for supporting small business

In the Russian Federation the regulatory, legal and organizational foundations of state support for small and medium-sized businesses have been formed. There are some special tax regimes for small businesses that allow optimizing the system of accounting and tax accounting, as well as tax payments. Developed measures to ensure the access of small enterprises to public procurement. The infrastructure of information and consulting support for small businesses is being developed in the regions of the Russian Federation.

Tax incentive instruments can be classified in two ways: reducing the tax burden and reducing the indirect costs associated with the accounting process (Figure 5).

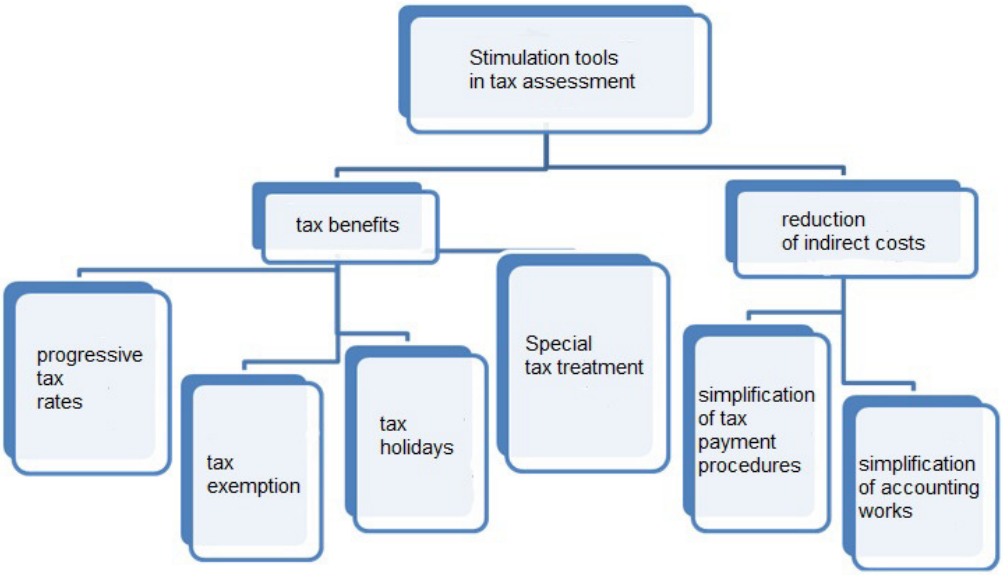

Fig. 5: Tax tools for stimulation small business

It's necessary to note that special tax regimes should be simultaneously attributed to the reduction of the tax burden on small businesses as well as their use can reduce payments to the budget, and also to reduce indirect costs. This result is achieved by reducing the number of taxes paid, and, consequently, reducing the volume of tax registers, tax returns. At the same time, the researchers (Pastukhova, 2014) note some disadvantages of these special regimes: the lack of opportunities to engage in certain activities, restrictions on the number of employees, and banning for the opening of representative offices and branches – all that significantly limits the prospects for business expansion.

Nowadays there is a global trend of accounting standards differentiation depending on the size of the business, which gained widespread with the entry into force of IFRS for SMEs (Kuzmenkova and Kupriyanova, 2016). However, owners of one man businesses may have particular needs and conditions, so that accounting systems need to be flexible in order not to impose unnecessary operative burdens (Abdulrasheed, Khadijat and Oyebola, 2012). So, in addition to the tax instruments of the accounting process, there is a number of advantages in simplifying accounting for small businesses in the Russia, which also reduces the complexity of accounting work and reduce the cost of small businesses.

In order to simplify the accounting of small businesses there were introduced several simplified methods of accounting. Analyzing the above-mentioned changes, we will determine opportunities of a small enterprise and its expected effect (Table 2).

Table 2: Simplified accounting methods and their impact on the accounting process

Method	Order of reflection	Expected effect
1	*2*	*3*
Inventories are rated by supplier's price	Inventories are considered by supplier's price without taking into account any procurement costs	Reducing the number of accounting operations and reducing the risk of errors in the calculation of the actual cost
Simplified acceptance of expenses on ordinary types of activities.	Cost structure usually consists raw and other material cost, connected with the production in the full amount	In accounting and financial statements any balances inventories are not formed, which reduces the complexity of the reporting.
Simplified decommissioning of inventories	The expenses for ordinary types of activity-news include the cost of acquisition of inventories for any management needs	No need to account for inventories until full actual expenditure. Absence of inventory balances in the financial statements.
Lack of necessity to create a reserve for reducing the cost of tangible assets	Any reserves are not made in accounting for the reduction of the value of tangible assets. Balances of tangible assets are recorded at the cost specified in the accounts, regardless of	There is no need to track changes in the market value of the inventors, the original quality and cost of sale of the inventories. Reduction in the number of accounting operations for the creation and decommissioning of reserves.

	changes in current market value	
Capability of property, plant and equipment valuation by supplier's price	Objects of property, plant and equipment are accepted for accounting by supplier's price, and the made objects – by the sum of work cost of the contractor	Costs associated with the delivery of the object, bringing the object in a state ready for operation, the cost of consulting and information and other services are included in the costs of conventional activities
The use of simplified procedure of depreciation calculation	Amortization of property, plant and equipment is calculated simultaneously on the 31st of December of current year	Absence of monthly calculations on accrual of depreciation amortization, reduction of the number of accounting records
Capability of simultaneous decommissioning of the inventory	There is 100% amortization for production and business inventory in the adoption of objects for accounting	No monthly calculations for amortization during the entire life of the facility
Application of simplified way of expenses for acquisition or creation of intangible assets	In accounting, the cost of the acquisition or creation of intangible assets is charged to expenses on ordinary types of activities when incurred costs	Application of simplification does not involve the formation of balances in the accounts and financial statements of objects of integral assets, and therefore excludes the process of accounting, decommissioning, and accrual deprecation amortization.

So, using the above methods, small businesses receive the opportunity to significantly reduce the costs of the accounting process and to dole out money for business development. But for the development of entrepreneurship in construction, manufacturing, agriculture, which are mostly necessary for the Russian economy, small businesses need more support because these areas require significant investment. Further directions of support for small enterprises should be focused on the most important spheres of activity for the economy.

Conclusion

To achieve these goals, it is necessary to determine the range of the most important activities:

– assistance in the implementation of measures to create the necessary infrastructure of the market, which will be focused on the creation and improvement of a large number of small businesses in the manufacturing sector;

– implementation of special programs to support promising competitive companies;

– implementation of the most effective modern financial tools for business development;

– support existing microfinance institutions, creation of the most favorable conditions for their existence;

– organization of institutional conditions for the work of credit institutions;

– development of old and creation of new elements of business incubators, the direction of such structures on innovative enterprises of the small business sector;

– improvement of the regulatory framework in order to eliminate existing administrative and other barriers for the future development of small business and to prevent the emergence of new difficulties in this direction;

– implementation of legislation, which determine the possibility of participation of small and medium-sized businesses in public tenders;

– increasing the access possibility for domestic producer to real estate belonging to the state or municipal property;

– establishment of an Investment Fund for small and medium-sized enterprises.

Taking all the aforesaid into consideration, it's necessary to notice that over the past decade, the Government has supported many initiatives for business community. Tax incentive methods were constantly improved and implemented regularly. There is an apparent progress in relationship between business and government. At the same time, the state policy in the sphere of small business should be targeted and systematic because it will to change the trend in the development of small business.

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La Sustentabilidad, Un Reto Complejo Para Las Ciudades Inteligentes

Sustainability, a Complex Challenge for Smart Cities

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Colombia

Resumen

El concepto de Smart City o ciudad inteligente es aquella ciudad que utiliza las TIC para mejorar sus servicios básicos y la calidad de vida de sus habitantes. En tal sentido, las ciudades digitales cumplen un rol diferencial en el desarrollo y competitividad territorial, garantizando disminuir los índices de desempleo, cerrar brechas en el sistema educativo, protección del medio ambiente, multiplicidad cultural, planeación urbana, gestión pública, movilidad y transporte. Con la presente investigación se buscó realizar un análisis documental orientado a las transformaciones digitales de las ciudades en torno a la sostenibilidad, eficiencia y calidad de vida. Para ello, se apoyó en la recolección de fuentes secundarias a partir de un proceso de vigilancia tecnológica, que permitió analizar información relevante en bases de datos especializadas y gubernamentales de España, México y Latinoamérica, con el fin de generar un informe en torno a las Smart Cities y sus entornos sustentables.

Palabras Claves: Ciudades digitales, Ciudades inteligentes, Ciudades sostenibles, Innovación tecnológica.

Abstract

The Smart City concept incorporates ICT to improve its basic services, and the quality life for its inhabitants. In this regard, digital cities, play a differential role in territorial development and competitiveness, guaranteeing lower unemployment rates, closing gaps in the education system, environmental protection, cultural multiplicity, urban planning, public management, mobility and transport. With this research, we sought to perform a documentary analysis aimed at the digital transformations of cities around sustainability, efficiency and quality of life. For this, relied on the collection of secondary sources from a technological surveillance process, which allowed analyzing relevant information in specialized and governmental databases in Spain, Mexico and Latin America, in order to generate a report on the Smart Cities and it sustainable environments.

Keywords : Digital cities, Smart cities, Sustainable cities, Technological innovation.

Introducción

La sustentabilidad es uno de los retos que las ciudades del futuro tienen que enfrentar hoy en día. Estas grandes urbes deben enfrentarse a sistemas complejos que se ven afectados por los desafíos de las Tecnologías de la Información y las comunicaciones (TICS) en diferentes ámbitos, que de una u otra forma afectan de forma positiva o negativa a sus ciudadanos.

Esta era digital, propone grandes retos a las ciudades, teniendo que ejecutar retos de planificación y gestión urbana, además de implementación de plataformas digitales e inteligentes que faciliten y mejoren las organizaciones y la vida de sus ciudadanos.

En materia de innovación y tecnología, las ciudades han tenido que transformar su estructura y gestión para lograr el éxito esperado. En este sentido, paralelamente ha tenido que fijarse retos de carácter no tecnológico que enfrenten la transformación digital en la cual se encuentran sumidas hoy, implementado un cambio de paradigma a nivel de las administraciones públicas, la sociedad, las empresas, y espacios públicos y privados.

El concepto de Smart City o ciudad inteligente es aquella ciudad que utiliza las TIC para mejorar sus servicios básicos y calidad de vida de sus habitantes. En tal sentido, las ciudades del futuro, digitales y sostenibles cumplen un rol diferencial en el desarrollo y competitividad territorial, garantizando disminuir los índices de desempleo, cerrar brechas en el sistema educativo, protección del medio ambiente, multiplicidad cultural, planeación urbana, gestión pública, movilidad y transporte.

La presente investigación busca realizar un análisis documental orientado a las innovaciones digitales de las ciudades, en torno a la sostenibilidad y la eficiencia de sus organizaciones. Para ello se apoyó en la recolección de fuentes secundarias a partir de un proceso de vigilancia tecnológica, que permita definir si las urbes latinoamericanas están preparadas para ser ciudades inteligentes, digitales y de esta manera más sustentables. A este propósito, se proyectó articular desde el pensamiento complejo lo esencial y conveniente, con lo realmente operativo aplicable y efectivo.

Revisión Literaria

Las ciudades promedio de hoy, caóticas, insuficientes, no sostenibles, ingobernables, contaminadas, con problemáticas sociales acumulados y crecientes, es el mejor testimonio de que el "paradigma dominante" con todo y su reconocimiento como ciencia oficial, centrada sobre las ciencias naturales y desconocedora de las ciencias sociales como proceso científico, lineal y medible, se ha quedado corto, o aún peor: ha quedado al descubierto como incapaz de darle soluciones a lo social, la sociedad y al hombre del siglo XXI.

Recientemente, la División de Vivienda y Desarrollo Urbano del BID (2016) en cabeza de Juan Ellis afirma que: "la noción de Ciudad Inteligente es mucho más amplia, y se refiere a aquellas urbes que ponen el ser humano al centro del desarrollo y planificación, estableciendo de esa manera una visión a largo plazo". Dicho enfoque promueve el progreso en el territorio de Urbes Emergentes y Sostenibles y constituye el modelo integral de progreso (Bouskela, et al., 2016). En el 2050 el 70% de la población mundial vivirá en ciudades según la ONU. Más de 6.000 millones de personas, 64,1%, en países en desarrollo y 85,9 en países desarrollados. Además, el 90% de la población de América latina y el caribe estará concentrada en zonas urbanas.

Las grandes ciudades urbanas y metropolitanas, son percibidas como sistemas complejos con relaciones entre diferentes contextos y personajes. Esto lleva a realizar procesos de planificación urbana e incorporar elementos y procesos diligentes y eficientes en la toma de decisiones, que dinamicen y tengan en cuenta el crecimiento y la inclusión de procesos de cooperación ciudadana. Cuando se transforman las organizaciones gubernamentales, e intervienen en su gestión actores claves, se puede mejorar y administrar eficientemente las ciudades.

El Índice de Desarrollo Humano implementado por el Programa de Naciones Unidas para el Desarrollo (PNUD), instituye medidas que contemplan: el indicador de salud, tasa de alfabetización en adultos, tasa bruta de educación primaria, secundaria y superior, buscando establecer opciones del individuo en su medio, para lo que desea ser o hacer (Aubad y Valdés, 2014:32)

Roldán (2013) señala que las Smart Cities o Ciudades Inteligentes, denominados también "Territorios Inteligentes", incluyen ciudades, municipios y áreas metropolitanas, son por naturaleza un gran modelo de Innovación Social, que utiliza de manera innovadora las tecnologías de la información y las comunicaciones - TIC para sustentar un ecosistema urbano más inclusivo, heterogéneo y sostenible, ajustándolo a la Innovación Abierta y Colaborativa. Estos territorios interactúan como un ecosistema viviente en sí mismo, que evoluciona y articula complejos sistemas integrados de información (Big Data), con diversas fuentes que interactúan con los ciudadanos. En este orden de ideas, permite que se difundan sitios web, dispositivos móviles, múltiples aplicaciones, y redes sociales interactuando en el ecosistema a través de sensores e Internet de las cosas para generar eficiencia en variados requerimientos de la ciudad.

Smart Cities "son espacios con una gran capacidad de aprendizaje e innovación, asociados a la creatividad de sus ciudadanos, sus instituciones a la generación de conocimiento y su infraestructura digital para la comunicación". Un componente común entre la ciudad inteligente y la competitividad territorial es adoptar una inusual y novedosa forma de gobernanza que requerirá implementar una forma particular creativa de gobierno. En este sentido, es válido observar el modelo de triple hélice como un entorno selectivo para crear conocimiento e innovación y promover estrategias capaces de explotar el

capital social e intelectual, y promover una nueva vitalidad urbana caracterizada por la interacción de tres actores: Universidad, Gobierno y la industria (Etzkovitz y Leydesdorff 2000; citados en Garguilo y Tremiterra, 2015: 203-217).

El significado de Smart City unifica (Sikora y Fernández, 2017: 135-152) múltiples ideas coherentes con el desarrollo de urbe. El concepto europeo de ciudad inteligente parte de la cooperación para promover el avance en donde generar, comercializar y aprovechar la energía, la movilidad, el transporte y las tecnologías innovadoras, que se relacionen brindando una mejora en la disposición de los servicios suministrados y paralelamente se reduce el consumo de energía y de recursos con la disminución de gases efecto invernadero, … todo esto es factible en la medida que se incorporen componentes de ciudad y a la vez interactúen de manera efectiva. Por consiguiente, las Smart Cities son definidas en el 2011 (Herrera y Fajardo, 2014: 44-54) según análisis de las ciudades inteligentes de España como unidades finitas en una entidad local que hace uso de su Industria, Turismo y Comercio (ITC) para transformar el modus operandi en Energía, Medio Ambiente, Gobernanza, Movilidad y Construcción.

Si se tiene como meta obtener el desarrollo sostenible en una gran urbe, es preciso impregnar en la conciencia de los ciudadanos con una nueva doctrina sobre los sistemas globales, que fusione el conocimiento de sistemas independientes como el político, el social y el tecno-económico. Ahora bien, el concepto de Smart City o Ciudad Inteligente hoy es muy mencionado, pues contempla la generación de espacios donde los ciudadanos interactúan con gestores de lo público. Además, no solo contempla y agrupa múltiples objetivos, sino que también utiliza herramientas y procedimientos que hacen que Clústers de empresas brinden soluciones urbanas.

Es en este escenario donde las ciudades inteligentes planteadas y diseñadas desde la complejidad, haciendo uso de las posturas no lineales, asimétricas y sustantivas que critican el sistema auto organizado, interactuando con el caos y, por consiguiente, rechazando la armonía, pueden vislumbrar nuevas estrategias y alternativas de gobernanza, sostenibilidad, proyección y racionalización de recursos hacia el futuro.

De esta circunstancia nace el hecho de que, si la complejidad plantea múltiples respuestas (Maldonado, 2009: 42-54) que rompen con el orden y organizan el desorden, en el sentido que rompe el hilo conductor de las ciencias y la teoría, proponiendo la lógica y la epistemología de las ciencias y los fenómenos, la complejidad depende de los ojos y la posición del observador y el reto fundamental es identificar y explicar fenómenos extraños que se soporten complejamente dentro de un sistema. En concreto, la complejidad no es un punto de partida, es un lugar intermedio donde al extremo opuesto abre un abanico de riesgos, posibilidades, preguntas, desafíos y horizontes para respaldarla.

Visión desde la Transdisciplina y el Pensamiento complejo

El concepto de ciudad sostenible visto desde la óptica del Pensamiento complejo es un juicio epistémico alternativo, que reivindica al sujeto cognoscente en su conocimiento; se guía por nuevas líneas de pensamiento como la modelización y simulación de organizaciones sociales mediante SocLab… además, constituyen una herramienta metodológica que estimula políticas públicas orientadas a transformar sistemas sociales concretos. Es por ello que, (Maldonado, 1999: 9-27) resalta tres modos de complejidad: epistemológico, ontológico y funcional, y para su proceso identifica tres caminos: La complejidad como método, como cosmovisión y como ciencia. En este sentido, cada camino articula la lógica de la complejidad de incomparables maneras.

Es aquí, en espacios de reflexión como el anterior, que se abren nuevas posibilidades para la estructuración de las llamadas “ciudades Inteligentes” (Santos, 2009), con un nuevo enfoque arraigado en este “Paradigma Emergente” más profundo, más novedoso, sostenible, auto regenerativo, expandible y capaz de incluir en su totalidad, el ciudadano de estas nuevas ciudades, olvidado por tantos años en los diseños urbanos y de territorio, como lo plantea ampliamente Santos en sus posturas de “Una epistemología del Sur”.

No siendo la complejidad un punto de partida o de llegada sino una opción intermedia no terminada y en exploración (Morin, 2008: 27-41), se puede aceptar que los grandes problemas no resueltos por la

humanidad en los últimos 70 años, tal y como la complejidad, no han tenido un punto de llegada, y aunque tuvieron un punto de partida, este estaba permeado por el paradigma dominante; y lo estaba porque todo el legado de conocimiento recibido que fundamentó todo el acervo de directrices gubernamentales, educativas, sociales, y religiosas en general, se convirtieron por defecto un punto de llegada caótico enfermizo e incapaz de solucionar problemáticas, como las que enfrentan las grandes ciudades en todo el mundo actualmente.

La aceleración del volumen de conocimiento, ciencia e información, en el siglo XXI, vaticinan un siglo que acaba sin comenzar aún; y cuestionan ampliamente todo el saber y ciencia de los cuatro últimos siglos. "Hoy se vive un período de replanteamientos de lo establecido, y velocidad de la información. No hay certeza de si lo que veo, de si lo que parece ser". Rousseau lo planteo y Santos (2009: 12-59) cuestionó la validez de una ciencia fruto de la observación y estudio de pocos, enfrentada a la ciencia cotidiana de todos, producto de la interacción cotidiana y el descubrir diario de lo simple, lo elemental.

Los ciudadanos del siglo XXI requieren implementar nuevas estrategias innovadoras para comprender la realidad y transformarla. Al llegar a este punto, se requiere formar a los individuos en conocimientos para ello, impulsar y generar consciencia responsable en la situación caótica actual caracterizada por la insostenibilidad del sistema e integrar estos individuos en la praxis dentro del sistema. Esto finalmente implicaría un cambio de estructura mental que rompa con las estructuras político-económicas y socioeducativas de años atrás, dejando de lado esa educación tecnocrática impuesta por los estados modernos y tecnicistas de la revolución industrial, que en resumidas cuentas, nos han sumergido en el consumismo compulsivo y obsolescente, que solo ha generado retraso, caos y cuestionamiento sobre la razón o no de permanecer como seres humanos o como reproductores de ese sistema miserable.

De forma simultánea, la industrialización de las ciencias, tanto en el Norte como el Viejo continente, estratificó y deslegitimó aún más todo el enfoque y la comunidad científica, junto con sus paradigmas científicos. Esto quiere decir que se eliminó así y se alejó a las demás corrientes de pensamiento, ajenas o no alineadas con los dos grandes bloques de la política y la industria en el mundo: Este y Oeste. Esto es, por decir así el nacimiento de toda esta indisposición social, insatisfacción, desanimo científico y de incertidumbre sobre la sustentabilidad: el Paradigma Emergente (Santos, 2009).

La Innovación como Multidisciplinariedad

Uno de los retos de los países hoy día, es incrementar sus ingresos económicos, implicando entonces para ello realizar significativas inversiones en CTI y ampliar su capacidad en capital humano, know-how, y tecnologías que propicien la transformación de bienes y servicios más tecnificados, los cuales son fundamentales para la competitividad de la región. En este sentido, el Informe Monitor 2016-2017 (Consejo Privado de Competitividad, 2016: 107-111), afirma que Colombia ocupa el puesto 79 entre 138 países a nivel de Innovación. Sin embargo, "el monto invertido en I+D (Investigación y Desarrollo Tecnológico) tuvo un crecimiento del 40%, y alcanzó el 0,23% del PIB, sigue siendo bajo en comparación con el de los demás países de la región: 0,77% los de América Latina".

> *"Para superar este impase, se recomienda: implementar políticas de CTI que avalen financiamiento en el mediano plazo; fortalecer programas de alianzas por la innovación que promuevan patrimonios del sector privado; integrar el mecanismo de CTI de las agendas departamentales de la mano con planes y acuerdos estratégicos del Fondo CTI; y reformar la administración del Fondo Francisco José de Caldas para promover su eficiencia" (Consejo Privado de Competitividad, 2016).*

Cabe destacar que en el sector TIC de Competitividad (2016: 157-169), Colombia ocupa el puesto 69, entre 139 países, esto debido al incremento de usuarios de Internet en la última década, que paso de 15,3% en 2006 a 55,9% en 2015, además de la incursión de la telefonía móvil que se incrementó de 67,9% a 115,7% durante el mismo periodo, exceptuando las organizaciones que ha sido lenta su transformación. Para incrementar este indicador, el informe expone incluir iniciativas MiPyme vive Digital que faciliten a estas empresas su incursión en el comercio electrónico; incrementar conexiones de banda ancha comunitaria en sectores de bajos estratos; garantizar portales transaccionales y de comunicación en establecimientos públicos; incluir programas de alfabetización digital para fortalecer

habilidades en los estudiantes en etapas tempranas, e instaurar un modelo de adquisiciones en línea en la plataforma Colombia compra eficiente. (Consejo Privado de Competitividad, 2016: 107-111)

Estudios de caso de América Latina (Forum, 2014: 14-18) han demostrado que en Medellín -Colombia, pasó de ser una ciudad peligrosa a innovadora, elegida por The Wall Street Journal como la Ciudad más Innovadora en el 2013. Bajo la Alcaldía de Sergio Fajardo (2004) se produjeron cambios sustanciales en la región, con su plan bandera: Medellín la más educada que, a partir del Plan de Desarrollo aporto el 40% del gasto público municipal en educación. Y la empresa privada designó el 7,5% de sus ingresos anuales totales para investigación, desarrollo e innovación; pudiendo de este modo implementar estrategias que combinaran espacios educativos con interacciones sociales. También, realizo alianzas para la construcción de Bibliotecas en zonas marginadas; y movilidad urbana fomentando la conectividad dura y suave, con la construcción de Metrocable, que conecte el metro y el teleférico para conectar las comunas y las montañas al metro principal, a precio asequible para todos los estratos sociales.

Ahora bien, las innovaciones que acompañan la revolución digital (Comisión de Ciencia y Tecnología para el Desarrollo, 2016) nos brindan también oportunidades de crecimiento y paradójicamente son una amenaza para aquellos países que no aúnen esfuerzos en divulgar y conformar nuevos modelos a sus estructuras productivas y procesos de gestión y organización. Por esta razón es preciso, fortalecer la infraestructura básica de las Tecnologías de Información y comunicación necesaria para ofrecer apoyo a las Smart City, a la vez de facilitar el impulso de ecosistemas que fortalezcan proyectos de ciudad e infraestructuras inteligentes y con ello fortalecer insuficiencias específicas.

A este propósito, algunos autores relacionados con esta problemática afirman que la era de la información denominada también Sociedad del Conocimiento (Pérez, 2004: 78-84) se da mediante revoluciones tecnológicas, que no son más que explosión de nuevos productos, industrias, e infraestructuras que conducen a un surgimiento gradual de nuevos paradigmas tecno-económicos capaces de conducir a empresarios, innovadores, inversionistas y consumidores a tomar decisiones que les permitan interactuar durante el periodo de propagación de ese conjunto de tecnologías. Establece además que se han presentado 5 revoluciones tecnológicas descritas a continuación:

> *"La primera en 1771 que se dio con la Revolución Industrial; la segunda en 1829 se dio con la era del vapor; la tercera en 1875 surge a partir del Acero, la electricidad y la Ingeniería pesada; la cuarta se dio con la denominada era del petróleo en 1908 y la quinta denominada la era de la informática y las telecomunicaciones a partir de 1971, aduciendo además que el desarrollo es un proceso escalonado con oleadas de décadas donde cada una conlleva a cambios profundos y estructurales dentro de la economía, tocando la sociedad". (Pérez, 2004)*

Para ganar la batalla de la sustentabilidad en una ciudad, no solo implica contribuir al producto global económico, sino también aportar al consumo de productos y recursos de desechos. Esto tiene otras implicaciones: "El concepto de sustentabilidad significa vivir junto con los otros dentro de las posibilidades de la naturaleza: debemos vivir de los intereses del capital natural" (Wackernagel, 1996).

El Índice de Desarrollo Humano (IDH) según informe del PNUD (2013) se sintetiza como: a una mayor cantidad de opciones, mayor grado humano y, a menor cantidad de opciones, menor desarrollo humano. A nivel global cada año, los países han mejorado su IDH, solo Colombia, el Congo, Namibia y Zimbabwe han presentado retroceso. En Colombia, Bogotá presenta el IDH más alto, seguido de Barranquilla, Cali y Medellín. Esta última entre el 2004 y el 2011, paso de 80,2 al 86, 4. Esto marca una diferencia de crecimiento per cápita entre Medellín y Bogotá (Aubad y Valdés, 2014: 32).

Al respecto conviene decir que, el Programa de Naciones Unidas (2016) afirma que para que se de el IDH y el progreso humano llegue a todos, el crecimiento debe ser inclusivo y debe estar respaldado en cuatro cimientos que son recíprocos entre sí: "formular una estrategia de crecimiento impulsado por el empleo, fomentar la inclusión financiera, invertir en las prioridades de desarrollo humano e intervenir en dimensiones multidimensionales de repercusión". (Programa de las Naciones Unidas para el Desarrollo, 2016)

Las innovaciones técnico-metodológicas de las ciencias complejas (Rodríguez y Aguirre, 2011) producen nuevos enfoques hacia el conocimiento continuo hegemónico y dominante de la ciencia De igual manera brindan herramientas en el abordaje de fenómenos complejos (auto-organización), utilizando

metodologías de modelización y simulación computacional de sistemas complejos y técnicas basadas en modelos de agentes, que ayudarían a perfilar y mejorar los actuales modelos de Ciudad inteligente, fundamentados y un poco asimilados a ciudades digitales, antecesoras de la ciudad inteligente, pero igualmente reduccionistas, si persisten en ignorar que: lo digital no es simplemente un instrumento más en la nueva construcción pretendida, ni un paso en el proceso del nuevo paradigma emergente del pensamiento complejo, sino un fin.

Metodología Utilizada

Se desarrolló una investigación documental, apoyada en fuentes de recolección de fuentes secundarias, a partir de la información recolectada en bases de datos especializadas, e informes gubernamentales acerca del cambio climático y los entornos de ciudades inteligentes. En este sentido, se utilizan instrumentos para recolectar y sistematizar los registros como: fichas y registros para analizar la información categorizada.

Con esta intervención investigativa se pretende realizar un acercamiento a la revolución digital, mediante el análisis de once referencias bibliográficas obtenidas de bases de datos especializadas, con el fin de articular una nueva visión de Smart Citys y estructurar resultados de sinergias generadas con la vigilancia tecnológica, el nuevo orden y comportamiento social, la sostenibilidad y modelos de desarrollo no lineales, asincrónicos y de gobernanza regenerativa, que potencien las manifestaciones creativas, con alcances y resultados desligados de los actuales paradigmas.

Resultados Alcanzados

Una vez analizados y evaluados los informes encontrados en diferentes bases de datos especializadas y documentos gubernamentales, se han encontrado los siguientes resultados que pueden aportar a urbes hacia una revolución digital:

Uno de los retos que deben enfrentar hoy en día las grandes ciudades, es la planificación y administración de sus recursos con el fin de acrecentar sus oportunidades económicas y menguar el daño medioambiental en la región.

Cuidad Inteligente, es (Bouskela, et al., 2016: 16):

> *"Aquella que coloca a las personas en el centro del desarrollo, incorporando las TIC en la gestión urbana y usa estos elementos como herramientas para estimular la información de un gobierno eficiente que incluya procesos de planificación colaborativa y ciudadana". … se convierte entonces en una ciudad innovadora, competitiva y atractiva, que acrecienta a su paso las vidas" (Bouskela, et al., 2016).*

La desenfrenada y veloz colonización de los países Latinoamericanos y del Caribe, (Bouskela, *et al*., 2016: 132) ejerce amenaza en ejes importantes como lo son el suministro de agua potable, la movilidad urbana, los servicios públicos domiciliarios, reacción frente a calamidades naturales, sistema de seguridad nacional, servicios integrales de salud, educación para la población, contaminación del aire por la proliferación de las empresas. En este sentido el Banco Interamericano de Desarrollo - BID quiere apoyar a los gobiernos de la América Latina y el Caribe (ALC) a afrontar los desafíos de la gestión pública, sin renunciar a la sostenibilidad urbana, fiscal y medio ambiental. Todo esto mediante el apoyo local emergente a poblaciones entre 100.000 y 2´000.000 de habitantes y hacer frente partiendo del punto de vista de la sostenibilidad ambiental y cambio climático, sostenibilidad urbana, y sostenibilidad fiscal y gobernanza.

El fenómeno del internet móvil y la adopción mundial de los teléfonos inteligentes, al tiempo de la banda ancha móvil y el uso de aplicaciones móviles, ha generado que los individuos estén conectados continuamente y realicen gestiones e intercambien datos e información a otros niveles. El porcentaje de hogares que tienen acceso a una red de banda ancha en las ciudades se ha incrementado durante los

últimos años, probablemente se ha derivado del incremento en la oferta y la demanda y en la reducción de los precios y la competencia existente en el mercado del mismo.

Debe definirse un umbral mínimo para considerar una ciudad como inteligente: una ciudad que tenga visión futurista debe estar dotada de características particulares y desarrollar actividades de autodeterminación, independencia y sus ciudadanos debe ser conscientes de ellos. Además de poseer características de poseer movilidad inteligente, manejo del medio ambiente inteligente, estructurar su economía de forma inteligente, generar en sus ciudadanos una consciencia inteligente y generar políticas públicas acordes con su pensamiento y proyección.

Una Smart City integra diferentes superficies de redes de comunicación de banda ancha, mecanismos inalámbricos, computación en nube y software para ofrecer información en tiempo real a sus usuarios. El porcentaje de inversión en Ciencia, Tecnología e Innovación realizada por las empresas Colombianas (2002-2012) fue solo del 0,16% del PIB, destacando que esta cifra está muy por debajo de lo que aportan las industrias en países como Brasil y Argentina (Aubad y Valdés, 2014; 40).

Otro de los retos que deben enfrentar las Smart City es la movilidad, y para ello debe controlar y disciplinar el tránsito y reducir el índice de accidentalidad. En este sentido debe invertir en sistemas de monitoreo. Dentro de los que se cuente con radares de velocidad, programa adaptativo de semáforos en tiempo real, concentración de flujo de vehículos y peatones; todo con el fin de realizar un adecuado desarrollo urbano y eficiente para el desplazamiento de los ciudadanos, además de promover el uso de transporte público masivo, logrando así disminuir la emisión de gases efecto invernadero.

Un desafío, sin duda prioritario y de gran importancia en este camino es la educación; se debe diseñar y construir un escenario diferente priorizado en la "formación", por encima de la instrucción donde los estudiantes mejoren su desempeño como ciudadanos, se tenga como prioridad terminar con la deserción estudiantil y se articulen los nuevos programas con los nuevos ciudadanos, como artífices y reinventores de las Smart Cities del futuro. Para ello es preciso, utilizar tecnología acompañada de estrategias de generación de contenido de los cursos y conectividad que permita a sus partícipes cambiar el chip cívico cultural actual y cerrar la brecha educativa existente actualmente.

Por último, se deben brindar opciones en el ámbito de cobertura de la salud y acceso a la conectividad, tanto en centros de salud y hospitales como en los hogares. Dicha conectividad debe incluir, banda ancha asociada a plataformas que brinden a los usuarios y personal médico estar interconectados inclusive en sitios remotos.

El gasto en Inversión y Desarrollo en una ciudad, se considera como un indicador primordial a la hora de generar conocimiento que se pueda aplicar al progreso sostenible de la sociedad. Es preciso adicionar otro componente que complemente este indicador y es el cambio tecnológico, que hace parte clave de la innovación, el desarrollo y la creación, para contribuir así en las tasas de productividad, que en fin de cuentas estarán reflejadas en incremento de la competitividad en la región y en un aumento de la sustentabilidad territorial.

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Defining a Project Trend for Moroccan Construction Projects

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Abstract

After the adaptation of the Last Planner System (LPS) model to the Moroccan construction projects, the researchers tried to control project objectives automatically all along the project. For that, they linked the weekly work plan and the master schedule, and create metrics like Project Progress combined with the Percent Plan Complete average up to the week "t" (PPt and PPCt) (Habchi el al. 2018)[1]. The authors managed to determine, in every week "t", the project status in term of production and productivity. Those indicators are combined to give the project manager a lot of information about the whole project's behavior, helping him make his decision-making more effective. However, if we plan to implement this adaptation for a project already in progress, the determination of PPt and PPCt becomes impossible, because those metrics refer to the whole project history. This paper aims to find an alternative to replace the metrics below in the case of a late LPS implementation in an ongoing project. Using an exploratory research methodology, the authors analyzed technical analysis conducted in the "financial market" field, and tried to make a similitude between the project control and the financial market to determine a project trend for Moroccan construction project.

Keywords: Last Planner System, project trend, financial market, Moroccan construction project

Introduction

According to Lean Construction Institute, The Last Planner System LPS® is a collaborative, commitment-based planning system that integrates should-can-will-did planning (pull planning, make-ready, look-ahead planning) with constraint analysis, weekly work planning based upon reliable promises, and learning based upon analysis of PPC (plan percent complete) together with reasons for variance (Figure1).

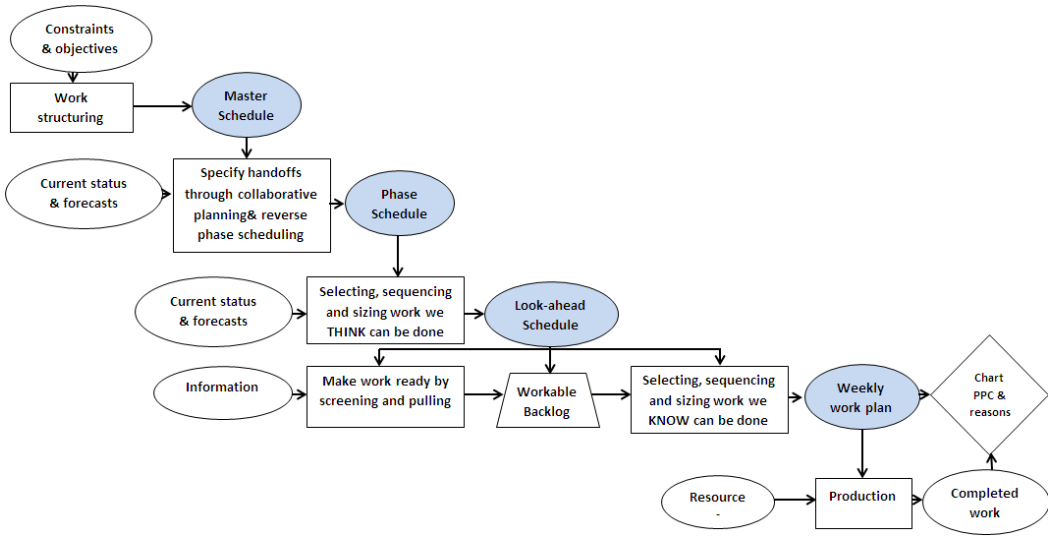

Fig. 1: The Last Planner System Of Production Control G.Bllard (2000)[2]

The Last Planner refers to the last individual, typically the supervisor, who is able to ensure predictable workflow downstream. LPS is an operating system for project management designed to optimize workflow and promote rapid learning. In practice, however, the implementations of the system have faced multiple difficulties. Different publications related to different case studies in the literature mentioned these challenges.

After the first implementation of LPS model in a real Moroccan site (HABCHI et al. 2016) [3], it has been found that within this system, there was no connection between the Master Schedule and the Weekly Work Plan, which led the authors to check the progress against milestones separately.

After that, the researchers tried to adapt the LPS model, and tried to link the Weekly Work Plan to the Master Schedule by creating two metrics WPi and PPt (Habchi et al.2018) [1]. This two metrics help managers to have the status of their projects in every week "t", but the disadvantage of these metrics is that their formulas take into account all the project history, which makes their calculation impossible during a late implementation of the LPS.

In this paper, we will discuss an idea coming from the technical analysis that traders use to analyze a commodity in the financial market field. We will use, by similitude, the tool used to determine the market trend to identify the construction project trend.

Research Methodology

According to Mr Ranjit Kumar in his book RESEARCH METHODOLOGY a step-by-step guide for beginners (R. Kumar 2011) [4], we use exploratory studies to test measurement tools and procedures.

To answer our question: how can we replace the PPt and PPCt metrics for ongoing project? We will adopt in this paper an exploratory research method, following the next steps:

- First, we will summarize the adaptation of LPS model made by the authors at the project level (Habchi et al 2018) [1], and explain why it is impossible to calculate PPt and PPCt for ongoing projects.
- Secondly, we will define what the market trend is, and how traders determine it.
- Finally, we will try to identify a project trend by similitude of the financial market field. Moreover, as conclusion, we will determine the limitation of this research, and suggest some future perspectives.

Linking Weekly Work Plan and Master Plan : the "PPt" & "PPCt" metrics

In the research conducted previously by the authors (Habchi et al. 2018) [1], they adapted the LPS model to be able to calculate progress (production) at the same time as productivity.

To reach their goal, they created the following steps:

- Break tasks in the Master Plan into assignment level.
- Determine the Critical Path.
- Specify activities included in the critical path. Index those activities with "CP" index.
- Sequence activities in a six weeks' basis to create the Six Weeks Look Ahead plan; which will help us to have a workable backlog.
- Select work planned in the week "i", sequence and size work from workable backlog.
- In the next week (week "i+1"), calculate PPCi (Percent Plan Complete for week "i"), WPi (Weekly Progress for week "i"), PPt (Project Progress at time "t") and PPCt (the average of PPCi at time "t"):

  - **PPCi:** the ratio of activities completed to 100% to all the activities of week "i". The PPCi is represented in%:

$$PPCi(\%)=\frac{\sum Achieved\ planned\ Assignments\ of\ the\ week\ "i"}{\sum Planned\ Assignments\ of\ the\ week\ "i"}$$

  - **WPi:** the ratio of the progress of CP indexed tasks (represented in %) to the number of CP indexed assignments in week "i". It represents the percentage of project progress during the week "i" (the production of the companies done during the week).

$$WPi = \frac{\sum \%\boldsymbol{Work\ Progress\ of}\ \text{"CP" assignments}}{\boldsymbol{Number\ of\ week\ i}\ \text{"CP" assignments}}$$

  - **PPt:** the ratio of the sum of all the Weekly Progress from the beginning of the project to the week "t", over the number of weeks until the week "t".

  The Project Progress at the Week "T" reflects the status of the project in relation to our strategic milestones, initially identified.

$$PPt = \frac{\sum_{i=1}^{t} \boldsymbol{WPi}}{\boldsymbol{t}}$$

  - **PPCt:** the average of the project PPCi at time "t".

$$PPCt = \frac{\sum_{i=1}^{i=t} PPCi}{t}$$

- After calculating all those metrics, check the quadrant, which represents the four probable cases that we can have at each week "t" of the project (Figure 2).

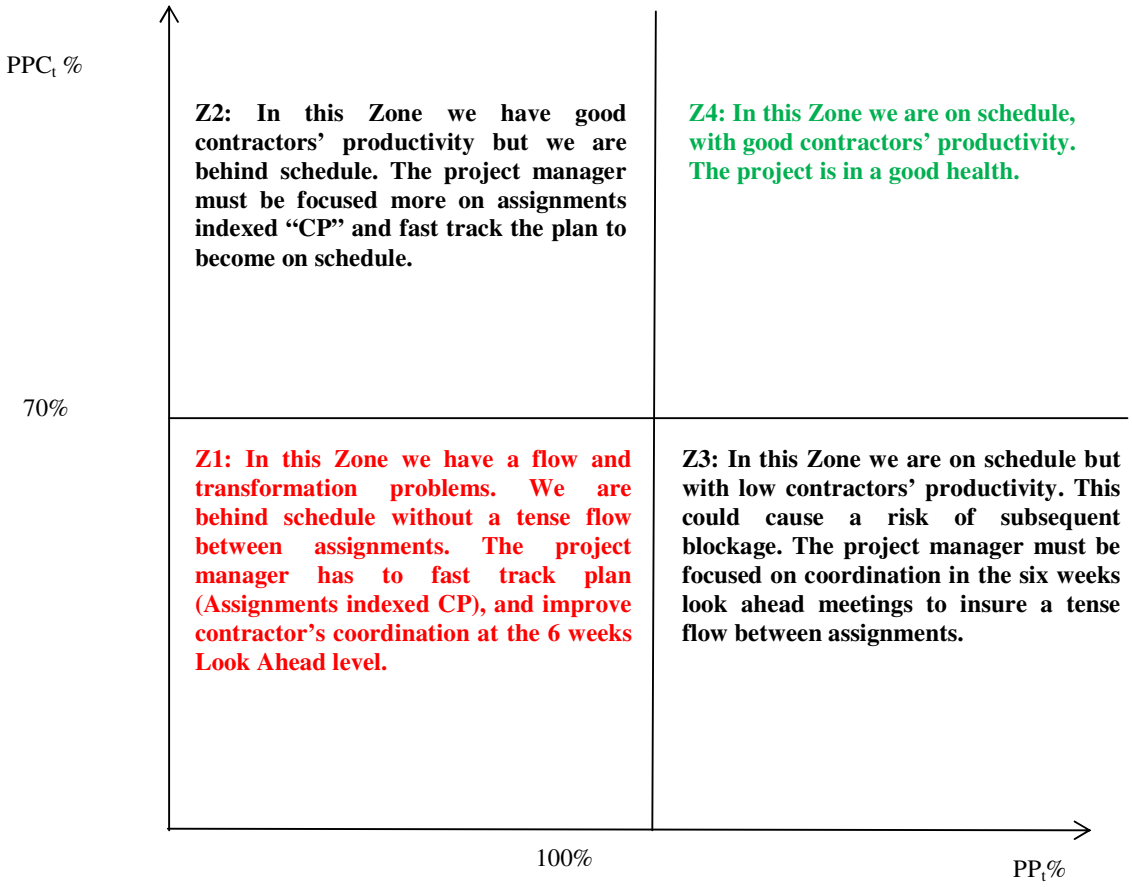

Fig. 2:The quadrant representing the cases that we can meet along the project life cycle, with some decisional suggestions.

Those metrics will be updated every week "i", and the quadrant above will be checked every week to have a clear idea of the whole project behavior.

But the problem with this configuration, is that it's only valid for projects where the LPS has been implemented from day one, because the calculation of metrics like PPt and PPCt is based upon the whole project history.

From this, researchers began to ask the following question:

How can we link the Master Schedule and the Weekly Work Plan for projects in progress and where we have a late LPS implementation?

Defining Project Trend:

A Simple Moving Average and Trend in Financial Market

A simple moving average in technical analysis used in financial data is the sum of all of the past closing prices over a period divided by the total number of prices used in the calculation. For example, a 50-day simple moving average takes the last fifty closing prices and divides them by fifty (Figure3).

$$SMAn=\frac{\sum_{i=1}^{i=n} xi}{n}$$

$$SMAn+1=SMAn+\frac{xn+1}{n}-\frac{x1}{n}$$

SMAn: Simple Moving Average calculated for “n” previous period

Xi: The closing price in the period “i”

Fig. 3: Graphic chart of Facebook action

Once we plot a single moving average on the chart, we can identify three cases (Figure4):

- **Uptrend:** when price action tends to stay above the moving average, it signals that price is in a general Uptrend.
- **Downtrend:** If price action tends to stay below the moving average, then it indicates that it is in a Downtrend.
- **Range:** When price action change regularly from one side to the other, it signals, that price is in RANGE.

Fig. 4: Graphic chart of USD/JPY showing trend cases

Similitude between Financial Market and Project Control

In the case that we have, a late LPS implementation or we wanted to link Weekly Work Plan and Master Plan for an ongoing project. Metrics like PPCt and PPt becomes impossible to calculate, because they consider the whole project history in their formula. From here comes the idea to link Weekly Work Plan and Master Plan without using PPt and PPCt, and replace those metrics by WPi and PPCi.

Using the similitude between financial market and project control, we will calculate the n-days Simple Moving Average, using the values of WPi and PPCi instead of closing prices. The determination of the previous period "n" is closely related to the project duration. A project with a long duration will increase the period "n", and vice versa.

We will use for construction projects a 6 weeks- SMA, especially for a long time projects.

With this n-days SMA calculated and plotted in the same graph as the WPi and PPCi, the project manager can use the following table to have a clear idea of the evolution of his project towards his objectives, and to take the necessary actions to complete his project on time (see Table 1.):

Table 1: Cases that may be encountered during a construction project, and undertaken actions (Own Contribution)

	WPi	PPCi	Actions to be undertaken
THE TREND	↗	↗	The project in « n » previous days' progress in term of production and productivity
	↗	↘	The project Manager must improve the project workflow
	↗	→	If the PPCi RANGE above the 70% mark, the project is safe, or else the project Manager must improve the project workflow
	↘	↗	The project Manager Must Fast Track his plan, and focus on the "cp" assignments
	↘	↘	The project Manager must improve the project workflow, and Fast Track his plan
	↘	→	1. The project Manager Must Fast Track his plan .2. If the PPCi RANGE above the 70% mark, the project is safe, or else the project Manager must improve the project workflow
	→	↗	If the WPi RANGE above the 100% mark, the project is safe, or else the project Manager must fast track his plan
	→	↘	1. The project Manager must improve the project workflow.2. If the WPi RANGE above the 100% mark, the project is safe, or else the project Manager must fast track his plan
	→	→	If the PPCi RANGE above the 70% mark and the WPi above the 100% mark, the project is safe, or else the project Manager must improve the project workflow and fast truck his plan.

Conclusion

In this paper, we highlighted the fact that the adaptation of LPS implementation as explained in the previous paper (Habchi et al. 2018), can't be applied in the projects where we have a late LPS implementation, given the impossibility of calculating PPCt and PPt metrics, because they use the whole project history in their formula.

In addition, using a similitude between financial market field and project control, we tried to find a way to have a perspective overall project, using just two metrics (Wpi and PPCi).

Finally, we suggest by using an n-days Simple Moving Average, that for the ongoing project, we can determine the project trend for WPi (Production) and PPCi (Productivity). Using our summary table of cases we may meet during a construction project, we identify the global undertaken actions that a Project Manager must takes to remedy the risk of project non-completion.

The limitation of this work is that this adaptation must be implemented in a real construction project, to check the feasibility of this solution, and can analyse the results coming from a real project.

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Importance of Selected Corporate Functions in Creation of a Corporate Strategy by Business Entities in the Czech Republic from the Viewpoint of Their Sector Differentiation

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Abstract

The paper focuses on importance of selected corporate functions in creation of a corporate strategy by business entities in the Czech Republic from the viewpoint of their sector differentiation. The selected corporate functions included the manufacturing process and provision of services, economy, marketing and sales, technologies, human resources, innovations, management and leadership. A group of 456 enterprises from the entire Czech Republic (201 entities from the manufacturing and industrial sector and 255 from the services sector) were investigated with statistical tests (one-tailed one-sample test of proportions and interval estimation) to determine which function, or a group of functions in mutual integration, has the biggest influence on creation and implementation of a corporate strategy or which seems to have the biggest influence based on the performed statistical tests. The obtained results have confirmed importance of the economic function in both the tested sectors. In the manufacturing and industrial sector statistical significance has been also identified for the manufacturing and technological function, while in the services sector the important functions included marketing and sales and the process of provision of services. The obtained outputs are in agreement with the general character of the tested sectors. On the contrary, the relatively low importance of human resources, innovation, management and leadership can be seen as negative since those functions should be considered fairly important from the viewpoint of corporate strategy and sustainability.

Keywords: Corporate functions, corporate strategy, strategy creation and implementation, strategic planning.

Introduction

There are still many business entities in the Czech Republic, particularly small and medium ones, that do not have formulated their corporate strategies. This negative situation is a consequence of the political and economic development in former Czechoslovakia, particularly the then character of the national economy which systematically applied central planning. Principal changes have gradually occurred since 1960s in terms of the character of national and regional economies, which has been naturally reflected in formation and development of new scientific disciplines, including strategic management. At the time when an independent scientific discipline dealing with strategic management and decision making was being born in the world, the terms like strategic management, strategic thinking and decision making and strategy creation and implementation were completely unknown in the former Czechoslovakia. A radical turn occurred in the early 1990s in the Czech business sector when the centrally planned economy transformed into a market system, the business environment significantly changed and when Czech enterprises, in their struggle for survival, were forced to fundamentally change their behavior. Specialized literature dealing with strategic management of business entities and development of strategies arrived in the Czech Republic only in the course of 1990s. It means a delay of more than thirty years in comparison with countries of Western Europe, the United States and also Japan, which is naturally negatively reflected in the worldwide competitiveness and prosperity of Czech business entities. At the end of the 20th century, characterized by various discrete phenomena of the external environment of business entities and also classified as turbulent, a strategic management "boom" occurred even in the Czech Republic, despite the fact that opinions of business entities were fairly

diverse when it came to definition of a strategy and its implementation. The prevailing approach of business entities still consists of monitoring of financial indicators and the achieved market share is the only attribute used for assessment of their functioning and success, which naturally chokes the other functions of the enterprises as living systems (entities), e.g. human resources, social function, education etc. In some entities the situation is so pronounced that it negatively influences their development and progress, efficiency and overall sustainability. One can expect that development of Czech enterprises in the future will follow new trends in the area of strategic management and decision making and that strategic methods and tools will be used, as well as techniques for implementation of the adopted strategies in business practice. Intensity and complexity of the methods will depend on the size and character of the enterprise, scope of its activities and, naturally, on a number of other factors.

The aim of the paper is to analyze and determine the importance of corporate functions in the design of corporate strategy in terms of sectoral differentiation of business entities.

Literature Review

Experts specializing in strategic management emphasize that efficient strategic decision making and formulation of a corporate strategy is critical for the ability of business entities to create value (Child, 1972; Cyert & March, 1963). According to M. Porter (Magretta, 2012), strategy is indispensable for any type of a business entity that provides products or services to customers, meets their needs and creates value. Strategic planning can be defined as disciplined efforts to produce basic decisions and steps that formulate and control what defines an organization (or another entity), what the organization does and why (Bryson, 2018). Strategic planning may be, and often is, a part of a broader practice of strategic management, which continually connects planning with implementation into practice (Bryson, Edwards, Van Slyke, 2018). Porter (Magretta, 2012) defines strategic planning as a process for application of strategic thinking. This means that strategic management and strategic planning are not one-off approaches. They are continual processes and the today´s managers must do much more than only create a long term strategy and hope that it will succeed (Taneja and Pryor, 2013). Implementation of a strategy is currently even a more opportune and important topic, particularly due to the fast pace and reach of changes in the business environment that force the managers not only to create a corporate strategy but also to implement it.

The more the business environment loses its stability the greater the need to implement a strategy allowing efficiency and effectiveness of the current operations and supporting future success (Radomska, 2014a). Radomska (2014b) also says that once a corporate strategy is developed its successful implementation requires also involvement of other elements, such as internal processes, systems, people and the environment.

Zeps and Ribickis (2015) in their research of Latvian enterprises mentioned the most important factors that influence creation and implementation of a strategy – accurate formulation of visions, missions and objectives; regular follow-up of objectives and tasks set in an action plan of the strategy; organizational structure established in agreement with the strategy and accurately designed internal procedures. In the course of implementation of a strategy significant roles are played by the top management and project team (Hyväri, 2016). According to Schendel and Hofer (1979), an implementation team must be truly efficient as it not only needs to formulate a corporate strategy but also to play an important role in its appropriate implementation. However, results of the most recent studies suggest that efforts of the workers should focus not only on creation and monitoring of performance indicators of business entities but also on integration of elements, such as efficient communication and support to employees (Ho et al., 2013). There are many approaches recommending involvement of employees in development of strategies and financial incentives for teams and employees to achieve better results in the stage of strategy implementation (Zeps, Ribickis, 2015). Research performed by Rapert, Velliquette and Garretson (2002) has shown that organizations that have reached the so-called internal consensus are also able to achieve better financial results and to improve their performance and efficiency. Also other authors (Brenes and Molina, 2008) have stressed that involvement and proactive participation in strategy implementation are key elements that contribute to its success. Many authors mention the role of

appropriate management style as it is essential to influence the employees so that they support strategy implementation with their actions (Speculand, 2011).

Barrick et al. (2015) have defined strategy implementation as willingness of top management members to define and to pursue strategic objectives and to adopt clearly defined metrics for dynamic progress monitoring. They believe that a high level of strategic implementation improves links between corporate resources and collective involvement of the organization for several reasons. The first reason is that where a corporate strategy is implemented in the long term it is easier for the employees to find a (shared) meaning in their efforts and they perceive the joint commitment. In other words, it is more likely that the employee can see how this/her own role (and roles of the others) contributes to performance and prosperity of the company, which gives the employee a greater sense of value and purpose of the own work. The authors have also stressed that the better the top management understands and follows the corporate strategy, the better it is able to evaluate and to compensate performance of the employees because the management is able to assess more precisely how activities of the employees and their outputs contribute to fulfilment of the company´s strategic objectives (Barrick at al., 2015).

Difficulties of successful implementation of a new corporate strategy have been long reflected in specialized literature and some authors even believe that strategy implementation is more difficult that its mere creation and therefore it deserves more attention (Cândido and Santos, 2015).

Research Design and Methodology

A group of 456 enterprises from the entire Czech Republic has been subject to an extensive questionnaire survey focusing on strategy, strategic management and decision making. The business entities in the test group have been classified from the viewpoint of sector differentiation, size and scope of their activities. The questionnaire, which was answered only by top managers of business entities, included 29 questions focused on the formulation of corporate strategy and the impact of individual components of the corporate environment (internal environment, mezo-environment and macro environment) on the profitability of business entities. In its design, Likert's scale was used in particular.

The subject of the research in the paper is a partial analysis focused on the assessment of the significance of selected business functions (functions of production / service provision, economic, marketing and business, technological, personnel, innovation, control and management) in the design of corporate strategy from the point of view of sectoral differentiation of business entities.The enterprises included 201 business entities from the manufacturing and industrial sector and 255 from the services sector.

For the two tested sectors tables of absolute and relative frequencies will be developed to statistically process data about the opinions of top managers of the approached business entities. The data indicate the importance (no or small influence, significant influence and very high influence) assigned by the top managers to selected corporate functions. In order to identify the functions with the most important influence we will compare business entities that reported no or small influence for a given function with business entities that reported significant or very high influence. Subsequently, a one-tailed one-sample test of proportions will be used to determine whether the proportion of business entities that reported significant or very high influence of the given function is statistically greater than 0.5. We will also determine the lower bound of one-tailed interval estimation of the real proportion of business entities which for the given function reported significant or very high influence. The bound allows to show how far the proportion is from the limit of 0.5. The closer the limit to one the more important the given function is for the group of enterprises. Statistical tests and interval estimations will be made at the confidence level 95 %, i.e. at the level of significance $\propto = 0{,}05$.

One-tailed one-sample test of proportions

Hypothesis Tests

- null hypothesis: $H_0: p = p_{0,}$
- alternative hypothesis: $H_1: p > p_{0.}$

Test Statistic

$$z = \frac{p - p_0}{\sqrt{p_0(1 - p_0)}}\sqrt{n}$$

where:

p a proportion of enterprises,
p_0 a theoretical value of the proportion (0.5),
n the size of the surveyed group of enterprises (Watkins et al., 2011).

This test statistics has asymptotic standardized normal distribution and the null hypothesis will be rejected if the value of the test statistics z is greater than the critical value corresponding to the quantile of standardized normal distribution at the level 1-α. The value z will be used to determine the p-value, based on which it is possible to reject the null hypothesis by comparing it with the significance level. If the p-value is smaller than α, the null hypothesis can be rejected and the proportion will be statistically significantly greater than 0.5.

Interval estimation

The lower bound of the one-tailed interval of estimation (p_d) will be used in the formula:

$$p_d = p - u_{1-\alpha} \cdot \sqrt{\frac{p(1-p)}{n}}$$

where:

p the sample proportion based on the questionnaire survey,
$u_{1-\alpha}$ the quantile of standardized normal distribution at the level 1-α, α=0,05,
α α=0,05is the selected level of significance,
n the size of the tested group of business entities (Neubauer et al., 2012).

Results and Discussion

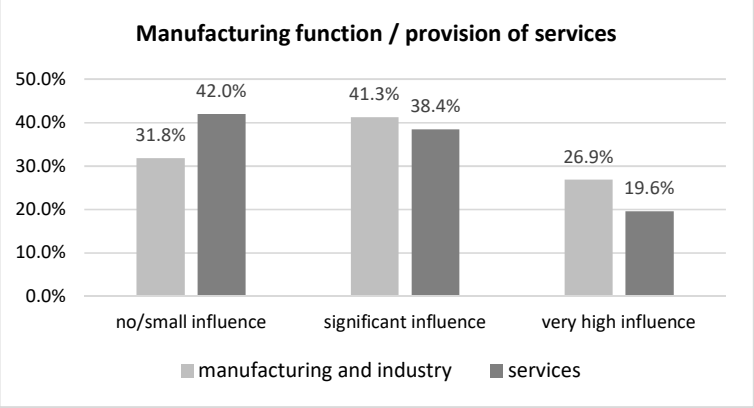

Fig. 1: Importance of the manufacturing function / provision of services from the viewpoint of sector differentiation of business entities.

Source: own data

Table 1: Statistical tests of proportion – manufacturing function / provision of services

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	5.149022996	1.30923E-07	0.627543565
services	2.567519593	0.00512145	0.52955986

The p-values and the lower bound of the interval estimation indicate importance of the manufacturing function / provision of services in creation of a corporate strategy, identically for both the sectors; managers in the manufacturing and industrial sector perceive the need more intensely. The proportion of top managers of the tested business entities who said that the function had significant influence or very high influence was higher than one half in both the tested sectors. The lower bound of the interval estimation for the manufacturing sector has shown that the proportion of answers of top managers in the manufacturing and industrial sector, who said that the function had significant influence or very high influence, was statistically more significant than 62.8 %, for the services sector it was 53 %.

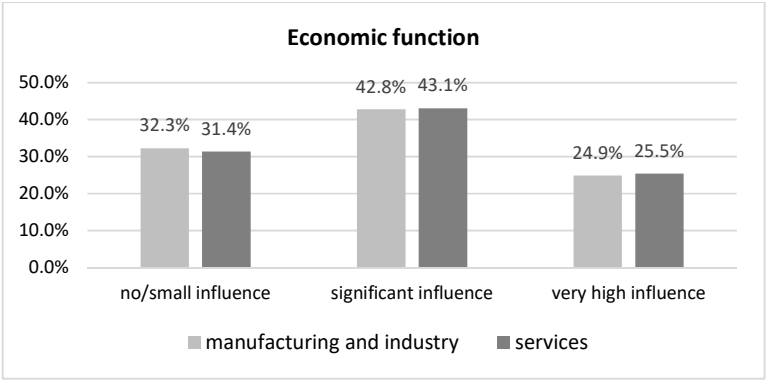

Fig. 2: Importance of the economic function from the viewpoint of sector differentiation of business entities.

Source: own data

Table 2: Statistical tests of proportion – economic function

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	5.007953873	2.8E-07	0.62234698
Services	5.949130765	1.3E-09	0.638479671

The p-values and the lower bound of the interval estimation for the economic function in the manufacturing sector do not demonstrate dramatic fluctuations in comparison with the previously tested corporate function. On the contrary, in the services sector the importance of economic function is higher which can be explained by different pricing policies in the two tested sectors: from the viewpoint of end consumers the services sector is significantly more sensitive to prices of offered products than the sector of manufacturing and industry. The economic function is statistically significant in creation of a corporate strategy in both the sectors and one can expect that in a period of economic decline the importance of this function will further increase.

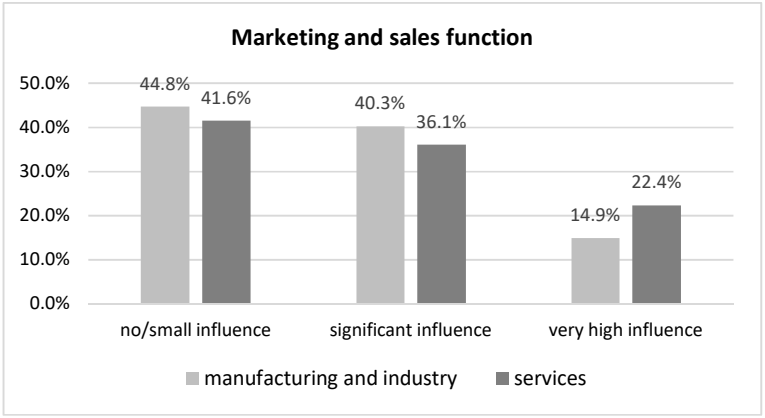

Fig. 3: Importance of the marketing and sales function from the viewpoint of sector differentiation of business entities.

Source: own data

Table 3: Statistical tests of proportion –marketing and sales function

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	1.481225793	0.06927	0.494546763
services	2.692764452	0.00354	0.533548882

The importance of the marketing and sales function has been statistically proved only in the services sector. This is not surprising as there is a general agreement about the dominant position of marketing and sales in the services sector. Business entities operating in this sector perceive marketing activities as more important than many manufacturing and industrial companies. The services sector is relatively fragmented with a prevailing number of small and medium enterprises and small family businesses and it is highly competitive.

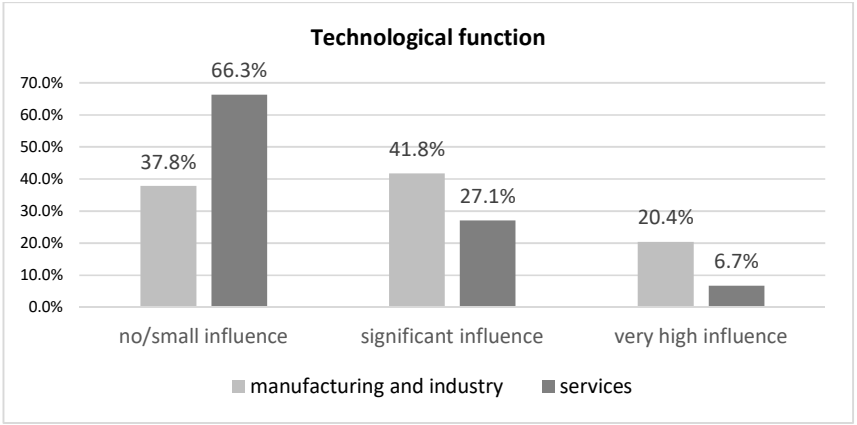

Fig. 4: Importance of the technological function from the viewpoint of sector differentiation of business entities.

Source: own data

Table 4: Statistical tests of proportion – technological function

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	3.456193518	0.00027	0.565631163
services	-5.197661616	1	0.288557077

This function has demonstrated the highest difference between the sectors which confirms the general theory of the sector character of national economy and its disparity. Unlike in the services sector, in the manufacturing and industrial sector the function is seen as important. Technological procedures are directly connected with innovation processes and scientific and technical development and for the manufacturing and industrial sector these are currently the decisive development and stabilization factors because they significantly affect competitiveness of business entities, particularly at international markets.

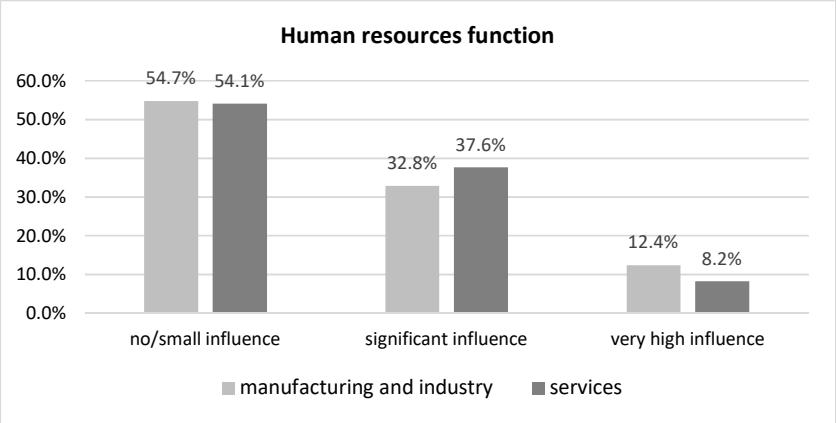

Fig. 5: Importance of the human resources functions from the viewpoint of sector differentiation of business entities.

Source: own data

Table 5: Statistical tests of proportion – human resources function

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	-1.34015667	0.9099	0.394986555
services	-1.315071011	0.90576	0.407496106

As shown by test results of the human resources function, statistical significance has not been confirmed in either of the sectors. The lower bound of interval estimation in both sectors was around 40 %. This can be seen as negative because the quality of human resources is one of the fundamental preconditions for successful formulation and implementation of a corporate strategy. The results are alarming, particularly because many business in the Czech Republic are already facing shortage of labor. Therefore it is necessary to look for reserves inside the enterprises and to focus on quality of human resources. The result may be influenced by the fact that top managers of business entities were answering in the period of economic growth but, considering changes caused by economic cycles, the issue must be addressed in a timely manner.

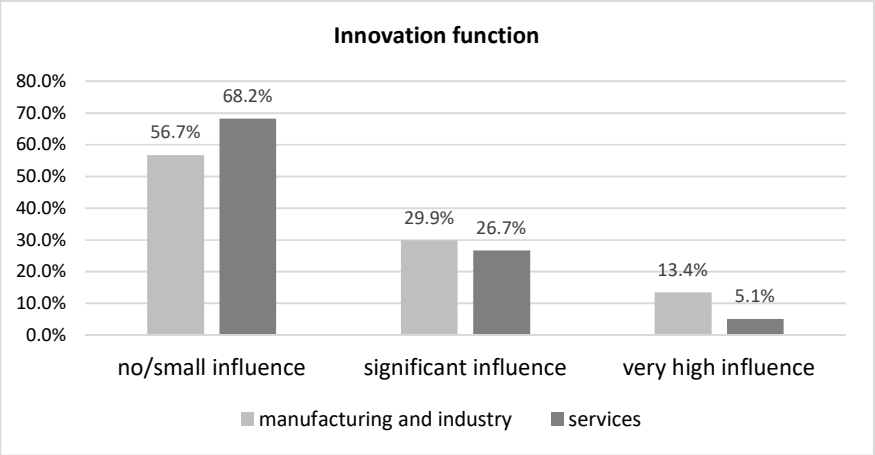

Fig. 6: Importance of the innovation function from the viewpoint of sector differentiation of business entities.

Source: own data

Table 6: Statistical tests of proportion – innovation function

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	-1.904433163	0.97157	0.375352054
services	-5.823885907	1	0.269692034

The found importance of the innovation function has been even lower than that of human resources, both in the manufacturing and industrial sector and even more distinctly in the services sector. Managers strongly undervalue the innovation function which is connected with quality of human resources and scientific and technical development. This is unfortunately a nationwide problem. The aspect of governmental expenses on research has been continually criticized by the business sphere and its representatives, as well as by research organizations. A similar statement applies for intellectual property where efficiency of solutions expressed in terms of benefits and added value is unsatisfactory in comparison with the European and world´s results. The research outputs for this function are alarming and, at the same time, they represent a challenge for our business sphere. In the era of knowledge economy and process management, innovations are seen as a decisive factor supporting corporate growth.

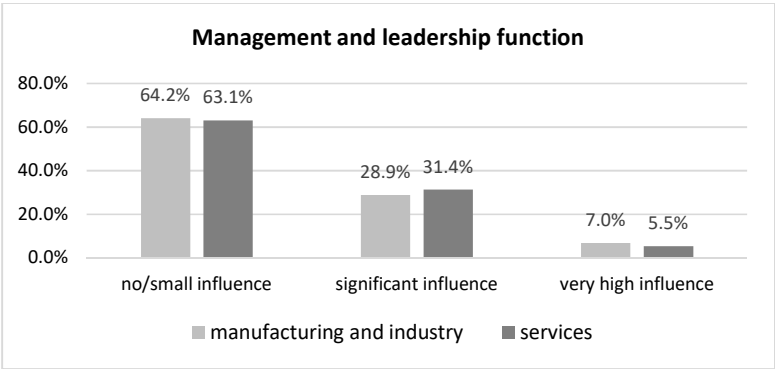

Fig. 7: Importance of the management and leadership function from the viewpoint of sector differentiation of business entities.

Source: own data.

Table 7: Statistical tests of proportion –management and leadership function

sector	test statistics	p-value	lower bound of interval estimation
manufacturing and industry	-4.02047001	0.99997	0.302580849
services	-4.19570275	0.99999	0.318934607

The results of the management and leadership function again document undervaluation of these fundamental functions. Low, nearly identical, importance found for both the tested sectors gives rise to questions about necessary lifelong education of our top managers while another explanation may be the fact that the survey was conducted in the period of economic growth when quality of management work is seen as less important in terms of the impact on final business results. In oral interviews the top managers underestimated the effect of their managerial skills, abilities and contribution to results of their business entities.

Conclusion

The outputs presented in this paper suggest the need to continue similar research activities. Knowledge of opinions of top managers about the importance of corporate functions in creation and implementation of a corporate strategy opens the possibility to set up development plans of business entities in the respective sector in a way that maximizes profit and business sustainability.

By ranking corporate functions in the tested sectors based on their importance it is possible to identify a scale of importance of corporate functions in the manufacturing and industrial sector as follows (manufacturing – economy – technology - marketing and sales – human resources – innovations - management a decision making) and in the services sector (economy - marketing and sales – provision of services - human resources, management a decision making, technologies, innovations).

In the manufacturing and industrial sector the statistically very important corporate functions are economy and technologies, in the services sector also economy and marketing and sales. The obtained results confirm the existing specifics of the two tested sectors. For the sake of objectivity it should be mentioned that the research survey was conducted in the current period of economic growth while in the opposite case opinions of the top managers might have been significantly different.

Despite certain limitations of information capability of the results, due to the long period of economic growth, the resulting facts should be reflected by businesses and governmental authorities. An increased role of marketing and sales in the services sector is understandable and it reflects the very character of services while undervaluation of this function in the manufacturing and industrial sector should be considered negative and requiring correction. An opposite trend was found for technologies where in the services sector the function has been underrated, unlike in the manufacturing and industrial sector, which can be partly explained by the sector differentiation.

Results of the survey relating to human resources, innovations and management and leadership are considered highly negative. The opinion that these functions have no principal influence on the corporate strategy, and thus on the operation and development of business entities, is alarming and very adverse. Statistical significance of innovations has not been confirmed for either of the two tested sectors. Underestimation of this dominant source of growth suggests lack of conceptual approach and is very risky from the viewpoint of continuation and development of business entities. Similarly, negative results have been found for human resources, suggesting undervaluation of work with the human factor. Quality of human resources is one of the fundamental preconditions for successful creation and implementation of a corporate strategy and for development of business entities in general. This approach, particularly at the time when many businesses in the Czech Republic face shortage of labor, again suggests lack of conceptual approach and is in conflict with managerial principles. Also the results for management and leadership have been found negative. Underestimation of the organizational and management framework which creates corporate architecture indicates that managers need more

education and that research organizations should transfer new and modern findings into the business sphere. Some distortion of the results may have been caused by the fact that top managers subconsciously see their job as a necessary and normal routine and thus underestimate its importance.

Due to the scope limitations this paper points only to certain aspects of corporate functions in creation of a corporate strategy under current condition of the national economy in the Czech Republic. It is supposed to contribute to the rich scientific and practical discussion about creation and implementation of a corporate strategy under conditions of a continually growing national economy. Its focus corresponds to current theoretical knowledge requiring the application of principles and rules of process management in the strategic management of business entities.

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Conditions for Successful Deinstitutionalization of Child Care Institutions in Ukraine

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Abstract

In 1991, Ukraine ratified the UN Convention on the Rights of the Child and recognized the importance of families in providing the best environment for children to grow up, learn and develop. Therefore, creating conditions where each child enjoys the right to grow up in a family, ensuring priority of family-type homes for orphans and children deprived of parental care, and creating a family-type environment for children in institutional care have become underlying principles for the national child care and protection policy.

The main method for research is the generalization of the experience and benchmarking analysis of results. According to the study results, the majority of children, despite international requirements, are placed in these institutions because of poverty, difficult family circumstances and social insecurity of families. The institutions are isolated from the community, thus making it challenging to monitor the living conditions of children. Needs of an institution prevail over the needs of a child. The situation has been complicated by the fighting in eastern Ukraine: as a result, we can see a new socially vulnerable group emerging that includes crisis-affected and internally displaced children who are in need for the state care.

However, the national decentralization reform considerably increases the chance of successful deinstitutionalization reform. Therefore, this subject needs more in-depth assessment. The purpose of this study is to analyze the national child care system in order to determine conditions for successful deinstitutionalization.

Keywords: conditions for successful deinstitutionalization.

Introduction

Family environment is the best place where a child gains self-awareness, learns about the world around, develops vital life feelings, and obtains important communication and cooperation skills. If a family fails to effectively perform its child upbringing functions, the society has to step in and decide whether the family can ensure socialization of a child.

In 1991, Ukraine ratified the UN Convention on the Rights of the Child] and recognized the importance of families in providing the best environment for children to grow up, learn and develop.

Pursuant to the Family Code of Ukraine and the Law of Ukraine on Protection of Childhood, family is a natural environment for physical, mental, social and spiritual development of children, their material support and the family is responsible for establishment of appropriate environment for this. Every child has the right to grow up in a family with his or her parents, or in a single-parent family, as well as the right for parental care. Therefore, creating conditions where each child enjoys the right to grow up in a family, ensuring priority of family-type homes for orphans and children deprived of parental care, and creating a family-type environment for children in institutional care have become underlying principles for the national child care and protection policy.

The situation has been complicated by the fighting in eastern Ukraine: as a result, we can see a new socially vulnerable group emerging that includes crisis-affected and internally displaced children who are in need for the state care.

The national institutional care system can be described as the system that is aimed at solving the problem of neglect, but failing to satisfy the need of children for family care. The institutional care system consists of an extensive network of institutions of various types, ownerships and subordination including: general boarding schools, special boarding schools, education and rehabilitation centers, residential high schools, lyceum boarding schools, college boarding schools, baby homes, children's institutions, education complexes consisting of groups, classes and round clock day care centers, and other 24-hour and long-term care institutions (over three months) where more than 15 children stay at the same time (hereinafter – residential child care institutions).

There are 751 child care institutions in Ukraine, including 39 institutions managed by the Ministry of Health of Ukraine, 132 institutions (residential schools, social and psychological rehabilitation centers for children, and children's homes) managed by the Ministry of Social Policy of Ukraine; 580 institutions are managed by the Ministry of Education and Science of Ukraine. In addition, there are child care institutions established by NGOs, charitable foundations, and religious organizations. This study will focus primarily on state-run residential child care institutions (the ones listed above excluding social and psychological rehabilitation centers for children and children's homes).

The national institutional child care system is lacking comprehensive information regarding the number and conditions of children, reasons for placement and the possibility to return to the family. These aspects remained unexplored due to the confidentiality of the system and shortcomings in the state statistical system. There is a discrepancy between state statistics and departmental data (collected by ministries). The information about such institutions is generally unavailable. There is no data available on the websites or in the reports of their supervising agencies. The actual reasons for placement in institutional care and consequences for children staying in residential care have not been monitored either.

In order to obtain an accurate data about the child care system and learn about existing problems, the Hope and Homes for Children, supported by the Commissioner of the President of Ukraine for Children's Rights, carried out a comprehensive study of the child care system with primary focus on institutional care during 2015 and 2016. This study confirmed that institutional care is not a favorable environment for the development and socialization of children. According to the study results, the majority of children, despite international requirements, are placed in these institutions because of poverty, difficult family circumstances and social insecurity of families. The institutions are isolated from the community, thus making it challenging to monitor the living conditions of children. Needs of an institution prevail over the needs of a child.

Literature Review

Experts in Ukraine have conducted series of studies on the priority of family care, problems of state policy and public administration on social support for families, the rights of children, solutions to the problems, and rationale for deinstitutionalization reform in Ukraine. These authors are: O. Voityk (2017), L. Volynets (2014), M. Kravchenko (2017), Z. Kyianytsia (2017), O. Mandebura (2011), I. Siomkina (2011), L. Solodukhina (2018), O. Shtogryn (2014), I. Pesha (2000) and others.

Desk studies and achievements of Ukrainian scientists have significantly improved the child care and protection policy, in particular the development of family-time care. However, the national decentralization reform considerably increases the chance of successful deinstitutionalization reform. Therefore, this subject needs more in-depth assessment.

The purpose of this study is to analyze the national child care system in order to determine conditions for successful deinstitutionalization.

Presentation of the core material

The national institutional care system was established during the Soviet era (the peak year - 1961) and has remained unchanged until now. As it was mentioned before, there are more than ten types of child care institutions in Ukraine. Most of them are under regional subordination (90.2%), with a planned capacity of more than 100 children (in most cases children live in barrack-type facilities).

Large buildings (up to 95,000 square meters) and land plots (up to 125 hectares per 140 children) have turned institutions into closed territories, where children are socially isolated from their communities; they study and live within the same area, and interact with very limited group of people. In addition, the institutional care system operates on an age-based principle – before reaching adulthood a child has to change two or three residential institutions (baby home, children's home, boarding school or childcare institution), and learn to adjust to a new environment, new staff and new children every time. These transitions cause some psychological trauma and complicate further social adaptation. The earlier in life a child is placed in residential care and the longer he/she stays in institutions, the more traumatic and irreversible effects are for a child's future life.

In Ukraine, almost 50% of children stay in long-term residential institutions– from 3 to over 10 years. A child is usually placed in institutional care for the rest of his/her life. Many children staying in residential care have parents with parental rights; therefore, these children cannot be adopted or placed into family-type homes. Such children usually do not return to their families even after reaching adulthood, they have no benefits, and receive neither state nor parental support.

Children under the age 3 are prone to even greater negative effects of institutional care. According to the studies of the Harvard Center on the Developing Child, at this age a child undergoes active brain development, and regular interaction with a caring adult directly impacts the development of fundamental skills and further learning abilities. An emotional bond between a child and a loving and caring adult helps a child to form and develop social affection (likings, long-term relationships, care, and ability to love). A lack of connection with a significant adult causes emotional and physical stress for a child and produces insecurity.

Graduates of residential care institutions generally have low academic achievements, therefore they have a limited access to career opportunities, and heavily rely on the administration of institution to make choices for them.

The environment in residential care institutions is not conducive to building relationship skills, posing a direct threat to child's ability to start a family in the future. The studies show that children born to mothers who were raised in such institutions are likely to end up in institutional care as well, since such parents do not know of any other type of family besides institutions.

Thus, the residential care institutions fail to properly prepare children for independent life, despite the regulatory requirements. Therefore, the existing institutional care system can be considered as discriminatory and violating the rights of children to grow up in a family environment, have equal access to education and social services. The legal existence of residential care institutions contradicts the Article 5 of the Family Code of Ukraine, according to which the state ensures the priority of family care for children.

The national child care and protection legislation, on the one hand, recognizes the importance of a child being raised in a family environment and the responsibility of parents to bring up their own children. On the other hand, it allows parents to transfer child care and upbringing responsibilities to the government. Instead of a painstaking work on preserving family environment for a child, the national legislation offers parents to place their children in institutional care. For example, pursuant to the Law of Ukraine on Fundamentals of Ukrainian Legislation on Health Protection, state assistance for caregivers of children with physical or mental disabilities that need medical and social support and special care allows parents to place children in specialized childcare institutions free of charge. Before September 2017, the Law of Ukraine on Education provided for the establishment of residential institutions - boarding schools with full board placement for children who need social assistance.

According to the study results, tens of thousands of children are placed in institutions in Ukraine every year. Only 8,700 (8%) out of 106,000 children raised in institutions are orphaned children or children deprived of parental care, the remaining more than 97,000 children (92%) have parents. In addition, only 18,054 children (17%) have disabilities. Thus, most children study, and most importantly, live and remain in institutions, without being orphaned or having any serious illness or disease. At the same time, pursuant to Article 52 of the Constitution of Ukraine and the Law of Ukraine on Protection of Childhood, the state shall provide support only to orphans, children deprived of parental care, persons from among them, and children with special educational needs and ensure free secondary education in national and municipal schools. Parents must take care of children until they reach adulthood.

Moreover, the state ensures decent living standards for families with children by providing social assistance, in particular: assistance to families with children; social assistance to low-income families; temporary government assistance to children whose parents refuse to pay child support, are unable to pay their child support or if their residence is unknown; social assistance for orphans and children deprived of parental care; assistance to caretakers and foster parents for providing social services in family-type homes and foster families according to the "money follows the child" principle. Various types of welfare benefits for families, parents or other legal representatives of a child cease when a child is placed in a child care institution under full-board placement.

The only difference between full-board placement and partial board placement is that partial board placement allows families to take children away for weekends and holidays. According to numerous studies, including, the comprehensive study of Ukraine’s child care system, carried out by the charitable organization Hope and Homes for Children in 2015 and 2016, parents do not always take children away for every weekend or holiday. There are many cases when parents show up in the institution once every six months just not to be deprived of parental rights.

Parents and other legal representatives of children living in residential institutions under partial board placement are paid different types of government assistance. In fact, parents receive full government assistance on a child who is placed in round clock institutional care and provided with everything necessary (school supplies, meals, clothes, footwear, hygiene products, etc.) by the state or local government.

The average monthly cost per child in institutional care varies between 5,000 UAH and 10,000 UAH (approximately between 150 Euros to 330 Euros) and is paid from the state and local budgets. This creates social injustice: some families that need social assistance receive different types of child support and spend it on education and development of their children, while other families, who receive the same child support, place their children in institutions, and the national or local governments must allocate additional funding to provide for those children’s needs.

This explains the already mentioned reason why children are placed in institutions – parents are encouraged to place their children in institutional care by regulatory and practical benefits. Placing

children in institutions is not considered as a separation from parents and does not involve any mandatory family counselling, aimed at overcoming difficult life circumstances.

Some efforts have been already made to reform such institutions in Ukraine. The biggest impetus for the reform was the adoption of the Government Target Social Program for Reform of the System of Institutions for Orphans and Children without Parental Care (2007). A major breakthrough in the development of family-like care placements for a certain group of children has been achieved. The downside of the reform: it has improved infrastructure and facilities of childcare institutions, rather than changing the childcare system or regime. Negative effect of institutional care remains the same.

In 2012, the regulation on education and rehabilitation centers was adopted. Pursuant to the regulation, these institutions may include preschool groups for children ages 2 to 7 and classes for children with disabilities. Residential special schools were preserved within the childcare structure. Upon the adoption of the regulation, residential special schools were soon reformed into education and rehabilitation centers. This allowed for enrolling even more children with different types of disabilities and of different ages to the same institution.

The reforms have not eliminated institutions. The reform efforts aimed primarily at expanding categories and age groups of children, eligible to be placed in institutional care. After the reforms, childcare institutions continue operate as regional institutions and keep children isolated from families, community and society. We agree with the findings of the study that the above situation is caused by system attempts to survive – staff members of residential institutions “recruit” children and come up with suspicious diagnoses in an attempt to secure the existence of institutions. In some areas, such institutions have been recognized as "strategic facilities" as they provide jobs for local residents.

Therefore, it can be stated that placement of children or prolonged stay in residential care institutions is explained by inertia of institutions, local government, local self-government agencies, especially child care and guardianship agencies.

Particular attention should be paid to funding for child care institutions. Total funding allocated from different level budgets for childcare institutions: about UAH 5 billion in 2014 and about UAH 6 billion in 2015. In 2016, after budget coefficients and levels were shifted (from state to local level, except for salaries which still come from the state budget), a subsidy of UAH 14 billion was still allocated from the state budget for all education and healthcare institutions.

The issue of unequal cost per child in different types of residential institutions remains unresolved. It conflicts with Article 8 of the Law of Ukraine on Provision of Organizational and Legal Conditions for Social Protection of Orphans and Children without Parental Care, which stipulates that state social standards, consumption rates and provision rates are equal for all orphans and children deprived of parental care, regardless of a type of placement.

Currently, the average cost per child in institutional care is about UAH 10,000 per month (approximately EUR 330). As a comparison, family-type placement settings were paid about UAH 4,000 per child. The government spent an average of UAH 1,300 per student per month to establish inclusive education services in secondary schools. Therefore, it is twice less expensive for the state or taxpayers to provide more effective education services for children, without removing them from their families.

In addition, the cost per child varies significantly, depending on a type of institution and on a region. For example, the monthly cost per one child in a children’s home in Chernivtsi region was UAH 5,640 while in Odessa region - UAH 11,862.

Regardless the equal standards, meals provided for children vary in cost depending on a type of institution. For example, the average cost of meals per child in children’s homes, where the majority of children are placed by parents, was almost UAH 750 per month, while residential boarding schools for orphans and children deprived of parental care with full-board placement - UAH 585 per month.

Sanatorium boarding schools, which have higher nutrition standards, spend an average of UAH 747 per month per child on food products, while education and rehabilitation centers spend UAH 935 per month.

An average cost of clothing and footwear for children takes 1.4% -1.8% of the total budget of institutions. Cost of medical supervision and medicines for children takes only 0.6% of total funding provided for institutions. A total cost of food, health care, clothing and footwear makes up 15.1% of the budget allocated to child care institutions. Labor costs take about 70% of the budget.

We can see that instead of covering the needs of children in residential care, the state provides financing for workforce and maintenance of premises.

All the above facts indicate the need for radical changes in the institutional care system. When studying the experience of many European countries (Sweden, Great Britain, Germany, Spain, Italy, the Netherlands, Denmark, Finland), as well as the countries that were under long-lasting post-Soviet impact, including Lithuania, Estonia, Poland, Hungary, Romania, Slovakia, Czech Republic, Moldova, and Georgia, Ukraine has completely changed the ideological and conceptual approaches to the national child care policy. Deinstitutionalization of a child care system was the most successful government decision for many countries and had numerous social and economic benefits.

We believe that deinstitutionalization is not merely downsizing and/or complete closure of residential institutions, but a comprehensive reform of education, healthcare and social welfare services to ensure that children are protected in their rights. We believe the change in institutional care does not mean just a closure of institutions. It means creating a system where a child is raised in a family or family-like environment, while closure of residential institutions comes from the fact that there is no need for placing children in institutional care.

Reforming and gradually eliminating residential institutions is one of the government priorities enshrined in the National Human Rights Strategy, the Action Plan to Implement the National Human Rights Strategy and the Government Priority Action Plan. The above priority was adopted at the meeting of the National Reforms Council on 31 May 2017, which was attended by the President of Ukraine. On September 5, 2017, the Verkhovna Rada of Ukraine adopted a new Law on Education. Pursuant to the law, existing boarding schools for children who need social assistance, shall be transformed, until December 31, 2021, into children's homes and placed under control of the central executive authority in social protection, or into pre-schools, general secondary schools, other education institutions or social care institutions. At the same time, amendments to Article 9 of the Law on General Secondary Education exclude this type of institutions from the national legislation.

The National Deinstitutionalization (DI) Strategy for 2017-2026 and the Action Plan for the 1st Stage of the National DI Strategy were adopted on August 09, 2017 and, by 2019, will help accomplish the following tasks:

- develop and adopt necessary laws and regulations and provide methodological support necessary for implementation of the child care deinstitutionalization reform;
- analyze the existing network of child care institutions, conduct children's rights assessment in each region and adopt regional action plans for the child care deinstitutionalization reform;
- form and train regional teams to implement the above strategy; develop training programs for training and retraining of specialists, in particular those working with children with disabilities;
- develop monitoring criteria for the child care deinstitutionalization reform process;
- attract investments for implementation of the child care deinstitutionalization reform;
- facilitate the development of social services for families with children.

Responsibility for implementing the above measures is borne by the central and local executive authorities and local self-government. However, the success of the reform depends on the ability of local communities to assume responsibility for their children.

The Model Provisions on the Committee on the Rights of the Child have been amended accordingly in pursuance of the National DI Strategy: the list of reasons for placing children in residential care has

been limited, and collective decision making is required. Now, before placing a child in a general education residential school, parents must obtain a respective decision on placement from the committee on the rights of the child. The committees will be formed and operate within all district state administrations, executive bodies of city and city district councils, and their responsibility will be to decide whether a child should be placed in a general education residential school by assessing family circumstances affecting the decision. Therewith, social care entities working with families, children and youth who are members of the committee have to take comprehensive measures to support families and prevent placement of children in institutional care.

Thus, each territorial community (district, city, village and urban settlement of an amalgamated territorial community) will be responsible for placing children living on its territory in institutional care and know about such placements (parents used to go to the education departments, the founders of such institutions on regional level, bypassing the executive bodies of their local community).

However, there are a number of issues that need to be regulated as soon as possible. First, facilitating development of community-based education, healthcare, social and rehabilitation services for families with children. Second, ensuring responsibility of each community for the protection of the rights of local children, primarily, the right to grow up in a family, and establishing state control. City, city district, town and village councils, including amalgamated territorial communities, along with district state administrations serve as child care and guardianship agencies. Third, laws and regulations must be developed to modify the approaches to operating and financing child care institutions.

Considering the on-going community amalgamation process, the terminated powers of child care and guardianship agencies represented by executive committees of village and town councils can be offset by effective control, interagency cooperation, standard services and child well-being and safety performance indicators combined with self-governing child care work methods.

For the foregoing reasons, the following legislative and regulatory amendments should be initiated:

1) the Code of Ukraine on Administrative Offenses regarding the introduction of state control over the observance of national child welfare legislation;

2) the Law of Ukraine on Protection of Childhood, in particular, regarding as follows:

- Children psychosocial rehabilitation centers, centers for children and families, mother and child centers, social dorms, and HIV centers for children and youth shall be included in the existing extensive network of city, district, city district, village and urban settlement centers for social services, as their structural units, to integrate social services and ensure high-quality administration of service delivery;
- Early intervention services shall be introduced;
- All necessary community-based special care and services shall be provided for children with developmental disabilities, in particular, in day care centers, rehabilitation and palliative care centers, resorts and other child care institutions which meet accessibility standards and universal design principles;
- A moratorium on the placement of children under the age of three in child care institutions shall be adopted. Multiple studies have proved the most negative and sometimes irreversible effects of institutional care on such young children;
- Out-of-home child care standards, regardless of type of placement, shall be introduced;
- The cost of institutional care, regardless of the type of placement, shall be paid by parents or persons replacing them and/or covered from the corresponding local budget of the child care and guardianship agency that made a child placement decision.

2) the Law of Ukraine On Provision of Organizational and Legal Conditions for Social Protection of Orphans and Children without Parental Care regarding as follows:

- The concept ‘graduates of institutions for orphans and children deprived of parental care’ shall be removed from the legislation. First of all, it is discriminatory. Second, it is inappropriate since orphans, children deprived of parental care and persons from among them have a number of benefits and privileges irrespective of the education institution they graduated form;
- The responsibility of local government for orphans and children deprived of parental care residing in their community shall be strengthened by introducing a legal provision, under which the

difference between a residential care fee and government guaranteed funding shall be covered by the local budget of the respective local government agency;

- Mandatory social and psychological adaptation of orphans and children deprived of parental care shall be practiced not only by social services centers for families, children and youth, but also by any child care institution to ensure successful deinstitutionalization reform;
- Mentoring services shall be provided to orphans and children deprived of parental care;
- The necessary regulatory framework shall be created for family-based forms of care;

3) the Law of Ukraine on State Bodies and Services for Children and Special Institutions for Children regarding as follows:

- The powers of local government bodies and executive authorities related to the protection of children's rights shall be clearly divided at all levels of the administrative territorial structure;
- Social services shall improve their control over observance of the rights of children in the respective territory, as well as their living conditions;
- The law shall cover not only children but also families with children, including by consolidating respective social service providers within the social services center;
- Such family-like child care settings as small group homes shall be officially introduced.

4) the Law of Ukraine on General Secondary Education, in particular, regarding as follows:

- Only students of general secondary schools shall be eligible to live in dormitories of education institutions; dormitories for children over six (seven) years of age are provided only at special schools, special art schools and sports schools;
- A family-like environment shall be created in all dormitories of general secondary schools;
- Sanatorium-type residential schools shall be banned. Numerous studies show that the daily schedule and activities in such schools are nothing special and can be implemented in any mainstream school where a sick child lives (for example, diseases and disorders of respiratory, digestive and cardiovascular systems, scoliosis). Children with psycho-neurological disorders as well as small or remission phases of tuberculosis can receive treatment in the respective health care institutions and have individual learning plans, and not just for one year as provided in sanatorium-type residential schools.

5) the Law of Ukraine on Preschool Education regarding the institutions that have to be removed:

- baby homes (subject to a moratorium on the placement of children under the age of three in institutional care);
- pre-school residential institutions (pursuant to the Law of Ukraine on Education, such institutions shall be transformed to other types of education or social establishments).

6) A number of laws of Ukraine must be brought in line with the above-mentioned innovations.

It is also important to amend a number of regulations that terminate various types of government assistance for children who are placed in 24-hour pre-school institutions or in secondary school institutions under partial board placement (except for special education institutions) to protect the right of every child to live and grow up in the family and ensure the implementation of Ukrainian laws on parental responsibility for raising their children. Urgent amendments must be made to the following regulations:

- The procedure for assigning and disbursing state assistance to families with children;
- The procedure for assigning and disbursing state social assistance to low-income families;
- The procedure for assigning and disbursing temporary state assistance to children whose parents refuse to pay child support, are unable to pay their child support or if their residence is unknown;
- The procedure for assigning and disbursing state social assistance to orphans and children deprived of parental care; financial allowances to carers and foster parents for providing social services in family-type homes and foster families according to the "money follows the child" principle.

Conclusions

Reforming institutional care does not mean closing institutions. Ukraine needs a comprehensive reform that protects the rights of children and provides for a system where a child is raised in a family

or family-like environment, while closure of residential institutions is a result of the situation when there is no need for placing children in institutional care. Sustainable efforts are required to reorganize and transform residential institutions into modern Social Support Centers for Children and Families, which are designed to meet the needs of children and communities.

In addition to the aforementioned conditions for successful deinstitutionalization, it should be emphasized that a territorial community must serve as a social institution that is responsible for satisfying daily needs and interests of its residents and protecting children's rights, their well-being, safety and stability. And the best way to do that is creating an environment where the family is preserved and strengthened for a child. Strengthening motivation and responsibility of each community for providing high-quality community-based services to families with children, aimed at supporting child upbringing functions of a family, which will reduce the number of social orphans; reducing the number of children outside of family care; and developing alternative child care solutions must be at the heart of children's rights protection strategy.

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Early Intervention Service Implementation at The Level of the United Territorial Communities in Ukraine

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Abstract

Early intervention service is widely used in countries around the world to help children with disabilities and at risk of disability and it is gradually being developed in Ukraine. Early intervention programs include the entire process, from identifying developmental problems of the child (in some cases during pregnancy), conducting an interdisciplinary assessment, therapy and support programs, and ending with the process of transferring the child to a preschool (or other) institution.However, in spite of certain scientific interest in the issues of early intervention, the need for a comprehensive study of all components of early intervention in national system of providing of medical and social services for children with disabilities or the risk of their receipt and their families is not losing its relevance.
The purpose of the article is to research and analyze the implementation of early intervention services in Ukraine and its legislative basis for developing practical recommendations for early intervention field at the level of the territorial community.

Keywords: early intervention service.

Introduction

Early intervention service is widely used in countries around the world to help children with disabilities and at risk of disability and it is gradually being developed in Ukraine.

The Ministry of Social Policy of Ukraine defines the early intervention service as a family-oriented service that combines medical, psychological, social and pedagogical assistance provided by a multidisciplinary team of specialists aimed at ensuring the development of children from birth to 4 years old with developmental disorders or at risk of such disorders, ensuring growth of such children and bringing them up in an environment that is natural to children of the corresponding age without disorders, or as close as possible to it, and involves support for the parents of such children.

Early intervention programs include the entire process, from identifying developmental problems of the child (in some cases during pregnancy), conducting an interdisciplinary assessment, therapy and support programs, and ending with the process of transferring the child to a preschool (or other) institution.

Brown, S. E. and Guralnick, M. J. (2012) noted that international practice reveals that over 15% of young children have development delays and due to this they need this service.

There is a tendency in Ukraine that the number of persons with disabilities, in particular of children with disabilities is increasing every year. In the structure of persons with disabilities (2 603,3 thousand people or 6,1% of the total population of Ukraine), the share of children with disabilities is 6.0% (156.1 thousand). In Ukraine, due to the lack of relevant statistical observations, there is no accurate data on the number of disabled children of early-age or children at risk of a disability, who need early intervention services. According to our calculations, in accordance with international approaches to the assessment, the number of children with special needs at the age of 0-4 years old can be approximately 270-280 thousand people in Ukraine.

Implementation and development of this family-oriented direction of providing services for the youngest children is quite new for our country, and therefore it requires studying and analyzing of international and national experiences both at the practical and scientific levels, in particular, based on the introduction of early intervention services in pilot regions in Ukraine (According to the decree of the Cabinet of Ministers of Ukraine dated December 14, 2016, No. 948-p "Some issues of the implementation of the pilot project "Creating a system for providing early intervention services" for the development of the child, preservation of his health and life" in Transcarpathian, Lviv, Odessa and Kharkiv regions, organizational measures have been taken to establish a system of interagency coordination of activities to provide early intervention services. The experience of the pilot regions will be the basis for the spread of early intervention services in other regions).

Literature Review

The social significance of the above-mentioned issues for the development of an inclusive society and non-regulation of these issues at the legislative level have caused a strong interest within the scientific community. Separate aspects of the problem of early intervention were analyzed by national scientists and practitioners such as N. Ashitok (2015), H. Dziana and R. Dzianyy (2017), I. Kolosovska (2017), M. Kravchenko (2014), M. Kropivnitskaya (2017), H. Kukuruza (2013), A. Kravtsova and N. Mikhanovska (2005) and others. Also, a wide range of foreign researchers of early intervention made a considerable impact of studying these issues in their works, for example S. Barrett (2014), M. Guralnick (2001), N. Dobrova-Krol (2014).

However, in spite of certain scientific interest in the issues of early intervention, the need for a comprehensive study of all components of early intervention in national system of providing of medical and social services for children with disabilities or the risk of their receipt and their families is not losing its relevance.

The purpose of the article is to research and analyze the implementation of early intervention services in Ukraine and its legislative basis for developing practical recommendations for early intervention field at the level of the territorial community.

Presentation of The Core Material

In international practices, early intervention is an integrated family care system that cares about a family with disabled child or at risk of disability in order to identify child's problems or disorders during his first four years of life and to provide appropriate support to the child and its

family. One of the main goals of early intervention is to create conditions for meeting the special needs of children in their childhood and early age so that they can successfully socialize at the next stage of development. An important feature of early intervention is that the service is provided not only for children with already established disability, but also for young children of biological and social risk groups.

Now in Ukraine there is a large number of institutions of health care system, social protection of the population, education and non-governmental organizations that provide various services to children with developmental problems and their families.

In particular, it is already the third year that rehabilitation institutions of the Ministry of Social Policy management have successfully deployed work on the prevention of childhood disability by providing comprehensive early childhood rehabilitation services for children from 0 to 3 years old with disability and at risk of disability.

According to the Ministry of Social Policy, as of 01.01.2018 there are 147 rehabilitation institutions for children with disability in Ukraine. A significant part of them provides relevant services aimed at this purpose, in particular, the State Rehabilitation Center "Center for Comprehensive Rehabilitation for Children with Disability "Promin" (Vinnytsya), the State Rehabilitation Center" Comprehensive Rehabilitation Center for Children with Disability "Prolisok" (Lutsk) and the State Rehabilitation Institution "Center for Comprehensive Rehabilitation for Children with Disability "Mriya"(Mykolaiv).

In 2017 almost 1,000 children under the age of 2 at risk of disability received rehabilitation services from rehabilitation institutions under the Ministry of Social Policy. It is important to note that as a result of rehabilitation a big part of them got rid of the risk of disability. So, for 117 children under the age of 2 who received rehabilitation services at the State Rehabilitation Center "Center for Complex Rehabilitation for Children with Disabilities "Mriya" (Mykolaiv), the corresponding index was more than 40%.

This year, the tendency of increasing the number of young children whose families are applying for rehabilitation services continues to take place. For example, above-mentioned Center "Mriya" gave rehabilitation services for 86 children of this category only during the first 6 months.

An essential element for increasing the possibilities of preventing the disability of young children will be the extension of one year's age rating, which is defined for rendering them rehabilitation services. Thus, the age group of children at risk of disability has been increased to 3 years by the decision of the Government dated 26.07.2018, for rendering them rehabilitation services.

From a scientific and practical point of view, correction and prevention programs for disability in this category of children are multi-vectored and comprehensive and promote the integration of the child into the educational environment. According to medical indicators and psychological and pedagogical assessments, it is possible to adequately assess the condition of the child, coordinate the actions of specialists, implement planned rehabilitation measures and obtain significant results, up to the age of three. The early start of rehabilitation promotes not only successful development, but also adaptation of the child and his/her parents to fullfilling life in society.
At the same time, there is a pressing need for the creation of a single, integrated system for providing early intervention services that would ensure appropriate inter-sectoral coordination and interaction in meeting the needs of the respective category of children and their legal representatives at the level of the territorial communities.

In order to implement and develop a system of early intervention services in Ukraine, the following documents have already been approved:

- The Decree of the President of Ukraine dated December 13, 2016 No. 553/2016 "On Measures to Ensure the Ensuring of the Rights of Persons with Disabilities", according to which one of the priority measures to intensify work on the implementation of the regulations of the United Nations Convention on the Rights of Persons with Disabilities is elaboration and approval of the concept of the establishment and development of a system of early intervention services;

- The Decree of the Cabinet of Ministers of Ukraine dated December 14, 2016, No. 948-p „Some issues of the implementation of the pilot project "Creating a system for providing early intervention services" to ensure the development of the child, preserving his/her health and life".

On April 13, 2017 Memorandum of Understanding was signed between the United Nations Children's Fund (UNICEF), the Ministry of Health of Ukraine, the Ministry of Social Policy of Ukraine, the Ministry of Education and Science of Ukraine, the All-Ukrainian Public Association "National Assembly of Disabled People of Ukraine", the Charitable Foundation "Early Intervention Institute" for Children with developmental disabilities and children with disabilities; the Public Organization "All-Ukrainian Fund for the Protection of Children's Rights"; the Soft Tulip Foundation (Kingdom of the Netherlands) and the European Association for Early Intervention, and this allowed the creation of a national political platform for the dialogue of all stakeholders in order to implement an early intervention system in Ukraine.

During 2017-2018 three platform meetings were held with the participation of signatories of the Memorandum, experts of the Twinning project, implemented by the Ministry of Social Policy, representatives of pilot regions and international organizations (The Ministry of Social Policy initiated towards European Union the involvement of technical assistance under the Twinning program and the project entitled "Support to the Ukrainian authorities in drafting legislative and administrative framework for introduction of early intervention and rehabilitation of children at risk of receiving disability" commenced in May 2017, which will last until May 2019). At the last meeting of the platform on August 21, 2018, the participants supported the decision to develop and approve the draft Statute and Regulations of the National Policy Platform on Early Intervention in order to ensure the continuous functioning of such an important platform for public dialogue on this issue.

At the same time work on draft regulatory acts, which will form the legislative basis for the development of early intervention services and the network of centers (departments, offices) of early intervention is continuing, namely:

- Draft Order of the Cabinet of Ministers of Ukraine "On Approval of the Concept of Creation and Development of Early Intervention Services System in Ukraine";

- the draft order of the Ministry of Health, Ministry of Social Policy, Ministry of Education, "Some issues on the implementation of the pilot project "Creation of a system for providing early intervention services" to ensure the development of the child, preserving its health and life".

An important stage in the introduction of early intervention services in Ukraine is the implementation in 2017-2020 of a pilot project "Creating a system for providing early intervention services" to ensure the development of the child, preserving his health and life "(hereinafter - the Pilot Project). Indicators characterizing the achievements of the pilot regions regarding the development of a system for providing this service as of 01.07.2018, identified by authors on the information base of the Ministry of Social Policy, are presented in Tables 1 and 2.

Table 1: Number of institutions subordinate to different ministries, taking part in the establishment of a system for providing early intervention services in pilot regions

Institutions	Designated for participation in the Pilot Project*	As a percentage of the total	In fact, they render services in 2017-2018	As a percentage of the total
Ministry of Health	14	74	2	13
Ministry of Social Policy	3	16	8	53
Ministry of Education	2	10	4	27
NGOs	-	-	1	7
Total	19	100	15	100

* According to item 6 of task 1 of the plan of measures for realization in 2017-2020 of the pilot project, approved by the Decree of the Cabinet of Ministers of Ukraine dated December 14, 2016, No. 948-p.

Source: developed by authors using the information resources of the Ministry of Social Policy.

More than 79% of the institutions designated for participation in the pilot project already provide early intervention services (without taking into account the centers for integrated rehabilitation for people with disabilities, the Ministry of Social Policy).

In the system of rehabilitation institutions of the Ministry of Social Policy 54 institutions provide services to children at risk (from 0 to 3 years), including 3 state institutions. The number of recipients of early intervention services during 2017-2018 together in all pilot regions, according to our calculations, is 3121 families. In particular, in the Kharkiv region the service received 1618 families during this period, including 150 families in the Charitable Foundation "Institute of Early Intervention" (Kharkiv).

Table 2 : Data on the number of providers and families receiving early intervention services in pilot regions for the period from 01/01/2017 to 01/07/2018

The name of the administrative-territorial unit	Number of service providers	Number of recipients of early intervention services families	Basic nosologies
Transcarpathian region	1	141	Disorders of the spectrum of autism, mental retardation, central nervous system damage, genetic diseases
Lviv region	6	1269	Infantile cerebral palsy, risk of autism, genetic syndromes, complex disorders, visual impairment
Odessa region	2	93	Developmental delay, sensorimotor alalysis, hypertensive and hydrocephalic syndrome,

			autism
Kharkiv region	6	1618	Developmental delay, infantile cerebral palsy, genetic pathology, motor disorders
Together in all pilot regions	15	3121	-

Source: developed by authors using the information resources of the Ministry of Social Policy.

Since Ukraine has no official statistics on the number of young children with developmental disabilities and the risk of such violations, an important step in the implementation of the early intervention system at the regional level was the start of piloting developed under the Twinning Project together with specialists from the cities of Kharkiv, Odesa, Lviv and Transcarpathia model of the online module (screening) for collecting statistical data for analyzing the population's needs for early intervention services.

Since April 2018, online screening has been started in the specified regions. The reference to the questionnaire is posted on the sites of regional state administrations, departments of social protection of the population, education, health care and all other related structures.

An online module (screening) for the detection of children with developmental and developmental abnormality is based on a questionnaire that contains a test for the early identification of child development issues, depending on the age of the child. If the test results contain warning signs that depend on the child's age (at least one line preceded by a sign (!) Or marked at least four lines for a certain age) is considered to be alarming, and at the end of the questionnaire, referral to the center of early intervention is proposed.

Thus, important steps have been taken in all pilot regions regarding the development of early intervention services, namely:

- in all regions (except Lviv), regional councils have been formed to implement the Pilot Project on the introduction of early intervention intervention practices; managers have been identified; meetings of regional councils are held;
- in all areas (except for Lviv), regional plans for the implementation of the pilot project on the introduction of the practice of providing early intervention services have been approved;
- a list of institutions and organizations involved in the rendering of early intervention services are defined in all oblasts;
- Interdisciplinary teams of early intervention are trained in all oblasts;
- in all regions an institution is identified that is a methodological center for the implementation of the Pilot Project;
- In all regions (except Lviv) sources of financing for the provision of early intervention services at the regional (local) level are identified: in Transcarpathia and Odessa regions, services to citizens are provided free of charge at the expense of the regional budget; in Kharkiv region financing is carried out within the framework of financing of health care institutions and with attraction of extrabudgetary funds.

Conclusions

Thus, the article explores the process of introducing early intervention services at the level of territorial communities in Ukraine, and the legislative basis for the implementation of early intervention services. The results of the development of early intervention services in the Kharkiv, Lviv, Transcarpathian and Odessa regions have been analyzed in accordance with the

implementation of the Pilot Project based on the Decree of the Cabinet of Ministers of Ukraine dated December 14, 2016, No. 948-p. This analysis confirms the existence of an urgent problem regarding the improvement of the existing system of public administration in the field of prevention of childhood disability and the expansion of services for young children at the regional level, which help to prevent or counteract the disability of children with developmental disorders and support families with children with disability, for the formation of parental competence and prevention of institutionalization.

In the context of the reform of the institutional care and upbringing of children in Ukraine, the introduction of early intervention services will promote the development of a new, alternative to residential model for the provision of social services for families with children at the level of territorial communities, which will be able to ensure the right of every child to have a family.

In our opinion, the development of early intervention should include broad coordinated interdisciplinary efforts in various sectors of public administration and society in general and be a part of a single integrated interagency system for early detection of developmental disorders, rehabilitation and social adaptation of children in Ukraine.

In our opinion, urgent measures for the development of the early intervention services system should be:

- Preparation and approval of the draft Statute and Regulations of the National Policy Platform for Early Intervention, created as a result of the signing of the Memorandum, which will facilitate the acceleration of the development and processing of documents;
- approval of common draft order of the Ministry of Health, Ministry of Social Policy, Ministry of Education, "Some issues on the implementation of the pilot project "Creation of a system for providing early intervention services" to ensure the development of the child, preserving its health and life", which will approve a standard regulations on the center / department / cabinet of early intervention, which will create conditions for the development of services at the regional level;
- Approval of the draft resolution of the Cabinet of Ministers of Ukraine "On Approval of the Concept of Creation and Development of Early Intervention Services in Ukraine" in pursuance of the Decree of the President of Ukraine dated 13.12.2016 No. 553/2016 "On Measures aimed to Ensure the Rights of Persons with Disabilities";
- expansion of the list of pilot regions for the implementation of the pilot project "Creation of a system for providing early intervention services" to ensure the development of the child, preserving his/her health and life" (in particular, due to Vinnytsia, Dnipropetrovsk, Zhytomyr regions).

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Analysis of the Stock Markets Efficiency in the Post-Crisis Period Using the Theory of Chaos Tools

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Abstract

The article focuses on conceptual approaches to modeling the analysis of information efficiency of stock markets. On the example of the Russian and US stock markets, the use of models of chaos theory to assess the efficiency of markets in the environment of the Bloomberg information and analytical system is demonstrated. Practical recommendations are given on the study of the hypothesis on the efficiency of markets in modern conditions.

Keywords: modeling, stock markets, the hypothesis of market information efficiency (EMH), chaos theory, Hurst constant, Bloomberg.

Introduction

The efficient market hypothesis (EMH) is reasonably considered one of the most influential and actively discussed concepts of the theory of the capital market over the past 50 years. Nominated in the 60s of the last century by Malkiel (2003) and further developed in the writings of the Nobel Prize laureate in economics by Fama (1966, 1969, 1991) and other well-known scientists, it continues to be the subject of fierce debate and discussions both in scientific circles, and among practitioners.

According to EMH, the market is considered to be information-efficient, if, at any point in time, prices there completely reflect all the information available at that moment, which is taken into account when determining the fair value of an asset. Thus, the change in prices in such a market can occur only if new, still unknown information is received. Since the appearance of such information is generally unpredictable, the future price change is also unpredictable and random (random walk).

The key issue of the EMH is the degree of completeness and speed of reflection of financial assets of both known and just received information in the prices. Fama et all (1969, 2003) distinguished three forms of market efficiency:

1) weak form of efficiency;
2) moderate (semi-strong) form of efficiency;
3) strong form of efficiency.

The difference between them lies in the volume or completeness of the information that is "contained" in the market price of a particular financial asset, and, therefore, directly affects its fair value and profitability.

In carrying out EMH research, "technical" (i.e., statistical information about changes in asset prices over a period of time), fundamental (macroeconomic, industrial, any publicly available information about this or that firm) and insider (closed) information are usually identified.

A weak form of efficiency assumes that all past information on prices and return on assets, their generated payment flows, trading volumes, etc. are already reflected in current prices. Since such information is known, generally available, almost free of charge and is reflected in current prices, its study cannot provide data useful for determining the fair value and profitability of an asset and their possible future changes. Hence, the uselessness of technical analysis as a tool for research and forecasting trends in market prices.

In its turn, a moderate or semi-strong form of efficiency asserts that not only past, but also all public information concerning the current state of affairs and prospects for the development of a particular firm, industry or economy as a whole is already reflected in current asset prices. As far as public information is concerned, any investor and analyst can take into account and already considered it in their forecasts and models of estimating the fair value of the relevant asset. That is why, it cannot influence the behavior of prices in the future. Thus, fundamental analysis is also not able to reveal new and useful information for decision-making and development of strategies that allow to obtain profitability above the market average (i.e., "beat" the market).

A strong form of efficiency implies that any (past, public, closed, etc.) information is already reflected in current prices. Therefore, even having unknown information about the state and prospects of development of a particular issuer, it is impossible to derive an economic benefit. It is generally recognized that this form of efficiency is ideal and hardly achievable in practice.

With regard to the EMH conclusions, it is not surprising that it has repeatedly been subject to numerous studies of various types and criticism, especially from practitioners.

This article is devoted to the study of the efficiency of the Russian stock market in the post-crisis period. At the same time, the weak form of the EMH was analyzed, because in modern conditions the study of a moderate and, in particular, a strong form of efficiency has no practical sense.

Results

The analysis shows that the most popular approach to the study of the weak form of efficiency is the use of various statistical tests to confirm/reject the null hypothesis (H0), which can be formulated as follows:

H0: investors are not able to get higher returns using strategies based on the identification of trends or predictable patterns of price behavior analyzing historical data.

Over the past 50 years, many statistical techniques, models and tools have been proposed to test this hypothesis. In this regard, it is not possible to provide an exhaustive overview of all areas of analysis and tools used in this context within the framework of one article. The most common approaches can be conditionally divided into two categories: the identification of temporal patterns in the behavior of prices and the forecasting of trends.

The first direction involves the search for any patterns in the behavior of prices and returns over a certain period of time. Interest in such studies is stimulated by the results obtained in the 70-80s of the last century and widely known as "calendar effects". Thus, a study by Gibbons and Hess (1981) demonstrated that US stocks show lower yields on Monday than on other days of the week (the so-called "Monday effect"). Later, Harris (1986) discovered the so-called "weekend effect". The study by Fama (1966, 2003) revealed higher average returns in January, compared with other months of the year. The "January effect" was also detected by Chopra et al (1992) and scientists in other countries.

Despite the attempts to explain the identified calendar anomalies (tax and legal motivations, liquidity requirements, closing and reporting, etc.), they continue to be one of the main arguments of the opponents of the EMH.

Another popular direction for testing the weak form of the EMH is trying to find trends in the price series and forecast how to obtain higher yields. The most popular tools and methods are:

- identification of autocorrelation in time series (serial correlation tests);
- determination of the number of periods of sign change in the price variations (run tests);
- the construction of filters, i.e. investment rules based on the specified range of price changes (filter rules).

The idea of the first approach in analyzing the weak form of the EMH is to detect serial correlations in price series over a certain time interval (Brock et al, 1992). Carrying out a lot of similar studies on different time lags showed the absence of significant regularities in asset returns and the presence of autocorrelation values close to zero (Maurice et al, 1986).

Using the second approach, researchers are trying to determine the time periods when a change in the sign of the price change occurs and their duration. The most famous study of this kind is the work of Fama (2003), which did not reveal significant results.

The construction of filters presupposes determining the time points at which the asset must be purchased or sold.

The simplest filter is X%, which is set by the following rule: if the price of the asset has increased by X%, buy the asset and keep it until the price falls by X%, after which it should be sold. Accordingly, the percentage at which the price should change is called a filter.

As Bessembinder et al (1998) mentioned, practice has developed many similar investment strategies based on various statistical and special technical indicators (different types of moving averages, relative strength of growth, price-volume indicators, combination of indicators, etc.). At the same time, Sweeney (1988) and Brock et al (1992) showed, that after deducting transaction costs, their results, as a rule, do not exceed a simple "buy-and-hold" strategy.

In our opinion, a simpler and more effective approach to solving this problem is to test the hypothesis of the randomness of the corresponding price range.

Thus, in this paper we used another approach based on elements of chaos theory in order to assess the weak form of efficiency of the Russian stock market represented by the RTS index. This index was used because it is calculated on the basis of quotations of Russian shares in US dollars, which makes it more convenient for comparisons with US stock indices.

As an evaluation criterion for the randomness of changes in the price range, the Hurst exponent was used. Simulation of the calculations was carried out in the information-analytical system Bloomberg using the KAOS function with the data presented in it.

Peters showed (2002), the Hurst exponent for estimating the randomness of changes in the price range can be calculated as follows:

$$H = \frac{log(v/\sigma)}{\log(a \times N)}, \qquad (1)$$

where H is the Hurst exponent; v is the range of the variation of the series; σ is the standard deviation of the series; N is the number of elements in the series; a is a constant.

The value of the Hurst exponent is used to estimate the direction of change in the movement of the series (prices) depending on the past value.

When $H = 0$, the next value will be exactly the same as the current value, i.e. price behavior is unstable (antipersistent).

If H is in the range $0 < H < 0.5$, the row is unstable, falling and growth are changing one another.

When $H = 0.5$, the price movement is unpredictable, and in which direction the next value will change, it is not known, i.e. the series is random, and price changes do not depend on each other. In this case, it can be argued that the market efficiency hypothesis is working (confirmed).

If H is in the range $0.5 < H < 1$, the series is stable, has a trend – a decline is followed, with a high probability, by a further decline and vice versa – the growth of the current value is likely to cause further growth of the next one.

When $H = 1$, the next value will continue the current movement, i.e. there is a stable (persistent) trend.

Obviously, the extreme values $H = 0$ and $H = 1$ are rarely encountered in practice.

Figures 1, 2 show screenshots of the Bloomberg system with the results of the analysis of the performance of the stock market in Russia (RTS) and the US (SP500) for the period from December 31, 2014 to December 30, 2015, daily data (closing figures).

We give the necessary explanations. The upper part of the screen contains the current information about the asset at the date of the research (asset ticker, current and previous price value, price change, etc.), as well as the specified parameters for analysis (time interval (RANGE), period (PERIOD) – day, week, month or year; the value of the Hurst exponent, signaling about the purchase (BUY) and sale (SELL), the transaction costs per unit of the asset (COST), the number of periods in which the moving average is calculated (MOVING AVG), the type of graphs (BAR/CANDLE CHART), the number of periods we use for calculating the Hurst exponent (LOOK BACK), the calculation currency.

The first (upper) graph in the figures shows the changes in the values of the RTS and SP500 stock indexes in the analyzed period. The middle graph shows the values of the Hurst exponent, while the bottom one illustrates the cumulative profit or loss that could be obtained by following the buy or sell signals.

As follows from the results of the analysis, the Hurst exponent for the analyzed time interval for the RTS index ($H = 0.62$) significantly exceeded the same indicator for the American market ($H = 0.53$), which was close to the ideal ($H = 0.5$). At the same time, on the graph of the Hurst exponent change for the SP500 index (Fig. 2), one can clearly see areas that are practically coinciding with the straight line $H = 0.5$.

Since the actual value of H for the SP500 index differs from the theoretical value ($H = 0.5$), the market efficiency hypothesis should formally be rejected. At the same time, it can be concluded that, at least for some time intervals in the analyzed period, the market corresponded to the weak form of the EMH.

The Russian market (RTS index) in the analyzed period demonstrates greater volatility, while the time series is mostly persistent, which indicates the presence of trends. The value of the exponent of Hurst allows to draw a conclusion about the inefficiency of the Russian market, even in the weak form.

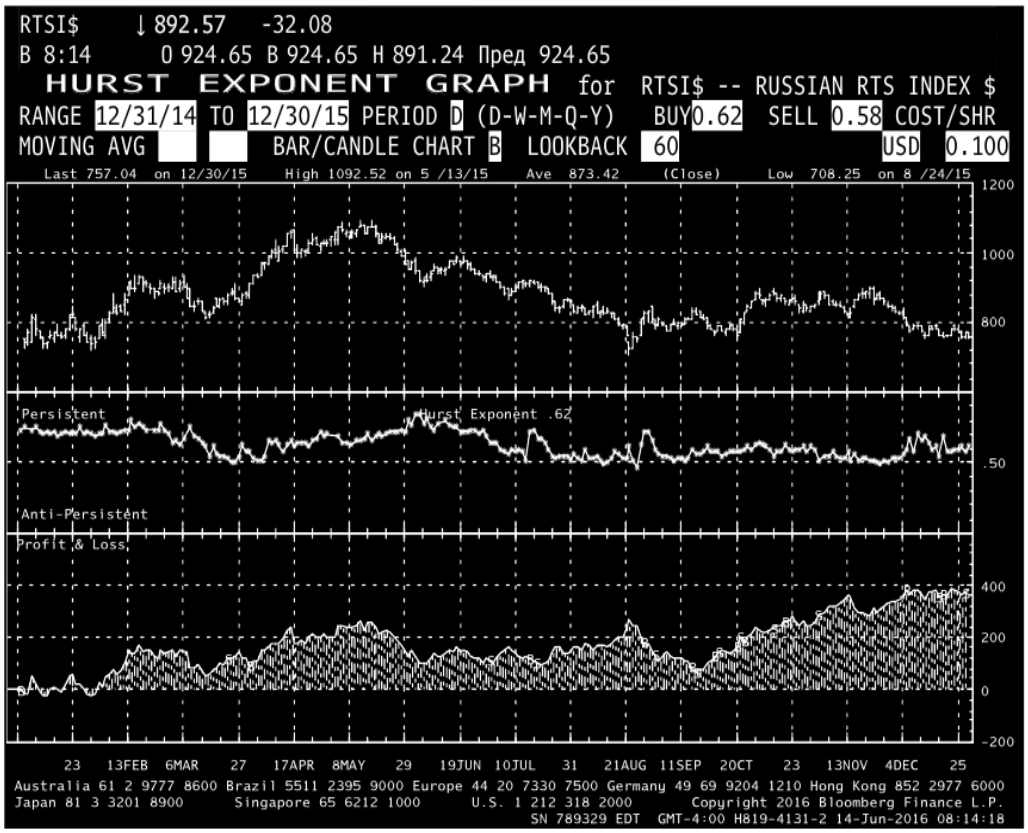

Fig.1: Efficiency analysis of the Russian stock market (period – 1 year)

Of great interest is the behavior of markets over longer time intervals. To conduct such a study we chose 5-year interval from 29.01.2010 to 31.12.15 with a periodicity of 1 month. The results of the investigation in the Bloomberg system are shown in Figures 3, 4.

Based on the obtained results, the values of the Hurst exponent (0.35 and 0.61, respectively) showed that the weak efficiency hypothesis for these markets should be rejected.

At the same time, it is not difficult to see that the behavior of the analyzed markets differs significantly.

The RTS index shows unstable dynamics over most of the time interval. With the trading algorithm embedded in the Bloomberg system, it cannot give clear signals for buying or selling (the BUY and SELL parameters are equal).

The US market has been persistent for almost three years out of five, and since December 2013 has been "returning" to information efficiency in the weak form.

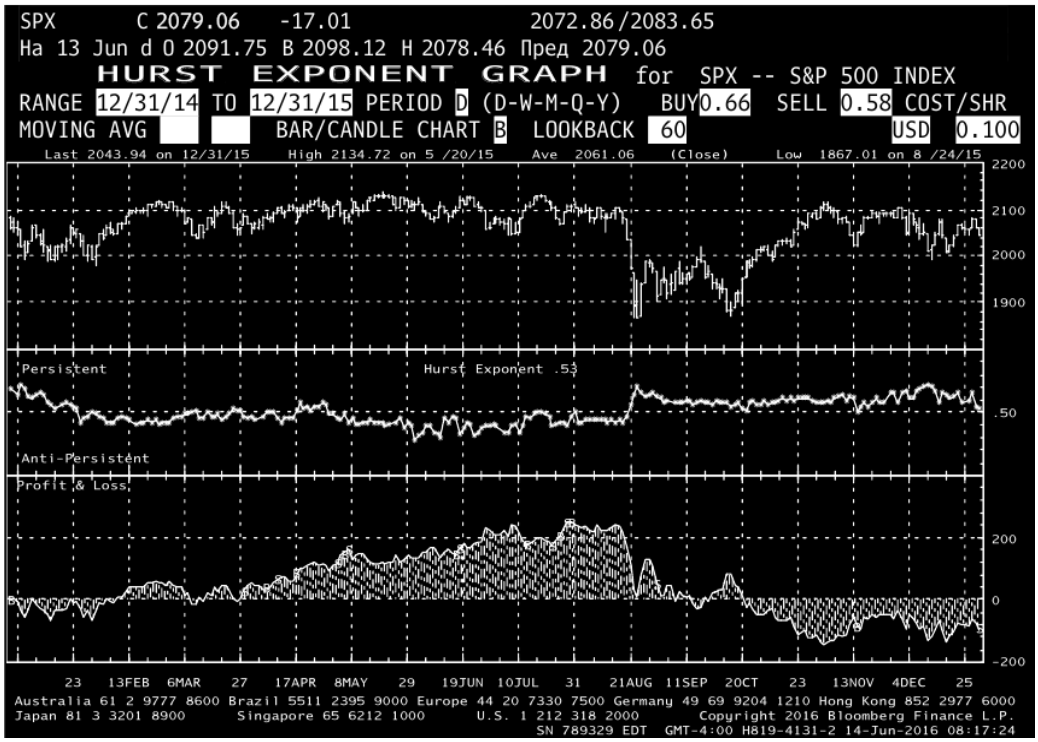

Fig. 2: Efficiency analysis of the US stock market (period – 1 year)

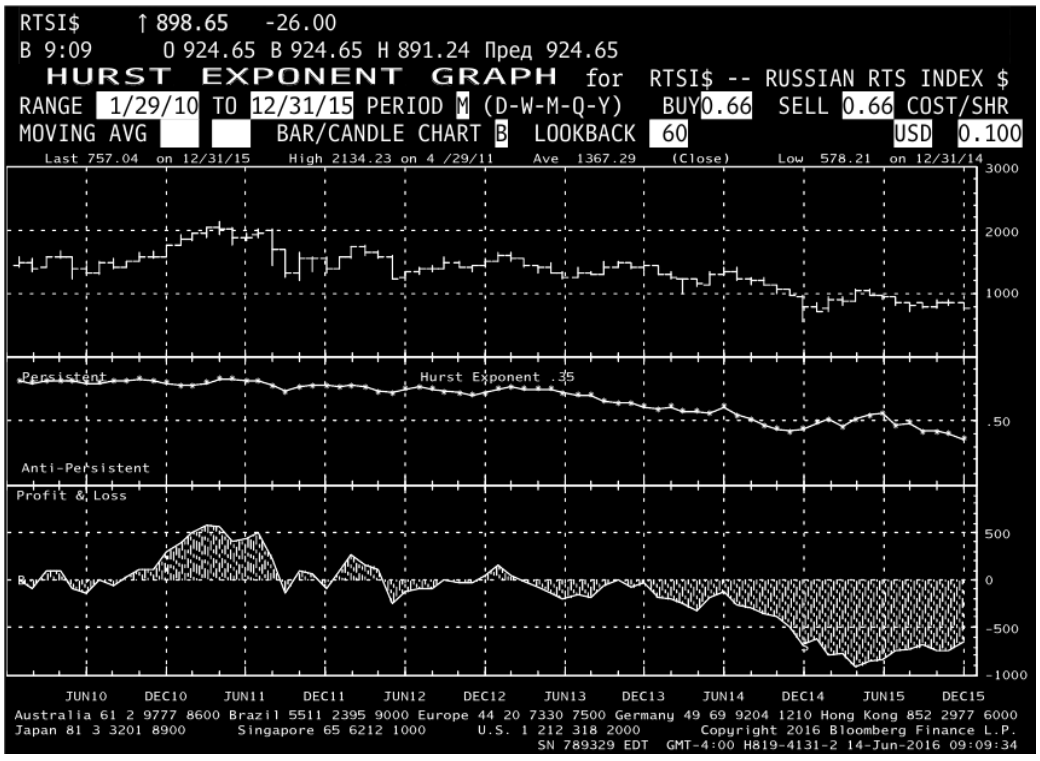

Fig. 3: Efficiency analysis of the Russian stock market (period – 5 years)

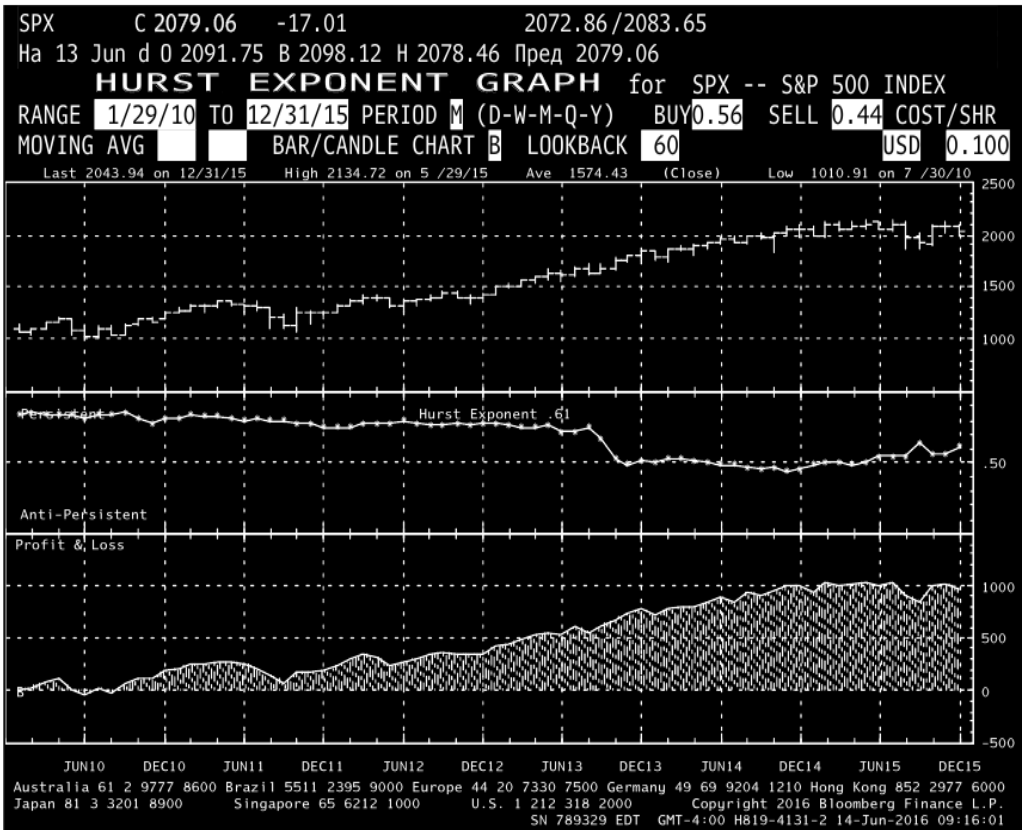

Fig.4: Efficiency analysis of the US stock market (period – 5 years)

Investigation of the EMH hypothesis can also be carried out for individual assets. Below are the results of such a study for the leading Russian companies in the telecommunications sector in the format of the MS EXCEL table, extracted from the Bloomberg system as of June 14, 2016.

	A	B	C	D	E
1	EQY_FUND_CRNCY	REL_INDEX	FA_ADJUSTED		
2	RUB		ADJUSTED		
3	Тикер	Name	РынКап (RUB)	Посл. цн (RUB)	Hurst Exponent
4	MTSS RM Equity	MOBILE TELESYSTEMS PJSC	532721,4163	257,8	0,280604005
5	RTKM RM Equity	ROSTELECOM PJSC	244333,68	94,89	0,357832015
6	AFKS RM Equity	SISTEMA JSFC	215002	22,28	0,665542006
7	MFON RM Equity	MEGAFON PJSC	452600	730	0,588598013
8					

Fig. 5: Analysis of the implementation of the EMH hypothesis for shares of Russian telecommunications companies

As expected, the EMH hypothesis is not being fulfilled for any of the companies. At the same time, an interesting fact is a significant (more than 2 times!) difference in the H indicator for the shares of MTS and Megafon, as well as for the shares of MTS and Sistema. The latter is the main and controlling shareholder of MTS, which owns 51.46% of the company's capital.

Conclusion

In conclusion, we note the following. The hypothesis of the EMH is the most important theoretical concept, allowing for a deeper understanding of the relationship between the availability of information and the behavior of investors in financial markets. Based on certain and not always real assumptions, the hypothesis of the EMH, as practice shows, is not being fulfilled even in developed markets. At the same time, the study allows us to conclude that, at certain time periods, developed markets are in a state very close to information efficiency, at least in its weak form. The "movement" of markets to efficiency is extremely important, as it helps to eliminate the imbalance between market and fair asset prices, make adequate management decisions by investors and reduce material costs and losses.

Despite numerous studies in this field, their results do not yet fully allow or reject the EMH hypothesis.

At the same time, the obtained results depend significantly on the used methodology, models and tools, available information, and in particular on the choice of the time interval for analysis.

In our opinion, the methods and tools of the theory of chaos, being less strict and precise, in comparison with statistical and econometric, allow nevertheless more adequately to take into account the inertia and psychology of markets, their fractal nature.

The use in modern research of modern information and analytical systems such as Bloomberg, which simultaneously combines the information base and the developed toolkit for processing data in real time, allows to increase significantly the efficiency and quality of the analysis, as well as to shorten the time of its conduct.

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The Impact of Young People Neither In Employment nor In Education or Training Rate on the People at Risk of Poverty Rate after Social Transfers in European Union

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Abstract

This paper aims to assess the impact of young people neither in employment nor in education or training (neets rate) on the people at risk of poverty rate in the European Union, since young unemployment rate was one of the main channels through which the financial crisis has affected population income. Also, the educational system deficiencies includind the isuues related to the lack of correlation between educational skills and those needed on the labour market have intensified the impact of neets on poverty in the EU member states. The variables used cover 2010-2016 data for the EU-28 member states. Regarding the methodology, I used Panel Estimated Generalized Least Squares method, weighted by Period SUR option. Finally, this paper confirms the positive impact of the neets rate on the poverty rate in the European Union, as well as the inverse relationship between the evolution of the social government expenditures and the dynamic of the endogenous above mentioned. One of the most important drivers of the people at risk of poverty rate in the EU proved to be the in-work poverty rate.

Keywords: poverty, education, employment, social, panel

JEL Classification: I24, I30, I32, J21

Introduction

Poverty is one of the greatest challenges of the last decade. The upward trend of the poverty rate in the European Union was a consequence of the economic and financial crisis. The situation is difficult as unemployment, one of the factors that have an important role to play in the dynamics of poverty, is still high, even if some countries experienced labour market improvements.

Latest european studies shows that this theme has a particular importance since 1 out of 4 European citizens face challenges related to poverty, social exclusion and material deprivation. According to a survey of European Commission, 8 out of 10 Europeans believe that the main challenges of the European Union are unemployment, social inequalities and migration. In this context, poverty has become one of the most discussed topics in the last few years and the review of the channels by which poverty drivers are influencing its level is essential for identifying the priorities that decision-makers should focus on.

The motivation for choosing the theme lies in its actuality and in the fact that recent studies have focused more on the separate analysis of the factors that are included in the young people neither in employment nor in education or training (NEETs) rate and didn't asses the aggregate impact of this indicator on poverty. This concept has been used starting with 2010 to provide a descriptive picture of the challenges faced by young people and to streamline youth-oriented policies in the EU.

The main objective of the paper is to assess the impact of the NEETs on the people at risk of poverty rate. In order to meet this purpose, other explanatory variables were used, such as government spending on social protection and in-work poverty rate (people over 18 age).

Literature Review

The literature studying this concept provides some evidence on poverty drivers, but research findings are sometimes questionable as a result of the qualitative issues which their estimates are facing with. Existing literature in this area does not focus on studying the aggregate effect of NEETs that includes both unemployment and early leavers from education and training. Most studies focused on the separate analysis of these explanatory factors and sometimes it have been obtained results contrary to the economic theory.

The World Bank (2005) has framed the determinants of poverty into four pillars, as follows: (i) regional characteristics; (ii) community characteristics; (iii) characteristics of households; (iv) individual characteristics. Individual characteristics take into account factors related to age, education, status on the labour market, health and ethnicity. Atkinson (2013) has shown that the increase in the poverty rate is also caused by national institutions as well as by the policies adopted on the labour market. On the other hand, Duiella and Turrini (2014) have found that the impact of unemployment, long-term unemployment and GDP per capita on people at risk of poverty rate is not significant, the impact of long-term unemployment proving to be even negative.

Regarding the people at risk of poverty rate, some authors have stated that the cause of this type of poverty can not be accurately identified: low hourly wages, too few working hours or recurrent periods of unemployment (Crettaz, 2011; Larsson and Halleröd, 2011). However, other researchers have shown that there is a low correlation between low salary levels and in-work poverty rate, most low wage earners not being exposed to the risk of poverty (Corluy and Vandenbroucke, 2014; Marx and Nolan, 2014).

Lohman (2009) and Crettaz (2011) have developed an analysis demonstrating that in-work poverty is not caused by the low level of wages and is a consequence of the high number of family members. Other studies have shown that people in Northern member states may be closer to the risk of poverty than those from other EU countries because they leave their parents' homes at a lower age and no longer benefit from their money support during the transition period from student to employee (Halleröd and Ekbrand, 2014).

Notten and Guio (2016) analysed the relationship between social transfers and material deprivation and identified a strong negative impact of this social tool. Also they found that social transfers have a high capacity to reduce the number of people falling into the category of severe material deprivation. In particular, the literature in this field has identified a negative correlation between poverty rate and social spending (Behrendt, 2002). Kühner (2007) highlighted the limitations of this indicator, as it may react to changes in the unemployment rate as a result of cyclical factors.

Methodology

In this section, I presented the methodology used in order to estimate the impact of the young people neither in employment nor in education or training rate on the people at risk of poverty rate in the European Union (relative poverty). In order to obtain an aggregate impact, I used panel data with annual frequency.

Firstly, I extracted the indicators mentioned below and published by Eurostat for all EU member states, covering the period 2010-2016, due to the limited availability of time series for some European countries.

All necessary operations for the estimation of the impact of the NEETs rate on poverty rate were conducted using Eviews 9.0 software. Further, I checked the stationarity for my panel data using "Summary" window which provides a detailed view of the results of the following stationarity tests:

- ✓ Assuming common unit root process (null hypothesis: unit root / alternative: no unit root):
  - Levin, Lin & Chu t* (applied in the following assumptions: trend and constant, constant, absence of trend and constant) - 3 results - some disadvantages of the test are: (a) if the

number of observations per cross-section is small, the power of the test may be questionable; (b) this test ignores the possibility of the cross-section dependence.
- Breitung t-stat - (applied if the test equation include the trend and constant) - 1 result - this test differs from Levin, Lin & Chu t* since only the autoregressive portion (and not the exogenous components) is removed when constructing the standardized proxies.

✓ Assuming individual unit root process (null hypothesis: unit root / alternative: some cross-sections without unit root):
- Im, Pesaran and Shin W-stat (applied in the following assumptions: trend and constant, constant) - 2 results - this test works better with low number of observations per cross-section than Breitung and have little power when trend is included in the analysis;
- ADF - Fisher Chi-square (applied in the following assumptions: trend and constant, constant, absence of trend and constant) - 3 results - this test allow each cross-section to have different lag length;
- PP - Fisher Chi-square (applied in the following assumptions: trend and constant, constant, absence of trend and constant) - 3 results.

The stationarity hypothesis was confirmed when more than a half of the total results (12) indicated this. The approach followed was suitable for this analysis since it provides a broader view on the stationarity process, while the use of a single test assuming common unit root process may return inappropiate results as panel data could be exposed to the heterogeneity risk. On the other hand , the homogeneity in panel data may facilitate the persistence of the coefficients acros cross-sections (eg. the same impact of the autoregressive term on the endougenous) which rejects the assumption of individual unit root process. In order to select the optimal lag, I used "Schwarz information criterion (SIC)" which was calculated by the following formula:

$$Schwarz\ information\ criterion = nln(n-p-1)^{-1}\sum_{i=1}^{n}{\varepsilon_t}^2 + n^{-1}pln(n) \quad (1)$$

, where n is the sample size, ln is natural logarithm and ε_t are the residuals. When using a maximum probability estimate for parameter estimation, there may be a risk of over-fitting as a consequence of the increase in additional parameters. The Schwarz criterion restricts stronger the additional parameters than the Akaike criterion, both being the most used criteria for lag selection in the relevant economic literature. In addition, if the number of observations per cross-section is greater than the number of exogenous variables, the criteria estimates are consistent and impartial. Following several estimates with different lags, I chose the lag associated with the lowest SIC value.

The variables used proved to be stationary at level, which indicates using the EGLS - Estimated Generalized Least Squares method. The problem of heteroskedasticity of the residuals, autocorrelation and the existence of general correlations between the cross sections, has required the application of the "Period SUR" option on the following equation:

$$povertyrate = \alpha_0 + \beta_0 inworkpovertyrate + \beta_1 NEETsrate + \beta_2 socialexp + \varepsilon_t \quad (2)$$

, where:

- *povertyrate* - people at risk of poverty rate, after social transfers (% - the share of the population earning less than 60% of the median equivalised national income after social transfers);
- *inworkpovertyrate* - the percentage of the employment at risk of poverty, after social transfers (% - the share of the employees earning less than 60% of the median equivalised national income);
- *NEETsrate* - the percentage of young people neither in employment nor in education or training systems (% - this category includes young people aged 15-24 that are outside of employment, education systems or have not participated to training programs in the last 4 weeks preceding the survey);
- *socialexp* - social government expenditures (expressed as a percentage of GDP).

A number of 196 observations resulted from the time series used for the 28 EU member states analysed. Also, I have used the following econometric tools in order to validate the maximum verisimilitude of the estimators (*Table 1*) :

Table 1: Econometric tools used for validating maximum verisimilitude of the estimators

Tool used	Hypothesis checked
Fisher test	Valid / invalid model
Jarque-Bera test	Normally / abnormally distribuited residuals
Durbin-Watson test	Absence / existence of autocorrelation
Breusch-Pagan-Godfrey test	Heteroskedasticity / Homoskedasticity
Cross-section Dependence Test (Breusch-Pagan, Pesaran CD, Pesaran scaled LM)	Absence / existence of cross-section dependence
Pearson correlation	Existence / absence of multicolinearity

Source: *Own processings using Microsoft Office Word 2016*

In order to test the heteroskedasticity / homoskedasticity, I applied the Breusch-Pagan-Godfrey test. First, I estimated the following equation:

$$residual\hat{}2 = \lambda_0 + \mu_0 inworkpovertyrate + \mu_1 NEETsrate + \mu_2 socialexp + \varepsilon_t \quad (3)$$

, where $residual\hat{}2$ represents the square of the residuals of equation (2).

Further, I estimated the probability of the Breusch-Pagan-Godfrey test by applying the CHISQ.DIST.RT function which provides the one-tailed probability of the chi-squared distribution for the following arguments: (i) the product of the number of observations and the R-squared value asociated to equation (3) and (ii) the number of exogenous variables, excluding the constant (degrees of freedom).

Results and Interpretations

In this section, I have displayed the main results of the empirical analysis carried out including the developments of the variables and the results of the estimation presented in the methodology. The rate of people at risk of poverty (earning less than 60% of the median equivalised national income), increased by less than 1 percentage point in 2010-2016 period (0.8 percentage points) - *Figure 1*. However, the evolution of the poverty rate in the EU member states was extremely divergent, with some of them reporting increases by more than 2 percentage points (Luxembourg, Hungary, Bulgaria, Netherlands, Romania, Estonia), and other countries recording falls by more than 1 percentage point (Croatia, United Kingdom, Denmark, Finland).

Figure 1: Evolution of the people at risk of poverty rate in EU

Source: *Own processings using Eurostat database*

The highest increases in the poverty rate in 2016 compared to 2010 were recorded in the Netherlands (2.4 pp), Romania (3.7 pp) and Estonia (5.9 pp). At the opposite end were United Kingdom (-1.2 pp), Denmark (-1.4 pp) and Finland (-1.5 pp). The unfavorable developments of this indicator can be attributed to the government spending on social protection (often inefficient), lack of structural reforms, low labour productivity in line with low wage earnings, poor quality of tertiary education systems and unsustainable economic growth. A significant impact on it had also been exercised by the economic and financial crisis that negatively influenced the population income, mainly as a result of its interaction with the increasing trend of the unemployment rate. Moreover, unemployment hit hardest the categories of people with low incomes, as people earning high wages were able to orient their financial resources to higher yielding economic activities. The impact was lower in the resilient economies that have used appropriate tools for shock absorption.

In 2016, the highest poverty rates were recorded in Romania (25.3%), Bulgaria (22.9%) and Spain (22.3%), while the Czech Republic (9.7%) , Finland (11.6%) and Denmark (11.9%) recorded the lowest levels of this indicator. Among them, Romania (26th place) and Bulgaria (27th place) occupy the last positions in the EU in a ranking made by the Development Finance International Group and the Oxfam International Confederation regarding the commitment to reduce inequality. They also occupy the last two positions in the EU regarding the commitment of national governments to make the neccesary health, education and social protection expenditures. Although the concept of inequality and poverty are different, these have some common bases, such as the use of similar social policy instruments ortheir linking with economic growth. Evolution of the statistical data covering 2010-2016 period shows a positive correlation of 87.39% between the evolution of the Gini coefficient and the people at risk of poverty rate. Empirical evidences makes it necessary the assessment of the relationship between the poverty rate and the following indicators: in-work poverty, NEETs rate (which includes both early leavers from education systems and unemployment) as well as the social protection expenditures of general government (expressed as a percentage of GDP).

According to *Figure 2*, there is a strong link between the poverty rate after social transfers and the in-work poverty rate. This conclusion is predictable given that in-work poverty is also a component of the indicator under review. This can also be observed by studying the Panel - Pearson - high correlation coefficient (74.23%) or the R-squared value (55.35%).

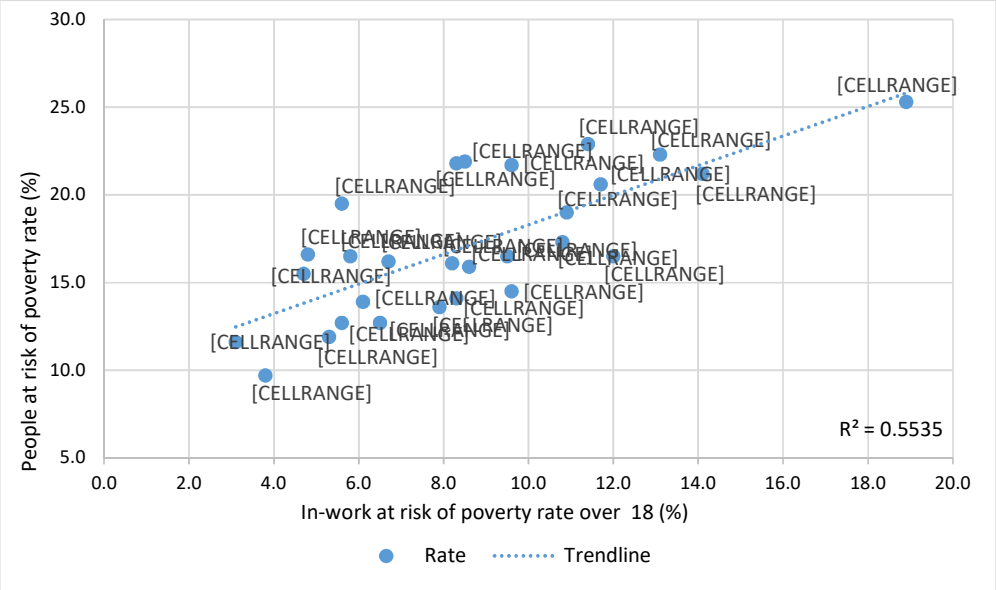

Figure 2: The relationship between people at risk of poverty rate and in-work at risk of poverty rate over 18 in EU (2016)

Source: Own processings using Eurostat database

However, the results of such a method could be subject to statistical uncertainty, which is why I designed a more compact form of the model. In-work poverty rate was included in the model to increase the accuracy of the model given its control variable character.

As it can be seen, Romania recorded in 2016 both the highest people at risk of poverty rate after social transfers and the highest rate of the employed population over 18 years at risk of poverty, which shows that the main cause of poverty poverty in Romania consists in the low level of wages. Largely, there is a similarity between the positions of these indicators in the EU. Finland, the Czech Republic, Denmark recorded the lowest rates of the two indicators mentioned, while Romania and Spain recorded the highest rates of its. One of the countries that recorded a high in-work poverty rate (the 4th rate in the EU - 12.0%) and a low people at risk of poverty rate after social transfers (13th rate of the EU - 16.5%, below the EU average of 17.3%) is Luxembourg. The reason for this inconsistency lies in the fact that this country is the most important Europe's financial centre, a significant share of population income being obtained by participating to the economic activities of financial market.

Also, the in-work poverty rate increased by 1.3 percentage points in 2016 compared to its 2010 level in EU, higher than the one recorded by the poverty rate after social transfers, highlighting the fact that the population of the member states starts to orient their savings towards the capital market in order to obtain additional gains that have a higher return.

Figure 3 highlights a negative correlation (Panel Pearson correlation = -35.14%) between the evolution of government spending on social protection (% of GDP) and that of the people at risk of poverty rate, which makes feasible a negative impact of the government expenditures on social protection on poverty rate. Also, the level of government spending on social protection in the EU explains approximately only a sixth of the poverty rate development.

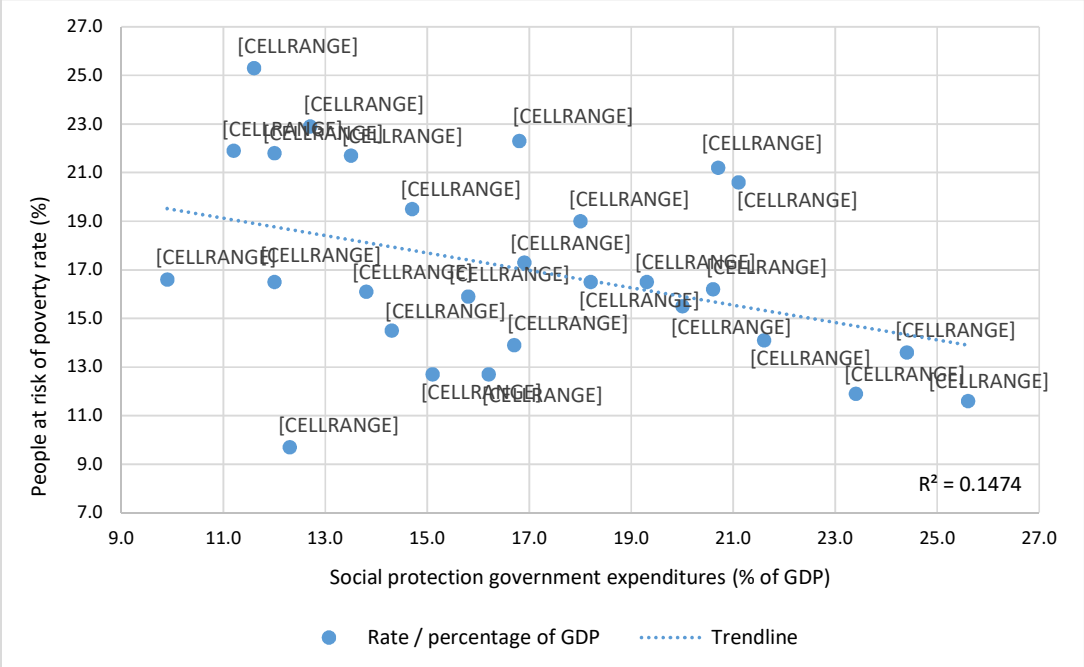

Figure 3: The relationship between people at risk of poverty rate and social protection government expenditures in EU (2016)

Source: Own processings using Eurostat database

After rising to 19.5% of GDP in 2013, government spending on social protection declined to 19.1% of GDP in 2016. This evolution was due to the budgetary constraints of some member states such as Ireland (-7.7 pp of GDP compared to the level recorded in 2010), Hungary (-3.1 pp of GDP), Lithuania (-2.9 pp of GDP). On the other hand, Finland has increased its social spending share in GDP by 2.8 percentage points, followed by Greece (1.9 pp of GDP - which continues to be a major supporter of social policy despite their significant challenges they are facing with related to the high public debt) and Cyprus (1.6 pp of GDP). Romania, although in 2010 recorded the fifth smallest share in GDP from the EU in this type of spending, chose to reduce the government spending on social protection during this period by 2.3 pp of GDP, this being the fourth highest cut in the EU. In 2016, Romania recorded the third smallest share in GDP of these expenditures (11.6% of GDP), which was only higher than the one reported by Lithuanian (11.2% of GDP) and Irish (9.9% of GDP) authorities. In Ireland, public debt fell sharply from 119.6% of GDP in 2012 to 68% of GDP in 2017. However, given its limited fiscal options due to the high public debt, the Irish authorities have proposed reaching a 45% of GDP government debt by 2025. The budgetary situation is one of the main causes of the downward trend in government spending on social protection in Ireland.

Regarding the relationship between poverty rate and NEETs rate, *Figure 4* shows a high correlation between them, the coefficient of Pearson correlation reaching 63.61%. The NEETs rate is a more complex indicator that takes into account both labour market factors and aspects related to the education system and student motivation. Consequently, this indicator explains about 37% of the developments in people at risk of poverty rate in EU.

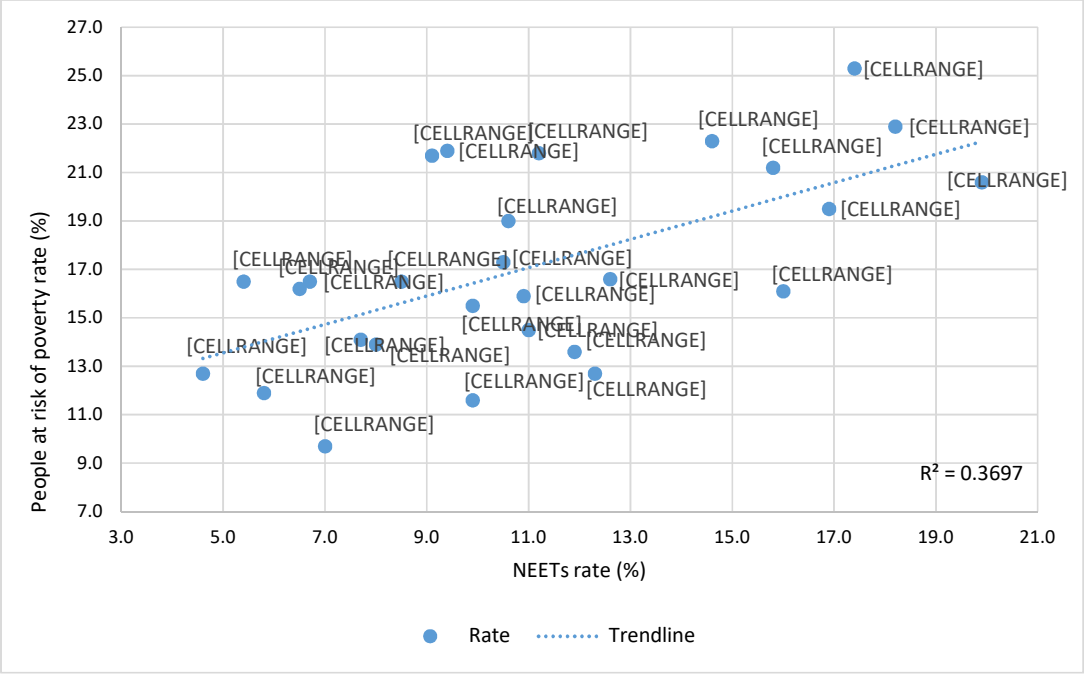

Figure 4: ***The relationship between people at risk of poverty rate and NEETs rate in EU (2016)***
Source: Own processings using Eurostat database

The impact of the economic and financial crisis shock from 2009 on young Europeans' participation on labour market or in education systems was quite strong. From the value of NEETs rate of 10.9% in 2008, it peaked in 2012 to 13.2%, being followed by a downward trend until reaching the level of 11.6% in 2016.

According to the developments from 2010-2016 period, the largest cuts in NEETs rate occurred in Estonia (-4.9 pp), Latvia (-6.6 pp) and Ireland (-6.8 pp). The crisis had a higher impact on the status of young people on labour market and education system in countries like Cyprus (4.3 pp), Croatia (1.2 pp) and Greece (1.0 pp). In 2016, the highest NEETs rates were recorded in Romania (17.4%),

Bulgaria (18.2%) and Italy (19.9%), while in Denmark (5.8%) , Luxembourg (5.4%) and the Netherlands (4.6%) reported the lowest levels of this indicator.

Eurofund carried out an analysis trough which reviewed the causes of NEETs and its structure in the EU. Therefore, Eurofound identified the following NEETs categories:

- ✓ 7.8% - young re-entrants on labour market or education systems who will no longer be taken into account by this indicator;
- ✓ 29.8% - young people facing short-term unemployment;
- ✓ 22% - young people facing long-term unemployment;
- ✓ 6.8% - young people with disabilities;
- ✓ 15.4% - young people with family responsibilities (eg childcare);
- ✓ 5.8% - young discouraged people;
- ✓ 12.5% - other young persons.

As it can be seen, the NEETs rate includes a significant number of socially vulnerable people. The analysis of this inidcator at granular level provides a clearest view of the positive relationship between NEETs rate and people at risk of poverty.

Further, I estimated the impact of NEETs rate on people at risk of poverty rate. Following the estimation of the model (*Figure 5*), I found that the estimators are significant, which creates the premises for a high degree of confidence in the resulting coefficients, the probabilities associated with them being all below 5%. Also, the hypothesis of the Gauss-Markov theorem stating that the standard errors must be non-but-close to zero in order to confirm the maximum estimator's verisimilitude was confirmed.

Coefficients were interpreted in line with the "caeteris-paribus" hypothesis. According to the results, the increase by 1 pp of in-work (over 18 years) at risk of poverty rate leads to an increase in the poverty rate after social transfers by 0.559 pp. This relationship derives from the fact that this indicator is a component of the endogenous variable, as was discussed above.

Regarding the impact of government spending with social protection, raising it by 1 percentage point of GDP leads to a decline in the poverty rate by 0.181 pp. A major cause would be the function of these expenditures to cover the material deprivation of the population in order to facilitate a decent living standard for actual and further generations. This type of expenditure gives the possibility for low earners to overcome the poverty line, set at 60% of the median equivalised national income.

Returning to the main objective of the paper, I found that the 1 pp increase in the NEETs rate lead to an increase in the rate of people at risk of poverty after social transfers by 0.135 pp. This effect is caused by the income pressure challenges generated by unemployment or school drop-out. The NEETs coefficient is lower than the other coefficients in absolute form given that the poverty rate takes into account all age groups, while NEETs rate relies on the 15-24 age group.

In order to accept the maximum verisimilitude of the estimators, it was necessary to check the hypotheses of the Gauss-Markov theorem. According to the probability of the Fisher test, the model is statistically valid and the coefficient of determination indicates that 50.74% of the poverty rate fluctuation comes from the dynamic of the exogenous variables.

Next, I started the residuals testing procedure by checking the autocorrelation of the residuals. The result of the Durbin-Watson test (1.951906) range between DU (1.79688) and 4-DU (2.20312) statistics, which confirmed the absence of autocorrelation, mentioning that I used DL (1.73445) and DU statistics for a total of 196 observations and 4 explanatory variables (including the constant) at a significance degree of 5%.

Dependent Variable: POVERTYRATE
Method: Panel EGLS (Period SUR)
Date: 08/05/18 Time: 20:01
Sample: 2010 2016
Periods included: 7
Cross-sections included: 28

Total panel (balanced) observations: 196
Linear estimation after one-step weighting matrix
Period SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INWORKPOVERTYRATE	0.559232	0.047505	11.77196	0.0000
SOCIALEXP	-0.181560	0.063323	-2.867219	0.0046
NEETSRATE	0.135345	0.039473	3.428753	0.0007
C	13.35735	1.241003	10.76335	0.0000

Weighted Statistics

R-squared	0.507414	Mean dependent var	2.405714
Adjusted R-squared	0.499718	S.D. dependent var	3.528554
S.E. of regression	0.950488	Sum squared resid	173.4582
F-statistic	65.92667	Durbin-Watson stat	1.951906
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.664053	Mean dependent var	16.57704
Sum squared resid	874.8612	Durbin-Watson stat	0.108514

Figure 5: ***Estimation results***

Source: Own processings using Eviews 9.0

Figure 6 highlights the result of the Jarque-Bera test and its probability, which is higher than 5% (29.95%) and confirms the null hypothesis of normally distributed residuals.

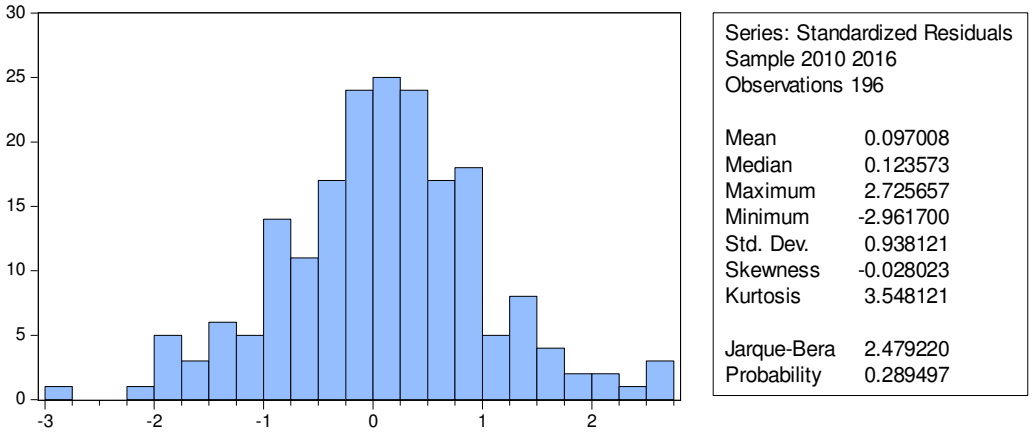

Figure 6: ***Histogram - Normality test***

Source: Own processings using Eviews 9.0

According to *Figure 7*, all results associated to the performed tests (Breusch-Pagan LM, Pesaran LM, Pesaran CD) returned probabilities of over 5%, which led to the acceptance of the null hypothesis according to which there is no dependence between cross-sections. *Figure 8* highlights the probability of the Breusch-Pagan-Godfrey test of 5.49%, which confirmed the homoskedastic feature of the model, as it exceeds the significance degree of 5%.

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in weighted residuals
Equation: EQPOVERTY01
Periods included: 7

Cross-sections included: 28
Total panel observations: 196
Note: non-zero cross-section means detected in data
Cross-section means were removed during computation of correlations

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	400.3456	378	0.2057
Pesaran scaled LM	-0.205647		0.8371
Pesaran CD	-0.375082		0.7076

Figure 7: ***Cross-section dependence test***

Source: Own processings using Eviews 9.0

Dependent Variable: RESIDUAL^2
Method: Panel Least Squares
Date: 08/05/18 Time: 20:19
Sample: 2010 2016
Periods included: 7
Cross-sections included: 28
Total panel (balanced) observations: 196

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INWORKPOVERTYRATE	-0.023548	0.032988	-0.713836	0.4762
SOCIALEXP	-0.065685	0.026859	-2.445590	0.0154
NEETSRATE	0.018240	0.024084	0.757345	0.4498
C	1.975632	0.631818	3.126899	0.0020

R-squared	0.038797	Mean dependent var	0.884991
Adjusted R-squared	0.023778	S.D. dependent var	1.409853
S.E. of regression	1.392990	Akaike info criterion	3.520979
Sum squared resid	372.5610	Schwarz criterion	3.587880
Log likelihood	-341.0560	Hannan-Quinn criter.	3.548064
F-statistic	2.583198	Durbin-Watson stat	1.965747
Prob(F-statistic)	0.054628		

Heteroskedasticity test

R-squared	0.038797
Number of observations	196
Degrees of freedom	3
Breusch-Pagan-Godfrey probability	0.054943

Figure 8: ***Heteroskedasticity test***

Source: Own processings using Eviews 9.0 and Microsoft Office Excel 2016

Finally, *Table 2* shows the low correlation between the exogenous variables, the maximum correlation being 38.06% and established between NEETs rate and in-work poverty. However, Klein's criterion was considered respected and the absence of multicollinearity was accepted.

Ultimately, the results obtained led to the validation of the accuracy of the estimators.

Table 2: Independent variables correlation matrix

Correlation matrix	*NEETs rate*	*inworkpovertyrate*	*socialexp*
NEETs rate	1.00000	0.38057	-0.26423
inworkpovertyrate	0.38057	1.00000	-0.16576
socialexp	-0.26423	-0.16576	1.00000

Source: Own processings using Eviews 9.0

Conclusions

The analysis confirms the existence of a positive relationship between the NEETs rate and the people at risk of poverty rate. The impact of the NEETs on poverty has been smaller in absolute terms than the impacts of the other factors analysed, but the situation of young people in this category should be on the list of key policy priorities to reduce the poverty rate, given that the impact of certain government spending on poverty is quite different between member states and depends on psycho-cultural factors too.

On the other hand, I have demonstrated a high positive impact of in-work poverty rate (over 18 age) on people at risk of poverty. Although the relationship is quite intuitive, some developments at EU level are surprising, such as the higher increase in-work poverty rate than the one of people at risk of poverty rate after social transfers, which highlights new labour market imbalances related to low wage earnings obtained by some social classes, or by the high number of members in households. For countries recording high in-work poverty rates, the implementation of structural reforms that contribute to the development of the human factor is essential, including improving the quality of the education and health system and the development of family policies. Moreover, a higher attention should be paid to the minimum wage setting policies. In this context, a differentiated minimum wage depending on the specificities of the economic sectors could be useful, but such a reform can be difficult to implement because regional administrations should receive more power in the decision-making process.

Stimulating the creation of new jobs will not solve the issue of NEETs and, therefore, of poverty. It is necessary to improve the quality of education and training systems as well as to improve social protection systems without discouraging the labour market participation. In this context, developing long-term reforms in order to guide the human mentality towards a participatory one (using instruments such as household minimum income) is essential.

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Innovative Managerial Decisions: Towards a Conflict-Compromise Approach

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Abstract

One of the major managerial tasks is the adoption of managerial decisions in the event that it is known in advance that an optimal solution is impossible, moreover, there is a conflict between several participants in the management process. Such tasks can arise both in strategic and financial management, when it is impossible to achieve an absolute optimum in principle, in this situation one can speak only about quasi-optimal solutions. The purpose of this article is to describe the innovative technology for making managerial decisions based on the conflict-compromise methodology. The theoretical concepts of similarities and differences of the author's vision with the theory of Goldratt constraints are developed in the work, the emergence of contradictions and conflicts in the regional economic system as a consequence of the emergence of managerial dysfunctions is justified. As a method of leveling managerial dysfunctions, a local compromise between conflicting subjects is proposed as the only possible method for making quasi-optimal managerial decisions to achieve a balance of interests of stakeholders. The article is illustrated by two examples of the application of the methodology of conflict-compromise management. The first example is from the regional economy, namely: the causes of conflict and imbalance of economic interests at the micro, mezzo- and mega-levels are shown. The second example is from the insurance area where the contradictions that often lead to conflict arise between the insured and the insurer. In both cases, the conflict-compromise methodology demonstrates its effectiveness for making managerial decisions and smoothing negative situations.

Keywords: conflict-compromise methodology, managerial dysfunction, managerial decisions, local compromise.

Introduction

Conflict-compromise methodology is a fairly new tool for strategic and financial management. The development of this methodology is due to the fact that in socio-economic systems there are many situations that require the adoption of the optimal solution in order to eliminate any violation in the system caused by contradiction or conflict. However, in most economic systems it is impossible to reach an absolute compromise, therefore leveling (smoothing) of managerial dysfunctions and

mitigating conflicts in managerial situations is possible only on the basis of local compromise. Based on this, we argue that local compromise is the main link in making management decisions in the conflict compromise management paradigm.

Many scientists claim contradictions are the engines of economic development. Contradictions, constantly inherent in phenomena, have their own logic of development. First, in some moment, there is an identity between the sides of the phenomenon, then it changes to a difference, and then develops into a contradiction, which, escalating, turns into a conflict requiring resolution.

A deeper analysis of functional disturbances in the management system makes it possible to discern in their basis the existence of contradictions, often turning into a conflict of interests. To resolve the conflict, the authors propose the use of a conflict-compromise methodology, according to which we assert that the resolution of any conflict in management activities is possible by finding a compromise solution based on leveling managerial dysfunctions (Bushueva, Korovin and Masyuk, 2013a, b).

Preliminarily we will dwell on the concept of managerial dysfunction, which is the result of the adoption of ineffective management decisions and are caused by crisis phenomena in the economy. Before talking about managerial dysfunctions, let's turn to classifications of management functions. According to Fayol (1917), management can be defined as planning (foresight), organization, administration, coordination and control. Many authors as Hodge (2002), Wren, Bedeian and Breeze (2002), Van Vliet (2011) continued his reasoning. Others define only 4 management functions (i.e., planning, organizing, leading, and controlling) as Schraeder, Self, Jordan and Portis (2004). Mescon and Khedoury (1984) distinguish four functions of management as well as: planning, organization, motivation, and control. Such authors as Aaker and Ansoff (1989) add a fifth function to the four listed ones: coordination.

More recent works of modern economists such as Leung and Kleiner (2004) have significantly expanded the range of functions attributable to management. For further reasoning, we will adapt, not claiming the completeness of the list, an expanded range of management functions, namely: planning, organization, management, motivation, leadership, coordination, control, communication, research, evaluation, decision-making, recruitment, representation, negotiation, conclusion of transactions, etc. This list is open, research continues, and with the emergence of new specific functions, the emphasis will shift towards improving computer support and new information technologies.

At the same time, many authors consider coordination to be the central function of management, as it ensures continuity of management, as well as achieving coherence of all elements of the economic system based on establishing effective communications between them. The methodology of management research includes the study of practice, design, and science. Their relationship with each other Avilov A. calls «methodological basis» (Avilov, 2003). We will be primarily interested in the scientific component in conjunction with the practical aspect of this methodological basis, in this paper. It is in this perspective that we carry out further theoretical constructs using the postulates of conflict-compromise management. Management activities will be effective only when all functions are coordinated among themselves. As soon as one of the functions gives a «failure», i.e. for some reason becomes a “weak link", there is a mismatch of management functions, which inevitably leads to the emergence of managerial dysfunctions and social pathology of managerial activities.

Materials and Methods

The concept of dysfunction in the economy (by analogy with biology) at different times was used by different researchers. Great attention is paid to this topic by O.S. Sukharev (2014), who proposes to define the dysfunction as "a disorder, an upset of the functions of any organ, system, economic institution, primarily of a qualitative nature - by analogy with the dysfunction of the organism in biology". Based on the foregoing, we formulate the definition of managerial dysfunction as the pre-crisis or crisis condition of the economic system, which is a consequence of an ineffective managerial decision and is expressed in violation of the functional condition of a given system, determined by

deviations from specified parameters (Bushueva, Masyuk and Bragina, 2014). At the same time, it can be said that managerial dysfunction is a crisis of mutual expectations of interested parties.

Managerial dysfunction manifests itself in the deviation of system parameters from the desired values. Once such a deviation occurs, it limits the functioning of the system. There is a conflict, for the solution of which we first use the theoretical constructs of Eliyahu Goldratt (1990). Goldratt (1994) considers all systems as chains. He argues that at each particular moment in time there is the only "weak link" in the system or a restriction that reduces its effectiveness, and at that time it must be directed at all efforts to eliminate it. If the system works as a whole with maximum efficiency, at least one of its elements is currently working at the limit of its capabilities (Dettmer, 1996). Goldratt suggests concentrating the company's organizational resources on eliminating such "weak" links or «bottlenecks» and argues that each such restriction is a conflict (Goldratt, and Cox, 2013). Following the theory of Goldratt's constraints, we must first determine the "weak link", construct the tree of the current reality and find the answer to the question "what to change?". Then we need to build a conflict resolution diagram by answering the question: "what to change?" And then it is necessary to build the tree of the future reality. After that, it is recommended to build a transition plan and a transformation plan, which are then used to find the variants of the changes. The logic of making decisions on the development of an economic system management strategy based on the Goldratt constrains theory can be described as several steps.

To resolve conflicts and eliminate restrictions, Goldratt suggests the following step-by-step procedure.

Step 1. Identify the restriction (find the conflict). In fact, this is not a very simple task, because in complex systems among the many weak links it can be very difficult to identify the "weakest link".

Step 2. Decide how to use it (to understand what opportunities can be extracted from the conflict).

Step 3. Manage through the restriction (subordinate all elements of the system to prepare for the elimination of the conflict). When the system is brought to a stable state, it is ready for focused investments in those areas that will bring the maximum return, that is, for the next step.

Step 4. Expand the system limitation (increase the bandwidth of the "bottleneck"). This means removing the voltage caused by the restriction by adding power (in the case of capacity limitations), obtaining additional customer orders (in the event of market restrictions), and reducing the lead times for orders and projects (in case of time constraints).

Step 5. If the restriction is eliminated in the previous step (it ceased to be a constraint), go back to step 1.

Thus, it is easy to see that the set of the steps listed above is a cyclic algorithm, which, repeating itself, allows us to look for new and new constraints (conflicts) and resolve them, which leads to a continuous improvement of the management process and an increase in the efficiency of the system as a whole.

If we take as a basis Goldratt's reasoning about the need to improve the effectiveness of system management based on the "bottleneck" and the removal of restrictions, then we can see the similarity of these two approaches. Unfortunately, in real life, it is very problematic to imagine an economic system in the form of a chain. That is why, and also because of the complexity of socio-economic systems, which include regional economic systems, at any particular time in the system there can be not one, but several "bottlenecks", and not one but several managerial dysfunctions arise consequence of local conflicts in various subsystems. Therefore, at the same time, all elements of the system involved in a violation of sustainable development must be influenced. It is quite clear that here it is no longer possible to talk about optimal managerial decisions. The diversity of managerial influences allows us to speak only about quasi-optimal solutions which can be achieved by local compromise. A

quasi-optimal solution is a solution that is close to optimal but is chosen from a limited number of options.

From this point on, the author's point of view is at odds with Goldrath's postulates, since Goldratt absolutely disagrees with the compromise, although, in our opinion, an only local compromise in managing complex economic systems is the only possible way to eliminate or equalize managerial dysfunctions. Emerging dysfunctions lead to the emergence of new types of relationships between stakeholders and the emergence of such a phenomenon as a local compromise, within which it is proposed to understand the mutual concessions of stakeholders to achieve a balance of interests in order to avoid conflicts. Local compromise is the main link in making managerial decisions in the paradigm of conflict-compromise management.

Continuing these considerations, we turn to the conflict-compromise methodology, which are described in more detail by Masyuk, Bushueva and Vasyukova (2017); Bushueva, Masyuk, and Grechanyuk (2015). Conflict-compromise management, as well as Goldratt, operates with the concept of "conflict", which is viewed as the culmination of the development of contradictions in the system arising from managerial dysfunctions and is the driving force behind the development of the system. The conflict-compromise approach involves the use of a local compromise as the main tool for conflict resolution.

It can be confidently asserted that the resolution of any conflict in management activities is possible by finding a compromise solution based on equalization of managerial dysfunctions. Since the achievement of an absolute compromise in real economic systems is impossible because of the diversity of interests, local compromise turns into the only possible tool for leveling managerial dysfunctions. At the same time, the key methodological problem is to determine the weighting coefficients of local criteria (priorities) of stakeholders.

This statement leads us to the need to have the given (target) parameters or control indicators, any deviation from their desired values can lead to a pre-crisis or crisis condition, or more precisely, to the fact that the system can come out of a condition of stability. Let's try to explain the reasons for this. The fact is that any deviation of parameters from the target values is a kind of conflict that arises there and then, where and when the system has a restriction or "bottleneck".

As soon as one of the participants in the management process performs its functions differently from what the interested parties expect from it or do not perform at all, a systemic control dysfunction arises, which is the reason for the pre-crisis or crisis state of the organization /system. There are many examples where the most thought out and breakthrough management decisions are not carried out, because the performers believe that their interests are neglected. In this case, the state of the system does not reach the desired parameters but is removed from them.

Discussion

Before continuing the description of further research results, let us dwell on the contradictions that may arise in complex economic systems. According to Virgilius, one of the most important contradictions in the regional economy is "... the divergence of the economic interests of economic entities at different levels in the region" (Vergiles E., 2001, p.63). At the same time, from the point of view of the aforementioned authors, these contradictions are obstacles to the introduction of an innovative development model and impede the implementation of modernization reforms in the Russian economy.

Conflict-compromise methodology works in many areas of management. As an example, it can be applied in strategic regional management, where existing contradictions can be divided into three levels: corporate (micro-level), region (mezo- level), state (mega-level).

At the micro-level, there are at least three types of conflict of interests: between employees and the enterprise, between employees and managers, between managers and the enterprise. Most often, the

subject of conflict is the level of wages and profits of the enterprise. The manifestation of these conflicts goes beyond the enterprise as the main business entity, which, even being at the micro - level, participates in the formation of effective indicators at the mezo - level.
The interests of the region (mezo-level) lie both in terms of increasing labor remuneration and in terms of increasing the profit of enterprises, which in their turn, as primary links in the regional system, are in turn included in value-added and GRP (growth regional product). At the same time, GRP is the final indicator of regional development. From the positions of the region, wages are no longer considered as production costs, but as household incomes, and profits are treated as income of economic entities.

If you structure the range of analysis both vertically (by management levels) and horizontally (by institutional sectors of the economy), then it is obvious that the divergence of interests is manifested in linking targets and performance indicators to subjects of various levels to a variety of (and often multi-directional) parameters: population (households) - to the volume of money incomes and wages; subjects of the micro-level (business structure) - to make profit as the main result of their activities; subjects of mezo-level (regions) - to the gross regional (municipal) product (GRP); subjects of the macro-level (state) - to the gross domestic product (GDP).

Each of the participants in economic relations controls and regulates their parameters, the achievement of which is its goal and characterizes the effectiveness of its activities. Thus, regional bodies are interested in growth and profit, as well as wages, as this can become a source of the lack of resources for modernizing the economy and improving the quality of life of the population. At the same time, households (the population) will always be interested in raising wages, and businesses - in increasing profits. There is a complex of contradictions that turn into conflicts. It is in the interests of the regional authorities to maximally satisfy all the conflicting parties. And since the interests of economic entities are often the opposite, the only way to neutralize the conflicting parties is a local compromise.

The other example of the application of the conflict-compromise methodology is given in the article «Conflict-Compromise Methodology for Resolution of Conflict in Insurance Relations» by Masyuk, Vasyukova, Bushueva, Mosolova and Kozminykh (2016). It was said in this article that «…the contradictions in the objectives of the insurer and the policyholder give rise to managerial dysfunctions in the policyholder's insurance risk management and the insurer's financial risk management; the mitigation of these managerial dysfunctions can be accomplished by employing the methodology of conflict-compromise management, which is based on the achievement of local compromises between the policyholder and the insurer; the prevention of insurance risks in order to reduce the probability of occurrence of loss events is a local compromise, which results in implementing a fundamentally new model of economic relations between the insurer and policyholder».

Conclusion

In conclusion, we can say that management decisions are necessary for the effective solution of the problems of the development of an enterprise of any complexity, while it is necessary to constantly improve the process of making management decisions, as well as its practical application. At any level of management, contradictions may arise in systems, the aggravation of which leads to conflicts. Conflicts that arise most often due to incorrect management decisions are accompanied by the emergence of managerial dysfunction, which adversely affects the conditions of any socio-economic system. Since in complex economic systems, managerial dysfunctions can occur simultaneously in different subsystems, achieving an absolute compromise becomes almost impossible, and the optimal management solution is impossible. However, in many practical problems, an approximate solution — a quasi-optimal solution — can suit us. Alignment of managerial dysfunctions allows using the conflict-compromise management methodology, the main instrument of which is a local compromise, on the basis of which a quasi-optimal management decision will be made. This approach allows reducing the number of bottlenecks in the economic system and increasing the efficiency of its functioning.

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Estimating and Testing Long Memory in Portuguese Stock Market Returns

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Abstract

This paper has a dual motivation: the lack of consensus among the evidence on long-term memory in stock returns and its implications for the EMH. The objective of this work is the investigation of empirical characteristics of the Portuguese stock index (PSI-20) returns. The daily returns show evidence of time dependency in much of the data, suggesting that the series may best be described as fractional Brownian motion (gBm). Rescaled-Range Analysis (classical and modified) and Detrended Fluctuation Analysis were used to measure the degree of dependence. The estimations of Hurst exponents evidence long memory, in the form of persistence. Complementarily, Rescaled-Range Tests (classical and modified) and Fractional Differencing Test suggest a stochastic process of short-term memory that degenerates over long periods. Dynamics of fractal structure refutes the Efficient Market Hypothesis, and may compromise the perfect arbitrage, making the markets more risky to invest. Furthermore, it prevents the reliability of asset pricing models that use martingale processes.

Keywords: Long-term memory; Rescaled-range analysis; Detrended fluctuation analysis; Fractional Differencing Analysis; Hurst exponent; Efficient market hypothesis

1. Introduction

The asset prices in financial markets are usually described in terms of a geometric Brownian motion (gBm), which represents an assumption that is at the heart of efficient market hypothesis (EMH). In this hypothesis, the stock returns follow an uncorrelated Gaussian process (white noise). This means that stock returns should exhibit unpredictable behaviour, given the available information (Costa and Vasconcelos, 2003).

Although EMH is a fundamental benchmark of modern finance, efficiency drifts have been observed in different markets. The main cause has particular interest because it derives from time dependence in some stock returns series (Horta *et al.*, 2014). This property was identified by Mandelbrot (1971) and designated as *"long memory or low frequency persistent temporal dependence"*.

The presence of long-term memory on asset prices has controversial implications about: (1) the theoretical and econometric modelling (i.e., martingale price models and technical trading rules), (2) the statistical tests to pricing models, (3) the measurement of efficiency and rationality (Maghyereh, 2007).

Given the implications for the theory and practice of financial economics, researchers continue to seek for a better understanding of the dynamic nature of financial time series, with most of the evidence suggesting absence or weak base of any form of long memory (Lo, 1991; Jacobsen, 1996; Lipka and Los, 2002; Kristoufek, 2012; Braun *et al.*, 2017) and another part of the evidence suggesting clear fractal structure (Fama and French, 1988; Costa and Vasconcelos, 2003; Assaf and Cavalcante, 2004; Chen and Yu, 2005; Ferreira, 2018). However, some results presented mixed findings, depending on the test method, sample period and frequencies of the series (Sadique and Silvapulle, 2001; Christodoulou-Volos and Siokis, 2006; Eitelman and Vitanza, 2008; Núñez *et al.*, 2017; Gomes *et al.*, 2018).

The econophysics approach applies theories and methods developed in statistical physics, in order to contribute for the resolution of problems in economics and finance. The most widely accepted techniques to identify long memory are those that can be used to estimate the Hurst exponent H. Four of the most popular techniques are the rescaled-range analysis – under the classical (R/S) and modified (M-R/S) statistics –, the detrended fluctuation analysis (DFA), and the Geweke and Porter-Hudak method (GPH). The R/S analysis was first introduced by Hurst (1951), later improved by Mandelbrot and Wallis (1969a,b) and Mandelbrot and Taqqu (1979) to detect the presence of long-term memory in time series. The M-R/S analysis, proposed by Lo (1991), modifies the previous statistics to make it insensitive to short-term memory, heteroscedasticity and non-normality. The DFA analysis, proposed by Peng *et al.* (1994), models the series to obtain the exponent H via a single appropriate parameter, being robust to non-stationary time series. The GPH was developed by Geweke and Poter-Hudak (1993) as a semi-parametric procedure potentially more efficient than M-R/S to estimate the memory parameter in a fractionally integrated process. Regarding hypothesis tests, the M-R/S test and the GPH test have the interesting property of being robust to non-normality.

This paper has a dual motivation: the lack of consensus among the evidence on long-term memory in stock returns and its implications for the EMH. Intending to provide additional knowledge for discussion, the objective of this work is the investigation of empirical characteristics of the daily Portuguese stock index (PSI-20) returns, placing particular emphasis on estimating and testing the degree of persistence, and modelling the dynamic behaviour of the time series. The expansion and visibility of this market, after its entry on the Euronext platform in September 2002, justify this choice.

The structure of this paper is organized as follows. Section 2 provides a brief review of literature related to long-term memory in the forms of persistence and anti-persistence. The sections 3 and 4 present the data series and describe the methods employed for estimation and testing of long-term memory. Section 5 discusses the results of the empirical analysis. Finally, section 6 summarizes the main findings.

2. Long-Term Memory

The existence of long memory indicates that the market will get back to its long-term trend in the future. Theoretically, it means that what happens today will impact the future in a non-linear way. Fractal dynamics represent an interesting form of non-linear dynamics characterized by irregular cyclical fluctuations and long-term dependence (Mandelbrot, 1977). The most recent empirical

evidence incites a renewed interest in fractional Brownian motion (fBm) and in fractionally integrated processes (Lento, 2013; Kim *et al.*, 2014).

There are three classifications of dissemination of market prices, measured by the Hurst exponent H (the degrees of long-term dependence). For the particular case where $H = 0.5$, the process corresponds to the geometric Brownian motion (gBm), in which the innovations are independent (Beran, 1994), following a random walk that characterizes efficient markets in the strict sense of Fama (1970). For $H \neq 0.5$, the process corresponds to fBm, wherein the increments (fractional white noise) have long-term correlation.

If $0.5 < H < 1$, the increments of fBm are positively correlated and the process exhibits persistence (Embrechts and Maejima, 2002), i.e., the deviations tend to maintain the signal. These markets have long periods of stability, which are interrupted by sudden and sharp discontinuities (Los and Yu, 2008). If $0 < H < 0.5$, the increments are negatively correlated and the fBm exhibits anti-persistence or unpredictability (Embrechts and Maejima, 2002), i.e., the deviations of a signal are usually followed by counter-signal deviations. These markets have a fast reversion to the mean and are called ultra-efficient (Kyaw *et al.*, 2006).

3. Sample and Data Series

The Stock Exchange of Lisbon, renamed Euronext Lisbon, is the main Portuguese stock exchange, which was founded in 1769 and joined the pan-European Euronext platform in September 2002. The PSI-20 acronym is the main index of this equity market, which represents the capitalization-weighted measure of the 20 largest financial assets, selected from the set of listed companies. The original data refers to the price of daily closing PSI-20 series, provided by Nyse Euronext (*www.nyx.com*), since its inception in January 1, 1993 until Jun 6, 2018. The data used in the empirical study consist in the simple transformation of the stock index through the first log difference of their levels $D[log\{P_t\}]$. In practical terms, the returns compounded continuously X_t at time t are calculated from the consecutive daily prices P_t index:

$$X_t \equiv \log P_t - \log P_{t-1} = \log\left(\frac{P_t}{P_{t-1}}\right) \quad [1]$$

4. Methodology

In order to pursue the objective of the empirical study, we will:

1) examine the statistical properties of the daily stock index returns;
2) examine whether the time series of index returns exhibits long-term memory;
3) identify whether the possible long-term memory stems from short-term dependency;
4) identify whether the possible long-term memory is persistent or anti-persistent;
5) identify what are the most suitable theoretical benchmark models for this series of returns;
6) examine whether price diffusion models empirically identified suggest inefficiency of stock market, and thus, call into question the adequacy of pricing models;
7) examine whether price diffusion models empirically identified can assist financial market participants to earn abnormal returns.

4.2. Rescaled-Range Analysis

4.2.1. Classical Rescaled-Range Statistics

An approach to detect long-term dependence is to use the range over standard deviation or rescaled-range (R/S) statistics. The classical R/S is given by *"range of partial sums of deviations of a time series from its mean, rescaled (divided) by its standard deviation"* (Lo, 1991, p. 1287). Specifically, being X_j the return of a stock in period j, for $\{X_1, X_2, \ldots, X_n\}$ it may be defined as:

$$(R/S)_n = S_n^{-1}\left[\underset{1\le k\le n}{\text{Max}}\sum_{j=1}^{k}\left(X_j-\bar{X}_n\right)-\underset{1\le k\le n}{\text{Min}}\sum_{j=1}^{k}\left(X_j-\bar{X}_n\right)\right] \quad [2]$$

where $\bar{X}_n = (1/n)\sum_{j=1}^{n} X_j$ is the sample mean and $S_n = \left[(1/n)\sum_{j=1}^{n}\left(X_j-\bar{X}_n\right)^2\right]^{1/2}$ is standard deviation. The time series is divided by an integer number of adjacent non-overlapping sub-intervals of equal size. The first term (in brackets) is the maximum (in k) of the partial sums of the first k deviations of X_j from the sample mean. The second term is the minimum (in k) of the same sequence of partial sums. The difference between the two parties, called range (R_n), is always non-negative and, therefore, the statistics $(R/S)_n \ge 0$, as indicated by Lo (1991).

Test Procedure:

Under the null hypothesis $(V_n = 0)$ that "the series of returns is i.i.d." the R/S statistics converges asymptotically to the range of a Brownian bridge in the unit interval V. The cumulative distribution function of the range of a Brownian bridge is explicitly given in Kennedy (1976) by $F_V(v) = 1 + 2\sum_{k=1}^{\infty}(1-4k^2v^2)e^{-2(kv)^2}$, which represents the asymptotic distribution function of the normalized (i.e., divided by the square root of the sample size n) rescaled-range statistics (Lo, 1991, p. 1288):

$$V_n \Leftarrow \frac{1}{\sqrt{n}} \times R/S \;\sim\; V \quad [3]$$

The moments of the range V_n are calculated from the distribution function F_V, where the mean and theoretical error variance are equal to $E(V_n) = \sqrt{(\pi/2)}$ and $E(V_n^2) = \pi^2/6$, respectively. The test for the null hypothesis of non-existence of long-term dependence can be performed (in the absence of short-term dependency) by estimating the confidence interval for a level of significance and finding whether V_n is within or outside the desired limits, where the asymptotic p-values are given in Lo (1991, p. 1288).

4.2.2. Modified Rescaled-Range Statistics

The short-term dependency is incorporated into denominator, which becomes the square root of a consistent estimator of the variance of partial sums until the lag q in expression [2], presented as (Lo, 1991, p. 1289):

$$(M-R/S)_{n,q} = S_q^{-1}\left[\underset{1\le k\le n}{\text{Max}}\sum_{j=1}^{k}\left(X_j-\bar{X}_n\right)-\underset{1\le k\le n}{\text{Min}}\sum_{j=1}^{k}\left(X_j-\bar{X}_n\right)\right] \quad [4]$$

where S_q^2 is a heteroscedasticity and autocorrelation consistent variance estimator (Andrews, 1991) and includes the usual sample variance S_n^2 and autocovariance $\hat{\gamma}_j$ estimators of X:

$$S_q^2 = S_n^2 + 2\sum_{j=1}^{q}\omega_j(q)\hat{\gamma}_j \quad [5]$$

where the weighting function was suggested by Newey and West (1987) and given by $\omega_j(q) = 1 - j/(q+1)$, $q < n$ with the truncation lag suggested by Andrews (1991) and given by $q = \text{Int}\left[(3n/2)^{1/3} \times \left(2\hat{\rho}_1/\left(1-\hat{\rho}_1{}^2\right)\right)^{1/3}\right]$, being $\hat{\rho}_1 = \hat{\gamma}_1/\hat{\gamma}_0$ the first-order autocorrelation, and the estimator of autocovariance is given by $\hat{\gamma}_j = (1/n)\sum_{i=1}^{n-j}(X_i-\bar{X}_n)\left(X_{i+j}-\bar{X}_n\right)$. The M-R/S statistics requires selection of the lag order, in relation to which exhibits high sensitivity.

Test Procedure:

Under the null hypothesis $(V_n(q) = 0)$ of "short-term dependence with heteroscedasticity" (that is, absence of long-term memory), the normalized rescaled-range statistic $\left(V_n(q)\right)$ with lag q has the limit distribution (Lo, 1991, p. 1291):

$$V_n(q) \Leftarrow \frac{1}{\sqrt{n}} \times M - R/S \ \sim \ V \qquad [6]$$

The V_n and $V_n(q)$ statistics can be used to distinguish and analyse three hypotheses: random walk, short-term memory, and long-term memory (Chow *et al.*, 1996). If both statistics are significant, the process has long-term dependence; if the statistics V_n is significant and the statistics $V_n(q)$ is insignificant, the data series exhibits short-term memory; if both statistics are insignificant, the process is independent or random walk.

4.2.2. Graphical Rescaled-Range Analysis and Hurst Exponent

If the time series exhibits positive or negative long-term dependence, the exponent H should converge in values larger (persistence) or smaller (anti-persistence) than 0.5, respectively. Such scaling reflects a trend of strengthening of deviations from the mean and it is also characteristic of the time series models known as fractional Gaussian noise (Mandelbrot and Wallis, 1969b) and as fractionally integrated ARMA (Granger, 1980). In these processes, the long-term dependence is identified in a slow (hyperbolic) decay of the autocorrelation function (ACF), based on the asymptotic scaling relationship (Lux, 1996, p. 702):

$$(R/S)_t \sim at^H \qquad [7]$$

where a is a finite positive constant independent of t and H is the Hurst exponent. The linear relationship in log-log scale indicates the power scaling (Weron, 2002). To discover this scaling law and estimate the exponent H one can employ a simple linear least-squares regression (Lux, 1996, p. 702) on the logarithms of each side of the expression [7] in a sample of increasing time horizons $(s = t_1, t_2, \dots, t_n)$ as $\log(R/S)_s = \log(a) + H \log(s)$.

The graphical process of rescaled-range analysis (sometimes called R/S analysis) involves calculating the mean of the rescaled-range for several values up to n for a given value of s. Being this mean represented by R/S, the limit of the ratio $\log(R/S)/\log(s)$ is often referred to as exponent H. Mandelbrot and Wallis (1969a) suggested the technique of representing $\log(R/S)$ as a function of $\log(s)$ for different values of s. The slope of that representation, estimated using ordinary least-squares, reflects an estimate of the Hurst exponent H.

4.3. Detrended Fluctuation Analysis

The basis of the DFA method, proposed by Peng *et al.* (1994), is to subtract the possible deterministic trends from the original time series and then analyse the fluctuation of detrended data.

Firstly, after subtracting the mean, one integrates the original time series $\{X_j\}$ to obtain the cumulative time series $Y(t)$ as follows (Oh *et al.*, 2006, p. 2):

$$Y(t) = \sum_{j=1}^{t} \left(X_j - \bar{X}\right) \qquad ; \qquad t = 1, \dots, n \qquad [8]$$

This accumulation process is what transforms the original data into a self-similar process, where $\bar{X} = \frac{1}{n}\sum_{j=1}^{n} X_j$ represents the mean.

Secondly, the series $Y(t)$, of length n, is divided by an integer equal to n/τ non-overlapping boxes, each containing τ points. Then, the local quadratic trend $z(t) = at^2 + bt + c$ in each box is defined as the standard least-squares fit of the data points. Subtracting $z(t)$ to $Y(t)$ in each box the trend is removed. This process is applied to all the boxes, and the detrended fluctuation function F is defined by the square root of the mean deviation of $Y(t)$ from the trend function $z(t)$ (Kristoufek, 2010, p. 317):

$$F_k^2(\tau) = \frac{1}{\tau} \sum_{t=k\tau+1}^{(k+1)\tau} |Y(t) - z(t)|^2 \qquad ; \qquad k = 0, \dots, \frac{n}{\tau} - 1 \tag{9}$$

The calculation of the average of $F_k^2(\tau)$ over the n/τ intervals provides the definition of the fluctuation function $F(\tau)$ defined by (Matos *et al.*, 2008):

$$F(\tau) = \sqrt{\frac{\tau}{n} \sum_{k=0}^{n/\tau-1} F_k^2(t)} \tag{10}$$

Thirdly, if the observable $X(t)$ are uncorrelated random variables, the expected behaviour should be a power-law, and the previous fluctuation function has the following scaling relation (Peng *et al.*, 1994):

$$\langle F(\tau) \rangle \sim (const)\tau^H \tag{11}$$

Returning to run a linear least-squares regression over the relationship represented by log-log scale in the expression [11] produces a straight line, whose slope is the Hurst exponent H. So, from a linear (in log-log scale) regression of data corresponding to $F(\tau)$ the empirical value for exponent H can be estimated to define the degree of polynomial trend (Costa and Vasconcelos, 2003, p. 237), as occurred for the R/S analysis, as $\log \langle F(\tau) \rangle = \log(const) + H \log \tau$.

4.4. ***Fractional Differencing Analysis***

The fractional differential processes, developed by Granger and Joyeux (1980), may be used to model parametrically long memory dynamics. Under this approach, whether a series has long memory depends on a fractional differencing parameter. A general class of fractional processes $ARFIMA(p, d, q)$, which are generalizations of standard ARMA models, is described by:

$$\Phi(L)(1 - L)^d X_t = \Theta(L)\varepsilon_t \tag{12}$$

where $\{x_1, \dots, x_T\}$ is a set of time series data, $\Phi(L) = 1 - \phi_1 L - \dots - \phi_p L^p$ and $\Theta(L) = 1 + \vartheta_1 L + \dots + \vartheta_q L^q$ are the AR and MA polynomials, respectively, in the lag operator L with all roots being stable, ε_t is a white noise disturbance term, and $(1 - L)^d = \sum_{k=0}^{\infty} \frac{\Gamma(k-d)L^k}{\Gamma(-d)\Gamma(k+1)}$ is the fractional differencing operator, where $\Gamma(\cdot)$ is the standard Gamma function. The fractional differencing parameter (or degree of fractional integration) d assumes any real values.

4.4.1. Geweke and Porter-Hudak Method

The spectral regression method, developed by Geweke and Porter-Hudak (1983), suggests a semi-parametric procedure to estimate the memory parameter in a fractionally integrated process. The statistical procedure involves the estimation of d in expression [12], through the slope of the spectral density function around the angular frequency $\lambda_j = 0$. This process uses a simple linear regression of the log-periodogram at low Fourier harmonic frequencies $\lambda_{j\,T} = 2\pi j/T$:

$$ln\left[I\left(\lambda_{j\,T}\right)\right] = c - \hat{d}\; ln\left[4\; sen^2\left(\lambda_{j\,T}/2\right)\right] + v_j \qquad ; \qquad j = 1, 2, \cdots, m < T \qquad [13]$$

where the disturbance v_j is asymptotically normal with variance $\pi^2/6$ under normality of the innovation ϵ_t in expression [12], and m is the number of low frequency ordinates, wherein $m = T^{\alpha}$ with $0 < \alpha < 1$. The test for the null hypothesis $(d = 0)$ of "short term dependence" (i.e., absence of long-term memory) can be based on the usual T-statistic.

The authors GPH show that the spectral density function of a fractional Gaussian noise with Hurst exponent is identical to that of an ARFIMA model with differencing parameter $d = H - 0.5$.

5. Empirical Results

5.1. Estimation of Long-term Memory

5.1.1. Classical and Modified Rescaled-Range Analysis

In an experimentation for dependency, under fBm approach, table 1 presents the estimates of Hurst exponents, via R/S and via M-R/S analysis, for PSI-20 index and the coefficients of determination (R^2):

TABLE 1 : Hurst exponents *H* via R/S and M-R/S analysis and coefficients R^2 for daily returns series of the PSI-20 index

Procedure: linear regression of $\log(R/S)_s$ over $\log(s)$

Estimates		**PSI-20**
Hurst exponent (via R/S)	H	0.606
Coefficient of determination	R^2	0.999
Hurst exponent (via M-R/S)	H	0.573
Coefficient of determination	R^2	1.000

Note: The complete series for log-returns has a length of 6.634 observations, but given the need of entire divisibility in R/S procedure, we considered only the first 6.630 closing prices. Specifically, the decimation for the $(R/S)_t$ ratio established the lags $s = 6, 13, 26, 51, 102, 195, 390, 663, 1326, 2210$. The $\log(R/S)_s$ was calculated as the mean of a fixed number of non-overlapping intervals.

For the whole period of analysis the Hurst exponent is above the benchmark $H = 0.5$, in both (R/S and M-R/S) techniques, indicating the existence of long memory in the form of persistence. The excellent fit of the regression $(R/S)_s$ Is given by R^2 close to unity.

5.1.2. Detrended Fluctuation Analysis

In another experimentation for dependence, table 2 presents the estimate of Hurst exponent via DFA for PSI-20 index and the coefficient of determination (R^2):

TABLE 2 : Hurst exponent H via DFA analysis and coefficient R^2 for daily returns series of the PSI-20 index

Procedure: linear regression of $\log F(\tau)$ over $\log(\tau)$

Estimates		**PSI-20**
Hurst exponent (via DFA)	H	0.567
Coefficient of determination	R^2	0.998

Note: The $\log F(\tau)$ was calculated as the average of a fixed number of sliding overlapping intervals, wherein the minimum lag τ is equal to 20 days (about one month of trading).

The result of the DFA technique confirms the evidence of persistence from the R/S analysis. The estimated exponent is slightly greater than 0.5, but considerably weaker than the results from the classical R/S procedure. The degree of long-term dependence indicates that the Portuguese market moves away from the independence of the innovations in the gBm, where $H = 0.5$. Once again, the high coefficient R^2 shows the excellent fit of the regression $F(\tau)$.

5.2. Testing Long-term Memory

5.2.1. Classical and Modified Rescaled-Range Test

The estimates of $V_n(q)$ were calculated for the truncation parameter $q = 2, 4, 8, 16, 32$ days, in order to adjust to the possible presence of short-term autocorrelation and test the robustness of the results. Table 3 presents the statistics of R/S test and M-R/S test for PSI-20 index, the autocovariance component of M-R/S statistics and the influence of R/S statistics on the presence of short-term memory:

TABLE 3 : Statistics of R/S test and M-R/S test for daily returns series of the PSI-20 index, the autocovariance component of M-R/S statistics and the influence of R/S statistics on the presence of short-term memory

						$V_n(q)$					
Index	V_n	**2**	*%infl*	**4**	*%infl*	**8**	*%infl*	**16**	*%infl*	**32**	*%infl*
PSI-20	1.776	1.653	*7.5*	1.625	*9.3*	1.618	*9.8*	1.584	*12.2*	1.496	*18.7*
Signific	(*)	( )		( )		( )		( )		( )	
Autocov. ($x10^7$)		[2.472]		[3.089]		[3.268]		[4.106]		[6.513]	

Note 1: The null hypothesis of an i.i.d. process, that is, non-existence of long term memory (in the absence of short-term memory) is rejected if the V_n statistic is not contained in the confidence intervals (at 90%, 95% and 99%) defined by critical regions $[0.861, 1.747]$, $[0.809, 1.862]$ and $[0.721, 2.098]$, respectively (the p-values were defined in Lo, 1991, Table 2, p. 1288). The moments of the range V_n are determined from their distribution function, with the mean $E(V_n) = \sqrt{(\pi/2)}$ and the theoretical error variance $E(V_n^2) = \pi^2/6$.

Note 2: The null hypothesis of a short-term memory process is rejected if the $V_n(q)$ statistic is not contained in the confidence intervals (at 90%, 95% and 99%) defined by the same critical regions.

Note 3: *, ** and *** indicate statistical significance (in the bilateral test) for the null hypothesis at the level of 10%, 5% and 1%, respectively.

Note 4: The %infl. is calculated using the formula $[(V_n/V_n(q)) - 1] \times 100$ and indicates the influence of classical rescaled-range statistics on the presence of short-term memory.

The R/S test shows that V_n statistic exceeds the mean critical value equal to 1.25 $\left(\approx \sqrt{\pi/2}\right)$ for a process without long memory and, therefore, indicates long-term positive dependence (i.e.,

persistence with $H > 0.5$). This result converges with estimates of Hurst exponents obtained through R/S (classical and modified) analysis and DFA. Moreover, the statistical relevance (marginal at 90% confidence level) suggests the rejection of the null hypothesis of absence of long-term memory in the Portuguese stock market.

The M-R/S test shows that the values of $V_n(q)$ statistic are lower than those of the V_n statistic for all lags q. This is not surprising and seems to derive from the returns series be positively correlated in the short-term. This analysis evidences absence of long memory in the Portuguese stock market, since the $V_n(q)$ statistic does not reject the hypothesis of short-term memory for any cut of lag. As the V_n statistic is significant and the $V_n(q)$ statistic is insignificant, the results may be caused by short-term memory in the data series. This means that the signals for PSI-20 do not support the EMH.

5.2.2. Geweke and Porter-Hudak Method

The GPH spectral regression procedure to estimate the parameter d and test the null hypothesis of short-term memory was subjected to different values of the root of sample size $\alpha = 0.45\,, 0.50\,, 0.55\,, 0.60, 0.65$, in order to test the robustness of the results. Table 4 presents the estimates of fractional differencing parameter via GPH method for PSI-20 index, the standard errors and the T-Student statistics:

TABLE 4: Fractional differencing parameter d via GPH method for daily returns series of the PSI-20 index, standard error deviation and T-Student statistics

				d		
Index		$m = T^{0.45}$	$m = T^{0.50}$	$m = T^{0.55}$	$m = T^{0.60}$	$m = T^{0.65}$
PSI-20		0.162	0.161	0.154	0.152	0.110
Significance		( )	(*/**)	(*/**)	(*/**/***)	(*/**/***)
Standard Error	*s.e.*	[0.083]	[0.068]	[0.064]	[0.050]	[0.039]
t-statistic	*t-sample*	(1.518)	(2.368)	(2.406)	(3.040)	(2.821)

Note 1: The null hypothesis of a short-term memory process is rejected if the statistic $|t\ sample_{\hat{d}}| > t\ critical$, where $t\ samplel_{\hat{d}} = \frac{\hat{d}-0}{s.e._{\hat{d}}}$ for a T-Student distribution with ∞ degrees of freedom. The t statistics for the estimates of parameter d are determined from the theoretical error variance $(\pi^2/6)$.

Note 2: *, ** and *** indicate statistical significance (in the bilateral test) for the null hypothesis at the level of 10%, 5% and 1%, respectively.

The estimates obtained by GPH method are different from *zero* in the stationary region $(0 < d < 0.5\ \ or\ \ 0.5 < H < 1)$, indicating long-term memory property in the form of moderate persistence $(d > 0\ \ or\ \ H > 0.5)$. However, robust evidence of long-term positive dependence can be found for $\alpha = 0.60, 0.65$. More specifically, in such cases the estimates of parameter d are meaningful at 99% confidence.

The results of the semi-parametric estimator agree with the Hurst exponents calculated by the R/S and DFA analyses. With the relation $d = H - 0.5$, the bandwidth $\{0.610, 0.662\}$ is obtained for the variation of the scaled parameter H in the PSI-20 index.

Conclusion

In the search for evidence on the long memory property in the PSI-20 index, the daily returns series were modeled using a fBm formulation to obtain the Hurst exponents H through (classical and modified) R/S analysis and DFA with different window sizes. The regression on the total sample data estimated slightly higher H exponents in the first method, although this is not surprising, since it tends to overestimate the parameter in small time series (Kristoufek, 2010). However, both methodologies provided unique and convergent empirical results for the Portuguese index returns.

In addition, statistical tests of long-term memory processes were performed for different levels of significance using the R/S test, the M-R/S test and the fractional differencing test GPH. The second and third tests consider different lag cuts and different values of the sample size root, respectively, in order to assess the robustness of the results.

In general terms, a comparison of test procedures did not reveal clear and convincing evidence that the PSI-20 index has long-term memory. The daily returns analysis indicated that there may be a stochastic process of short-term memory that degenerates over long periods. The values of the $V_n(q)$ statistic are lower than those of the V_n statistic for all lags. This is not unexpected, as the series of returns proved to be positively correlated in the short term.

However, the mostly positive overall results support the presence of long memory in the form of persistence in the Portuguese stock returns. This suggests that this market is subject to predictability, but also to trends that may be unexpectedly disrupted by discontinuities and, therefore, tends to be more risky to trade and invest (Gomes *et al.*, 2018). These findings are important for regulators and risk managers. An important issue for them should be to know which of the market indices are persistent and thus inefficient, and which can therefore produce abnormal returns.

Despite the reduced statistical evidence of fractal dynamics, as in most international studies, it refutes the random walk hypothesis with i.i.d. increments, which is the basis of the EMH in its weak form. Consequently, many of the paradigms used in modern financial theory may be violated, meaning that perfect arbitrage is impossible. These findings are important for scientific financial research.

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Open Educational Resources System Approach to Identify OER Building Guide Considerations.

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Abstract

This paper presents a System Approach Analysis of the Open Educational Resources. It has been used Bibliometric sights, and derived of that, this paper shows some pedagogic, technical and legal elements that must be considered by any teacher in the Open Educational Resource building. The task could seem a challenge if teacher has been working with traditional didactic materials. The fast incorporation of iterative possibilities, the increasing of electronic devices, different programming languages costs and legal implications of the use of licenses and author property seems a big challenge to face.

Teachers have the expertise in its themes, its own curricula program, general and specific knowledge. Even more, they have the know-how about students learning problems to understand complex themes. In the other side, there are a lot of new possibilities to enhance and make easy the learning-teacher process, however confrontation to constant changes in information and communication technologies, and legal aspects represents a barrier.

Growing tending of distance and electronic learning implies to face the Open Educational Resources requirement to cover at least whole knowledge to teach distance curricula courses; but this enormous effort needs participation of teachers to structure suitable educational materials. With the aim to support building Open Educational Resources tasks, some OER knowledge elements have been considered to offer a guide in Mexico.

Keywords: Open Educational Resources, Information and Communication Technologies, OER Building Open Access, Bibliometric Analysis.

Introduction to Open Educational Resources.

The Open Educational Resources (OER) *are any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation* (UNESCO, 2017).

OER are part of the Open Access Movement. According with Peter Suber, the movement started in 1966, with initiatives and concepts; following in 1990's with open access journals, and launching its

statements in the first part of the century: the Budapest Open Access Initiative by Open Society Institute in 2002, the Bethesda Statement on Open Access Publishing in 2003, the Berlin Declaration on Open Access also in 2003, Creative Commons officially launched in 2005 and the Lyon Declaration on Access to Information and Development in 2014 (Suber, Timeline of the Open Access Movement, 2009).

In Mexico, Open Access has been Mexican Government Policy since 2014, when Senators approved the Science and Technology Law modification, it stablishes the promotion of scientific research to enhance the education and to expand knowledge with Information Technologies and Open Access platforms (DOF, 2014), (DOF-GOB, 2014). The Universidad Nacional Autónoma de México, subscribed Berlin declaration in 2012, and its Dean Dr. Narro, for the first time included a program to promote scientific production open access, free and available thorough information and communication technologies at University Institutional Plan (Peñaloza Báez and Castillejos Reyes, 2015).

Open Educational Resources Bibliometric Analysis of Author Keywords.

To analyze Open Educational Resources concerns, it has been considered author keyword of articles published in Scopus without any restrictions. Web of Science (Web of Science, 2018).) and Scopus (Scopus, 2018) are recognized scientific databases (Guz and Rushchitsky, 2009), but early scientific articles has a better presence in Scopus (Hernández-González, Sans-Rosell, Jové-Deltell, and Reverter-Masia, 2016). As our interest is the state of the art of Open Educational Resources, we decided to use the Scopus documents. *Scopus is the world's largest abstract and citation database of peer-reviewed literature, including scientific journals, books and conference proceedings, covering research topics across all scientific and technical disciplines* (Elsevier, 2018).

For this analysis, it was defined as main keyword: "*open education resources*" or "*open educational resources*": appearing in title, abstract or author keywords. We did not consider *OER* abbreviation because we found it is used to appoint concepts as *Oxygen Evolution Reaction* very often showing in chemical articles or *Oxygen Evolution Reaction* in Material Sciences papers. We did not restricted time, knowledge topics and no other; because Open Educational Resources are being developed for all knowledge areas.

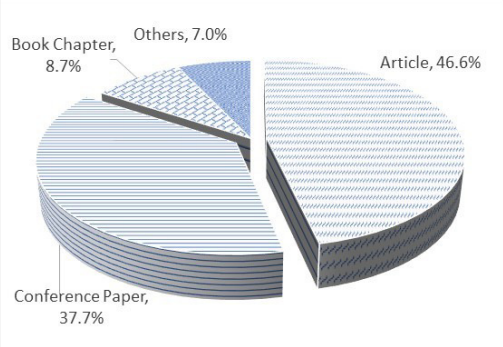

Fig. 1: All documents published by Scopus related to Open Educational Resources (Scopus, 2018)

The searching gives as a result 1,194 documents distributed by type of publication, as it is showed in **Error! Reference source not found.**, the 46.6% of the total of documents were Journal Articles, 37.7% were Conference papers, while 8.7% matches with book chapters. The other 7% is composed by Conference review (2.2%), notes (1%), editorials (0.7%), books (0.6%) and erratum (0.1%).

From the documents, articles keywords were analyzed. To do it, 554 articles were separated, and the author keywords were listed. For the analysis the keywords were joined in singular and plural cases,

and with regional orthography differences (Table 1). For instance, next variations, or even mistakes, were found under the group: Open Educational Resources concept in 420 articles.

Table 1: Open Educational Resources, writing variants.

OER	Open educational resources
OER,	Open educational resources (OER)
OERs	Open Educational Resources (OERs)
Open education resource	Open education resources (OER)
Open education resources	0pen education resources (OERs)
Open educational resource	Open Education Learning Resource
Open educational resource (OER)	

Each author chooses keywords related with its own article. 72 articles did not have any author keyword. From 484 articles, authors add from three to fifteen keywords, in consequence, each article mentioned more than one keyword. A total of 1,286 different words were found. To build Table 3, author keywords were examined discovering the synonyms, plurals and singulars, abbreviations and different spellings. We decided to join all the very similar keywords (See Table 2). For instance, we found:

Table 2: Massive Open Online Courses, writing variants

MOOC	Massive Open Online Courses (MOOCs)
MOOCs	Massively open online course (MOOC)
Massive Open Online Courses/	Massive online open courses

If we found a similar concept but not strictly the same as: *Mobile massively open online course (MobiMOOC)*, it remained separated.

Then, most frequent author keywords are included in Table 3. First place is occupied by *Open educational resource,* that was the main descriptor we used to find articles and was mentioned in almost 76% of the articles analyzed. Second place refers to *Massive Online Open Courses, MOOC*, followed by *E-learning*:

- MOOC are defined as courses offered throughout Web, with not limited participation and usually free (Bonk, Miyoung Lee, Reeves, and Reynolds, 2017).
- E-learning is a way to learn based on the use of new technologies allowing access to online, interactive and sometimes personalized training through the Internet or other electronic media (intranet, extranet, interactive TV, CD-ROM, and so on), so as to develop competencies while the process of learning is independent from time and place (Barth, Adomßent, Fischer, and Richter, 2014).

In the fourth place, it is situated Higher Education, reflecting the efforts to incorporate OER into universities. In next places, reflects the open character of education, information and materials as textbooks.

In sixth place appeared the *Open course ware or OCW*. According to Martínez (Martínez, 2014), the difference is that MOOC materials open and available only time to impart the course, and not is clear if it is possible to modified them. In the other side, OCW materials are free, available and reusable, only citing original authoring. Ninth place is occupied by online education, that some authors consider as a synonym of e-learning, but as this consideration is not in all of the cases, we show it as

another keyword with its own record. In tenth place it is located *Education*, reflecting the importance to talk about the macrosystem.

Table 3: Most frequent Author Keywords associated with more 554 published articles about OER. ***(Scopus, 2018)***

No.	*Author Keywords (joining plurals and languages)*	*% of total of articles*
1	Open educational resources (OER)	75.8%
2	Massive Open Online Courses (MOOC)	9.7%
3	E-learning	7.4%
4	Higher education	6.3%
5	Open education (OE)	6.0%
6	Open courseware (OCW)	6.0%
7	Open access (OA)	5.6%
8	Open textbooks	5.2%
9	Online learning	3.8%
10	Education	3.6%

To recognize the author's concerns, we classified 510 author keywords. We choose all keywords mentioned more than twice times. We formed 13 keywords groups, assigning each word into the closer topic group. There are words that can be assigned in more than a group, we read the article context to set them in a group.

Table 4: Classified author keywords mentioned more than 2 times, Source: Scopus, 2018

No	***Keywords Group***	***Keywords assigned***	***% from total of keywords***
1	Education – pedagogy, students, levels, costs…	143	6.7%
2	Hardware and Software – Devices, Internet	85	4.0%
3	Systems Analysis, Tools and Techniques	46	2.1%
4	Materials, Libraries and Repositories	47	2.2%
5	Distance and On-line Education	52	2.4%
6	Open Education Resources (OER) Platforms	16	0.7%
7	Information, Structure and Analysis Tools	30	1.4%
8	OER Informatic Desirable Characteristics	17	0.8%
9	Applications – Knowledge areas	22	1.0%
10	Communities – Countries, regions, schools, etc.	13	0.6%
11	Massive Open Online Course (MOOC)	11	0.5%
12	Open Access	16	0.7%
13	Authoring and Property Rights	12	0.6%
	TOTAL	510	23.9%

Open Educational Resources System Approach

Table 3 shows the group labeled as Pedagogy as the most frequent author keywords. It involves pedagogic concepts, theories and techniques; students learning styles, educational levels, knowledge

areas and financial aspects. It is assumed that the prominence of education keywords and Education group reflect the authors care about how to enhance the learning-teaching process. The Pedagogy group corresponds to the macrosystem, where all keyword groups are inserted, and it is showed in **Error! Reference source not found.** Educational System nowadays is divided in three modalities: face to face, distance education, and blended education. These modalities have developed their own resources, but as they are part of same subsystems (basic education, higher education, etc.), usually they share resources as teachers, materials, financial resources among others. That is why Figure 2 presents the possibility to use Open Educational Resources in any of education modalities.

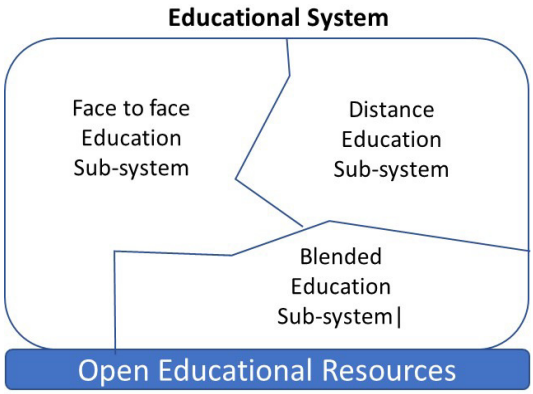

Figure 2: Educational System by modality of teaching (Own elaboration)

- Face to face Educational Sub-system. It is the traditional face to face classroom. For instance, the number of students in high education around the world in 2014 was 207 million (UNESCO, 2017). It has been the main system working in colleges, schools and universities; without neglecting the distance education methods existing since final of 1700s, first with mailing education.
- Distance Education Sub-system. *It is a form of education in which the main elements include physical separation of teachers and students during instruction and the use of various technologies to facilitate student-teacher and student-student communication. Distance learning traditionally has focused on nontraditional students, such as full-time workers, military personnel, and nonresidents or individuals in remote regions who are unable to attend classroom lectures* (Berg and Simonson, 2018). With ICT, distance education also called, e-learning has growth acquiring important place in education possibility.
- Blended Education Sub-system. It is known as Blended Learning, and it's the education modality that conjugate face to face class and online learning, generating a new kind of teacher-students and students-students interactions (Lalima and Dangwal, 2017).

In **Error! Reference source not found.**, it is a representation of groups of author keywords. In the middle is the main descriptor: Open Educational Resources. In the top appears Education as a global concept, but in the right top it is ubicated the distance and on-line education, because OER development appeared and grew because Information and Communication Technologies possibilities offered into Education fields. To understand the narrow components and concerns to build new Open Education Resources, we made three big groups, labeling in the down part of figure as:

1. Academic structure and school availability of OER. This group refers to the academic requirements of institutions, as curricula structure, learning goals, and how schools are making the OER available for its students. For instance, they are developing platforms, MOOC or repositories for its communities and knowledge fields.
2. Information and computer knowledge. Contains: programing languages to design, develop, using and evaluating software, as well as, technological devices as smartphones or tablets, and virtual reality tools.

3. Legal aspects. Last group considers the Open Access character of OER, the authoring and property rights that must be considered to respect the Open information considerations.

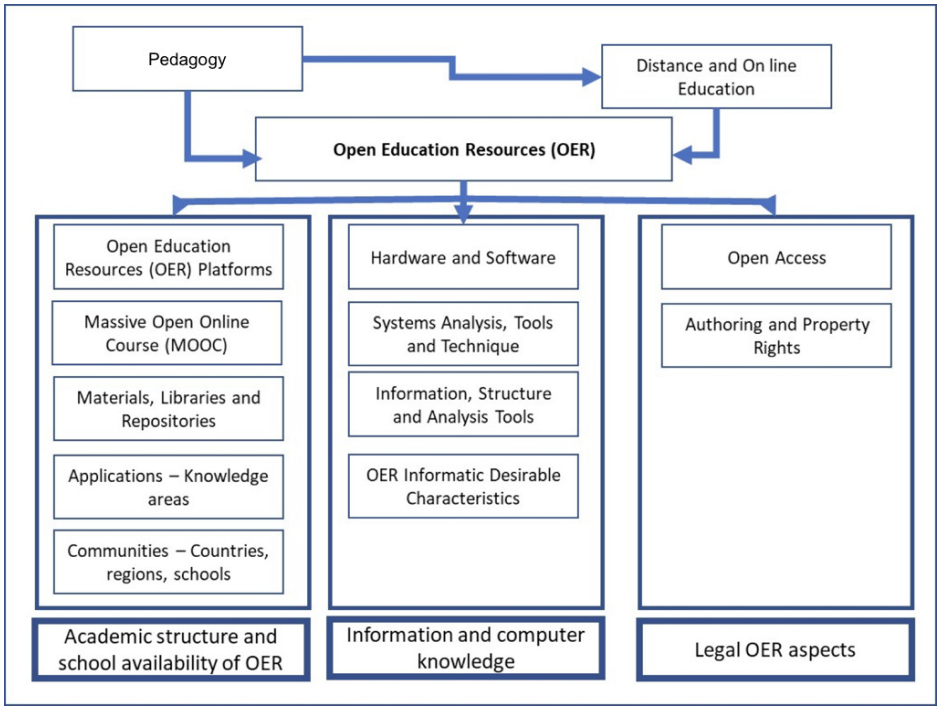

Figure 3: Open Educational Resources elements reflected by Author keywords. Own elaboration

The elements showed in **Error! Reference source not found.** are the topics considered to development a Guide about how to build OER, that are presented in the next section.

Guide elements to consider for building Open Educational Resources

Teachers and responsible of education are building new educational resources with the goal to improve the learning-teaching process; their expertise in its educational topics, its own communities' characteristics and, institutional resources make its contributions worth in developing new OER not only in content, but also in specific themes attention, and the design of exercises and new interactions. Nowadays, a lot of teachers face the challenge to build their own OER, by themselves. Sometimes it seems very complicated task, because of the new technologies, new concepts and quantity of aspects to be considered. This study had been made to determine the most important aspects to be considered to include them in a guide that we are developing at Universidad Nacional Autónoma de México. Added to it we made the literature review and found very valuable documents in the same sense, for example, the document published by UNESCO in 2015: *A Basic Guide to Open Educational Resources* (UNESCO, 2015); or the *Guía de referencia para el uso de Recursos Educativos Abiertos y Objetos de Aprendizaje* (CUDI-CONACYT, 2011).

The **Error! Reference source not found.**, shows the most mentioned aspects of authors in its articles published since the OER concept began. To constitute a building OER guide we decided we will to develop a guide considering four sections: Introduction to OER concept, Academic structure and school availability, Information and computer knowledge and, finally Legal aspects. We present an outline about content to be developed considering the results of bibliometric analysis:

- *Introduction to Open Educational Resources*

  First section of Guide is going to introduce teachers into the Open Educational Resources topic. This section includes, definitions and concepts about what is an OER. It is going to be important to define what is a OER and to stablish differences with other Learning Resources.

  Open Educational Resources are didactic instruments, tools, materials of the Educational System. They can be used in any of the education modalities: Face to face, on-line or blended learning. According with OER definition, mentioned at the beginning of this paper, all current materials can be transformed into OER.

- *Academic structure and school availability of OER.*

  Academic structure is mentioned in the sense OER are linked with studies level: Basic Education, Secondary education, Higher education. In the same OER are associated with Pedagogic Models and defined School Curricula. In consequence, the first task must be the delimitation and alignment of OER with its own context; considering the community beliefs, knowledge fields, expectative and available resources of the school and people; as well as impartation modality: face to face, on- line or blending learning, since, it can change the topic development deepness. For instance, if the OER is going to be developed for on-line learning, maybe it would be necessary to develop a MOOC or OCR courses.

  Other topic to be considered in OER design is specific goals, parts and kind of materials to be developed: Theory, examples, exercises, games, quiz, or a mixture of them, taking advantage of the teachers' knowledge and expertise.

  In this section it is proper to mention also, the digital libraries or repositories to host in orderly manner the developed OER. Government and schools' standards as metadata criteria can be part of each OER.

- *Information and computer knowledge.*

  Computer and informatic technical aspects are part of this section. First, it is necessary to consider, nowadays, there are available different devices as: computers, smartphones, tablets, and others less common, as virtual reality or holographic presence. Developing OER implies the technology selection, and in consequence the technical requirements to develop them.

  As technologies emergency is vertiginous, it is impossible to appoint a specific software or programming language to developing OER. Instead of it, OER developers must consider:

  - OER implies virtual interaction with user. To design contents some information structure tools as taxonomies, classification, linked data, metadata, social tags, and information searching and retrieval as well as metrics can be helpful.
  - Other useful tools are those of System Approach and Knowledge Management, models as Best Practices, Participatory Action Research or Quality Criteria represents the possibility to design OER with other teachers' support and metrics.
  - There is a plenty software tools in order to implement OER. However, we focused here in two main aspects: 1) the license type and 2) the compatibility. As it is described in the next section, the license type must be Open Source because this is the Open Access nature. Although it is suggested the whole system layer operative system, database, webserver, server-side scripting and client-side scripting must be Open Source, the server-side and client-side scripting technology should be Open Source. Compatibility between devices is not an issue anymore. With the evolution of the web technologies, now it is possible to fit any content independently of the device; even the content interaction. Thus, it is recommendable develop the OER with a responsive Web design.

- *Legal Open Educational Resources aspects.*

  Last group considers the Open Access character of OER. The Open Access movement was originated to make available scientific information generated with public founded research. *Philosophy of open access is to provide free of charge and unhindered access to research and its publications without copyright restrictions. The movement got support from great scientists, educationists, publishers, research institutions, professional associations and library organizations. The authoring and property rights that must be considered to respect the Open information considerations* (UNESCO, 2015).

  The other concern in this regard refers to Authoring and Property Rights, this two topics are strongly related, considering the condition that Open Access works under the author consent to reuse or even modify the content of the resource. *One easy, effective, and increasingly common way for copyright holders to manifest their consent to OA is to use one of the Creative Commons licenses. Many other open-content licenses will also work. Copyright holders could also compose their own licenses or permission statements and attach them to their works (though there are good reasons not to do so without legal advice)* (Suber P. , 2015)

  There are six different kinds of Creative Commons Licenses (Creative Commons, 2017):

- ***Attribution CC BY.*** *It lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials.*
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All these topics are main points to consider for studying and build Open Educational resources. In this paper we analyzed the most cited articles' topics in the sense to decide how to build an OER guide. In consequence we will organize, integrate and develop the listed topics.

Conclusions

Most important topics related to Open Educational resources were determined by a Bibliographic Analysis and Systemic Approach. Starting with a scientific database and got examined 554 articles from peer review journals. The 1,286 author keywords were extracted and grouped by affinity topics. We got 14 author keywords groups and we labeled them.

Starting with those groups were analyzed with a systemic approach of Open Educational Resources. We placed them as part of Pedagogy Macrosystem, divided in three modalities: Face to face, on-line learning and blending learning. OER are being used in all educational system. The OER system was composed by 14 elements, reflecting the main author concerns: Education – pedagogy, students,

levels, costs, Hardware and Software – Devices, Internet, Systems Analysis, Tools and Techniques, Materials, Libraries and Repositories, Distance and On-line Education, Open Education Resources (OER) Platforms, Information, Structure and Analysis Tools, OER Informatic Desirable Characteristics, Applications – Knowledge areas, Communities – Countries, regions, schools, etc., Massive Open Online Course (MOOC), Open Access, and Authoring and Property Rights.

The present bibliometric analysis, and OER macrosystem, system and its elements help to determine the OER's state of the art. Open Educational Initiatives must consider each element and develop it according its specific goals. Next step consists into analyze deeper each of the mentioned topics, focusing in three main issues: pedagogic content to impact positively education; specific software tools to develop and publish OER and the features required to constitute the Open character of the resource; and finally, transparent availability of reproducible and transdisciplinary research and educative materials developed with government resources. Currently, we are building an OER guide for Mexican teachers interested in understanding and building its own OER.

Acknowledgment

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Evaluation of the Influence of Entrepreneurial Culture on Enterprise Development

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Abstract

Corporate values form the core of the region's entrepreneurial culture. They are regulators of behavior and relationships within the business structure, they serve as a support for decision-making in the socio-economic system. In the article the task of creation of the model allowing to predict examples of profitability of influence of enterprise culture on enterprise development is solved. It is found out that the level of entrepreneurial culture is determined by the degree of coherence of interests of all participants in joint activities on various grounds for coordination, covering all aspects of the business structure. The authors investigated the matrix of decision making support for the management of entrepreneurial culture, the quadrants of which are the control checks of changes (deviations) in the level of entrepreneurial culture and entrepreneurial activity in the period under consideration relative to the previous period. The authors developed a questionnaire that includes 10 statements for each researched factor, which is based on the economic and mathematical model of enterprise development, taking into account the influence of entrepreneurial culture. In conclusion, it is determined that the money will be invested in a more promising factor of production as long as it is economically feasible, therefore, after a certain amount of investment of money resources, the investment object is replaced - the money is invested in another factor of production. This pattern is aimed at increasing the efficiency of the business structure as a whole.

Keywords: entrepreneurship, entrepreneurial activity, entrepreneurial culture

Introduction

Corporate education as an organizational phenomenon, is one of the tools for the development of entrepreneurial culture, aimed at creating a holistic image of employees in accordance with the vision and mission of the company. It is important that corporate education allows not only to preserve the culture of an entrepreneurial structure (in its broad sense, including the culture of business processes), but it also contributes to the improvement of culture, and therefore the whole company as a whole, through the formation and cultivation of corporate values. This can only be if there is a corporate education, and not just a vocational education in an entrepreneurial structure.

We can say that the formation of corporate values is one of the main tasks of this sphere of corporate life. Within the framework of corporate education, the upbringing of employees as bearers of corporate culture and as members of a certain community becomes urgent. In this regard, the process of educating employees includes the formation of corporate values, which is a purposeful process of spreading corporate values, introducing them into use by members of the company, creating conditions for the development of a tradition of behavior in an organization based on the realization of corporate values.

As part of corporate education, the formation of corporate values occurs during the organization of education in the company. Education as an element of corporate education is understood as activities related to the dissemination of corporate knowledge. The main forms of organization of education in the company are the forms of intra-company communications (intra-firm PR). These include meetings, conferences, presentations, for participation in which different categories of employees are

involved. These events broadcast important corporate information relating to various spheres of life of the organization.

Internal competition in the company is supported and regulated by a number of procedures that are the basis for choosing the vector of further professional, career development of the employee, determining the system of material remuneration and, in general, the possibility of continuing the employee's work in the business structure. Also, the formation of internal competition in the business structure is determined by the system of corporate motivation and guidelines on this issue. Values adopted in a particular entrepreneurial culture should contribute to enhancing the sustainability of the business structure and increasing its effectiveness.

It should be noted that corporate values can be formed purposefully and consciously or formed spontaneously. Conscious cultivation of corporate values will create an entrepreneurial culture that will become a strategic management tool that enhances the life potential of an entrepreneurial structure and aims to achieve its goals.

Methods

Analysis of the practice and expert assessments of consultants allows us to state that the interaction in the production sphere of modern companies is characterized by a high level of competitiveness (both between individual employees and between departments). This is determined by such institutional characteristics of the modern company as reachability, the value system in the company (the predominance of values of leadership, achievement, development) and the type of entrepreneurial culture.

The definition of effective forms and methods of the influence of entrepreneurial culture on entrepreneurial activity is very important for the creation and preservation of a favorable business environment. Insufficient development of entrepreneurial culture increases obstacles to entry into the future, and this not only increases the risk of the project, but also reduces the prospects for its successful implementation. Thus, it is necessary to assess the influence of entrepreneurial culture in order to increase the efficiency of entrepreneurship.

The impossibility of applying simple and visual approaches to assessing the influence of entrepreneurial culture is conditioned by the presence of numerous extraneous signals that strengthen and weaken the reaction of the entrepreneurial structure to a specific act of influence, and the numerous subjective approaches to assessing the impact results reflecting the social and economic interests of different social groups further exacerbate this problem. From this point of view, modeling is an important tool for analyzing economic systems and processes, constructing theoretical models that allow to map existing links in economic life, predict the behavior of economic entities, including business entities.

So, if we evaluate the practice of applying modeling methods, it should be noted that the most successful samples do not exceed the level of enterprises or large integration structures. For example, the increasingly accepted model of R. Akoff's democratic governance is used to improve the organization's activities at the micro level, and not at the level of the whole society. With regard to modeling at the macroeconomic level, progress in this area is less visible, but there are also specific positive examples. So, one of the first economists, trying to create a perfect, logically related theory, based on the study of the microeconomic foundations of the dynamics of the macroeconomic system, was J. Schumpeter. Given the peculiarities of entrepreneurial ethics, he viewed the entrepreneur as the main driving force of economic development.

In recent years, with reference to the principle of limited rationality of G. Simon, a number of studies on entrepreneurial ethics have appeared. Such an approach made it possible to construct models explaining the cyclical nature of many economic processes. In addition, one can recall studies related to economic dynamics, including the business cycle model.

A number of models directly relates to the development of a transitional economy. For example, V. Arnold suggests an appropriate model that takes into account the nonlinearity of reorganization: traditional methods of control do not work, and the behavior of the system is characterized as "anti-intuitive".

Results and Discussion

Speaking about modeling the processes of entrepreneurship development, it is necessary to note the following principal points: economic theory has formed an abstract model of the most important driving force of economic development - the "economic man-entrepreneur"; This abstract model is widely used in the practice of analysis and management: the analysis of motivations stimulating to activity, such as entrepreneurs and peculiarities of their nature, has allowed to substantiate the correctness of the average characteristics in the analysis of socio-economic processes; average characteristics that take into account the typology and classification elements of the entrepreneurial environment have made it possible to attract a mathematical apparatus for analyzing the ongoing processes; the use of a mathematical apparatus with a high degree of abstraction made it possible to apply a systematic approach to the analysis of processes and phenomena occurring in economics, as an approach to manifestations of the viability of the economic system; the need to identify mutual links of elements of complex systems, supposed as social and economic systems, required the implementation of model calculations in the analysis of ongoing processes; management requirements are no longer confined to an analysis of what is happening: it is necessary not only to identify the system's reaction to the impact of the management that is being carried out, but also to simulate a possible reaction to the planned impact. This formulation of the problem necessitates the creation of a model that allows one to predict examples at the macro level; macroeconomic modeling was used in the analysis of ongoing processes, but the potential of the system approach is not sufficiently used in predicting the response of the macrosystem to the influence of control; without the scientific substantiation of a systematic approach to the development of changes in the elements of the economic system and the transformation of their mutual relations, without predicting the reaction of the living elements of the system-economic entities to the influence of management, effective management is impossible.

The level of entrepreneurial culture is determined by the degree of coherence of interests of all participants in joint activities on various grounds for coordination, covering all aspects of the business structure activities. This is the manifestation of the system-forming role of entrepreneurial culture. The lack of coherence is the cause of the destruction of the system. Influencing the grounds for coordination - the factors of entrepreneurial culture - you can change the degree of coherence of interests for each of them, i.e. change the level of entrepreneurial culture and, thus, manage it. However, the management of entrepreneurial culture presupposes the need to take into account the duality of its nature, which is manifested in the fact that, on the one hand, entrepreneurial culture is a factor determining the results of the organization's activities, and on the other, the results of activities are a factor affecting the level of entrepreneurial culture. Moreover, the differences in the strength of the mutual influence of the results of activity and entrepreneurial culture due to the law of exaltation of needs, as well as the delay in response over time, significantly complicate the process of developing correct and timely measures of influence on culture. To solve this problem, the decision making support matrix for managing entrepreneurial culture should help.

The main task of the matrix is to provide the person making the decision with the information necessary for developing a decision on managing the entrepreneurial culture. The basis of the matrix is nine situations (Figure 1), characterized by a different combination of changes in entrepreneurial culture (EC) and entrepreneurial activity (EA).

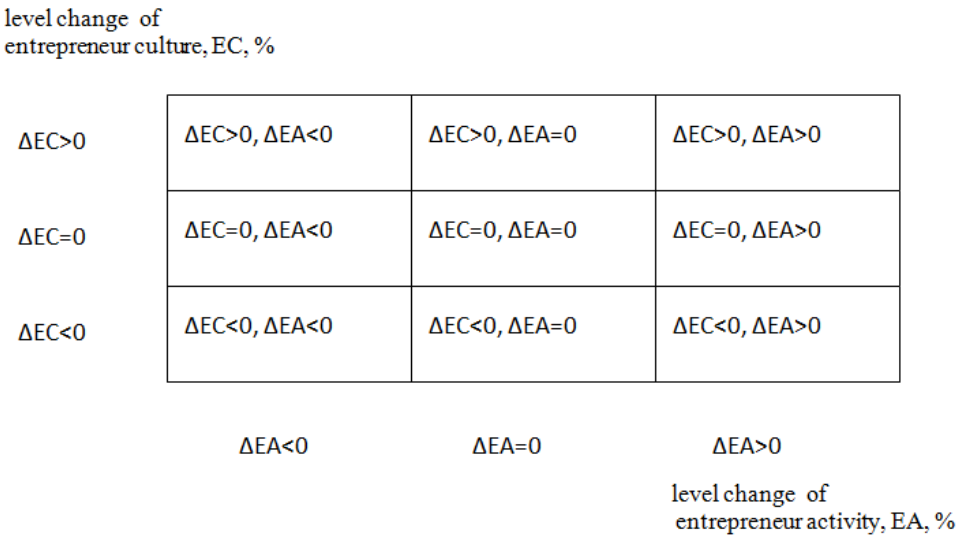

Figure 1: Matrix of decision support for business culture management

The matrix quadrants are so-called control sections of changes (deviations) in the level of entrepreneurial culture and entrepreneurial activity in the period under review relative to the previous period. Given the delay in the reaction of entrepreneurial culture to the level of entrepreneurial activity and vice versa, it is recommended to carry out control checks not more often than once a year. Next, we give a description of the situation of the matrix in the order from the most desired for the organization to the less desirable ones:

a) ΔEC = 0, ΔEA> 0: the absence of changes in the state of entrepreneurial culture (its level of development) and the growth of entrepreneurial activity in the analyzed period relative to the previous period can be explained in different ways:

- by the fact that the organization is at the stage of maturity and has a highly developed culture, the maintenance of which at the same level, taking into account the law of exaltation of needs, implies the growth of entrepreneurial activity;

- by the fact that this is a manifestation of the delay effect of the reaction of entrepreneurial culture on the growth of entrepreneurial activity, which is typical for developing organizations, and then the following situation is seen: ΔEC> 0, ΔEA> 0;

- the growth rate of performance results is not sufficient to ensure the growth of the entrepreneurial culture, and then, if these conditions are preserved, it is possible to predict a transition to the situation ΔEC <0, ΔEA> 0.

With a high degree of coordination of the interests of participants in joint activities in this situation, it is advisable to conduct an additional expert evaluation of the entrepreneurial culture, the purpose of which is to identify growth reserves;

b) ΔEC = 0, ΔEA = 0: there are no changes in the state of culture and entrepreneurial activity in the analyzed period relative to the previous period. This situation is typical for the stage of maturity of the entrepreneurial structure. Taking into account the action and manifestation of the law of exaltation of needs, it is possible to forecast a pessimistic scenario: if ΔEA = 0 is delayed for a longer period, this may lead to a decrease in the level of culture (ΔEC <0);

c) ΔEC> 0, ΔEA> 0: the positive deviations of the state of entrepreneurial culture and the results of entrepreneurial activity in the analyzed period relative to the previous period are most typical for an entrepreneurial structure located at one of the initial stages of the life cycle and having a low level of culture. For an organization that is at the stage of maturity and has a high level of culture, this

situation is transitional, in the future the state ΔEC = 0, ΔEA> 0 is predicted;

d) ΔEC <0, ΔEA> 0: negative deviation of the assessment results of the level of development of entrepreneurial culture and growth of entrepreneurial activity represent a situation that, if prolonged, can lead to either no growth (ΔEA = 0), and then a decrease in performance (ΔEC <0), or to stability (ΔEC = 0) and culture growth (ΔEC> 0). Such a situation can be explained either by the delayed reaction of the entrepreneurial culture (the effect of delay) on the growth of results, or by the insufficient growth rates of the results of activity, i.e. those that do not meet the growing needs and interests of employees (production growth is below the minimum value, providing a positive dynamics of cultural changes). On the other hand, with a high level of employee satisfaction, the situation can get a favorable development, corresponding to the quadrants ΔEC = 0, ΔEA> 0 and ΔEC> 0, ΔEA> 0;

e) ΔEC = 0, ΔEA <0: the stable state of the level of development of entrepreneurial culture and the negative deviation of the results of entrepreneurial activity, is a consequence of the delay effect of the reaction of entrepreneurial culture on the reduction of results. Delay with taking measures to exit from this situation will lead to a critical state of the organization: ΔEC <0, ΔEA <0, partial or complete destruction of the system;

e) ΔEC> 0, ΔEA <0: the increase in the result of assessing the level of development of entrepreneurial culture and the negative deviation of the results of entrepreneurial activity are connected, most likely with the fact that the organization is at the stage of formation. Perhaps, such a situation is due to the delay in the reaction of the culture to changes in results or the delay in the results of entrepreneurial activity from cultural changes. This is one of the difficult situations for the management of the organization, with a long period of which the level of entrepreneurial culture may decline (ΔEC <0);

g) ΔEC> 0, ΔEA = 0: the increase in the result of assessing the level of development of entrepreneurial culture and the stability of the results of entrepreneurial activity is one of the situations when the level of entrepreneurial culture begins to decline with the prolonged being in it, taking into account the law of exaltation of needs;

h) ΔEC <0, ΔEA = 0: the negative deviation of the result of the level of development of entrepreneurial culture and the absence of growth in the results of entrepreneurial activity is explained by the protracted stability of the results of activity. The effect of the law of exaltation of needs, the lack of timely response to this situation and the failure to take steps to exit from it will lead to a critical state of the entrepreneurial structure, which corresponds to the quadrant of the matrix ΔEC <0, ΔEA <0;

i) ΔEC <0, ΔEA <0: the negative deviation of the state of entrepreneurial culture (its level of development) and the results of entrepreneurial activity in the analyzed period with respect to the calculations of the previous period is a critical situation that can lead to the destruction of the system.

The level of development of entrepreneurial culture, when carrying out control checks, is assessed by means of special surveys that can be carried out on the basis of an assessment of the degree of development of such personnel characteristics (factors of entrepreneurial culture) as involvement, adaptability, cohesion, or in more detail, on all grounds for interests coordination of participants in joint activities that determine these properties.

Let us consider an enlarged version of the assessment of entrepreneurial culture, conducted in two stages. At the first (preliminary) stage it is proposed to use questionnaires-statements, which allow to draw conclusions about the degree of development of factors of entrepreneurial culture: involvement, adaptability, cohesion. Questionnaires have been developed that include 10 statements for each factor, assessments are made on a 10-point scale, where "1" corresponds to the "no" statement, and "10" to the "yes" statement. The questionnaire includes the following sections: "Assessment of adaptability", "Evaluation of involvement", "Evaluation of cohesion".

Let us formulate the economic and mathematical model of enterprise development taking into account the influence of entrepreneurial culture. Let a certain amount of money $\overline{X}_0$ be allocated for

the growth and / or development of the entrepreneurial structure. It is necessary to distribute them for the modernization and / or increment of the classical factors of production of the entrepreneurial structure (tabl.1).

Table 1 : Use of funds allocated for the growth and / or development of the business structure

Factor of production	Indicator	Use of funds
Labor	Skills	Employment of additional personnel, training
Land	Cost of tangible assets	Attracting additional resources
Capital	Value of fixed assets of the enterprise	Modernization of the existing and acquisition of new equipment, construction of buildings and structures
Entrepreneurial ability	The size of the entrepreneurial component in the structure of entrepreneurial culture	Development and implementation of activities for the development of entrepreneurial activity; material incentives

Let us denote $Z_i(\overline{X}_i)$ as the profit, which brings the entrepreneurial structure an investment in the i-th factor of production of monetary units $\overline{X}_i \quad (i=\overline{1,4})$. In this case, the profit received from investing in each factor of production is measured in the same units. Let us suppose that the profit received from investing in any of the factors of production does not depend on how much money is invested in others, and the total profit of the business structure consists of profits due to the increment (quantitative and / or qualitative) of individual factors of production. The function $Z_i(\overline{X}_i)$ has the form shown in Fig.2.

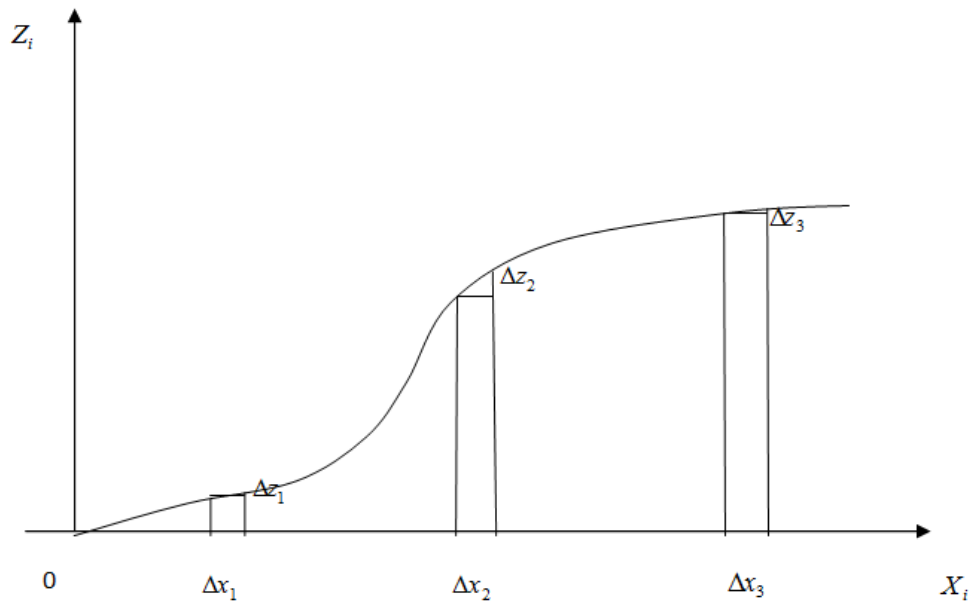

Figure 2: Profit function $Z_i(\overline{X}_i)$

This curve has the following features:

1. a small amount of allocated money does not bring any tangible effect (profit);

2. for each business structure there is a point from which a further increase in the allocated amount of monetary resources to this factor is not effective.

The above assumptions lead to the goal function:

$\max Z = Z_1(\overline{X}_1) + ... + Z_4(\overline{X}_4)$. The problem of optimal distribution is associated with a limited amount of money $\overline{X}_0$, that is $\overline{X}_1 + ... + \overline{X}_4 \le \overline{X}_0, \quad \overline{X}_i \ge 0, \quad (i = \overline{1,4})$

To solve a specific problem of the distributed volume of money, we apply the apparatus of functional equations of R. Bellman [8], immersing it in a family of similar distribution problems. Instead of solving one problem with a given amount of money $\overline{X}_0$ and a fixed number of factors of production, we consider their families in which the amount of allocated money $\overline{X}$ can vary from zero to $\overline{X}_0$ and the number of factors of production varies from 1 to 4. The static distribution problem becomes dynamic in this approach. The computational scheme for solving the problem of distributing money by the method of dynamic programming is as follows. Since in solving Bellman's functional equations it is impossible to tabulate all the values of the goal function for each production factor $Z_i(\overline{X}_i), (i = \overline{1,4}), 0 \le \overline{X} \le \overline{X}_0$, then the interval is divided $0 \le \overline{X} \le \overline{X}_0$, for example, into four intervals with step Δ and it is considered, that the functions $Z_i(\overline{X})$ and $F_i(\overline{X})$ are defined only at points $\overline{X} = 0, \Delta, 2\Delta, 3\Delta, 4\Delta$, and $4\Delta = \overline{X}_0$. Values $F_4(\overline{X})$ for $\overline{X}$, different from points kΔ, where they are obtained by interpolation $k = \overline{0,4}$. With i=1 the function $F_1(\overline{X})$ is defined by equality $F_1(\overline{X}) = Z_1(\overline{X})$. The set of values $F_1(k\Delta) = Z_1(k\Delta), \quad k = \overline{0,4}$ is written in the table. Knowing the values, $F_1(k\Delta)$ we proceed to the calculation of the function $F_2(k\Delta)$:

$$F_2(k\Delta) = \max_{0 \le \overline{X}_2 \le \overline{X}_0 *} \left[Z_2(k\Delta) + F_1(\overline{X} - k\Delta) \right]$$

During the calculations, not only the following values are identified $F_2(\overline{X}), \quad \overline{X} = k\Delta, \quad 0 \le k\Delta \le \overline{X}_0 \quad (k = \overline{0,4})$, but also the values $\overline{X}_2$, from which the expression $Z_2(k\Delta) + F_1(\overline{X} - k\Delta)$ reaches its maximum.

Analysis of the model shows that the money will be invested in a more promising factor of production until it is economically feasible, therefore, after a certain amount of investment of money, the investment object is replaced - the money is invested in another factor of production. This pattern is aimed at increasing the efficiency of the business structure as a whole.

Conclusions

Entrepreneurial culture is one of the factors determining the effectiveness and competitiveness of an entrepreneurial structure in the conditions of constant tightening of competition, both on the external and internal markets of goods and services. This makes it necessary to take into account the factor of entrepreneurial culture in economic and mathematical models of diagnosing the state and managing the development of entrepreneurial structure and using them in automated decision making support systems. For more effective management of an entrepreneurial culture, it is required to exclude distortions in its measurement (evaluation). For this purpose, a methodology for estimating pseudoculture level was developed and presented. It involves the identification by experts, using various methods (survey, observation), the level of imaginary (distortion) in assessing the

development of the following elements of entrepreneurial culture:

- the degree of compliance of the company's goals and values with the ideas of employees;

- the degree of satisfaction with work;

- organizational teaching;

- the presence and strength of the corporate spirit;

- the degree of sharing norms and rules of conduct adopted in the organization (the degree of compliance with corporate ethics) by staff;

- staff readiness for changes in the organization.

A high evaluation of the element's fiction will speak of a low level of its development.

Information on the causes and consequences of cultural changes and the results of the organization's activities, obtained on the basis of an analysis of the situations of the decision making support matrix, allows us to develop a set of measures for managing the organizational culture.

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The Problems of Financial Security of Modern Russia

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Abstract

In recent years, the problem of economic security acute is adjective for most countries, which is connected with a series of trade wars that have swept the world. In Russia this problem is especially topical due to the events of 2014 and the subsequent sanction confrontation with the US and the EU. The most important elements of economic security are related to the financial aspects and in this paper they are looked upon as financial security. The paper considers the goal-setting in the field of financial security and the main problems in this area in modern Russia.
The methodology is based on the data of macroeconomic and banking statistics within the period from 1995 to 2018. In our research, a number of macroeconomic indicators, bank indicators and coefficients are studied, and their correlation is analyzed.
In the learning course of the research, the concept of financial security was formulated, which is regarded as an integral element of economic security. As a result of the analysis, the main problems in the field of financial security of modern Russia were identified.

Keywords: economic security, financial safety, money supply, gross domestic product, monetization.

Introduction

In recent years, Russian economists and statesmen have been focused on the problems of economic security. It is mainly due to the events that took place in 2014, and the subsequent sanction confrontation with the US and the EU. Thus, the problem of economic security is very acute for Russia.

However, in 2018 the US started a global trade war (in relation to some countries it is an economic war) not only with its geopolitical opponents, but also with traditional allies. As a rule, such mechanisms function ignoring international institutions (for example, WTO) and the rules, which is likely to destroy the world economy. In the summer of 2018, it was obvious that certain countries cared for their own national interests and ignored international commitments. So, the problem of economic security is urgent for any state of the world.

Moreover, within the framework of this paper we will focus on the financial aspect ("financial security") of the concept of economic security with reference to Russian reality.

Methods

The general theoretical part of the study is based on the dialectical method, as well as on the methods of analysis and induction. In addition to general scientific methods, we widely use statistical methods, such as the methods for analyzing dynamics (trend analysis), a sample method, grouping, correlation analysis, and others.

Within this research we carried out a comparative analysis of monetization of the 10 leading countries, and of the statistical indicators within the period of 1995-2018, including:
– money supply (monetary aggregates M0 and M2);
– rate of inflation;
– nominal and real GDP.

In the research, the monetization rates and the rate of turnover of the money supply are considered. The monetization rate in the study (called LP) is calculated as:

$$MC = M2/GDP*100\% \quad (1),$$

where: GDP stands for gross domestic product; M2 stands for the size of the money supply (monetary aggregate M2).

Velocity of circulation of money supply (VM) is calculated as:

$$VM = GDP / M2 \quad (2)$$

The choice of the time period of the analysis depends on the availability of macroeconomic and banking statistics.

The information basis of this study includes the following data:
– Federal State Statistics Service (http://www.gks.ru/) (GDP data, inflation rates);
– Bank of Russia (http://www.cbr.ru/) (monetary aggregates).

Results

First, let's agree on the terminology. The concept of economic security came in use in the Russian economy after the global financial crisis of 2008-2009, and officially it was first mentioned on December 31, 2015 in the decree of the President of the Russian Federation, No. 683 "National Security Strategy of the Russian Federation" (*National Security Strategy*). At the same time, economic security is considered to be an element of national security. Thus, the National Security Strategy claims: "National security includes the defence of the country and all types of security envisaged in the Constitution and legislation of the Russian Federation, primarily state, public, information, environmental, economic, transport, energy security and personal security". However, there is still no clear legal definition of what economic security is. Even professional economists have not developed a single approach to this concept.

But at the same time it is not a scholastic problem, it is quite real, since a clear formulation and goal setting are the starting points in any scientific study. Table 1 presents the interpretations of economic security belonging to a few researchers.

Table 1 : Various interpretations of the concept of "economic security"

Author	Definition
I. Abalkin (2014)	Economic security is a combination of conditions and factors that ensure the independence of the national economy, its stability and sustainability, the ability to be constantly updated and improved.
E.A. Oleynikov (1997)	The economic security of the country is the security of economic relations that determine the progressive development of the country's economic potential and ensure the welfare of all members of the society, its individual social groups and form the basis for the country's defence capability against dangers and threats.
A. Arkhipov, A. Gorodetsky, B. Mikhailov (1994)	Economic security is the ability of the economy to effectively meet social needs at the national and international levels
V.L. Tambovtsev	Economic security of the country is a set of properties of the state of its

(1994)	production (in a broad sense) subsystem, which provides the possibility of achieving the objectives of the entire system.
I.Y. Bogdanov (2001)	Economic security is a state of the country's economy, which, firstly, in terms of volume and structural parameters, is sufficient to ensure the existing status of the country, independent of external pressure of political and social and economic development, and, secondly, it can maintain the level of legal incomes providing to the absolute majority of the population, a welfare that meets the standards of a civilized country.
V. Pankov (1992)	National economic security is a state of the national economy characterized by stability, immunity to the influence of internal and external factors that disrupt the normal functioning of social reproduction, undermining the achieved standard of living of the population and thereby causing increased social tension in society, as well as a threat to the very existence of the state
S.V. Stepashin (2001)	The economic security of the Russian Federation is a mode of functioning of the state performed by the legislative, executive and judicial authorities, which ensure the invulnerability and independence of Russia's economic interests in relation to possible external and internal threats and impacts.
S.Y. Glazyev (1997)	Economic security is the state of the economy and the productive forces of the society from the standpoint of the ability to independently ensure sustainable social and economic development of maintaining the necessary level of national security of the state, as well as the appropriate level of competitiveness of the national economy in the conditions of global competition.

Apparently, even interpretations are different. A common definition could simplify the task, however, as we have noted, it does not exist. So, in the National Security Strategy, "economic security", in fact, is aimed at ensuring "economic growth" mentioned in a special section of this strategy, which states: "Economic security is ensured through the development of the industrial and technological basis and the national innovation system, modernization and development of priority sectors of the national economy, enhancing the investment attractiveness of the Russian Federation, improving the business climate and creating an enabling business environment. The most important factors for ensuring economic security are increasing the effectiveness of state regulation of the economy in order to achieve sustainable economic growth, increasing labor productivity, developing new resources, stable functioning and development of the financial system, enhancing its security, currency regulation and control, accumulation of financial reserves, maintaining financial stability, balance of the budgetary system, improvement of interbudgetary relations, prevention of the outflow of capital and skilled professionals, facilitating the increase in domestic savings and investment, the reduction of inflation. In addition, active measures are needed to combat corruption, shadow and criminal economy, as well as the state protection of Russian producers employed in the spheres of military, food, information and energy security. "

The analysis of the content of the National Security Strategy allows us to make several important conclusions regarding economic security.

First, the concept of economic security itself is rather ambiguous (it is vague not only in the scientific environment, but even within the framework of the decree). It has not a common definition, though, it is comprehended in the conditions of threats, priorities, factors of development in the field of economy. This causes difficulties not only in the sphere (in terms of its research), but in the work of public administration. In other words, it is difficult to achieve success in something that is not even really defined.

Secondly, it seems that the concept of *economic security* is virtually identical to *ensuring economic growth*, which also creates certain problems. The fact is that the definition of "*economic growth*" has mainly a quantitative aspect, and it is not related to the qualitative change in the economy and its structure. Meanwhile, the analysis of the problems and factors of economic security shows that the quantitative side of the economic growth is not as problematic as the qualitative side is. In this sense,

the economic security is related to the economic development. This situation is characterized by J. Schumpeter (2007) who said: "Even if you put as many mail carriages in a row as you wish, you will not get a railroad". Economic growth can be ensured alongside with the current economic model and structure of the economy (especially since the pace of such economic growth is not determined). However, it is not clear how qualitatively (structurally) the economy will change.

Thirdly, it is obvious that the notion of the economic security itself consists, at least, of several independent constituent elements. In particular, we can distinguish the following elements:

– financial security (associated with the stable development of the financial system);
– investment security (related to providing investment support for economic growth);
– fiscal security (related to the balanced development of the tax system that is not burdensome for the economy on the one hand; and to the need to deal with budgets of different levels on the other hand);
– industrial safety (related to the provision of production with the necessary material resources, production technologies, labor potential).

In our opinion, financial security is of high priority at the present stage, since it is related to financial resources needed to solve other problems in the field of economic security. To summarize, financial security is to ensure a stable sovereign development of the financial system.

Let us focus on some details. Stability of the development implies a long-term vision of the development of the financial system and its infrastructure. The sovereignty of the development is in ensuring the development of the financial system to meet national interests. Not only the growth of quantitative indicators is important, but also the qualitative transformation of the financial system is crucial. The financial system is related not only to financial institutions, but also to financial relations and financial technologies that are used.

In practice, to reach this goal, it is necessary to fulfil a number of tasks, such as: ensuring the stability of the ruble exchange rate, developing the payment system, increasing the availability of credit and investment, and developing the national financial infrastructure.

In Russia three government institutions deal with these problems: the Bank of Russia, the Ministry of Finance of Russia and the Ministry of Economic Development of Russia. At the same time, the Bank of Russia has an unconditional priority in matters of financial security.

It will be shown below that at the present stage the development of the financial system does not correspond to the notion of financial security. However, the analysis of the current situation and the interpretation of the problems can be found in the "Discussions" section.

Discussions

As you remember, we believe that financial security is related to the need to ensure a stable sovereign development of the financial system. In this sense, the priority task is to ensure the development of the Russian economy by means of money supply. In practice, there is not enough monetary support, which causes crises (both in the financial environment and in the economy).

So, we analyzed the dynamics of monetary aggregates M0 (cash funds), M2 (cash, demand deposits and time deposits - money supply), as well as inflation dynamics (the first two indicators are related to the data of the Bank of Russia (Structure of the M2), the last indicator is related to the data of the Russian Statistics Committee (Consumer price indexes on goods and services in the Russian Federation in 1991-2018). These estimates characterize the period from 01.07.1995 to 01.06.2018. The inflation adjustment is taken into account and real estimates of M0 and M2 are calculated. Finally, relative growth rates of real M0 and M2 are calculated (the monetary aggregates of 01.07.1995 are accepted as 100%). The results of the dynamics of real growth of M0 and M2 are shown in Fig. 1.

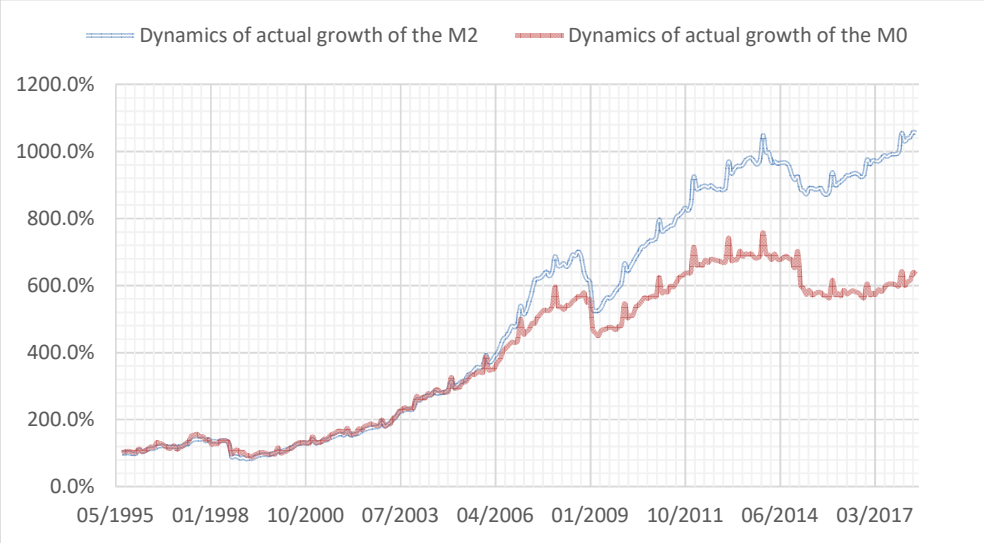

Fig. 1: Dynamics of real growth of M0 and M2 monetary aggregates

We should note that there were three stages of real monetary contraction in 1998-1999; in 2008-2009 and in 2014-2015. The only difference is that the monetary contraction (both M2 and M0) in 1998 and 2008 was unexpected, while in 2014-2015 it was smoother.

In June 1998 – February 1999, the real monetary contraction (M2) was 40%, and M0 was 34%; in September 2008 – March 2009 M2 decreased by 25.2%; M0 decreased by 19.2%; in January 2014 – April 2015 M2 fell by 16.7%, M0 fell by 24.2%. Time intervals of such monetary crises are identified on the basis of the analysis of relative maxima and minima.

We should make a few comments. First, the crisis of 1998 led to a fall in real GDP by 5.3% (in 1998); the crisis of 2008 led to a fall in real GDP by 7.8%. And the crisis of 2014 affected the estimates of 2015-2016: the real decline within that period was 2.7%. However, it should also be noted that in 2013 the real GDP growth was close to zero (Gross internal product (in real terms)) (see Fig. 2).

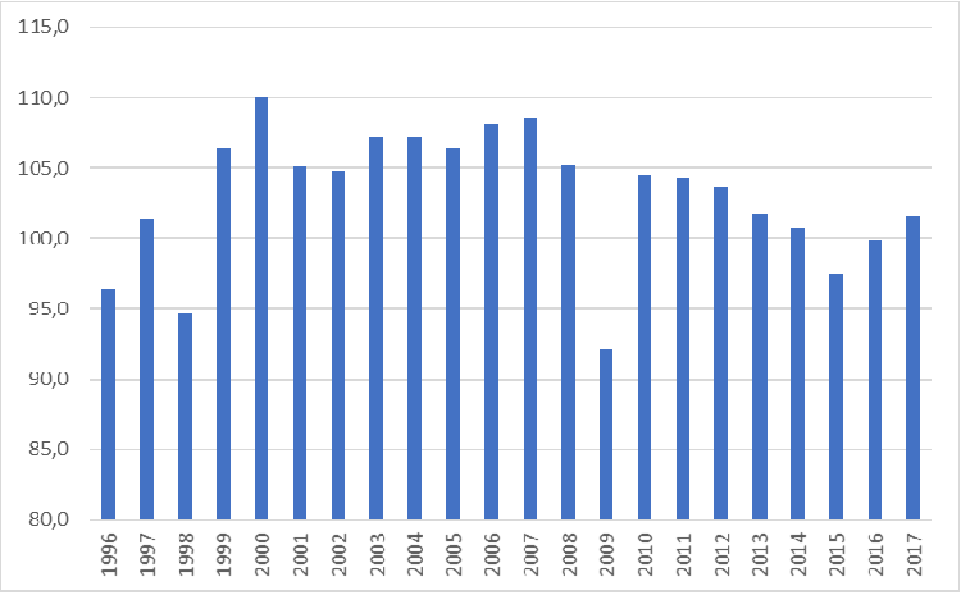

Fig. 2: Quantum indexes, in % in relation to the previous year based Quantum indexes, in % in relation to the previous year based Indexes of physical volume

Our second remark is that in 1998 and 2008, the M2 aggregate decreased more than M0 (by the way, in both cases – by 6%). Whereas due to the crisis of 2014-2015, there was a decrease in the cash flow. It was due to the fact that in 1998 and 2008 the production and financial spheres were more affected than the consumer sector; while the crisis of 2014-2015 had a greater impact on the consumer sector. This is especially significant in the sphere of pronounced dynamics of cash turnover reduction (Fig. 3).

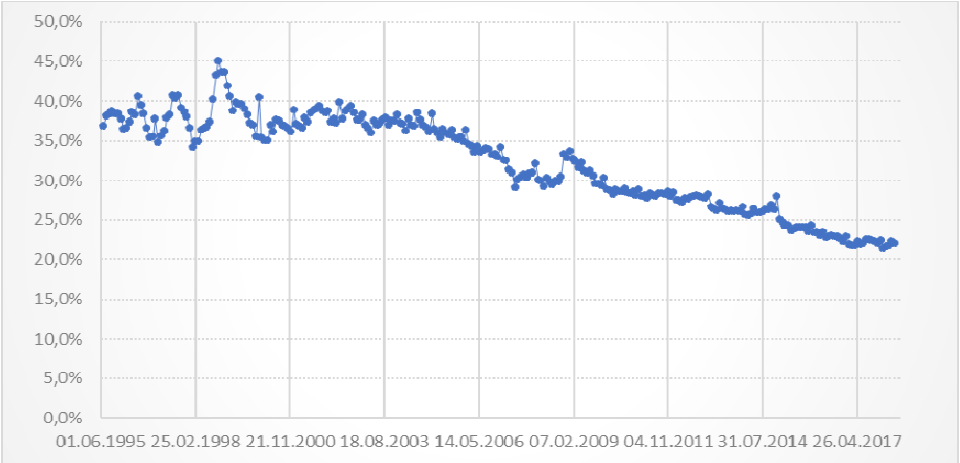

Fig. 3: The ratio of M0 / M2 from 01.07.1995 to 01.06.2018

On the basis of the above figures, it cannot be asserted that the dynamics of GDP are always determined only by the monetary policy. However, it is difficult to overestimate the degree of influence of the monetary policy on the economic growth. Back in 1963, Milton Friedman and Anna Schwartz published a classical scientific work "A Monetary History of the United States (2007), 1867–1960." In that book Friedman argues that crises (including the Great Depression) are connected

to a large extent with the incorrect position of the US monetary authorities (beginning with 1913, mainly of the Federal Reserve), since they did not take an active position to increase the money supply, and their passivity led to the fall of the real economy. It is noteworthy that the Federal Reserve (in the 2000-s) admitted that Friedman was right, and in 2008 "quantitative easing" worked as the main anti-crisis mechanism. So, in 1929-1932 the US GDP fell by 1/3, whereas in 2008-2009, the fall in GDP was about 3%. However, in Russia this mechanism does not work.

Finally, research Zagumennova V.R., Sutyagina V.Yu., Radyukovoy Ya.Yu., Kolesnichenko E.A. (2017) in the field of correlation between the indicators of the monetary aggregate M2 and nominal GDP (Table 2) determined the role of monetary support in ensuring the economic growth.

Table 2 : Comparative evaluation of the coefficients of pair correlation of M2 and GDP

№	Country	Indicator	Correlation coefficient
1	China	Monetary aggregate M2	0.999
		Nominal GDP	
2	USA	Monetary aggregate M2	0.980
		Nominal GDP	
3	India	Monetary aggregate M2	0.998
		Nominal GDP	
4	Japan	Monetary aggregate M2	-0.413
		Nominal GDP	
5	Germany	Monetary aggregate M2	0.997
		Nominal GDP	
6	Russia	Monetary aggregate M2	0.995
		Nominal GDP	
7	Brazil	Monetary aggregate M2	0.996
		Nominal GDP	
8	Indonesia	Monetary aggregate M2	0.997
		Nominal GDP	
9	Great Britain	Monetary aggregate M2	0.994
		Nominal GDP	
10	France	Monetary aggregate M2	0.974

We should note that the size of GDP and the volume of money supply functionally depend on each other (the coefficient of pair correlation is almost equal to 1). The only exception is the situation in Japan that requires a special analysis and reflection, since in the course of this analysis it is possible to identify the limits of monetary stimulation of the economy. However, post-Soviet realities were permanently characterized by a tight monetary and credit policy. This policy is based on a monetary approach to control inflation. At the same time, it should be mentioned that the classical monetary approach to economic management (and this is the dominant paradigm not only in the developed countries but also in Russia) indicates that within the crisis period the state (the central bank) is increasing the money supply in order to stimulate a consumer demand and the real sector of the economy. However, the three waves of the crisis over the past 20 years show that in Russia the monetary approach does not work. As a rule, the Ministry of Finance and the Central Bank reduce the amount of money supply, justifying it with the policy of containing inflation. But what is remarkable is that despite special measures it was not possible to avoid picks up in inflation (Fig. 4).

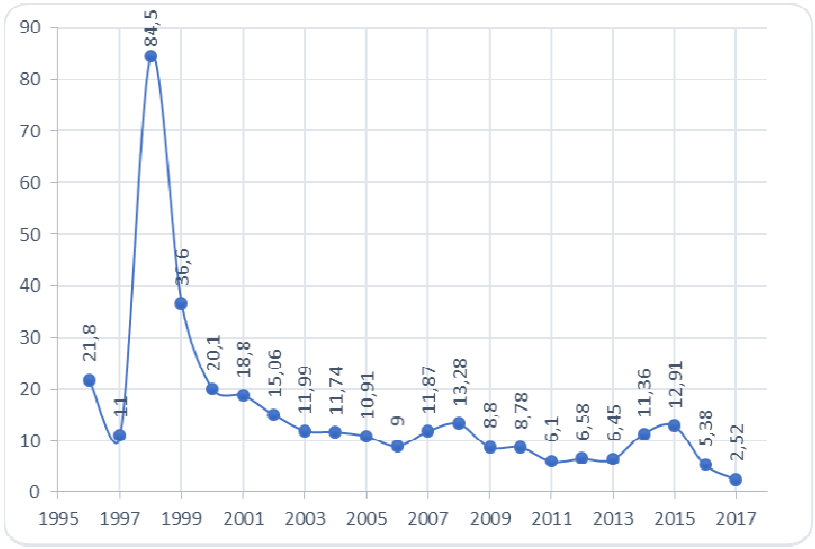

Fig. 4: Dynamics of the rate of inflation

Moreover, inflationary outbreaks are related to the period of hold on money supply. In fact, this is a clear example of the ineffectiveness of the anti-inflation measures. But there is another side: the monetary approach directly contradicts the stimulation of the economic growth. Moreover, stimulating the economy and curbing inflation are mutually exclusive phenomena.

However, such an anti-inflationary policy leads to a chronic undermonetization of the Russian economy. The dynamics of the monetization coefficient (the ratio of the size of the money supply (the monetary aggregate M2) to GDP) is clearly shown in Table 3.

We would like to note that by the end of the 1990-s the Bank of Russia had managed to achieve "amazing" results, reducing the monetization coefficient to 11-12% (while in the developed economies the normal level of monetization is 70-100%).

However, despite the use of this approach, until 2017 the Bank of Russia was not able to achieve the desired results (4-5%) in relation to inflation.

The negative consequence of this policy is containment of the growth of the real money supply, which ultimately leads to a chronic undermonetization of the economy. What is also important is that low monetization leads to cost inflation, which does not contribute to the reduction in the overall level of inflation. We can find such examples in many countries, including Russia. A shortage of money in the economy leads to the emergence of monetary surrogates that are used as a means of payment, but in fact they cannot fully substitute for money. These tools include barter payment schemes, the use of bills and private receipts, food stamps, crypto-currencies, treasury bills, local money (for example, "Ural francs" in 1992, "Shaimuratiks" in 2010-2011). Although money surrogates are used as a means of payment they do not have all the functions of money and are considered as a forced measure. At the same time, their use is more expensive, which worsens the situation of cost inflation.

Table 3: Dynamics of the turnover ratio of the money supply and the monetization coefficient

Year	Money supply, billion rubles (M2)	GDP, bln. Rub.	Coefficient of turnover ratio of the money supply	Monetization ratio, %	Rate of inflation, %
1995	175,72	1428,52	8,13	12,3%	131,60
1996	255,41	2007,83	7,86	12,7%	21,8
1997	333,21	2342,51	7,03	14,2%	11
1998	373,16	2629,62	7,05	14,2%	84,5
1999	552,36	4823,23	8,73	11,5%	36,6
2000	875,08	7305,65	8,35	12,0%	20,1
2001	1276,23	8943,58	7,01	14,3%	18,8
2002	1719,86	10830,50	6,30	15,9%	15,06
2003	2462,93	13208,23	5,36	18,6%	11,99
2004	3542,68	17027,19	4,81	20,8%	11,74
2005	4795,73	21609,77	4,51	22,2%	10,91
2006	6834,83	26917,20	3,94	25,4%	9
2007	10331,86	33247,51	3,22	31,1%	11,87
2008	13267,58	41276,85	3,11	32,1%	13,28
2009	12490,16	38807,22	3,11	32,2%	8,8
2010	16568,50	46308,54	2,79	35,8%	8,78
2011	20517,14	60282,54	2,94	34,0%	6,1
2012	24123,28	68163,88	2,83	35,4%	6,58
2013	27759,10	73133,90	2,63	38,0%	6,45
2014	30111,22	79199,66	2,63	38,0%	11,36
2015	31812,40	83387,19	2,62	38,2%	12,91
2016	35465,38	86148,57	2,43	41,2%	5,38
2017	39085,26	92037,18	2,35	42,5%	2,52

Sutyagin V.Yu., Radyukova Ya.Yu., Kolesnichenko E.A. (2017) note, that in the long run, the current level of monetization of the Russian economy is almost 2 times lower than the level of monetization in the developed countries (Fig. 5). However, the indicator has been growing slowly in the last decade.

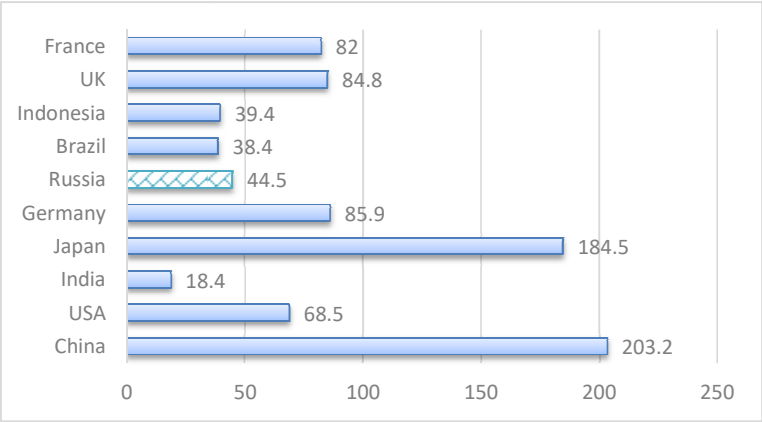

Fig. 5: Comparative analysis of the monetization ratios of different countries of the world (in 2016), %

Finally, we should note, that monetization of the Russian economy has been growing continuously since 1999. In addition, neither the crisis of 2008 nor the crisis of 2014-2015 prevented the positive dynamics. However, taking into account the Russian GDP growth, starting from 2013, we can see that the economy is in stagnation (Fig. 5), which means that monetization has little effect on the economic growth. We can give two explanations. First of all, the growth of monetization is simultaneously accompanied by a slowdown in the rate of turnover of the money supply. Strictly speaking, it is the drop in the speed of turnover, from the mathematical point of view, which reduces the effect of monetization of the economy. Secondly, it is important to underline where the funds emitted as a result of monetization are mainly accumulated. Both monetary and credit emissions are arranged through the banking sector.

Traditionally, we consider a bank to be an organization that mainly deals with credit and deposit operations. Additional funds are transferred to the real sector, and later become a source of the economic growth. However, the economic situation in recent years (decades) shows that the financial sector is hypertrophied, which in turn leads to the fact that financial speculation is a more profitable business than lending. Of course, this is not only a Russian problem, it is a global one.

However, the paradox is that lending is not profitable for a bank. First, the issued money in the form of a loan is invested for a long period (sometimes for several years, and in case of a mortgage - for decades). At the same time, it will be impossible to change the terms of the loan, even if the economic situation changes significantly. Finally, the evaluation of the creditworthiness of the borrower is very important. On the contrary, in the modern conditions investment in the stock or currency market is characterized by almost absolute liquidity. And in the conditions of instability of the financial market, and a high volatility of financial assets, the profitability of lending and financial speculation is incomparable.

This deprives banks of motivation to develop the credit component of their business. Thus, according to the official statistics of the Bank of Russia, since the beginning of 2015 the share of income from foreign exchange transactions in the total amount of banking sector revenues has not dropped below 80% (Table 3).

Table 3 : Structure of incomes of the banking sector of the Russian Federation (2016; 2018)

Indicator	01.01. 2014	01.01. 2015	01.01. 2016	01.01. 2017	01.01. 2018	01.07. 2018
Income, total	100	100	100	100	100	100
Interest income on means, to the provided legal entities (except income on securities)	7,7	2,7	2,1	2,2	3,4	2,6
Interest income on the loans granted to natural persons	5,1	1,7	0,9	1	1,5	1,4
Income gained on investments in securities	6,1	2,4	0,7	0,7	1,2	0,9
Income gained from operations with foreign currency	57,5	82,6	88,1	88,6	83,7	86,8
Commission	2,6	0,8	0,5	0,6	1,1	1
Restoration of the sums of reserves on possible losses	15,6	5,5	4,9	5,9	7,5	6,2
Other income	5,4	4,4	2,8	0,9	1,6	1,2

Moreover, at the beginning of 2014 lending to individuals and legal entities "made up" 12.8% of the incomes of the banking sector, while in July of 2018 it made up only 4%. In fact, banks have lost their traditional functions.

However, we should mention another important thing: this explains why there was a decrease in the effectiveness of monetization of the economy (in fact, the overwhelming part of monetary emission remains on the financial market). This also explains the nature of the monetary "hunger" of the real sector of the economy and low economic growth rates. Moreover, the mechanism of stimulating the economy

through the banking sector does not work, and the monetary emission does not form investment resources for the real sector of the economy.

In fact, the monetary emission becomes only a source of financial speculation which is important from the point of view of the banking sector's revenues and which is one of the key elements of the business model of credit institutions. In fact, monetary emission is integrated into the business model that is especially important for the banking sector. All these things are characteristic not only of the Russian economy – they are inherent in the global economy as well.

And we will mention one more thing that characterizes the Russian reality. We have noted that the monetization of the economy is growing, but the speed of circulation of the money supply is falling. We have also underlined that the effectiveness of monetization (e.g. in reference to the real GDP growth) is falling. It turns out that the money is accumulated in the spheres that are hardly related to the formation of GDP.

Thus, further research is needed to solve these problems and to determine certain directions in the development of a financial security strategy.

Conflict of Interests

The authors argue that the data presented in the paper do not contain a conflict of interest.

Acknowledgements

The present study is based on the statistical data of the Federal State Statistics Service (http://www.gks.ru/) (GDP data, inflation rates); Bank of Russia (http://www.cbr.ru/) (monetary aggregates) and estimates.

Moreover, in this research we based on the results of our previous studies.

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Ambiguity, Polyvariety and Insubordination of Goal-Setting in Economic and Social Systems

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Annotation

The purpose of the article is to identify the fundamental characteristics of goal–setting in social and economic systems consisting of different functional and institutional subsystems. The authors put forward a hypothesis about the impossibility and inexpediency of the formation of a clear system of strategic goals of social and economic systems. The analysis of the theory and practice of formation of strategies ofsocial and economic systems, carried out mainly in relation to the systems of regional and municipal levels, showed that the formation of the tree (pyramid) of goals is largely related to the views of experts on their subordination and compliance. The formation of a pyramid of goals is inevitable due to unawareness of the mission and, consequently, the uncertain position of the system in the future. This circumstance might bring about even more uncertainty in the future. In practice, the formulation of goals at various levels, beginning with the general objectiveand finishing with the functional goals of various subsystems, does not have a strong casual effect. There can be different hierarchical goals at one level. And vice versa, at different levels there can be goals having the same characteristics but belonging to different functional subsystems. The analysis suggests that ambiguity, polyvariety and insubordination characterize goal-setting in social and economic systems.

Keywords: social and economic system, mission, strategic goal, functional goal.

Introduction

In scientific works devoted to the problems of strategic management, planning and the ways to achieve goals, the authors usually assume that the goals of social and economic systems are accurately formulated, their hierarchy is clearly aligned, and the quantitative parameters are determined. Of course, the authors assume that there is a need to carefully study the subsystems and the processes revealing their strong and weak points, opportunities and threats. It is mentioned in numerous studies of such famous scientists as R. Daft (2001), Y. Vertakova (2016), V. Leksin and A. Shvetsov (2016), B. Shtulberg and V. Vedensky (2000), I. Khitskov and V. Zakshevsky (2014).

Thus, in his classical work R. Daft (2001) formulated the basic postulates of building the system of organizations' goals: a formulation of a mission, strategic, tactical operational goals; determination of target horizons; formation of plans, etc.

However, even in the simplest case – at the level of an enterprise, the choice of goals, the ways to achieve them, indicators of achieving goals, is quite ambiguous. What is even more difficult is the problem of goal-setting in complex social and economic systems like regions, countries, macroregions.

In practice, it is necessary to abstractyour mind from the elementary way of constructing the tree (or pyramid) of goals. Otherwise, there will be a chaosin the social and economic system beginning with the top management of the enterprise and finishing with the government of the country or the authorities of some international community.

Taking into account this circumstance, we also underline the necessity of structuring the goals of social and economic systems in accordance with the recommendations of the acknowledged researchers. So, in our work,we share similar ideas with A. Bukreev (2017), I. Risin (2017), and we propose a clear algorithm for the formation of the system of strategic objectives of Voronezh region.

Despite the apparent clarity, coordination of the position of various structural elements, the system of strategic objectives is quite ambiguous.

It is clear that at the level of an enterprise the goal system is simpler, but if we examine the targets, the goal pyramid and other target structures,we will see the ambiguity of the prerequisites for making managerial decisions, even at the micro level.

Methods

The general theoretical part of the study was based onthe dialectical method andthe methods of analysis and induction. In addition to general scientific methods, we widely used such statistical methods as an analysis, selective observation, grouping, a correlation analysis, and others.

We conducted a comparative analysis of the strategiesofVoronezh region, St. Petersburg, Rostov-on-Don and Kazan.

Results

Ambiguity, polyvariety and insubordination are inherent in a lot of goals.

The process of drawing up documents of strategic management lasted for a long period of time, and it included the work on the strategies for social and economic development of Voronezh region and the city of Voronezh up to 2035. It showed that it is reasonable to put forward a hypothesis about the impossibility and inexpediency of forming a strictly unified system of strategic goals. We will not only analyze the results of other scientific works, but we will also consider the mentioned hypothesis, referringto our own developments.

First of all, we should focus on the fact that the formulation of a mission traditionally involves several components related to different functional subsystems. Thus, in our version of the mission formulation it is stated: "Voronezh is one of the leading scientific and educational centers in Russia, a city with high standards of living, a favorable environment for the development of entrepreneurship, scienceintensive sectors of the economy". Actually, this is not just the authors' interpretation, in all cases of the mission formulation of the known complex social and economic systems, there are basic characteristics of the standards of living, the quality of human potential , an innovative way of development, a stable economic growth, entrepreneurial activity, etc. Several basic components of the mission are related to the objective requirement to the system which belongs to the social and economic space and which ischaracterized by significantinternal and external parameters of the environment. However, from the point of view of constructing a strictly determinate and clear system of goals, the complex structure (more than one component) of the mission impliesmore ambiguity.

It is possible to tightlyconnect the general goal, which forms the first level of goals, with a mission.

It is clear that the general goal cannot copy the mission and it cannot duplicate it. We propose that a general goal (goal of the first level) is to achieve a high level of life of the urban population of the city of Voronezh and to improve the entrepreneurial and investment climate. In this case the general goal corresponds to the mission. But, at the same time, the entrepreneurial climate and investment climate are not the only factors for the development of entrepreneurship and, especially, science intensive industries. For example, rigid administrative tools (even in the market environment) are quite suitable for the science intensive industries. To test our hypothesis, the general goal should reflectonly one of the many opportunities for realizing the mission of the social and economic system. Additionally, it is impossible to speak about all the components of the general goal. A system of strategic objectives(second-level goals) proposes a classic version of formulating the general goal within the framework of goal-setting.

In our case, in the development of the city strategy, three strategic goals related to the general goal are taken into account:

– being a leader in terms of the level of human capital development and the quality of life of the population, the reduction of social and economic inequality;
– maintenance of sustainable development of the economy on the basis of the innovation sector and better business conditions;
– effective spatial development, providing an aesthetically attractive, friendly, comfortable urban environment.

The strategic goals clarified and concretized the general goal. But, there is another problem, relating to the way of presenting a set of goals of the third level that correspond to the objectives of the second level. At this stage of building a tree (pyramid) of goals, there are significant, objective difficulties related to the alignment of a rigid vertical with the defined connections.

More ambiguity can be seen in the following example. The objectives of the third level of the region and of the city of Voronezh concretize the strategic goal of the second level (such as "the achievement of leadership positions at the level of human capital development and the quality of life of the population, the reduction of social and economic inequality")and are related to a growth of life expectancy, active long life of the population (Voronezh region); improvement and stabilization of the demographic situation; increasing accessibility and quality of medical care; spreading the practice of a healthy lifestyle (the city of Voronezh). As we can see, in general, in both cases, the goals of the second and third levels are correlated. But the formulation of the objectives of the third level is different. Moreover, this is not related to the specifics, distinctive features of the systems (regional and municipal levels). It should be noted that the formulation of the goals of the third level does not imply the preferences of one of the options (region-city). It can be assumed that it is not a choice of options that is necessary, but a synthesis of the goals of the third level for a more complete reflection of the objectives of the second level. But their correlation is not strict. No matter how many goals are set, there can be even more.

An increasing number of goals of the third level lead tothe additional problems of constructing a definite tree (pyramid) of goals. First, the goals are partially "superimposed" on each other. In our case, a partial duplication of the regional objectives like "growth of life expectancy" and "prolongation of active long life of the population" will be supplemented by "improving the demographic situation". In fact, there is a three-dimensional goal that includes both non-overlapping and overlapping fragments.

As we see, an increase in the number of goals will lead to a complication of the "target structures" of the second and third levels. Further building the fourth, fifth and forthetc. levels of goals, will lead to an extraordinary complication of the problem of choosing the necessary methods and tools for implementing strategic objectives and a general goalon the whole, which will make the system of building strategic goals meaningless – there will be too many benchmarks for real management.

All the above-mentioned things implythat there should be a limited number of goals at each level. According to our observations, the excess of the number of strategic objectives of the first level of three units inevitably leads to the content "imposition" of the elements.

Thus, we should admit thepolyvarietyof strategic goal-setting. Despite various combinations of strategic objectives, the fulfillment of the mission is quite achievable. From the point of view of experts, they should reflect it clearly enough.

The polyvariety of strategic goals is broadened as they are categorized at subsequent levels, reducing the level of abstraction at which the object of strategic management is studied. At the same time, it becomes quite obvious that the goals can be aggregated in a variety of ways.

For example, in Voronezh Region Strategy-2035 formulates one of the directions – "modernization of the education and social and cultural environment of Voronezh region". In the development strategy of the city of Voronezh, there are two corresponding directions: "improving the education system", "development of the sphere of culture." In our opinion, the subsystems of social and economic systems are more important than the directions (although the use of this term does not contradict the logic of constructing a goal tree). We see two ways of formulating the third level goals; however, none of them is preferable.

Let us consider the strategies of St. Petersburg, Rostov-on-Don and Kazan.Their leadership in the development of such documents is universally recognized.

Strategy 2030 of St. Petersburg is based on a system of objectives, related to the general goal. It is quite traditional and involves ensuring a stable improvement of standards of living and increasing the global competitiveness of St. Petersburg. There are four strategic directions for achieving the general goal:

1. Development of human capital.
2. Improving the quality of the urban environment.
3. Ensuringa sustainable economic growth.
4. Ensuring the effectiveness of management and the development of the civil society.

These directions are not subordinated from the point of view of the development of the social and economic system. In addition, they do not correspond to the experts' vision of the problemwho argue that the "directions" belong to one level of the goal tree.

The strategic directions of the development of the city St. Petersburg (2014) and their priorities are presented in Table 1.

Table 1 : Strategic directions of the development of St. Petersburg

Strategic directions of St. Petersburg	Priorities of social and economic development of St. Petersburg
1	2
Development of human capital	1. Demographic development 2. Development of the health care system 3. Development of education, including professional education 4. Development of culture 5. Development of tourism 6. Development of physical culture and sports 7. Development of the system of social support of the population 8. Providing citizens with affordable housing
Improving the quality of the urban environment	1. Improving the improvement of urban areas 2. Ensuring ecological well-being 3.Development of the transport system 4. Development of energy and engineering infrastructure 5. Spatial development of St. Petersburg 6. Development of cooperation between St. Petersburg and Leningrad Region
Ensuring a sustainable economic growth	1. Development of the economy, formation of the fundamentals of the knowledge economy 2. Innovation and technological development of industry 3. Development of science and innovation activities 4. Development of the system of continuous education, training and retraining of highly qualified personnel for the knowledge economy 5. Development of the trade and consumer market 6.Development of small business 7.Development of the building complex 8. Development of the real estate market and system of support for development projects 9. Development of creative in dustries
Ensuring the effectiveness of management and the development of the civil society	1. Improving the quality of public administration 2. Ensuring personal and public safety of citizens 3. Increasing the level of youth integration in the modern society 4. Development of conditions for ensuring public consent 5. Development of interethnic and inter-confessional relations 6. Development of relations with public organizations

Our further analysis shows that different combinations are possible within the relationship of the target tree. A well-known problem is the fact that in the documents of the regions and municipalities there is no clear interpretation of the concepts used to construct the goal tree. Thus, the directions in the considered strategy are designated as "priorities". Nothing will be changed from the point of view of goal-setting, if we designate the directions as "priority areas", "priority subsystems of the region", etc. Such a strategic direction as "human capital development" is connected with the following "priority areas": a demographic development; a development of the health care system; the development of education, including professional education; the development of culture; the development of tourism; the development of physical culture and sports; the development of the system of social support of the population; providing citizens with affordable housing.

From the point of view of achieving the strategic goal (or strategic actions), all the "priorities" (the third-level goals) are of great significance. However, there are many conditions that depend on the second level objectives that haven't beenformulated yet. Moreover, these conditions are influenced by theambiguous interrelations between the separate components of the objectives of different levels identifying the priorities of a certain direction. For example, the development of tourism can be included in the third direction "ensuring a sustainable economic growth." Everything depends on how the expert sees the role of tourism in the development of the social and economic system. If tourismis aimed at introducing new elements of culture, a subordination of these priorities is necessary. However, we know that tourists rarely aspire to share their cultural values (although sometimes they do). Otherwise, tourism in St. Petersburg would be completely different. The city would be open for accepting a new culture. Perhaps, it is possible. But, the analysis of the objective environment shows that St. Petersburg presents cultural values (including material values), which means that tourism should be included in the priority of the strategic direction "ensuring a sustainable economic growth".

The subordination of the priority of "providing citizens with decent housing" to the strategic direction of "human capital development" is also ambiguous. It can be related to "improving the quality of the urban environment." It does not imply the need to replace the correlation of strategic orientations and priorities of the social and economic development of St. Petersburg, but it proves the authors' ideas about the ambiguity, polyvariety and insubordination of strategic goals of the social and economic systems.

In the same document, the development of education has two strategic directions: "the development of human capital" and "ensuring a sustainable economic growth." Of course, this position reflects the actual role of education in the development of the city. We believe that it is impossible to determine the significance of education for each of the subsystems. Even raising the question of the subordination of priority and its domination is likely to cause confusion. Moreover, without the development of education, it is also absolutely impossible to ensure the effectiveness of management and the development of the civil society (the fourth strategic direction). Thus, the ambiguity, polyvariety and insubordination of the strategic management objectives are inherent in the analyzed document.

In the "Basic directions of the strategy of the social and economic development of the city of Rostov-on-Don for the period up to 2025" (2012) it is pointed out that strategic planning is the main element of the city government system that forms the economic and institutional conditions for the sustainable and dynamic development of the city thanks to the effective use of the resource and market potential ensuringhighstandards of living in Rostov-on-Don.

The mission of Rostov-on-Don is the following: "Rostov-on-Don is the main city of Russia in the south which represents its global interests; it is the center of the development of innovative economy and entrepreneurship; it gets more competitive, it ensures high standards of living and provides civil peace, interethnic interaction and consent " (2012).

The correlation of the strategic goals and directions of the development of the city is presented in Table 2.

Table 2 : Strategic directions of the development of Rostov-on-Don

Strategic Objective	Strategic direction
1	2
Development of human potential and a growth of standards of living	1. Rostov-on-Don is a city of social well-being and high incomes 2. Quality and affordable housing, modern engineering life support systems 3. The capital of the South of Russia is a modern education system 4. Rostov-on-Don is an eco-city withgood environmental conditionsand a healthy lifestyle 5. Active and cohesive self-governing urban community
Formation of an innovative, open, competitive economy, attractive for investment	1. Development of the city of Rostov-on-Don as an innovative technological, scientific and educational center of federal and international importance 2. Rostov-on-Don is an international economic center: a city open to the world 3. Rostov-on-Don is the leading center of trade, transport and logistics in the South of Russia 4. Rostov-on-Don is interregional financial and economic center 5. Development and realization of the potential of the local entrepreneurial activity
A balanced and effective spatial structure of Rostov-on-Don	1. A spatial structure of the city provides new opportunities for a social and economic development 2. "Big Rostov" agglomeration is a resource of integration and growth of competitiveness of the economy in Rostov-on-Don 3. Development of intra-urban transport system

It should be noted that in the document one of the elements of the mission is presented not as a separate strategic goal, but as one of the strategic directions – "an active and cohesive self-governing urban community" characterizing the strategic goal of "the development of the human potential and the standards of living". Thus, there arevarious subordinated goals of different levels. But the nature of their interrelations, the number of the elements they consist of, the correlation of the levels related to different strategic documents, shows that goals can subordinate in different ways.

In the cases mentioned above, the mission realizes a small number of strategic objectives of the first level. But their number can be different.

In particular, in the strategy of Kazan (2016), the mission of the city accurately determines its main distinctive features: a dynamic city of sustainable economic growth and good opportunities; it is also a Volga-Kama leader. Kazan is a city with good conditions for health; it is convenient for living; active and responsible citizens live there. It has a clear policy and a safe urban environment. This city is interesting and comfortable for tourists and its citizens". The mission includes nine positions. There are eight strategic objectives to complete the mission:

– the education system and the economy motivate the citizens to take an interest in innovation, self-development and high qualification;

– the territory of health, physical culture and sports, modern advanced standards of living and long active life;

– a city with a pro-active social and demographic municipal policy aimed at forming and attracting human capital;

– a city of inter-confessional and interethnic friendship and good-neighborliness;

– a city of modern culture, combining the diversity of folk traditions and fashionable trends of high culture;

– a city with theprinciples of social justicethe rights of each citizen are based on;

– the labor market is adapted to the conditions of the "smart" economy. The city aspires to attract human capital at the global level;

– a community of citizens who are able to achieve a public consensus and build effective models of local government.

As you can see, many positions are included in the highest level of the hierarchy of goals.

Discussions

The analysis of the theory and practice of forming the strategies of social and economic systems was carried out on the basis of the systems of regional and municipal levels. It showed that the formation of the tree (pyramid) of goals is related to the experts' views on their subordination and conformity.

In practice, the goals of different levels (beginning with the general goal and finishing with the goals of the third level) are considered to be functional goals of various subsystems and may belong to different parts of the pyramid.

At one level there can be goals that are theoretically different from the point of view of their hierarchy. However, it does not cause any problemsandthe mission of the system can be completed.

And vice versa, at different levels there can be goals having the same characteristics but belonging to different functional subsystems.

Thus, we can claim that ambiguity, polyvariety and insubordination characterize goal-setting in social and economic systems.

It is necessary to take into account the systems of the regional and municipal levels as they occupy an intermediate structural positionbetween the systems of macro- and micro-levels. It can be assumed that the more complicated the structure of the system is, the more distinctive its features are.

Thus, we can conclude that it is crucial to use the goal-setting algorithm within social and economic systems. Firstly, it is necessary to analyze the position of the system and its functions within larger systems. Secondly, the two aspects of the system influencing the other systems should be taken into consideration (the internal one and the external one). Thirdly, the general goal (the goal of the first level) and corresponding second-level goals should be determined. It is also important to focus on the areas where the system could be effectively implemented. In addition, it is necessary to take into account appropriate alternative strategic objectives and third-level goals for the system to function effectively.

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Analysis of Financial Conditions of Students' Life in Slovakia: The Case of Student Loans

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Abstract

Widening access to higher education and improving the quality of higher education across Europe are perceived as central in creating knowledge-based societies and in enhancing the employability of higher education graduates. Increasing participation in higher education is also a focus of the recent modernisation agenda and the Europe 2020 strategy. The entry routes to higher education and students' transition pathways are vital in improving access for all. The aim of this paper is to show the financial conditions of the tertiary students' life in Slovakia. The paper contains only the partial results of our research. To analyse the financial conditions of tertiary students in Slovakia and provisioning of the student loans, we set three hypothesis. We used the One Sample t Test to verify the hypothesis H1 and H2. In a One Sample t Test, the test variable is compared against a "test value", which is a known or hypothesized value of the mean. To verify the hypothesis H3 we used ANOVA analysis of variance. Students' families regularly cover the living expenses of tertiary students. Our analysis showed that the student loans in Slovakia are social support oriented.

Keywords: financial conditions, Slovakia, students' life, student loans, tertiary students.

Introduction

Higher education and its links with research and innovation plays a crucial role in individual and societal development and in providing the highly skilled human capital and the articulate citizens that Europe needs to create jobs, economic growth, and prosperity (Rentková, 2017). Higher education institutions are crucial partners in delivering the European Union's strategy to drive forward and maintain growth. The Europe 2020 strategy has set a target that by 2020 40% of young Europeans have a higher education qualification. Authorities in Member States remain responsible for the way higher education is organised and delivered in their countries. EU activities are designed to bring an additional international dimension to studying, teaching, researching or making policy in higher education.

Issues regarding the interaction of student fees and support are, however, complex and difficult to compare accurately at European level. Fees and support play a role in supporting (or discouraging) access to higher education, and can also have an impact on progression and completion rates. While fees impose a financial burden – which may be more or less significant depending on the nature and level of the fees and the socio economic conditions of students and their families – support measures are able to alleviate financial obstacles to study.

In this paper, we show there is a link between the social and financial conditions of the students and the possibility to receive student loans. The following chapter analyses the structure and magnitude of students' expenditure as well as some of its main influential factors. Some of students' expenses are directly related to participation in higher education (HE), such as fees for attending a higher education institution (HEI). Other expenses may occur partially or even completely independently of taking part in HE.

Financial Conditions of Student's Life in Europe

Figure 1 illustrates the composition of students' expenses by payer. On cross-country average, living costs paid by students and others account for 89 % of the total monthly expenses, while study-related costs make up 11 %. With respect to the cost-sharing between students and their families/partners in general the cross-country average reveals that students pay two thirds of their monthly expenses out of their own pocket money, while their families/partners absorb the remaining third of their expenses.

Students may spend their money on a number of different expenditure items. To simplify analyses, the respective costs were assigned to the categories "living costs" and "study-related costs". Additionally, expenditures are differentiated by payer. In many cases, students do not need to meet their expenses by themselves; instead they receive support from their parents, other relatives, or the partner. The analysis will investigate in which way students and their families/partners share the students' costs and whether there are differences between countries. Within the categories "living costs" and "study-related costs", there are some expenditure items that may have a special importance for students. Expenditures on accommodation, transportation, and fees are regarded to be such "key expenditures". On the one hand, these types of costs may be especially important for students due to their shares in total expenses. On the other hand, these expenditure items are the ones most readily targeted through policy measures, i.e. through providing cheaper accommodation for students, subsidies for transportation, and partial or full exemption from tuition fees. The analysis will therefore focus on these items as well.

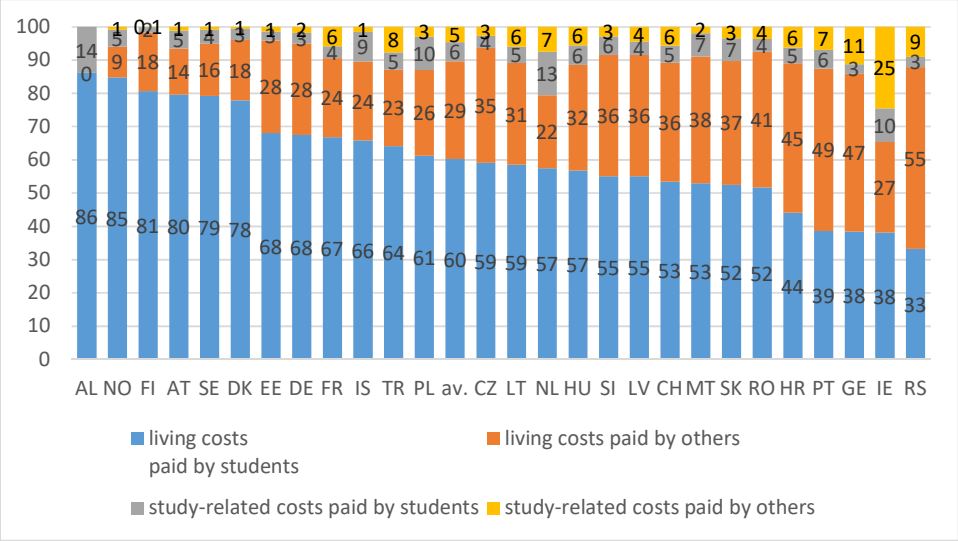

Figure 1: Composition of students' expenses by payer

Source: Hauschildt, K., Vögtle, E. M. and Gwosc, C. (2018)

Apart from living costs, students have to cover study-related costs as well. The following figure displays the composition of study-related costs (Figure 2). In a quarter of the countries, more than two thirds of the student populations pays fees. This is in the case in Portugal, Norway, Ireland, Slovenia, Georgia, Serbia, and Slovakia (Hauschildt, Vögtle and Gwosc, 2018). On average across the countries, students allocate 8 % of their total monthly expenses on fees, less than 1 % on social welfare contributions, about 2 % on learning materials, and less than 1 % on other study-related items.

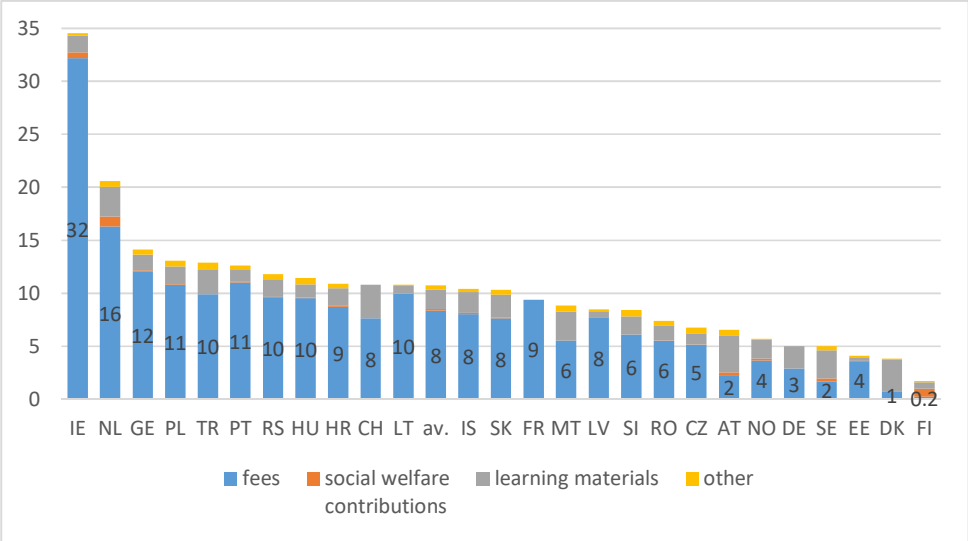

Figure 2 : Composition of study-related expenses

Source: Hauschildt, K., Vögtle, E. M. and Gwosc, C. (2018)

Accommodation is, in all countries, an important expenditure item for students who have moved away from their parents' home and in more than four fifths of the countries observed it proves to be the most expensive item (Looney and Yannelis, 2015). However, depending on the type of housing, expenses for accommodation burden the budget of students and their parents/partner in different ways.

For students who are not living with parents, there is a further differentiation between the housing forms "alone", "with partner / child(ren)" and "with other persons(s)". Furthermore, a second main distinction is made between those students living in student accommodation and those not living in student accommodation (Figure 3).

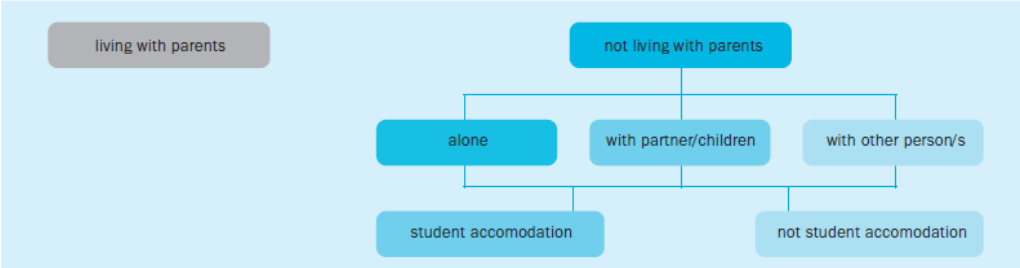

Figure 3 : Types of student housing

Source: Hauschildt, K., Gwosc, C., Netz, N. and Mishra, S. (2015)

Students who are living alone supported by family/partner pay across the countries an average monthly amount for accommodation including utilities of 294 Euro (Figure 4). The average housing costs for living in a student accommodation amount to 212 Euro per month (Figure 5). In Slovakia, the average housing costs living alone in a student accommodation amount to 135 Euro per month. Figure 4 confirmed that the housing costs living alone in Slovakia belong to the lowest among the European countries (Hauschildt, Gwosc, Netz and Mishra, 2015).

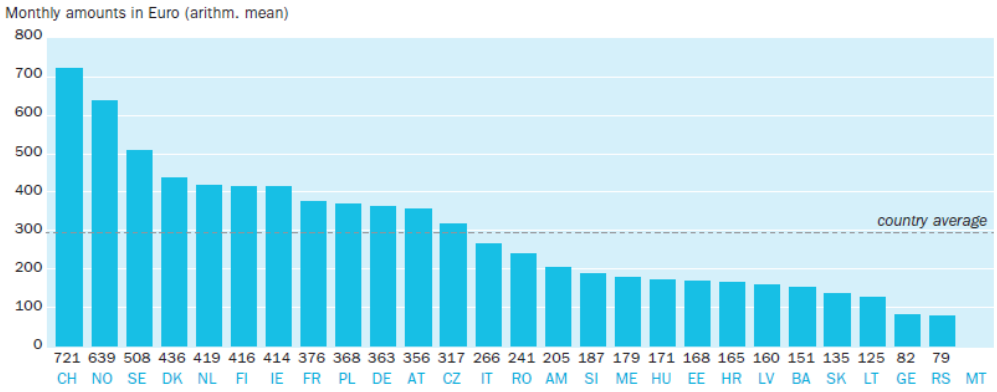

Figure 4 : Accommodation costs of students living alone

Source: Hauschildt, K., Gwosc, C., Netz, N. and Mishra, S. (2015)

Student accommodation turns out to be clearly the cheapest form of housing among all options outside the parental home. In many countries, student accommodation is subsidised by public funds in order to provide students with affordable housing space, perhaps in close vicinity to the HEI attended. This policy reduces the accommodation prices below market level (Pfeffer and Hällsten, 2012). The general picture sketched using averages across all countries fits broadly for the within-country comparison for most of the countries as well. Some further patterns for accommodation costs can be found across countries and across the forms of housing. The countries with the highest levels of accommodation costs in two figures are Switzerland, Norway, and Sweden.

Apart from the three countries mentioned before, there is a further group of eight countries that show values for all three types of housing, which are above the international average as well. These countries are Denmark, the Netherlands, Finland, Ireland, France, Poland, Germany, and Austria. In the group of countries encompassing Latvia, Bosnia-Herzegovina, Slovakia, Lithuania, Georgia, and Serbia, the accommodation costs for students in the different forms of housing are generally on a rather low level, at least from an international perspective.

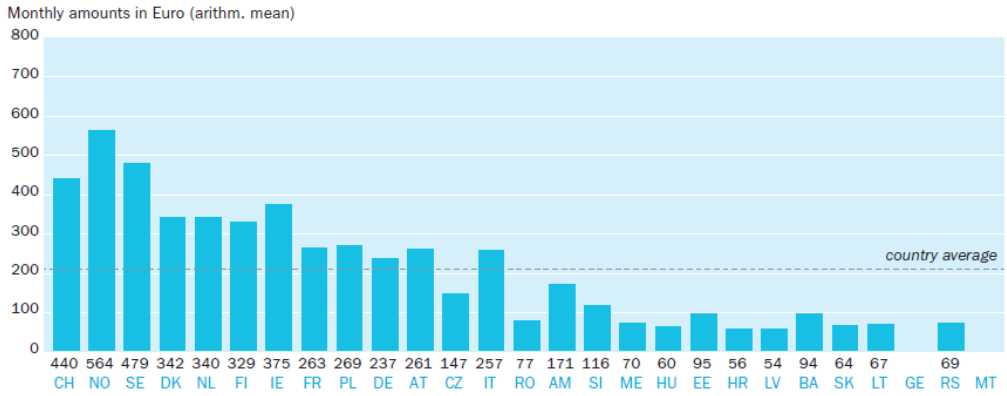

Figure 5 : Accommodation costs of students living in student accommodation

Source: Hauschildt, K., Gwosc, C., Netz, N. and Mishra, S. (2015)

Accommodation expenditure of students who are not living with parents and who are depending on a specific income source is shown in Figure 6. On aggregate, students who are depending on family support dedicate 292 Euro per month to accommodation and utilities. Their peers who are depending on own earnings pay slightly less (287 Euro per month) for this purpose. Students who are depending on public support spend 215 Euro on housing. In all Scandinavian countries and Switzerland, the values for the three student groups are rather high. The amounts paid by students dependent on family

support, for instance, are clearly above 500 Euro, with a maximum in Denmark with more than 1,200 Euro. In Latvia, Romania, Serbia, Slovakia, Georgia, and Armenia, the level of accommodation costs is relatively low. Students depending on family support spend less than 100 Euro per month on housing.

According to the findings, students depending on family support pay the highest accommodation costs, whereas students who are depending on the state pay the lowest amounts.

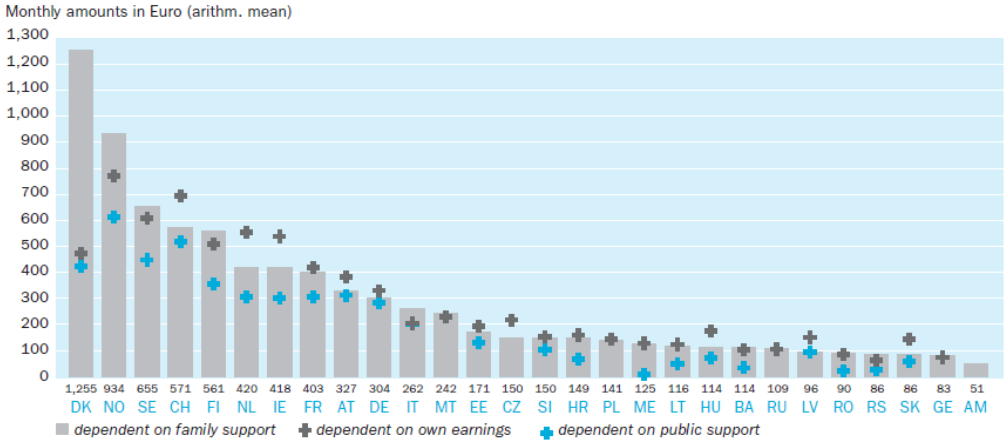

Figure 6 : Accommodation costs by students' finance-related characteristics – students not living with parents

Source: Hauschildt, K., Gwosc, C., Netz, N. and Mishra, S. (2015)

Across all countries, students' families/partners provide on average 47 % of students' income. Students' own contribution to their income by gainful employment amounts to 5 % on average (Lacy, Conzelmann and Smith, 2018). The public sector provides 11 % of student income by providing grants/scholarships and loans. Other income sources make up 7 %, on aggregate, of students' total monthly income. On this aggregated measure, the private sector (i.e. the students themselves and their families/partners) provides more than four fifths of student income, while the public sector accounts for about one tenth. On this rough measure, the European student funding systems seem to broadly follow the subsidiarity principle: Only when the private sector has exhausted all means to finance students in HE does the public sector step into the breach (Rall and Olin, 2018).

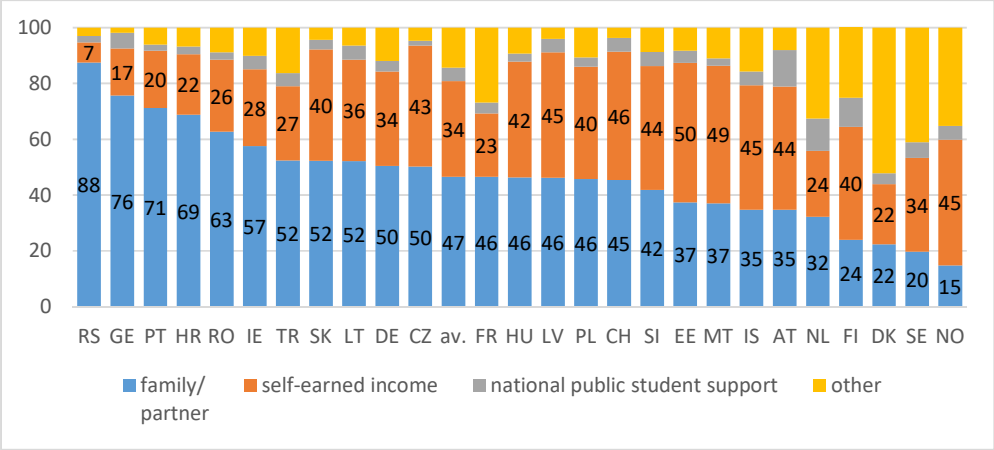

Figure 7 Composition of students' funding based on total monthly income including transfers in kind (2018)

Source: Hauschildt, K., Vögtle, E. M. and Gwosc, C. (2018)

The differences between students with financial difficulties and students without financial difficulties are rather low in Switzerland, Portugal, Slovenia, Slovakia and Lithuania (Figure 8). In those countries, the median income of students with financial difficulties is less than 100 PPS lower (Hauschildt, Vögtle and Gwosc, 2018).

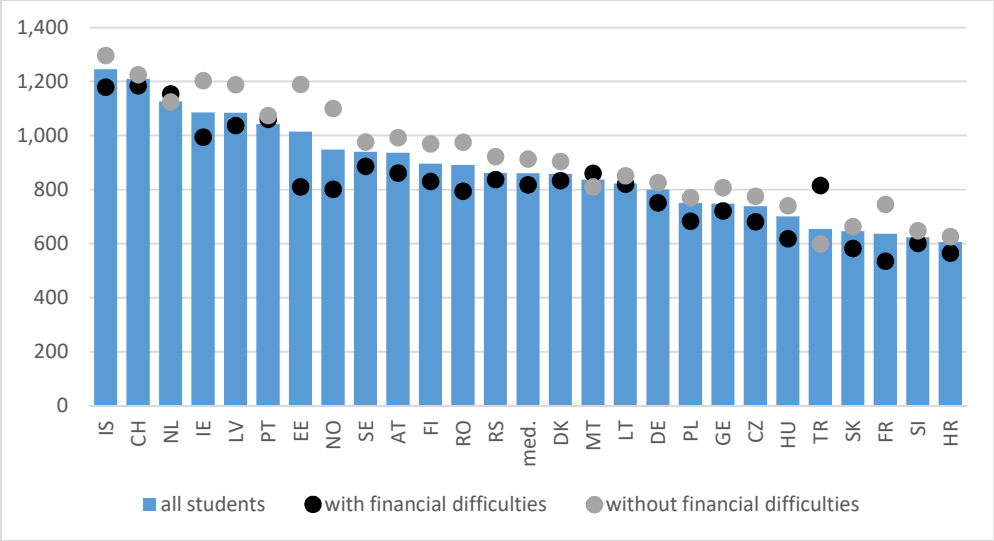

Figure 8: Students' income and assessment of their financial situation – total monthly income including transfers in kind

Source: Hauschildt, K., Vögtle, E. M. and Gwosc, C. (2018)

The rest of the paper is structured as follows. Section two presents the methodology used, section three provides results and discussion related to our research, while the last section concludes the paper.

Methodology

To analyse the financial conditions of tertiary students in Slovakia and provisioning of the student loans, we set three hypothesis. We used the One Sample t Test to verify the hypothesis H1 and H2. The One Sample t Test determines whether the sample mean is statistically different from a known or hypothesized mean. The One Sample t Test is a parametric test. This test is well known as Single Sample t Test. The variable used in this test is known as Test variable. In a One Sample t Test, the test variable is compared against a "test value", which is a known or hypothesized value of the mean. To verify the hypothesis H3 we used ANOVA analysis of variance.

The category living costs contains nine sub-categories: a) Accommodation costs (rent or mortgage as well as utilities), b) food, c) transportation, d) communication (telephone, internet, etc.), e) health (e.g. medical insurance), f) childcare, g) debt payment (except mortgage), h) social and leisure activities, i) other regular living costs (which include clothing, toiletries, tobacco, pets, insurance [except medical insurance]). The focus of this category is on the students' regular monthly costs. For this reason, students' extraordinary expenses (e.g., washing machines, holiday travel) were excluded (Skopek, Buchholz and Blossfeld, 2014).

Study-related costs are divided into four sub-categories: a) Fees (covering tuition fees, registration fees, examination fees, and administrative fees), b) social welfare contributions to the HEI and student associations, c) learning materials (e.g. books, photocopying, field trips, etc.), and d) other regular study-related costs (e.g. for private tutoring or additional courses). In the questionnaire, study-related costs were asked per semester, however, for data delivery the values were re-calculated as monthly expenses to assure comparability with the category living costs (OECD, 2017).

Another crucial differentiation emphasises the importance of the payer. In all countries, the burden of financing individual participation in HE is not only borne by the students themselves, but also by their parents, their partner, or other persons (OECD, 2016). The contributions of others may take on different forms: in some cases, students are provided with money directly (= transfers in cash); in other cases students' debts are paid to the creditor directly, i.e. those payments are intangible for the students (= transfers in kind). Also combinations of the two types of transfers may occur. In empirical research it is a big challenge to capture especially the second kind of support. For students it is far from easy to report this as they cannot observe cash flows and, therefore, may not be in the position to assess precise amounts. Thus, expenditures are differentiated by payments by students (out-of-own-pocket) and payments by parents/partner/ others. In the following figures, these transfers in kind are either explicitly displayed or included in the students' expenses.

Results and Discussion

In the academic year 2017/2018, student loans ranging from EUR 2,001 to 2,300 accounted for more than 77% of all approved loans (The Education support fund, 2018). Student loans accounted for only 3.6 % of the total number of approved student loans in the given academic year. Figure 9 confirmed that interest in student loans with the lowest possible level is very low. Student loans in the range of EUR 500-1,000 account for only 1.6 % of the total number of student loans.

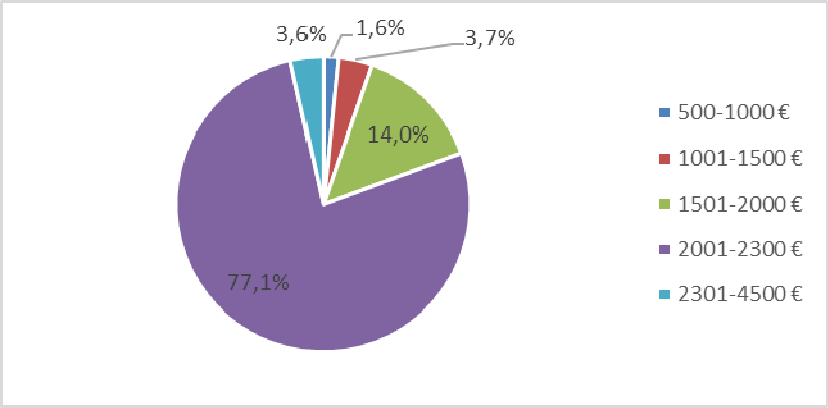

Figure 9: Structure of the approved student loans in academic year 2017/2018

Source: The Education Support Fund, own calculations.

The hypothesis H1 is: The average loan amount in the academic year 2015/2016 was not EUR 1,900. The hypothesis $H1_0$: The average loan amount was in academic year 2015/2016 EUR 1,900. Based on the results of the One Sample t Test, we can see that the average student loan amount in the academic year 2015/2016 was EUR 2,359.72 (Table 1). We verified the hypothesis at 95% significance. The confidence interval was <2,333.73; 2 385.70>. We accepted the hypothesis H1.

Table 1: Verification of the hypothesis H1

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Amount of the student loan (EUR)	1482	2359,72	509,905	13,245

One-Sample Test

Test Value = 1900

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
Amount of the student loan (EUR)	34,708	1481	,000	459,717	433,73	485,70

Source: SPSS Statistics, own calculations

The hypothesis H2 is: The average loan amount in the academic year 2017/2018 was not EUR 2,200. The hypothesis $H2_0$: The average loan amount in the academic year 2017/2018 was EUR 2,200. Based on the results of the One Sample t Test, we can see that the average student loan amount approved in the academic year 2017/2018 was EUR 2,253.14 (Table 2). We verified the hypothesis at 95% significance. The confidence interval was <2,219.47; 2,286.81>. We accept the hypothesis H2 and reject the null hypothesis.

Table 2: Verification of the hypothesis H2

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Amount of the student loan (EUR)	1131	2253,14	577,174	17,162

One-Sample Test

Test Value = 2200

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
Amount of the student loan (EUR)	3,096	1130	,002	53,139	19,47	86,81

Source: SPSS Statistics, own calculations

In comparison of the academic years 2015/2016 and 2017/2018, we can see that the average student loan amount has fallen by EUR 106.58. The decline in the average student loan amount was caused by a reduction in the maximum loan amount in the academic year 2016/2017.

Figure 10 shows the development of the GDP per capita in Slovakia. According to a preliminary estimate, GDP growth accelerated in the second quarter of the year 2018, growing at the fastest pace

in over two years. Although a breakdown of the print is not yet available, the marked acceleration was likely driven by buoyant domestic demand. (Eurostat, 2018).

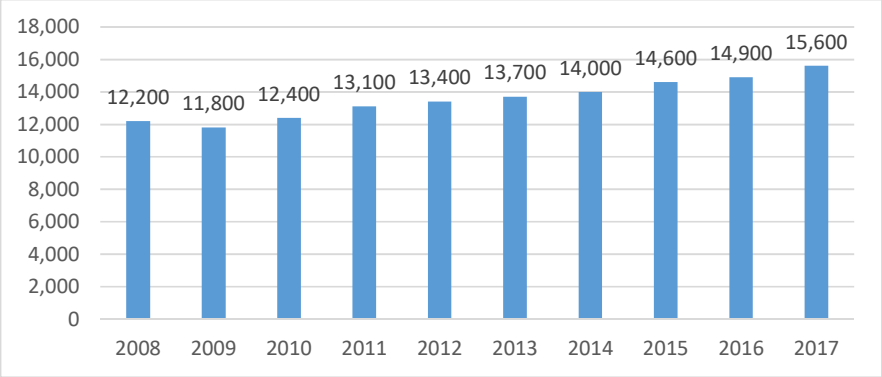

Figure 10: GDP per capita in Slovakia in EUR (2008-2017)

Source: Eurostat, (2018).

The statistical model is based on demonstrating the dependence between the decreasing amount of the average student loan amount and the decreasing number of approved student loans. The hypothesis H3: The model of dependence between the average loan amount and the number of approved student loans is statistically significant. The null hypothesis $H3_0$ is: The model of the dependence between the average loan amount and the number of approved student loans is not statistically significant. We did not reject the null hypothesis $H3_0$ because the p-value is greater than 5%. The model is not statistically significant. Thus, the relationship between the average amount of the loan and the number of approved student loans has not been demonstrated.

Table 3: Verification of the hypothesis H3

Model Summary

Academic year	R	R Square	Adjusted R Square	Std. Error of the Estimate
2013/2014	,156	,024	-,115	92,046
2014/2015	,259	,067	-,066	52,622
2015/2016	,172	,030	-,109	33,752
2016/2017	,423	,179	,061	30,839

*Independent variable is number of applicants.

Academic year		Sum of Squares	df	Mean Square	F
2013/2014	Regression	1483,345	1	1483,345	,175
	Residual	59306,898	7	8472,414	
	Total	60790,242	8		
2014/2015	Regression	1397,594	1	1397,594	,505
	Residual	19383,348	7	2769,050	
	Total	20780,941	8		
2015/2016	Regression	244,396	1	244,396	,215
	Residual	7974,603	7	1139,229	
	Total	8219,000	8		
2016/2017	Regression	1449,371	1	1449,371	1,524
	Residual	6657,461	7	951,066	
	Total	8106,831	8		

Source: SPSS Statistics, own calculations

The proportion of students who pay fees in first cycle studies varies across Europe (Figure 11). There are also differences within countries when looking at the share of fee-payers among full-time and part-time students in the 33 systems that offer both study options.

Fourteen systems consistently apply the same fee policy to all students. In Germany, Greece, Finland, Sweden and Norway, neither full-time nor part-time first cycle students pay fees. In contrast, in Bulgaria, Luxembourg, the Netherlands, Portugal, the United Kingdom (England, Wales and Northern Ireland), Switzerland, the former Yugoslav Republic of Macedonia and Iceland, all students pay fees (European Commission, 2017).

In the other 18 countries, a greater percentage of part-time students pay fees compared to their fulltime counterparts. However, as the numbers of part-time students are much lower than full-time, this still translates to fewer part-time students in absolute numbers. In Denmark, Malta, Poland, Slovenia and the United Kingdom (Scotland), the no-fee policy for full-time first cycle students co-exists with a universal fee policy for part-time students. In Estonia, Lithuania, Latvia, Hungary and Slovakia, where fewer than half of the full-time student population pays fees, more than 50 % of part-time students pay.

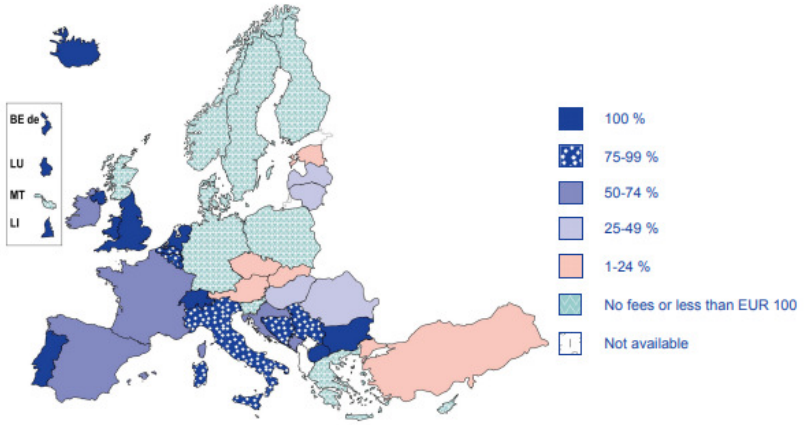

Figure 11 : Percentage of fee payers (including tuition and administrative fees) in first cycle higher education in academic year 2016/17

Source: European Commission (2017)

Figure 12 displays share of disbursed student loans in the total number of approved student loans by region. The poorest regions in Slovakia are Presov Region, Kosice Region and Banska Bystrica Region.

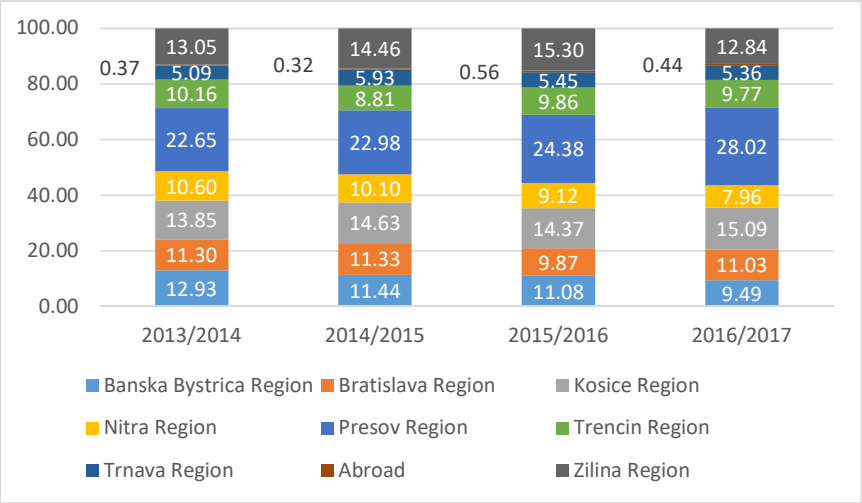

Figure 12 : Share of disbursed student loans in the total number of approved student loans by region

Source: The Education support fund, own calculations

Comparison of Figures 12 and 13 shows that the student loans in Slovakia are social support oriented. We also analysed the share of loan amounts by region in the total amount of student loans paid out. Even in the comparison, students coming from the Presov Region achieved the largest share of approved loans for the total number of loans. This confirms the research assumption that student loans are approved to students from the regions of Slovakia with higher unemployment and with the least developed regions.

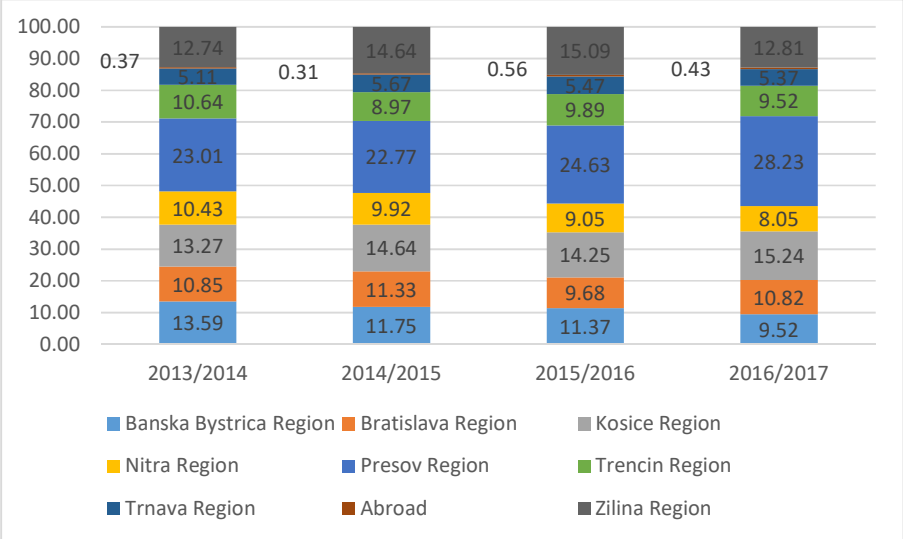

Figure 13: Percentage of disbursed student loans on total amount of student loans by region

Source: The Education support fund, own calculations

Figures 12 and 13 confirmed that the interest in student loans is mainly influenced by the social conditions of students. Presov Region, Kosice Region and Banska Bystrica Region has a long-term unemployment rate of about 4-7% higher than the average reached in Slovakia.

Conclusion

Students' financial difficulties seem generally related to the magnitude of student income. Students' families regularly cover the living expenses of tertiary students. The main goal of this paper was to publish the partial results of the research linked with measurement of tertiary students' financial conditions in Slovakia.

Main conclusion of our research is that the interest in student loans with the lowest possible amount is very low. Student loans in the range of EUR 500-1,000 account for only 1.6 % of the total number of student loans. Our analysis shows that the student loans in Slovakia are social support oriented. We also analysed the share of loan amounts by region in the total amount of student loans paid out. Even in this comparison, students coming from the Presov Region achieved the largest share of approved loans for the total number of loans. Presov Region, Kosice Region and Banska Bystrica Region has a long-term unemployment rate of about 4-7% higher than the average reached in Slovakia.

Based on the verification, we accepted the hypothesis H1 and H2. Then, we did not reject the null hypothesis $H3_0$.

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Trade Relations of the Western Balkans with the European Union

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Abstract

The aim of the scientific structure is to explore the development of trade relations between the European Union and the Western Balkans. For this purpose, the European Union provides financial instruments that improve the status of business partners. The study points to control factors that influence the development of relations between the European Union and the Western Balkans. The Balkan countries are currently undergoing political and economic transformation, and this draws the attention of many new European investors investing and trading with those Western Balkan countries. The European Union has been the largest investor and business partner of the Western Balkans in the last few years.

Keywords: trade relations, European Union, Western Balkans, economic transformation, development.

Introduction

The countries of the Western Balkans have been pushing for democracy over the last twenty years and becoming members of the European Union. At the beginning of 1996, the European Union formulated so called, a regional approach that included Balkan states - Albania, Macedonia, Serbia, Montenegro, Croatia, Bosnia and Herzegovina. The basic characteristic of the regional approach was to foster mutual cooperation between the states in the region and the development of mutual bilateral relations. At its meeting in Santa Maria da Feira on 20 June 2000, the European Council stressed that the countries of the Western Balkans are potential candidates for membership of the European Union and, consequently, the European Union has initiated the enlargement process for the Balkans.

The Balkan Peninsula strategy shows that the process of enlargement of the European Union has not stopped and that there are other states of Europe that are interested in participating in the unification of the European continent. After the end of the negotiation process and after the entry into force of the Treaty of Accession to the European Union, the Western Balkans will be obliged to fulfill the obligations arising from membership of the European Union. The new Member State has the right to delegate its representatives to the institutions. Membership also involves the obligation of the Member State to contribute to the budget of the European Union in accordance with the applicable legislation. The whole Western Balkans is gradually improving the situation, moving closer to European standards and the European Union (EU). Balkan countries are among the few in Europe that are not members of the European Union.

Countries in the Western Balkans (Table 1) are growing at a faster pace than in 2015, with regional growth projected to be 2.8 percent in 2016 and 3.2 percent in 2017, according to the latest World Bank Western Balkans Regular Economic Report.

Table 1: A Positive Growth Outlook (Real GDP growth, percent)

Year	2015	2016	2017	2018
Albania	**2.6**	**3.2**	**3.5**	**3.5**
Bosnia and Herzegovina	**3.0**	**2.8**	**3.2**	**3.7**
Kosovo	**4.1**	**3.6**	**3.9**	**4.2**
FYR Macedonia	**3.8**	**2.4**	**2.8**	**3.3**
Montenegro	**3.4**	**2.1**	**3.3**	**3.0**
Serbia	**0.8**	**2.8**	**3.0**	**3.5**
Western	**2.2**	**2.8**	**3.2**	**3.6**
Source: *The authors with the data from site from Central Banks and National Statistical Offices; World Bank staff estimates and projections, accessed 14.7.2018*				

Review of Literature Related With European Union Law

Currently, among the most-quoted works on the European Union and its enlargement belongs work of Klaus-Dieter Borchardt titled "ABC of European Union law". The EU is now also working resolutely for new enlargements in the western Balkan region. It has decided to apply the same methodology to the western Balkan countries as it used previously for the new Member States. An extended stabilization and association process therefore remains the overall framework for the progression of the countries of the western Balkans, all the way to their accession. A first important step in this direction is the 'European partnerships' established with Albania, Bosnia and Herzegovina and Serbia and Montenegro, including Kosovo. The role of the European partnerships, updated as necessary, is to assist the western Balkan countries in preparing for membership within a coherent framework and in developing action plans with timetables of reforms and details in terms of the means by which they intend to address the requirements for further integration into the EU. In order to raise the standard of living and to overcome the current problems in the economy, there is a need for inclusive growth, growth in which socially vulnerable citizens will have the greatest benefits. Benefits for vulnerable categories of citizens from inclusion in social enterprises are multiple (Panevski, et all, 2018).

Research Objective

The primary purpose is to explore the development of trade relations between the European Union and the Western Balkans. This is achieved by observing financial criteria and available reports. The goal is to analyze the current situation, as well as the needs, challenges and opportunities for development of trade relations between the European Union and the Western Balkans.

Such analysis, covering the strengths and weaknesses of various areas relevant to the development of trade relations in the region, although largely fragmented, represents a core concept for further activities and actions. Withgood information, conclusion and recommendations based on financial analysis, we sincerely hope that paper will serve as a guide for the next steps in the development of trade relations within the Western Balkan Region and Republic Serbia.

Methods and Methodology

The research is processed by using analyses scientific publications and scientific articles, papers by various authors (e.g. Nováčková, Saxunová, (2017), Panevski, Hrček, Rentková (2018); European Commission (2015, 2016, 2017, 2018); Borchardt (2010), Eurostat (2013, 2017, 2018), World Customs Organization (2018), Saxunova, Novackova, Kajanova (2018), The World Bank (2018)). Methodology contains of identification of research assumptions, as well as methods and sources used in the paper. Results part consists of the main findings and is prepared by using a comparative and descriptive analysis.

Integration of the Western Balkans into the EU

States are becoming members of international organizations not only from an international point of view to strengthen their international standing but also from an economic point of view because membership in international organizations brings, among other things, the economic benefits associated with the development of business, economic and social relations. The integration will work if there is proper legislation base. Many agreements between countries are closed or updated to shift the integration on a higher level. Bilateral investment agreements usually cover the institute of the national treatment which is having its origin in general Agreement on Tarrifs and Trade –GATT from 1947 (Novackova, Saxunova, 2017). The European Union, in order to deepen the process of European integration, supports the enlargement process for the Balkan countries. The European Union promotes prosperity and democratic values, helping to consolidate the stability and prosperity of Europe's citizens. The integration of new countries into the European Union strengthens its position on the international scene.

The main objectives supported by the Union are:

- reconstruction, stabilization of democracy, reconciliation and return of refugees;
- institutional and legislative development, including harmonization with EU standards and approaches, to support democracy and the rule of law, human rights, civil society and the media, and the functioning of a free market economy;
- sustainable economic and social development, including structural reforms;
- promoting closer relations and regional cooperation between the countries of the region.

Entry into the European Union, liberalization, the transition from socialism, the position and change of thinking generally make these countries an interesting market.

International aid for Western Balkans from the European Union

The Instrument for Pre-accession Assistance (IPA) is the means by which the EU supports reforms in the 'enlargement countries' with financial and technical help. The IPA funds build up the capacities of the countries throughout the accession process, resulting in progressive, positive developments in the region.

To deliver on the Western Balkans Strategy and support a seamless transition to membership, adequate funding is indispensable. The European Commission proposes to gradually increase funding under the Instrument for Pre-Accession Assistance until 2020 in so far as reallocations within the existing envelope allow. In 2018 alone, €1.07 billion of pre-accession assistance for the Western Balkans is already foreseen, on top of almost €9 billion from the 2007-2017 period.

A Purpose for International Aid

EU pre-accession funds are a sound investment into the future of both the enlargement countries and the EU itself. They help the beneficiaries make political and economic reforms, preparing them for the rights and obligations that come with EU membership. Those reforms should provide their

citizens with better opportunities and allow for development of standards equal to the ones we enjoy as citizens of the EU. The pre-accession funds also help the EU reach its own objectives regarding a sustainable economic recovery, energy supply, transport, the environment and climate change, etc.

IPA II will build on the results already achieved by dedicating € 11.7 billion for the period 2014-2020.

Current beneficiaries are shown in Table 2.

Table 1: Funding allocation 2014-2020

Country	Funding allocation 2014-2020
Albania	€649.4 million
Bosnia and Herzegovina	€167.1 million
Macedonia	€ 664.2 million
Serbia	€1.5 billion
Montenegro	€270.5milion
Kosovo	€645.5 million

Source: *The authors with the data from site: The National Statistical Offices; World Bank, accessed 12.7.2018*

IPA II (2014-2020)

Prepared in partnership with the beneficiaries, IPA II sets a new framework for providing pre-accession assistance for the period 2014-2020.

The most important novelty of IPA II is its strategic focus. Country Strategy Papers are the specific strategic planning documents made for each beneficiary for the 7-year period. These will provide for a stronger ownership by the beneficiaries through integrating their own reform and development of agendas. A Multi-Country Strategy Paper will address priorities for regional cooperation or territorial cooperation.

IPA II targets reforms within the framework of pre-defined sectors. These sectors cover areas closely linked to the enlargement strategy, such as democracy and governance, rule of law or growth and competitiveness. This sector approach promotes structural reform that will help transform a given sector and bring it up to EU standards. It allows a move towards a more targeted assistance, ensuring efficiency, sustainability and focus on results.

Economic and Trade Relations of the Western Balkans Countries with the European Union

The Balkans have been going through the last decade both economically and politically. Their economic transformation has attracted the attention of many investors. Entry into the European Union, liberalization, the transition from socialism, the position and change of thinking generally make these countries an interesting market. Lasting reforms in the Balkans have been effective in attracting private investment, stabilizing public debt and increasing household incomes. The best adapted and yet fastest-growing economies are the Western Balkan countries. Balkan countries need to make them interested by foreign entities, and so the conditions for entry into the business environment considerably easier for foreign investors to become these countries competitive.

Economies in the Western Balkans have continued expanding. Albania, Kosovo, and Montenegro should grow faster in 2017 than in 2016, thanks to large projects financed by foreign direct

investment (FDI) and a recovery in private consumption, as well as higher exports in the case of Kosovo.

Bosnia and Herzegovina is projected to grow steadily at a similar rate as in the last two years. In FYR Macedonia and Serbia, however, growth is expected to weaken. In FYR Macedonia, political turmoil significantly affected consumption and investment. In Serbia, the region's largest economy, a cold winter significantly depressed agricultural output and construction activity.

To achieve higher economic growth will take stronger economic integration within the region and further business climate improvements to boost private sector investment and create private sector jobs.

The medium-term economic outlook for the Western Balkans is positive: Growth is projected to rise from 2.6 percent in 2017 to 3.3 percent in 2018 and 3.6 percent in 2019. Private consumption is likely to continue to drive growth, with support from investment and heightened exports. In particular, upgraded growth in the Euro Area would drive up demand for Western Balkan exports.

The EU is the Western Balkans' largest trading partner, accounting for over 76% of the region's total trade. There is an continual growth in trade of goods between the EU and the western Balkan countries (as it is possible to see from the Figure 1). That shows us the economic growth of these countries.

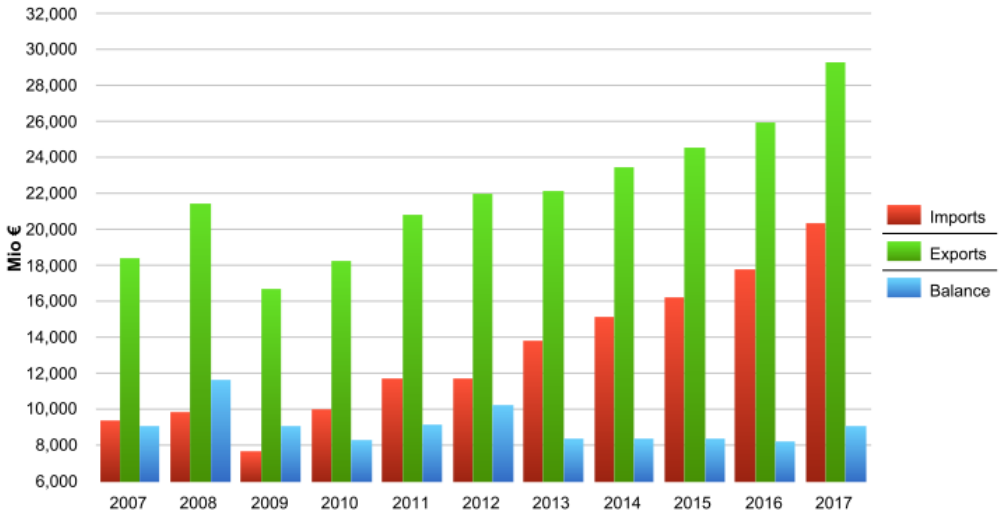

Figure 1: Total goods: EU Trade flows and balance, annual data 2007 – 2017
Source: **Authors adapted from EK (2018), European Union, Trade in goods with Western Balkans**

Data which are shown in the Table 3 include the EU trade flows with Balkan countries in the period between the years 2007 – 2017. Here we can see imports, exports, balance and total trade between the EU and Balkan countries. If we compare imports and exports from each year of this period of time we are able to see the constant growth. From the year 2006 when the imports were 7, 337 million € there was a big growth to 17, 761 million € in the year 2016 and 20, 262 million € in the year 2017. The similar growth we can see in terms of exports. From the year 2006, the exports export has increased from 14, 080 million € to 25, 926 million € (for 2016) and 29, 272 million € (for 2017). Total trade in 2006 was 21, 417 million € and in 2017 was 49, 534 million €.

Table 2: Total goods: EU Trade flows and balance

Period	Imports			Exports			Balance	Total trade
	Value Mio €	% Growth	% Extra-EU	Value Mio €	% Growth	% Extra-EU	Value Mio €	Value Mio €
2007	9,349		0.6	18,345		1.5	8,997	27,694
2008	9,821	5.1	0.6	21,423	16.8	1.6	11,602	31,244
2009	7,590	-22.7	0.6	16,617	-22.4	1.5	9,026	24,207
2010	9,919	30.7	0.6	18,198	9.5	1.3	8,279	28,117
2011	11,690	17.9	0.7	20,753	14.0	1.3	9,063	32,443
2012	11,693	0.0	0.7	21,912	5.6	1.3	10,219	33,605
2013	13,769	17.8	0.8	22,062	0.7	1.3	8,293	35,831
2014	15,051	9.3	0.9	23,368	5.9	1.4	8,317	38,419
2015	16,151	7.3	0.9	24,496	4.8	1.4	8,345	40,647
2016	17,761	10.0	1.0	25,926	5.8	1.5	8,165	43,688
2017	20,262	14.1	1.1	29,272	12.9	1.6	9,010	49,534

% Growth: relative variation between current and previous period

% Extra-EU: imports/exports as % of all EU partners i.e. excluding trade between EU Member States

Source: *The authors with the data from site: EK (2018), European Union, Trade in goods with Western Balkans http://trade.ec.europa.eu/doclib/docs/2006/september/tradoc_111477.pdf , accessed 10.7.2018*

In the Table 4, is shown import and export to and from the EU by each of Balkan country in the period of years 2014 – 2016. We can see here increasing tendency in terms of imports and exports in all Balkan countries: Albania, Bosnia and Herzegovina, Macedonia, Serbia, Montenegro, Kosovo.

Table 3: Import and export to / from the EU by Balkan countries

Country	Import Value to the EU/MS (EURO)			Export Value from the EU/MS (EURO)		
	2014	2015	2016	2014	2015	2016
Albania	1,246,246,049	1,164,572,594	1,291,776,436	2,468,078,797	2,519,534,676	2,705,933,663
Bosnia and Herzegovina	3,329,939,019	3,492,961,931	3,782,027,003	5,024,481,668	5,074,606,178	5,254,319,815
Macedonia	3,018,665,558	3,364,992,169	3,723,210,294	3,818,026,462	4,113,732,090	4,449,809,854
Serbia	7,109,545,399	7,878,925,963	8,738,527,546	10,356,581,107	11,155,469,304	11,663,830,726
Montenegro	251,175,007	143,564,797	152,882,565	973,046,732	876,783,607	994,089,953
Kosovo	95,590,397	104,162,844	72,395,097	727,865,169	763,929,137	853,836,870

Source: *The authors with the data from site: EK (2017), European Union, Trade in goods with Western Balkans, accessed 11.7.2018*

Increasing exports, investment and employment are priority areas for policy makers in the Western Balkans.

In the Table 5, are shown trade flows by SITC product grouping 2014 – 2017. The Standard international trade classification, abbreviated as SITC, is a product classification of the United Nations (UN) used for external trade statistics (export and Import values and volumes of goods), allowing for international comparisons of commodities and manufactured goods.

These numbers are demonstrating the increasing trade in these years by SITC product groups.

Table 4: Trade flows by SITC product grouping 2014 – 2017

	Imports Value Mio €				Exports Value Mio €			
SITC Rev. 3 Product Groups	2014	2015	2016	2017	2014	2015	2016	2017
Total	15,051	16,151	17,761	20,262	23,368	24,496	25,926	29,272
Primary products	3,996	3,982	4,149	4,846	6,950	6,749	6,587	8,070
- Agricultural products (Food (incl. Fish) & Raw Materials)	1,793	1,911	2,042	2,163	2,903	3,002	3,065	3,439
- - Food	1,383	1,494	1,616	1,715	2,602	2,701	2,755	3,090
- - - of which Fish	37	44	62	86	87	97	105	122
- - Raw materials	410	417	425	448	301	300	311	349
- Fuels and mining products	2,204	2,070	2,107	2,683	4,047	3,747	3,522	4,631
- - Ores and other minerals	543	467	492	613	157	137	115	153
- - Fuels	1,045	972	940	1,180	2,877	2,505	2,192	2,998
- - - of which Petroleum and petroleum products	575	321	242	331	2,099	1,691	1,475	1,680
- - Non ferrous metals	616	631	675	889	1,013	1,106	1,215	1,480
Manufactures	10,966	12,079	13,508	15,272	16,253	17,505	19,151	20,961
- Iron and steel	741	785	671	880	668	709	832	889
- Chemicals	1,425	1,628	1,899	2,229	3,317	3,541	3,728	4,086
- - of which Pharmaceuticals	106	103	109	129	855	898	931	1,015
- Other semi-manufactures	1,436	1,600	1,707	2,011	2,852	3,118	3,404	3,715
- Machinery and transport equipment	3,989	4,400	5,129	5,618	6,317	6,912	7,645	8,378
- - Office and telecommunication equipment	93	98	127	126	886	935	922	974
- - - Electronic data processing and office equipment	40	53	52	54	276	277	274	284
- - - Telecommunications equipment	47	41	69	61	556	591	582	571
- - - Integrated circuits and electronic components	6	4	5	11	54	67	66	119
- - Transport equipment	1,710	1,705	1,784	1,656	2,183	2,505	2,724	2,836
- - - of which Automotive products	1,513	1,493	1,576	1,396	1,736	1,975	2,254	2,394
- - Other machinery	2,186	2,596	3,218	3,836	3,244	3,467	3,995	4,567
- - - Power generating machinery	274	334	523	534	319	317	425	394
- - - Non electrical machinery	867	1,020	1,144	1,281	1,789	1,869	2,076	2,363
- - - Electrical machinery	1,046	1,242	1,550	2,021	1,136	1,281	1,494	1,810
- Textiles	193	212	229	256	938	1,022	1,110	1,217
- Clothing	1,210	1,256	1,352	1,448	504	488	546	557
- Other manufactures	1,973	2,199	2,522	2,830	1,657	1,715	1,885	2,118
- - of which Scientific and controlling instruments	83	108	114	129	311	305	341	387
Other products	59	61	69	130	87	92	109	130
Other	29	29	36	14	79	150	79	111

Source: *The authors with the data from site: EK (2018), European Union, Eurostat Comext - Statistical regime 4, accessed 10.7.2018*

Table 5: Trade flows by HS section 2014 - 2017

HS Sections	Imports Value Mio €				Exports Value Mio €			
	2014	2015	2016	2017	2014	2015	2016	2017
Total	15,051	16,151	17,761	20,262	23,368	24,496	25,926	29,272
I Live animals; animal products	51	57	73	86	673	639	645	741
II Vegetable products	695	797	799	862	526	580	563	687
III Animal or vegetable fats and oils	90	98	103	85	135	130	128	128
IV Foodstuffs, beverages, tobacco	597	594	699	751	1,352	1,444	1,521	1,645
V Mineral products	1,338	1,226	1,232	1,541	2,986	2,610	2,296	3,124
VI Products of the chemical or allied industries	1,192	1,376	1,590	1,894	2,470	2,625	2,759	2,995
VII Plastics, rubber and articles thereof	765	888	1,009	1,150	1,493	1,627	1,742	2,000
VIII Raw hides and skins, and saddlery	150	174	165	190	449	492	524	567
IX Wood, charcoal and cork and articles thereof	405	417	455	476	264	268	305	320
X Pulp of wood, paper and paperboard	357	410	405	441	659	689	698	754
XI Textiles and textile articles	1,395	1,457	1,554	1,665	1,460	1,520	1,670	1,786
XII Footwear, hats and other headgear	877	866	964	1,053	358	341	344	372
XIII Articles of stone, glass and ceramics	94	110	134	171	521	610	748	792
XIV Pearls, precious metals and articles thereof	41	41	47	72	632	695	767	874
XV Base metals and articles thereof	2,088	2,126	2,098	2,748	1,941	2,081	2,277	2,627
XVI Machinery and appliances	2,335	2,744	3,392	4,028	4,359	4,614	5,126	5,709
XVII Transport equipment	1,678	1,677	1,755	1,618	2,027	2,369	2,603	2,747
XVIII Optical and photographic instruments, etc.	89	119	130	147	416	427	465	529
XIX Arms and ammunition	16	14	18	27	5	8	13	31
XX Miscellaneous manufactured articles	732	893	1,060	1,198	521	541	609	679
XXI Works of art and antiques	1	1	2	2	2	1	1	1
XXII Not classified	67	65	78	56	120	183	124	163
AMA / NAMA Product Groups	**2014**	**2015**	**2016**	**2017**	**2014**	**2015**	**2016**	**2017**
Total	15,051	16,151	17,761	20,262	23,368	24,496	25,926	29,272
Agricultural products (WTO AoA)	1,484	1,595	1,689	1,779	2,679	2,771	2,811	3,141
Fishery products	43	50	72	94	93	103	112	130
Industrial products	13,525	14,506	16,000	18,389	20,596	21,622	23,003	26,001

Source: *The authors with the data from site: EK (2018), European Union, Eurostat Comext - Statistical regime 4, accessed 10.7.2018*

In the Table 6, we demonstrate the trade flows by HS section 2014 – 2017. The Harmonized Commodity Description and Coding System generally referred to as "Harmonized System" or simply "HS" is a multipurpose international product nomenclature developed by the World Customs Organization (WCO). It comprises about 5,000 commodity groups; each identified by a six digit code, arranged in a legal and logical structure and is supported by well-defined rules to achieve uniform classification.

In 2015 until end of 2020, allow nearly all exports to enter the EU without customs duties or limits on quantities. Only sugar, wine, baby beef and certain fisheries products enter the EU under preferential tariff quotas.

Thus, a very small number of SMEs introduce innovations in their business. Companies that supply electricity, gas and steam are usually the most innovative in this market. Those who have made some innovations in their business usually place them on the national market, but more and more of them turn to the European market, too (Dudić, Dudić, Mirković, 2016). Innovation, a favorable business environment, implementation of new technologies, starting new businesses and strengthening the connections between educational institutions and economic growth boost productivity (Dudić, Dudić, 2015).

Conclusion

War-devastated several countries of the Western Balkans was also necessary to restore and also to introduce new reforms that will boost the economy and develop trade, economic relations and integration of the EU. A “States that are interested in developing economic relations with foreign investors provide these investors with tax advantages and thereby manage to attract FDIs to the

country, which is also example of this region" (Saxunova, Novačkova & Kajanova, 2017 a 2018). Further fiscal consolidation and structural reform is needed in the Western Balkans so that all six countries improve the efficiency of their public sectors and increase the competitiveness of their economies in order to boost the development of the private sector. Reforms should focus on labor market areas, public sector efficiency in the business climate and global integration, while ensuring the sustainable use of energy and natural resources. With the help of the Member States of the European Union, many productive processes, services and the economy as a whole have been revived. Therefore, the Western Balkan countries are growing at a faster rate every year and are projected to increase by 2020.

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Modernization of the Process of Working with the Appeals from The Population in the Representative Authority of the Municipality

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Abstract

The urgency of citizens' appeal is one of the sources of information about the socio-economic status of certain population groups, their moods and needs. Timely and qualitative solution of the problems described in the appeals, contributes to meeting the needs of citizens, and also helps to strengthen the relationship of local authorities and society. In order to carry out the communication of population and authorities in a more complete and qualitative way, it is necessary to use all possible communication channels, including using information and communication technologies, services of Electronic Democracy. The purpose of this article is to show the results of a study of the possibilities for modernizing the activities of the representative body of the municipality in terms of improving the mechanism for citizens' appeals. The methodological basis of the work consists of general scientific methods of research, such as abstraction, analysis, synthesis, deduction, generalization and other methods that were used in the study of scientific literature and regulations and many other methods. The obtained results are the following: the theoretical aspects of the evolution of the Electronic Democracy services have been considered; the analysis has been carried out and the development problems of Electronic democracy services have been considered using the example of the city of Tambov; the communication service of the population and the representative body of local government has been developed and approved in the activities of the city Duma. Practical significance lies in the development of the project of electronic communication service of citizens and a representative city authority for the most effective implementation of local government. The results of the survey can be implemented in the activities of other municipalities in the region and the country as a whole. The developed measures can serve as a basis for establishing partnerships between the authorities and the population in the management of the general space of the municipality of the region or the country as a whole.

Keywords: municipal policy, citizens' appeals, democratic society, electronic democracy.

Introduction

Modern perception of the procedural foundations of democracy can not ignore the technical development of modern society. The formation and progress of the role of electronic information systems in the structure of mass communication inevitably leads to the development of the idea of "Electronic democracy".

The existence of traditional procedures for democracy is inextricably linked with the level of technical equipment of authorities and society with systems of interactive interaction, including through the Internet, in the process of elections, referendums, through the development of legislative initiatives, etc. This cybernetic virtualization of political relations forms new problems in the sphere of ensuring the integration of society, changes the forms of government control, removes a number of restrictions on participation in political processes, enables public evaluation and expertise of the qualifications of mass opinion, ways of its recording.

Information and communication technologies provide an opportunity to move to an innovative form of democracy (e-democracy). Electronic democracy is a form of government, characterized primarily

by the use of information and communication technologies as a priority for collective (crowdsourcing) and administrative processes at all levels and in all branches of government, beginning with local self-government and ending with an international one.

Considering "Electronic democracy" as a form of government first of all, it is necessary to consider the services of "Electronic government" because they are the mechanism for implementing this form of democracy. Electronic government (information and communication services of Electronic Democracy) is a unified designation of a package of technologies and a set of accompanying organizational measures, regulatory support for the organization of digital interaction between bodies of different levels of government, branches of government, civil society, organizations and other subjects of the state's life activity.

M.S. Vershinin (2011) outlines the following principles for organizing the resources of "Electronic Democracy":

- focus on users;
- convenience and ease of use;
- cost and complexity should be kept to a minimum;
- the ability to quickly and cost-effectively serve the largest number of citizens;
- full compliance with the general architecture of security systems, identification, electronic payments;
- large scale of decisions;
- compliance of the purpose of improving transactions by reducing the duration and complexity of services and the efforts made;
- the accuracy of the data and the possibility of their archiving, as well as the audit of transactions;
- speed of impementaton;
- readiness for action, while taking certain risks.

Methods

The basis of the methodology of the study was a comprehensive approach to investigating the possibilities for improving the mechanisms of interaction between government and the population. For this purpose, the authors conducted a study of the level of development of information and communication technologies. At present, there are several international ratings that directly or indirectly characterize the levels of development of information and communication technologies and the maturity of the Electronic State tools in various countries of the world. The UN makes a rating of the development of e-government. In this rating, there are 193 participating countries of the world (Table 1).

The rating contains data on the level of development of e-government in various countries, as well as a systematic assessment of trends in the use of information and communication technologies by state structures. All countries covered by this study are ranked in the rating on the basis of a weighted index of estimates for the three main components:
- the degree of coverage and quality of Internet services,
- the level of development of the infrastructure of information and communication technologies,
- human capital.

Table 1: International rating of the level of development of e-government

Position	Change of position 2016/2014	Country	EGDI Development level	E-Government Development Index (EGDI)
1	+7	United Kingdom	Very high	0.9193
2	0	Australia	Very high	0.9143
3	-2	Republic of Korea	Very high	0.8915
4	-1	Singapore	Very high	0.8828
5	+5	Finland	Very high	0.8817
6	+8	Sweden	Very high	0.8704
7	-2	Netherlands	Very high	0.8659
8	+1	New Zealand	Very high	0.8653
9	+7	Denmark	Very high	0.8510
10	-6	France	Very high	0.8456
35	-8	Russia	High	0.7215
36	+6	Poland	High	0.7211
37	+10	Croatia	High	0.7162

In the context of the problem under consideration, it is necessary to consider the process of integrating the services of Electronic democracy in a particular region. Considering the practice of introducing e-democracy services, it is necessary to consider step by step the process of integration of e-government into the system of state and municipal services.

At the first stage, which took place in the period of 2006-2008, a single portal of state and municipal services was created, on the basis of local governments and executive authorities. The regional program "Informatization of bodies of state authority and local self-government of the Tambov region for 2006-2010" was developed and adopted - this became a fundamental factor in creating the conditions for organizing interaction between authorities and the population.

The second stage of the implementation of e-government took place in 2009-2012. At that time, the long-term target program "Formation of e-Government in the Tambov region 2009-2012" was implemented. The main goal of the development and implementation of this program was the creation and development of the basic telecommunications infrastructure of the Electronic Government of the Tambov region.

At the third stage, which began in 2012, the long-term target program "Formation of the Electronic Government of the Tambov Region" for 2013-2016 was approved and adopted. Its main goal is the development and improvement of systems for providing the population with access to public and municipal services, as well as optimizing costs and increasing the efficiency of using information and communication technologies to provide services.

In the context of the problem under study, we will analyze and characterize the materials illustrating the results of the activities of local self-government bodies in the sphere of citizens' appeals for the period of 2015 and 2016. This information was collected during the practice in the department for affairs of citizens and relations with public organizations.

Results and Discussion

In accordance with the rating of the constituent entities of the Russian Federation in terms of the level of implementation of e-government, in 2017, Tambov region ranked 38th in the monitoring of regional informatization, which is not a high indicator in the development of e-government services in the whole Russian Federation (Table 2):

Table 2 : List of functioning information and communication services of Electronic Democracy in the city of Tambov

The name of the e-government resource, web page address	Brief characteristics of the resource
State and municipal services of the city of Tambov and the region: http://uslugi.tambov.gov.ru/	Turning to this resource, a citizen can use the state and municipal services of the Tambov region, selecting from the list of services by categories, a list of services for life situations and authorities in the region.
Internet reception of the head of the Administration of the city of Tambov: http://city.tambov.gov.ru/index.php?id=1057	Using this resource, the users can turn to the head of the city of Tambov, Tambov region, asking the questions of their interest, by sending their appeal via the Internet reception desk in the format of an application, proposal or complaint.
FTS for Tambov region: https://www.nalog.ru/rn68/	By means of this resource, the user can register a legal entity and a sole proprietor, find out their own tax ID, pay taxes, make an online appointment with the inspection, receive an extract from the Official Single Register of Legal Entities / Unified State Register of Private Entrepreneurs about a particular legal entity/ individual entrepreneur in the form of an Electronic Document.
Pension Fund of the Russian Federation for Tambov region: https://es.pfrf.ru/	Make an appointment with the Pension Fund of the Russian Federation specialist, ask any question online, order the required certificate from the the Pension Fund of the Russian Federation, make an appointment online, create a payment document, use the pension calculator.
Services of the State Traffic Safety Inspectorate:https://гибдд.рф/r/68	Using this service a resident of Tambov region can check his/her own fines, car, driver's license, apply online through the reception of the traffic police in Tambov region online.
Interactive map of Tambov: http://city.tambov.gov.ru/map/	Using this resource, any guest and resident of the city of Tambov can get information on the interactive map of the city of Tambov about objects of cultural heritage: monuments of architecture, historical buildings, parks and squares. The service also provides an opportunity to get acquainted with the investment-attractive objects of the city of Tambov, as well as to consider in detail the infrastructure of the "New Tambov"

It follows from the analysis that the system of functioning of the E-government services in the area of the investigated territory functions smoothly, however, there are really no innovative portals of the city administration for improving the quality of the citizens' living environment and satisfying the modern needs of the population. All the information and communication resources operating in the territory belong to the bodies and departments of the executive branch of power of different levels and there is not a single resource that allows communication with the representative body of authority. Only one resource of Electronic Democracy differs from typical electronic service portals across all regions of the Russian Federation: an interactive map of the city, but it does not use modern web 2.0 technologies, there are no open data services, and there is no space for social brainstorming.

The review of appeals received by the Department for Citizen Affairs and Relations with Public Organizations in 2015 showed that in all the period under review 572 applications were received, of which 247 were submitted in writing, 101 in electronic form, and 224 were oral. The information received indicates that the most popular form of treatment was written. Less popular was the oral

form of appeals, while the least convenient, in the opinion of citizens, was an electronic form of appeals, possibly because of the population's low confidence in the modernized form of appeals.

The greatest interest among the townspeople in 2015 was caused by housing and communal services, housing issues, city amenities, land issues and other issues not addressed by the list. Analyzing the classification of appeals, it can be revealed that during the period under review, 2 proposals, 496 applications and 1 complaint were filed, and among the authors of applications indicating their social status, all categories of the list appeared, most of all applications were filed by pensioners. In total, during the period of 2015, 331 applications were considered, of which 96 were resolved positively, and 235 were clarified, none of the applications were rejected, 163 appeals were redirected to membership in other authorities, and there were 78 appeals for consideration next year.

The results of the analysis of complaints received by the department on affairs of citizens and relations with civil society organizations in 2016 showed that there were 509 appeals received in 2016 of which 232 were submitted in writing, 63 in electronic form, and 214 applications were oral. As in the period of 2015, the most popular was the written form of applications, the least - electronic. The greatest interest among citizens in 2016 was caused by housing issues, housing and communal issues, improvement of courtyard territories, cultural issues and street renaming, the activities of the City Duma and other unanticipated issues.

Analyzing the classification of appeals can reveal that during the period under review 87 proposals, 284 applications and 28 complaints have been submitted, and among the authors of the appeals, indicating their social status, not all of the list of categories appeared to be present- combat veterans did not file any appeals, the same as in 2015 most of appeals were filed by pensioners. In total for the period of 2016, 394 appeals were considered, of which 202 appeals were resolved positively, 191 appeals were clarified, one appeal was denied, 94 applications were redirected according to membership in other authorities, 21 applications were left for the next year.

Carrying out a comparative analysis of the years under study, it can be concluded that the activity of the City Duma on appeals in the period of 2016 has significantly increased, since in 2015 there were 96 appeals positively resolved, and in 2016 there were 202 positively resolved appeals. The number of applications filed in 2016, slightly decreased – there were 572 appeals against 509 ones in 2015. However, this trend can not be fully called positive, given that the competence of the chairman of the city duma in 2015 was much broader, as well as the duties of the city Duma. By 2016, the competence of the chairman of the city Duma on environmental protection and management, the issues of improper actions by administrations, heads of enterprises and organizations, tax issues, culture and sport issues has decreased.

Based on the results of the analysis it follows that one of the least popular forms of citizens' appeals is the electronic one. Low interest of citizens in the electronic form of appeals to the representative body of power is justified by the lack of a qualitative developed environment for interaction between the population and the Duma apparatus. Polls conducted among citizens who apply to the department for affairs of citizens and relations with public organizations and among visiting deputies of the Duma indicate that citizens are interested in forming an electronic field of interaction with the chairman and deputies of the representative body of authority, but at the moment the electronic form of interaction is only communication, by means of an e-mail address only with the apparatus of the department for affairs of citizens and public organizations. Thus, it can be stated that there is a high potential of the electronic form of communication of the representative body of the city and the population in case of the competent completion of this form of interconnection.

In the social network Vkontakte, in the official community within one week a survey was carried out among young citizens under the age of 30, the main purpose of which was to analyze the interest of citizens in the process of organizing local self-government through communication through information and communication networks (Table 3).

Table 3 : Results of a survey on the interest of citizens in the process of organizing local self-government through communication using information and communication networks

Categories of citizens under the age of 30	Number of citizens who participated in the survey	Citizens who find it necessary to modernize the work process with citizens' appeals	Citizens who indicated that the working hours of the reception rooms and departments of the Duma were not convenient for their	Citizens who consider the Internet network - as a convenient place for communication of citizens and representatives of the City Duma
Students	45	38	35	40
Employed citizens	30	28	24	27
Citizens who have not indicated their social status	12	10	5	9

Based on the results of the analysis of this table, it follows that 87 young citizens took part in the social survey, 72 of whom find it necessary to modernize the process of working with citizens' appeals in the Tambov City Duma. More than 60 participants in the survey indicated that the working hours of the reception rooms and departments of the Duma were not convenient for their own visits due to various circumstances, often due to personal, labor and educational workload; 76 young citizens consider the Internet and social networks to be the most convenient communication platforms between citizens and representatives of the City Duma.

So, proceeding from the analysis of the functioning of the information and communication systems of Electronic Democracy in the city's territory, it follows that, to date, the problem of organizing local self-government, involvement of citizens in this process is strongly pronounced, which makes it necessary to modernize primarily electronic forms of communication with the representative authority of the city, in matters of local self-government directly by the population.

Conclusions

Based on the results of the conducted research, we believe that there is a justified necessity and need of the population for innovative form of organization of local government and communication of the representative body of authority with the population through the second-generation information and communication system of Electronic Democracy (E-Gov2.0). We assume that by taking the best of the already active projects "Active citizen", "Public expertise" and foreign information and communication services of the Electronic Democracy, completing them with new functionality, we can develop a qualitatively new platform for interaction between the population and the representative government of local government, both for the city under study , and for other municipalities. It is assumed that every indifferent citizen will be able to send his/her appeal to the city Duma, take part in voting, present a specific question for public discussion or make his/her own proposal to the leadership of the representative body of government, directly address the deputy of the municipal formation or the chairman of the city Duma, through the personal office of the Internet reception.

It is assumed that this concept will simplify the process of applying to the government for the citizen, save time that the citizen would have to spend on making an appointment and waiting in line for admission to the deputy, will involve young citizens in the active organization of local self-government, personal participation in raising the level of the environment of their own life activity.

We propose to call the developed concept of the project "Our common home" - since, according to our convictions, this name reflects the basic essence and intent of the joint work of the population and

the authorities in improving the quality of life and the level of welfare of the municipal formation.

The process of developing a project can be implemented in a variety of ways. It is possible to hold a municipal competition or a grant from municipal funds, following the experience of New York in the development of information and communication services of Electronic Democracy. Also, the collective funding mechanism based on voluntary contributions (crowdfunding) is very effective in starting up electronic projects. It is impossible to exclude the possibility of developing a project internally by the city Duma.

On the portal "Our common home" one can be verified through the State Service, a single register of phone numbers in the region, or a more futuristic option - through technology similar to the western "FaceID". The most rational for today, in our opinion, is verification through the Unified Identification and Authentication System (hereinafter referred to as the "UIAS") of the State Service of the Russian Federation. The UIAS is a Web 2.0 format mechanism developed and integrated into the public services system of the Russian Federation that provides users access to the State Services portal and other state portals and information systems. Connection to the UIAS allows the portal "Our common home" not to develop its own system of identification and authorization for the users of the service, but to use the convenient, reliable, safe and well-functioning mechanism of public services of the Russian Federation. This step is the most rational also because the number of registered users on the State Services portal has reached 64.6 million people, and the active growth of up to 25 million people per year indicates that in the near future every second citizen of Russia, including residents of the city of Tambov will be registered on the portal. As a result, this measure allows us to qualify the project "Our Common Home" as an information and communication service of second-generation Electronic Democracy or E-gov 2.0.

Also the project involves a mutually beneficial cooperation with entrepreneurs, where the portal "Our Common Home" can act as a kind of advertising platform, and commercial organizations supply valuable prizes and gifts to the Duma, which in turn redistributes them among active citizens.

In the long term, for the full transparency of voting, a measure of integration of the blockchain technologies mechanism into the portal "Our Common Home" is provided, then every vote left by the resource user is processed by the blockchain system - this measure is a guarantee of openness, reliability and honesty of the conducted poll among users of the resource.

It is expected that the site will be openly reported on the work done on citizens' appeals, voting and initiatives, backed up by video, photos and graphic materials. This measure is an additional motivational incentive to participate in the project of citizens who want to improve the quality of life in the city, as well as a measure that increases the level of trust in local authorities among the population.

In our opinion, the proposals developed by us can lead the system of organization of local self-government and interaction of the population with a representative authority through information and communication services of the Electronic Democracy to a qualitatively new level. The implementation of these measures will contribute to the transition to the stage of direct citizens' participation in the governance of the state, guarantees "proper governance" - a key moment for state progress in improving the quality of public life. The implementation of the project can make a significant contribution to the formation of a space of control and trustful interaction with the authorities, where it is viewed not as an adversary, but as a partner in managing the general space of a municipal formation.

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On The Way to the Organization of the Future: Practice, Patterns, and Prospects

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Abstract

Product and process innovations based on digital technologies are actively put into practice by companies throughout the world. Digital transformation projects are inextricably connected with deep social transformations occurring in all countries. Currently, the speed of digital changes is already high and continues to increase. Knowledge of business digitization is still in the process of its forming, and presently practice outruns theory. So in this context, it is needed to analyze and generalize the ongoing changes on the organizational level. Digital business transformation involves not only a set of methods and technologies but a rather innovated way of economic relations' building and business design. The main contribution of this paper is that it examines the patterns of digital transformation and mutual interaction of core components of enterprise architecture (technologies, processes, personnel, management, etc.). The obtained inferences we are planning to study in the subsequent empirical researches.

Keywords: Digital transformation projects, Smart factory, Digital talents, Adhocracy, Future of work.

Introduction

During the last few years, the business transformation under the impact of digital technologies is of the utmost concern of researchers and consultants. Business digitization drives growing changes in the management systems of both commercial and non-commercial organizations, as well as different government agencies. New technologies and social changes combined with the globalization phenomenon are changing the classical management rules. The changes are so rapid that their comprehension does not keep up with practice. At the present moment, there are few scientific works devoted to the digital enterprise transformation as a holistic process that influences the core elements of the business internal environment. At the same time, a lot of studies has been carried out by consulting companies, adhered to the integrated approach to the digital transformation of the enterprise. (Ziegler, 2017; Strack, 2017; Geissbauer, 2018; Collins, 2017) The majority of authors quite reasonably considers that theoretical comprehension and generalization is impossible due to overly rapid development of practice. Partly accepting this opinion, we believe that it is time to start systemizing the consistent patterns of the digital transformation process and changes in management systems that it brings.

In this article, we will consider the problems of digital transformation and focus on its key aspects: technologies, tools, individuals and management system. The practice proves that the key resource for successful digital business transformation is personnel, who able to comprehend and implement these innovations. This fact drives high demand for digital talents with new competencies. Mostly these are young people of the millennium who require new forms of organizational culture,

interactional methods and control. A special emphasis will be devoted to changes in the management system caused by digital technologies implementation. They are fundamental and affect both internal and external organization environments.

At the beginning of the article we will focus on the concept and main issues of digital business transformation, and afterwards, we will consider the peculiarities of digital talents' recruitment and changes in the management system of digital organizations. The main contribution of the paper is that we consider the digital transformation process in a holistic manner. This reveals the necessity of studying the interrelations between core elements of enterprise architecture, that integrate technologies, processes, personnel, management system into a single compound. The emerging technologies are the most dynamic part of the business architecture and in the majority of cases the growth of individuals skills and competencies is lagging behind technologies enhancement. And the adaption rate of organizations falls far behind from the digitally skilled personnel. The structure of this paper reflects this logic. The first part is devoted to the transformation of business processes based on new technologies, then we focus on the problems of digitally skilled personnel and in the conclusion, we discuss future organizations and management methods transformation.

Our primary aim is to reveal and in management systems in accordance with dramatic changes in technologies development and personnel's skills and competencies. The next stage of our research will be devoted to the empirical evidence of revealed features and patterns of the digital transformation process.

The Digital Transformation of Business Processes

Successful mass digital innovations intrusion requires not only human resources with new competencies but also organizations that can operationally embed and integrate technological innovations. Development of technologies outruns personnel development, as stuff due to its natural human conservatism isn't able to adapt to novelties so quickly. Organizations are even more conservative and having their organizational inertia force hinder the adoption of technological innovations (Andriole, 2017). The teams who lead digital transformation projects often turn into isolation from the main body of the organization. As a result, there are gaps between change rates of technical innovations, individuals that try to implement them, and other organization units (Schauppa, 2017). So the key point of digital transformation is to overcome the abovementioned gaps with a simultaneous increase in productivity and efficiency of business processes.

At the same time, the external goals of digital transformation are closely related with a marketing sphere and imply a modification of existing and development of new products and services with respect to customer needs and expectations (including implicit ones) (Leipziga, 2017). Digital transformation takes place on several levels of the organization. Presently technologies and business processes are dramatically changing so that organizational structure and culture are forced to accompany them. One of the patterns we are planning to test - is the state that companies which implement digital methods on an operational level simultaneously modify the organizational culture. Changes become an ongoing flow of separate projects united by a common ideology. Moreover, this ideology of innovations is also constantly modifying itself. In these challenging circumstances the digital transformation strategy, which includes the market development vision and plan of necessary transformations, becomes crucial. So the key aspects of digital transformation strategy are the choice of optimal changes speed, selection of strategic digital projects, identification of strategic partners with necessary digital competencies. A primary part of this strategy is mostly connected with an integration of new technologies into business processes, aiming to reduce production costs, achieve higher flexibility and promptness, and other operational objectives (Kaganer, 2016; Burgelman, 2014). In the industrial sphere the concepts of Industry 4.0 and smart factory became widespread and even prevailing (Wang, 2016; Yang, 2017; Cohen 2017; Saurabh, 2018). The concept of smart factory assumes that production system must promptly respond to changes in consumer preferences, work out new products, adjust capacity utilization with simultaneous maintenance of quality and certain economic parameters (Ziegler 2017, Wang, 2016). The contemporary production system is directly integrated into the company's business processes and ensures high processes transparency at all stages of the production cycle. One of the most promising concepts of smart factory implies a

multi-agent system where each object-agent (product, equipment, etc.) acts with the certain freedom of action within the given priorities (Wang, 2016). The objectives of digital transformation in the internal environment are to develop and adjust new production systems, integrate different management levels, and provide information links. Implementation of smart factory concept is provided by redesigning of technological processes based on the internet of things, robotic process automation, automated work centers, augmented labor usage, business applications and etc. – so it is a large-scale program that requires considerable resources (Geissbauer, 2018).

Another essential aspect of operational activity digitization is concerned with digital factory methods, that use digital technologies for modeling and simulating products, processes and even production systems. Virtual reality technologies significantly modify R&D, tests and manufacturing of new products and their components. Virtual testing leads to manufacturing process hastening, operational costs reducing and quality enhancing. Creation of product virtual duplicates allows to access them preliminary on a wide range of parameters, identify weaknesses, adjust design and get customer response. The explosive expansion of digital technologies brings the production cooperation to a new level. The increasing complexity and mutual integration of enterprise information systems can significantly reduce the transaction costs of switching from one available partner to another.

It is easy to hypothesize that during the digital transformation process the integration between ERP systems of different companies occurs. Moreover, the increasing flexibility of production systems makes possible creation of production partners unions on a temporary basis and the creation of temporary supply chains for a specific order. Business information systems that have databases of potential partners with their production capabilities (including current prices), will be able to form integrated supply plans on the basis of machine-machine interaction, place orders and pay for them. In this case, we consider the information systems possibilities that essentially go beyond the concept of "Industry 4.0".

Digital Talents as a Key Resource

Digital projects should be directly carried out by qualified personnel that usually called as digital talents. The practice of IT projects implementation shows that the main problems exist not at the stage of their solution and choice, but at the stage of their adaptation and performance. In most cases the digital transformation projects are executed by a small super qualified "core" stuff which consists of digital talents and group of personnel without unique knowledge and competencies. Both categories of personnel are equally important for ultimate success. According to forecasts the shortage of digital talents around the world is expected by the year 2020. Recently there are have been appeared a lot of new job profiles with a description of specialists of the future. In particular, BCG has developed their own classification, which includes 20 core digital job profiles lying in six areas (Strack, 2017). Among the selected profiles, in addition to narrow specialists in the fields of digital marketing or Industry 4.0 and others, there are two more general profiles: digital transformation manager and digital venture strategist. As stated in a Gartner study, about 30% of technical jobs will be vacant due to a lack of digitally qualified personnel. As reported by BCG (Strack, 2017) nowadays the biggest problem is not cybersecurity or the required investments, but a shortage of qualified employees. Adoption and integration of emerging technologies are theoretically possible, but the bottleneck is people, abled to comprehend, adopt, implement, adjust and improve processes built on new technologies.

Digital talents are already in so high demand that large companies are forced to use not quite traditional ways of their recruitment. For example, the BCG company has identified 80 points, where the digital staff is accumulated and proposes to place strategic digital divisions there. The traditional strategies of human resource management are already insufficient for recruitment of digital talents. It is necessary to take into account the distinctive features of digital specialists, to understand working perceptions of these young people with completely different experience and education. These can be employees with classical IT education, as well as freelancers, entrepreneurs, and even students. These specialists may use not traditional recruitment platforms, but seek vacancies on narrow-profiled services such as Muse or Debut. These people are united by a digital style of thinking. They are enterprising, creative and oriented to make decisions on the basis of data analysis, usually have

experience in multidisciplinary international teams, want and search flexible forms of employment. Business digitization requires a large number of people who are specialized in both technological innovations and specific business processes of a particular company (Wagner, 2017; Strack, 2017). What qualities distinguish people who have the desired digital competencies?

Below there are some of their typical characteristics:

- Digital employees are quite indifferent to formal positions and career promotion, do not always have a strong will of power. They are much more concerned about their results and gained experience, their own portfolios consisting of successfully implemented projects or developed products.

- For Y generation it is significant to work among interesting individuals and intellectual leaders. Perhaps, this quality is very important, as it helps to create teams with unique competencies.

- Much of them are concerned about the positive impact on the environment and social world progress. They feel like citizens of the World, but not as representatives of a particular country or region.

- Much attention is devoted to the maintenance of a balance between work and personal life; besides work, they have hobbies and outside interests.

In general, digital talent is a new type of employees. They are flexible, progressive and well-conscious about their value to employers. However, they also have negative features resulting from their hyper-individuality: relatively low loyalty to the company; usually they are not ready to run themselves ragged and do not always adequately assess their remunerations. And it should also be taken into account that technical knowledge quickly becomes obsolete, and their competencies and social skills could be also obsolete in 5 to 10 years.

Organization of the Future and Management System Transformation

The technologies' impact on the principles and methods of management has been studied for a long time. Obviously, numerous technological innovations will require modification of the management system. Already nowadays many firms have to implement a set of projects in the business process redesigning and re-engineering. This drives the demand for business analysts abled to create and manage complicated and changing management systems. As a result of such digital transformations, the control system finally turns into a "microcircuit" from the black box. The Internet of things and wireless sensors are widely implemented within the concept of Industry 4.0 and suggest multiple increases in the transparency of business processes. Even now, ERP systems extend the management capabilities and simplify the identification, coordination, and accounting of teamwork results both inside and outside of the company. (Langer, 2011).

Further development of information systems and analysis technologies make possible to trace not only the sequence, speed, and quality of activities, but to calculate and budget costs for low-level operations. This implies a new level of available data, which allows calculating the exact cost of the particular order or the particular client. The digital transformation of business activities and information systems in different parts of the organization is usually implemented at a different pace. Digital changes can be fragmentary, and accordingly, there is occur the problem with an interconnection of various elements of organizational design. This is the main task for experts in digital transformation strategy who are able to create a successful architecture of complex digital organizations. So the competencies in the field of organizational design become a strategic resource. Designers began to be considered not only as stylists but as professionals who can interlink complex elements of the system while preserving the unity of the concept.

The practice has shown that design process and entrepreneurial activity have much in common. More and more designers are become involved in organization development and innovations, they occupy powerful positions and lead change programs in their companies. The concept of design is engaging

not only in the products and services engineering but also in processes, interfaces, communications and other elements of organizational architecture in which both people and machines take part. Some companies already use a design approach for business building in a new environment. They attract designers for top managerial positions: Jonathan Eve (Apple, Inc.), Mark Parker (Nike, Inc.), David Butler (The Coca-Cola Company), Tod Simmons (IBM Corporation) (Muratovski, 2015). But it seems that not only large companies implement digital transformation projects. We would like to check whether the organization's size affects the digital transformation process in terms of implemented methods.

The constant changes affect many aspects of business and emphasize the importance of entrepreneurial spirit development in the management system of business. The launch of new products and services, redesign and tuning of new processes or information systems requires rather entrepreneurial than executive competence. The role of the entrepreneur in such projects is to take responsibility for the most difficult and risky transition period, combining the existing opportunities in the internal and external environments of the organization. Algorithmization and automation of routine processes only strengthen the importance of the creative approach and non-trivial solutions. In addition, the "entrepreneurial spirit" is in high demand at the level of particular business processes (Smirnov, 2017; Pahomova, 2013). The natural desire of middle managers for greater autonomy, which G. Mintzberg wrote about almost 40 years ago, is required in the "new era" of decentralization. In this circumstances owners of business process receive power to mobile and combine the best available resources.

The manager's role also dramatically changes in the digital age. At the beginning of the XX century management became an independent activity, but nowadays the reverse process is taking place and the number of professional managers may substantially decrease and their functions can be dramatically changed. With increasing of environmental variability, the traditional hierarchical bureaucratic structures constantly lose their effectiveness. Digitization of business processes significantly accelerates the tendency of management decentralization. The growth of employees' qualification and the decrease in routine operations due to automation determines the new stage of management evolution (Müllera, 2017). The traditional organizational hierarchy is being supplemented by a system of supervisor-subordinate communications, which allows shortly to decrease the number of mid-level managers. A manager is no longer boss, but rather a facilitator; his primary role is to integrate, coordinate and inspire the team, whose members can work remotely. In the context of informatization, career promotion is not a simple move up along the career ladder, but rather a creation of followers, and enlargement of their zones of responsibility in the organization.

One of the main competences of a "new" manager should be time management of various objects (customers, personnel, robotic equipment, production facilities). The most common type of manager is a team leader, who combines the roles of leader, coach, administrator and senior specialist. Analysis and interpretation of information, gathered from various internal and external sources, has increasing importance among managerial roles nowadays. Interaction with artificial intelligence systems is also an important competence for the contemporary manager.

Alteration of personnel functions in business processes execution prejudges the modification of office spaces. Fewer and fewer people will work in traditional office places, as most office routines are subject to algorithmization and automation. The majority of office activities can be performed remotely or can be automated by means of RPA. The creative nature of present-day job determines the style of modern offices. Office places should become a creative space, a place for team interaction among their members, and less for individual work. Office places are becoming look like clubs or multimedia zones and are less designed for individual needs. Already now a large number of companies are practicing new remote group interaction intended primary by project character of their work. Among the most popular tools that can be used to collaborate online: Trello, Slack, Workplace, Workboard, Asana, Basecamp. Office places based on the technology of virtual reality actively used in everyday work. This allows to reduce significantly the cost of office maintenance, improves staff satisfaction, and also causes a number of other positive social consequences. In particular, it allows to unload the transport systems of cities.

In this context we would like to state three interrelated hypothesis we are planning to study in our future empirical researches:

- Teleworking and other new methods of collaborative work are more common for companies actively conducting digital transformation projects.

- Daily use of new collaborative tools over the time drives to the adaptation of teleworking.

- Methods of Industry 4.0 and teleworking practice go hand by hand with companies with a prevailing number of Y and Z generation employees.

Implementation of business applications is another prospective tendency in redesigning processes both in front and back offices. Applications (Apps) provide integration of different levels of activities, maintain communications between team members, allow to receive online assistance or different reminders from artificial intelligence systems (Paritalaa, 2017). Also, application usage provides a new level of process transparency for team members, allows to visualize processes and simplifies operational control. Business applications are successfully combined with technologies of virtual reality and augmented workforce in a framework of Industry 4.0. The important element of business applications is their possibility to analyze and monitor the working time utilization of all types of resources, including personnel, robots, transport units and other points of production systems. Some companies already apply such business APPs on daily basis. For example, in Amazon company the appliance of automated training screens, smart tape dispensers, and robotic pallets have reduced the training time of newly hired employees from 6 weeks to 2 days.

It could be fruitful to test that business application (APPs) is the most common and affordable method of digital transformation on the operational level.

Continuous technological innovations, globalization, and social changes, new forms of employment and organizational communications require higher standards for organizational design. From the beginning of the 1990s, a large number of researches was devoted to various aspects of self-learning organizations. One of the forms of such organizations was N-form corporation (Hedlund, 1994) which had the following characteristics: temporary project teams, a priority of lower-level personnel, close horizontal links, decreased the role of administration with a mere responsibility to provide suitable working conditions. Also, the attention of scientists was paid to the Japanese type of organizations, which assumes the active involvement of employees of all levels in the process of incremental improvements and innovation.

During the 2000s organizational forms of innovative firms were divided into two groups: organizations of Japanese type (J-form) and adhocratic organizations of a wide spectrum (Pahomova, 2013). In recent years the concept of “turquoise organizations” (Laloux, 2014) became rather popular among innovative organizations. One of the extreme forms of adhocratic organizations is the holacracy which implies a radical abandonment of hierarchical principles and widespread utilization of democratic procedures instead of hierarchy. Organizations of both types represent different aspects of one phenomenon - transformation of a traditional hierarchical organization into a network and its adaptation to expectations and needs of Y and Z generations of employees. Interactions occur not only within organizations but also in the external environment. Communities of specialists, associations and other forms of collaboration will provide an increasing number of services, being unique "centers of competences'.

The table below summarizes the main methods of interaction and collaboration that are practiced in digital transformation projects.

Table 1: Methods of interaction during the implementation of digital transformation projects

Type of interaction	Forms of interaction	Interaction Tools
Internal teamwork	Different types of teams (kaizen teams, cross-functional, virtual, etc.) Further development of brainstorming techniques	Teleworking, social networks, messengers. New tools of communication and tools of virtual reality
External group interaction	Open innovations and networking (partners, customers, competitors), conferences, communities, hackathons, participation in the clusters of digital talents	
Intercompany collaboration	Strategic alliances including attraction of digital partners, temporary integrated supply chains.	Integration of corporate information systems

New management methods inevitably lead to changes in the business environment, organizational culture and even in the mentality of whole nations (Gruen, 2017). Cultural changes do not happen suddenly, but proceed gradually, encompassing an increasing number of organizational "departments". The core of personnel with digital competencies is young people of Y and even Z generation. Digital transformation projects require the creation of new pools of digitally skilled employees. But if the digital competencies growth outpaces the employee's abilities of the remaining units, the organization will not achieve the planned results. Therefore, one of the challenges is the successful dissemination of digital cultural patterns to the rest of the organization.

Conclusion

The digital transformation process takes part in a variety of organization dimensions. This is not only the successful implementation of information technologies or redesign and automation of business processes but also a challenge for organizational culture and employee's mentality. Rapid and dramatic changes occur in various functional areas of the organization, both in its internal and external environments. The automation is the main "engine" and the trend that determines the direction of changes. But automation is impossible without large-scale personnel training programs and transition period. Personnel is conservative by its nature and usually lags behind in its ability to change and adapt to new organization environment.

In the context of digital transformation, the role of entrepreneurship as an ability to combine new digital resources and staff competencies increases. Also, programs of internal entrepreneurship are becoming increasingly popular; that allows employees and even external entrepreneurs to offer and implement particular digital projects. The main problem of digital transformation projects is absence or lack of qualified personnel. Digital talents – young people of Y and Z generation, are very unevenly scattered throughout the regions of the world. Their job requirements are significantly different from the older employees – company, workplace, schedule, remuneration system must be highly competitive, and this requires the management system's overall revision. Different types of work such as teleworking of various types (including based on virtual reality technology), flexible and part-time employment are becoming more and more popular; network interaction is also well developing. These changes cannot but affect the main part of the organization, which is not directly related to the transformation. Basing on the compilation carried out analysis and our inferences we have formulated several hypotheses about further digital transformation process. These hypotheses require empirical approval and will be a subject of our further research.

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The Role of Cryptocurrencies in the World Economy Development

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Abstract

The aim of this article was to analyze the volumes of the crypto-currencies market and identify the share of crypto-economics in the world economy. The main trends in the development of the crypto-currency market were identified to achieve this goal. There is a comparative analysis of the crypto-currencies market volume with gold and currency reserves of different countries, analysis and assessment of the crypto-currencies market share in the world energy system. The article examines the correlation between the volumes of the crypto currency and the classical financial assets.
The main part of the study is the analysis and assessment of the crypto-currencies impact on the modern international economy. It discloses the crypto currency market share in the sphere of monetary relations and the world energy system.
Analytical review of literature and other sources of information allowed to make a rating of the crypto-currency. Currently the most promising virtual currencies according to the rating are: Etherium, Steem, Lisk, NEO. The digital currency Bitcoin took only 13th place in this rating.

Keywords: virtual currency, national currency, cryptocurrency, bitcoin, mining.

JEL codes: E51, E52, E59, O33.

Introduction

The market of crypto-currency is of great importance in the modern international economy. Analysis of the modern international market shows that the system of crypto currency functioning is not defined at the interstate government level. Because of the difference in national jurisdictions, the market often has to go to the shadow zone. The digital assets regulation in different countries of the world runs from a complete ban to crypto currency recognition as a means of payment. Special zones for blockchain start-ups and ICO projects have been identified in many countries, that are contributing to investment attractiveness.

The emergence of new crypto-currencies, ICO and tokens is an integral part of the formation and development of the market, however, hundreds of digital currencies already available do not represent any actual value. Behind most of the new projects are often hidden classic soap bubbles and fraudulent schemes therefore.

Claims that the crypto currency can replace traditional money, at the moment seem too premature. When considering crypto currency as a substitute for fiat currencies, its volumes are not comparable. The world's money supply is more than 90 trillion dollars. Thus, the value of all global currencies is less than 1% of this volume. Booming growth of the crypto-currency market is interesting to consider in terms of the value of global financial assets. Using the data of the analytical Internet portal, we

obtained the following ratios of the crypto-currency to the classical financial assets:

- 7.3% of the world gold market, valued at $ 7.7 trillion;
- 0.77% of the world stock market, valued at $ 73 trillion;
- 0.26% of the world real estate market, valued at $ 217 trillion;
- 0.1% of the world market of derivatives, valued at $ 544 trillion.

The development of the monetary system has a distinctive evolutionary character. The modern financial system has undergone a serious genesis in the field of means of calculation, moving from long-forgotten coin-based equivalents to the use of electronic money at the end of the last century. A distinctive feature and reason for the crypto-currencies emergence is that, digital currencies are not taken into account by credit institutions unlike electronic money, which is part of a centralized monetary system. In fact, they function without an intermediary. At the moment, the crypto currency market is represented by hundreds of different digital assets, based on various information technologies. Therefore, speaking about a unified crypto currency in this work, the most common Bitcoin crypto currency will often be accepted due to the limited research resources.

Literature overview

The community plays an extremely important role in the realities of cryptocurrencies - decentralized digital currencies that use blockchain technology with peer-to-peer transactions . Important to remember that the goal of cryptocurrency creation was, first of all, formation of cryptocurrency culture with its own social hierarchy.

The appeareance of cryptocurrencies as the key instruments of digital economy can be considered as the phenomenon, which creates the numerous inconsistencies with the organization of traditional financial system.

Many scientists considered the key challenges of virtual currencies to traditional financial markets. First of all, the “suspicious trades on a Bitcoin currency exchange are linked to rises in the exchange rate” and emperially confirmed idea, that “unregulated cryptocurrency markets remain vulnerable to manipulation today” (Gandal, et, 2018).

Second, the volatility estimation of Bitcoin can not be done accurately applying the GARCH-type models as far as its pricing is beyond the market efficiency assumptions and “can be described by its cost of production” (Charles, et. 2018), (Hayes, 2017). Interesting finding concerned the idea, that “in the short term, the Bitcoin exchange rate adjusts to changes in economic fundamentals and market conditions, but “the long-term Bitcoin exchange rate is more sensitive to economic fundamentals and less sensitive to technological factors” (Li, Wang, 2017). Moreover, “Bitcoin market is the most inefficient among gold, stock and foreign exchange markets” (Al-Yahyaee, et. 2018)

Third, “Bitcoins are mainly used as a speculative investment and not as an alternative currency and medium of exchange” (Baur, et. 2018) and “fundamental value of bitcoin is zero” (Cheah, et. 2018). The volatility of Bitcoin price exceeds those of gold and currencies.

Forth aspect of cryptocurrencies is connected to hedging opportunities due to similarities of Bitcon, for instance, with gold price behavior. (Dyhrberg, 2016) proposed, that “Bitcoin has a place on the financial markets and in portfolio management as it can be classified as something in between gold and the American dollar on a scale from pure medium of exchange advantages to pure store of value advantages” and “can be included in the variety of tools available to market analysts to hedge market specific risk.” However in a couple of years this issue was refuted by (Baur, et., 2018), who declared, that “Bitcoin exhibits distinctively different return, volatility and correlation characteristics compared to other assets including gold and the US dollar” and it is “a hybrid of commodity currency (gold) and fiat currency (US dollar)”. Further (Bouri, et., 2018) suggested that herding behaviour in cryptocurrencies “increases as uncertainty increases” and “varies over time”.

The present research is devoted to the investigation of cryptocurrencies' role in the world economy and their rating estimation based on modern digital economy trends, connected to alternative money and investment opportunities.

Hypotheses

The hypotheses of the investigation are as follows:

1. The capitalization of the cryptocurrency market is growing rapidly and is already comparable with gold and currency reserves of some countries of the world. If this trend continues, the digital economy will become one of the five largest economies of the world.
2. Pricing in the cryptocurrency market depends on a set of factors - the amount of energy spent on mining, the number of active and passive users of cryptocurrencies, the level of profitability of mining, regulatory factors. The price of cryptocurrency is inversely proportional to the profitability of its mining. As well as the number of unique transactions per day in the cryptocurrency market directly affects the price dynamics of cryptocurrency.

Data & Methodology

Market Value and Capitalization

We can find that the size of digital economy is comparable with ten most secured countries by value of gold & currency reserves, based on a structural analysis of data on cryptocurrency capitalization and gold & currency reserves of G20 countries (table.1).

Table 1: The structure of state gold&currency reserves in comparison with the cryptocurrency market capitalization on 30.05.2017

The state or cryptocurrency	The gold&currency reserves or cryptocurrency capitalization, $ billion
China	3 125
Japan	1 256
Switzerland	757
EU	741
Russia	459
India	418
Cryptocurrency market:	400
Bitcoin	142
Etherium	71
Ripple	39
BitcoinCash	22
EOS	12
……	114
South Korea	398
Brasil	379

Source: Compiled by the authors based on https://www.imf.org

Crypto-currency market in the presented comparison of capitalization takes the 7th place, quite presenting a competition to the settled reserves of the largest economies of the world (Fig.1).

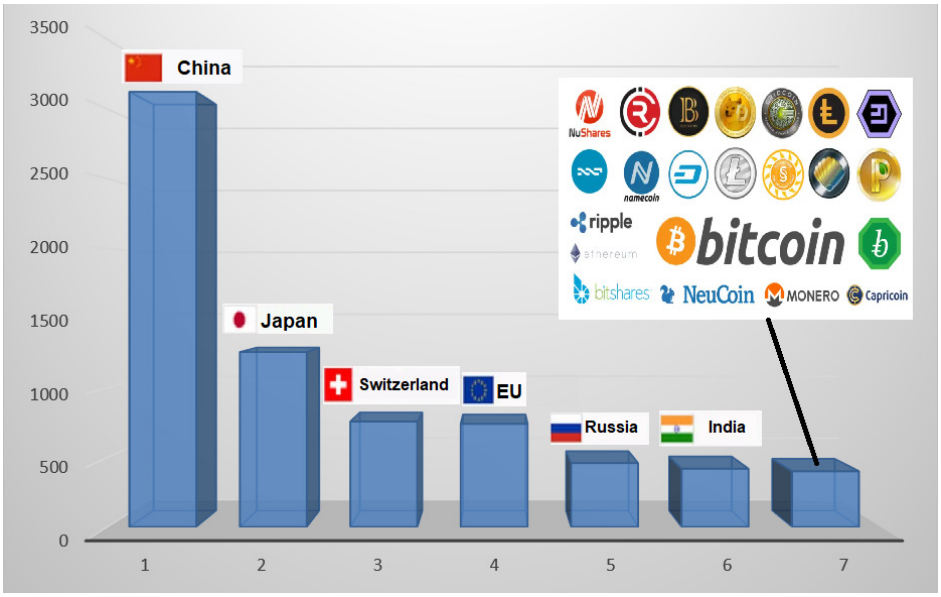

Figure 1: Capitalization of the five largest crypto-currencies in comparison with the gold and foreign currency reserves of countries G20 on 30.05.2017, $ billion

Source: Compiled by the authors based on https://www.imf.org

The capitalization of the largest cryptocurrencies is one fifth of the size of China's gold &foreign exchange reserves, almost half of Japan's gold and foreign exchange reserves, and is comparable in size to the gold and foreign exchange reserves of countries such as Russia and India.

By the comparative analysis the capitalization of the four leading digital currencies as of January 2018 (Bitcoin, Etherium, BitcoinCash and Ripple), we can see that cryptocurrencies may well compete with the national currencies of many advanced economics (table.2).

The first group of countries corresponds to the top ten currencies at the highest level of capitalization. In the second group are the currencies, the capitalization of which is on 11-20 place in the world ranking.

Table 2: The currency rating on the level of capitalization on 30.05.2018

	Currency	Capitalization, $ billion
1	American dollar	1 424
2	Euro	1 210
3	Chinese yuan	1 000
4	Japanese yen	856
5	Indian rupee	250
6	Bitcoin	180
7	Russian rouble	117
8	British pound	103

9	Swiss franc	76
10	South Korean won	74
11	Mexican peso	72
12	Canadian dollar	59
13	Brazilian real	58
14	Australian dollar	55
15	Saudi riyal	53
16	Hong Kong dollar	48
17	Etherium	44
18	Turkish lira	36
19	Singapore dollar	27
20	BitcoinCach	25
..	…	…
	Ripple	3

Source: Compiled by the authors based on https://coinmarketcap.com

Bitcoin with a market capitalization of $180 billion is a part of the first group of countries. It's capitalization comparable with Indian rupee's capitalosation, which is $ 250 billion, and has overtaken the Russian ruble's capitalization ($ 117 billion). Cryptocurrencies with high capitalization exceeds capitalization of most emerging economics.

The second largest cryptocurrency by capitalization is Etherium with a value of $44 billion. The digital currency in terms of turnover is higher than the Turkish Lira, which has a value of $ 36 billion and having a growth trend in the short term can overtake the Hong Kong dollar in capitalization, the turnover of which is $48 billion. A slightly smaller amount of capitalization is cryptocurrency Bitcoin Cash - $ 25 billion and Ripple - $3 billion.

Methods of technical analysis of financial market instruments (trend analysis, mathematical approximation, graphical methods), as well as statistical data on the cryptocurrency market, were chosen to conduct a cryptocurrency market analysis. For financial analysis for the period from 05.2015 to 05.2018 it was chosen the digital currencies of the largest capitalization (Bitcoin, Etherium, BitcoinCash, EOS, Litecoin, Cardano and others) (Appendix 1).

Based on the known data on the capitalization of digital currencies, we can note the overall positive dynamics of this indicator. The total cryptocurrency market by May 2015 amounted to 3.7 billion dollars, and three years later this figure reached 382.7 billion dollars. It should be noted the growth of the absolute capitalization index in the market for certain types of cryptocurrencies (Fig.2).

The overall increase in the absolute value of each currency is obvious. Capitalization of Bitcoin, as at the May 2015, was amounted to 3.5 billion dollars, and by the end of the study period it grew to 143.8 billion dollars, this fact indicates almost 45-fold increase.

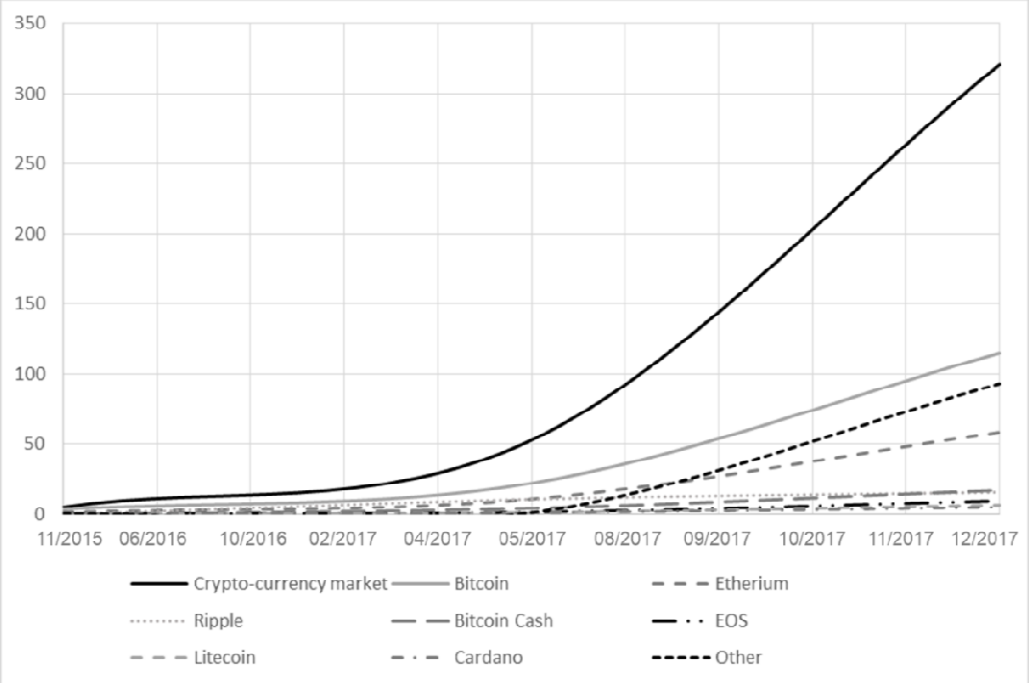

Figure 2: Absolute deviation of the crypto currency capitalization on 11.2017 from the base (11.2015), $ billion

Source: Compiled by the authors based on https://coinmarketcap.com

The lowest rate of absolute deviation for three years in this study, belongs cryptocurrency Cardano, whose growth amounted to $6,545 billion. In terms of absolute deviation, the capitalization of "other cryptocurrencies" increased from 0.007 billion dollars in 2015 to 94.2 billion dollars in 2018. Back in 2017, this figure was about $1 billion. Investing in new cryptocurrency projects is of significant interest to market players and over the past year the rate of capitalization growth of another cryptocurrencies was 9320 % (Fig.2).

Assessing the dynamics of the absolute deviation of the capitalization of the average cryptocurrency, we can say that the indicator increased by an average of 78 times in three years and in May 2018 amounted to $ 41.2 billion against $ 0.528 billion in May 2015.

The extraordinary growth in the rate of capitalization of those cryptocurrencies, which were not included in the first seven was a bad sign. Due to the increase in the number of fraudulent ICO projects over the past years, which were essentially nothing else but bubbles, the market of unsecured digital currencies had extended. For speculation in the market, the format of highly volatile assets is convenient, but in turn appears the cryptocurrencies, which are not supported by any project.

Based on the dynamics' analysis of the growth rate of capitalization of the cryptocurrency market, the interest was caused by the dynamics of the share of each of the currencies in the total market share. If the average figure for May 2015 is taken as the beginning of the analysis, we can conclude that the capitalization share of Bitcoin is 89.19% of the total market share.

The growth rate of the entire cryptocurrency market in 2016 amounted to 140.54 %, by the beginning of 2018, the figure was 519.26 %. The average growth rate for the cryptocurrency market rose from 105.4 % in 2016 to 404.7% in May 2018.

In second place in the capitalization share of the market was Ripple (5.68 %). This means that by mid-2015, 95 % of the whole cryptocurrency market was covered by these two crypto currencies. Over the next three years, the share of Bitcoin capitalization relative to the entire market has fallen

and by the May 2018 amounted to 37.48 % .

By 2018, market the cryptocurrencies for digital currencies such as Etherium, Ripple and Bitcoin Cash has grown significantly. The share of these cryptocurrencies was 18.29%, 7.13% and 5.62%, respectively, of the total mass. The share of other cryptocurrencies for the current period is 24.61%. In turn, it is interesting that the share of the average cryptocurrency was 14.26% in May 2015 and decreased by 3.49% to the same period of 2018. It was calculated as the arithmetic average weighted.

Thus, even in the conditions of significant drop in its share in the overall market structure, Bitcoin remains a leading digital asset due to its primary innovative technology.

2. Cripto-currencies rating

A rating of crypto-currencies was compiled as a research result, where bitcoin took the 13th place (table 3). We conducted an evaluation for 28 crypto-currencies according to the following criteria: "technology", "application", "innovation".

In real situations, estimating the number of features describing complex economic objects as a crypto currency is a fairly large process. In practice, the processing of a large number of heterogeneous features is either impossible, or mathematically incorrect, and does not allow solving the problems of evaluation and classification by traditional methods. The presence of uncertainty as a result of the collection of data from various sources complicates the problem. In addition, simplified strategies are sometimes used to solve large-scale problems, which take into account only a part of the available information, that negatively affects the results and makes further analysis difficult.

Considering the essential differences in software codes and other distinctive features of the crypto currency, it becomes necessary to apply the integrated assessment system.

Table 3: Crypto-currency rating

Project	Sub-Index			Total Index	Ranking*
	Technology	Application	Innovation		
Etherium	80.3	23.7	25.4	129.4	**1**
Steem	82.6	9.4	23.9	115.9	**2**
Lisk	64.4	20.9	19.5	104.8	**3**
NEO	69.2	26.6	7.3	103.1	**4**
Komodo	60.3	12.8	28.5	101.6	**5**
Stellar	70.8	18.1	11.8	100.7	**6**
Cardano	60.3	13.7	24.3	98.3	**7**
IOTA	65.9	14.9	17.4	98.2	**8**
Monero	65.7	11.1	15.8	92.6	**9**
Stratis	60.2	19.3	12.2	91.7	**10**
Qtum	58.3	22.8	10	91.1	**11**
BitShares	71.6	12.3	7	90.9	**12**
Bitcoin	39.4	13.1	35.6	88.1	**13**
Verge	66.1	10.9	11.1	88.1	**13**
Waves	58.2	12.3	16	86.5	**15**

*Ranking from 16 to 28: ETC, XRP, DASH, SC, BCN, LTC, ARK, ZEC, NANO, BCH, DCR, HSR, XEM
Source: Compiled by the authors based on www.miit.gov.cn/

The development of a system for integrated assessment of crypto-currencies begins with the grouping of indicators in order to combine elements that have similar properties.

The result of the indicators grouping can be represented in the form of an acyclic oriented graph $G_k = (K, A_k)$, where K - the variety of elements, $A_k = (a_{ij})$ - the plurality of directed arcs connecting elements. Elements $k_i \in K$ reflect indicators grouping. Each directed arc ($a_{ij} = 1$) mean, that the element k_j is a more general (aggregated) indicator relative to an element k_i. It's obvious that $k_i, k_j \in K$, if $a_{ij} = 1$, then $a_{ji} = 0$, i.e. the direction of the arc determines the direction of aggregation of estimates.

We split the whole set of elements K into two subsets: $K = K^0 \cup \tilde{K}, K^0 \cap \tilde{K} = \varnothing$, where K^0 - set of indicators of the lower level of decomposition. Indicators from the set K^0 are subject to immediate evaluation (primary information), the resulting values are subsequently aggregated. Formally, K^0 - the set of elements, which does not lead one arc (multiple inputs), i.e. $\forall k_i \in K, k_j \in K^0$ is performed, $a_{ij} = 0$. $\tilde{K}$ - the set of indicators, which include arcs, i.e. the set $\tilde{K}$ determines the aggregated valuation indicators.

To each vertex $k_l \in \tilde{K}$ we associate a variable y_l, the value of which is determined by the aggregation functional $F_l(\cdot)$. Formally, this aggregation functionality can be defined as follows:

$$y_l = F_l\left((x_i)_{i \in P_l}, (y_j)_{j \in Q_l}\right), \forall l : k_l \in \tilde{K}$$

где $P_l = \{i : k_i \in K^0, a_{il} = 1\}$ и $Q_l = \{j : k_j \in \tilde{K}, a_{jl} = 1\}$ determine the elements G_k, whose estimates are aggregated at the top k_l; x_i - the values of estimates of primary indicators (inputs), i.e. values of element estimates $k_i \in K^0$; y_j - the estimates of aggregate values of elements $k_j \in \tilde{K}$.

The direct problem of determining the complex state estimation consists in calculating with known estimates of individual indicators $\{x_i : i \in I\}, I = \{i : k_i \in K^0\}$ values of complex estimation $F_n(\cdot)$. Given the aggregation functionals $F_n(\cdot)$ and the assumption of the correct numbering of the network $\forall k_i, k_j \in K, a_{ij} = 1$ performed $i < j$, the direct problem of complex estimation is reduced to a sequential computation of the values of all intermediate estimates for elements from the set $\tilde{K}$.

Thus, in order to implement the system of integrated assessment, it is necessary to solve two tasks: to determine the structure of the network of integrated assessment; to set aggregation functions $F_l(\cdot)$ for all elements $k_l \in \tilde{K}$.

Often, weighted functions are used as the aggregation function. The average weighted arithmetic is used primarily for combining in a complex indicator of estimates of homogeneous indicators with small dispersions of their values. To aggregate estimates of heterogeneous and different types of indicators, with different conditions of data use and significant dispersion values of these estimates, the weighted geometric mean is used. In addition, statistical indicators such as the median or average sample value (for example, for aggregating low-level items) can be used as aggregation functionals.

If the value of the integrated assessment (aggregation of the highest level) and aggregates of lower levels is expressed in a categorical scale, then the weighted-average functions are not applied. It is possible to use the criterion of a weighted guaranteed result, in this case the task is to find a solution that would raise the level of all criteria by maximizing the worst of the criteria (criterion, provides the worst result) to the average level.

The criterion of a weighted dominant result is aimed at finding a solution that would guarantee the level of all criteria oriented to the maximum result of the best criteria. The criteria of weighted total efficiency (absolute assignment) asserts that there is a fair compromise in which the total absolute level of quality reduction of one or more criteria does not exceed the total absolute quality level due to the increase of other criteria.

The inverse problem of complex estimation $X'(F_0) \subseteq X$ consists in calculating the set of values of estimates of individual indicators that lead to a given complex estimate $y_n = F_0$, т.е. $X'(F_0) = \{x_i : F_n(x, y) = F_0\}$.

Thus, a diagnostic analysis of such indicators as "technology", "application", "innovation" allows to make a qualitative assessment of the state and level of development of each crypto currency. However, in order to obtain complex estimates of crypto-economics with the aim of making managerial decisions, it is necessary to use the integrated assessment model.

An important indicator for assessing the functioning of a particular crypto currency is the number of transactions being processed. The competitive advantage of applying technology by large financial institutions and banks will be the provision of the ability to conduct instant payments.

Along with the major players in the financial market an individuals may experience barriers for Bitcoin using. Innovation of the technology of the "first digital currency" does not replace the adaptability and convenience of its use. The average Bitcoin transaction can take up to 20 minutes, the cost of such an operation will increase the payment for a particular product / service, it will objectively lead to a decrease in the popularity of using such cryptocurrency.

Nevertheless, despite the drop in price and capitalization in the overall structure of crypto-market, Bitcoin is of paramount importance in the digital currency market. First of all, it concerns mining, infrastructure and peculiarities of the digital currency issue.

To foresee the dynamics of the main market indicators for the medium or long term at the moment is extremely problematic due to the unpredictability of the behavior of major players in the market, the emergence of new types of crypto-currencies, a huge speculative component, high price volatility, market regulation and a number of other factors.

3. Cripto-currencies and energy risks

In the crypto industry, one of the actual problems was the energy dependence of cryptocurrency production. The solution of computational problems and the production of “blocks” takes more and more power relative to the profits obtained from this process. Sooner or later, mining will turn out unprofitable tool for investment.

According to the latest estimates, the current power consumption for crypto operations is about 5.25 KW. Among the list of countries consuming this amount of energy, the place of the crypto-industry for electricity consumption is between the Czech Republic and Chile, and the consumption of energy facilities by the crypto-economy is growing rapidly. Projected consumption by the end of 2018 could reach 7.67 KW. The cost of electricity to create a unit of cryptocurrency is growing, and the profit in turn is reduced.

Despite the decline in interest in cryptocurrencies in 2018, since the beginning of 2017 the consumption of electricity for mining (emission) of digital money has grown to 73 TW*h (Fig. 3). Annual electricity costs exceeded $ 3.5 billion. In 2012 the total capacity of the Bitcoin network exceeded the most powerful supercomputer in the world. It is a threat to the economy, energy and ecology. In the face of growing global environmental problems, the growth of electricity consumption for cryptocurrency mining is of particular concern.

We analyzed the dynamics of electricity consumption for Bitcoin over the period from 10.02.17 to 10.05.2018 based on statistical and graphical research methods (Appendix 2). It can be concluded that the average annual value of consumed capacity increases throughout the period under review (Fig. 3).

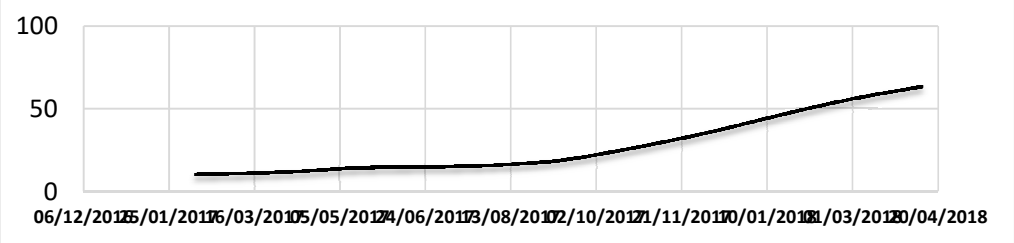

Figure 3: Dynamics of average annual energy consumption in Bitcoin mining, TW*h per year
Source: Compiled by the authors based on www.BitcoinEnergyConsumption.com

As at 10.02.2017, the energy consumed by Bitcoin mining was 9.6 TW*h per year, and by 10.05.2018 the absolute value increased to 66 TW*h per year. The absolute deviation during the whole period under review is growing and averages 3.76 TW*h per period.

The increasing dynamics is also shown by the growth rate of electricity consumption (Fig. 4).

According to results of growth rate analysis, it can be seen that for the period under review the indicator is above the level of 5%, reaching the level of 32% by September 2017, but from 10.11.2017 its value has started a decreasing trend. The rate of increase in capacity consumption fell from 31.68% to 9.63% in April 2018.

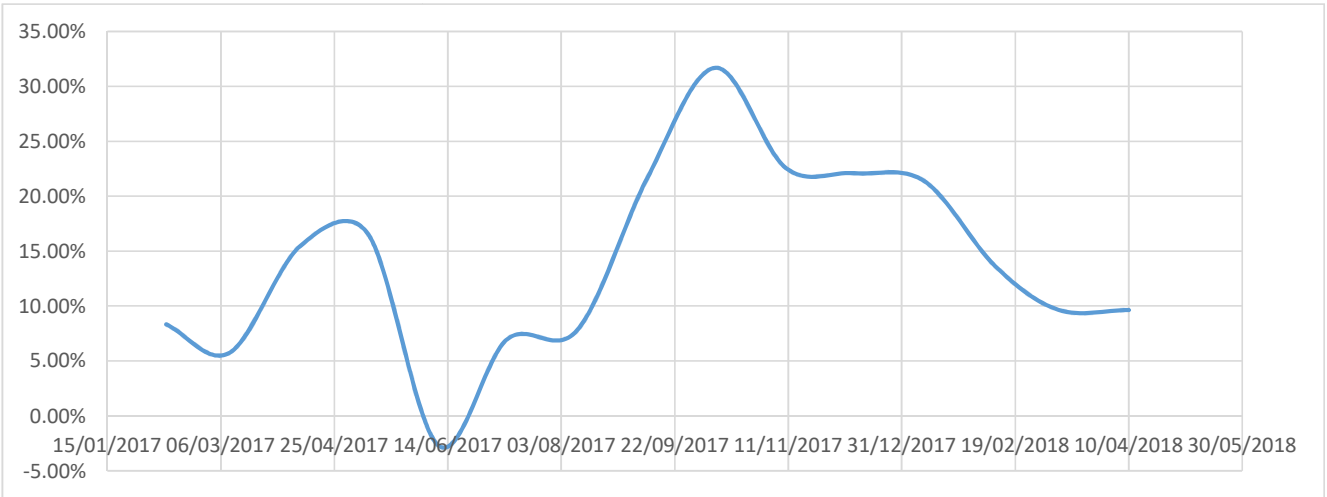

Figure 4: Dynamics of growth rates of energy consumption during mining of Bitcoin
Source: Compiled by the authors based on www.BitcoinEnergyConsumption.com

A continuous cycle of extraction of the "blocks" encourages people around the world to produce cryptocurrency. Since mining cannot provide a steady stream of revenue, companies as well as individuals use energy-intensive machines to mine Bitcoins. The analysis shows that over the years, consumption in the Bitcoin network has grown to epic proportions, as the price of cryptocurrency has reached new highs. A comparative analysis of consumed capacity of the entire Bitcoin network and in some countries is illustrated in Fig. 5.

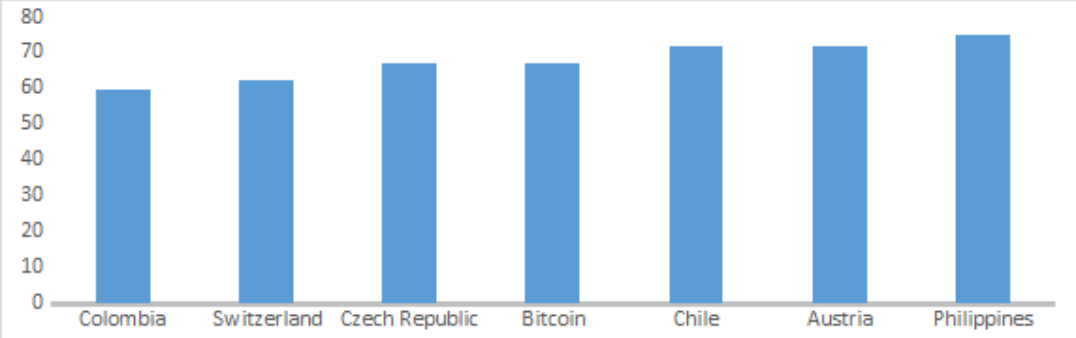

Figure 5: Comparative analysis of energy consumption by countries and the system Bitcoin, TW*h per year [29]

Source: Compiled by the authors based on https://forclog.com and https://yearbook.enerdata.ru

It is worth comparing the share of electricity consumption for Bitcoin mining operations by the largest energy-consuming countries in the world (Fig. 6).

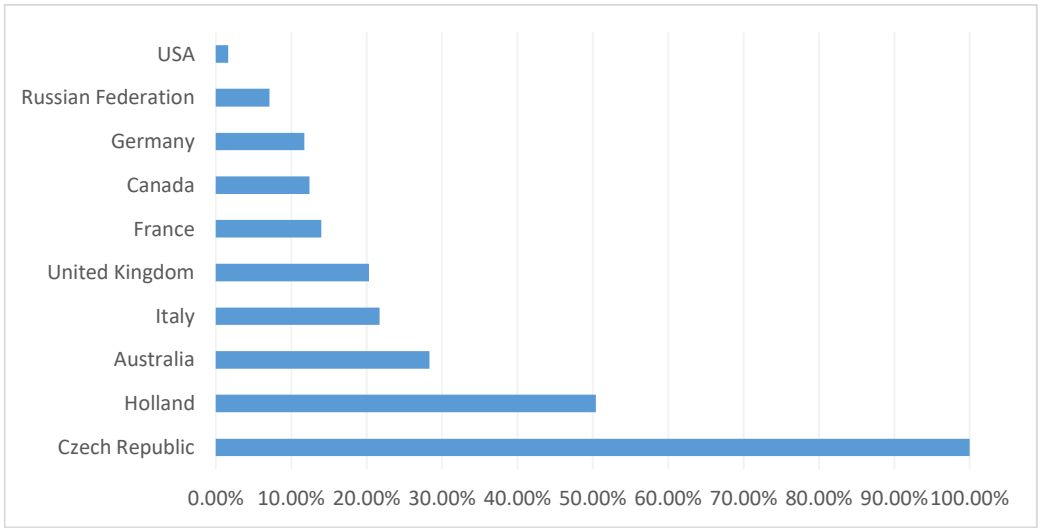

Figure 6: Share of consumed capacity for Bitcoin-related transactions in energy consumption of some countries

Source: Compiled by the authors based on https://forclog.com and https://yearbook.enerdata.ru

The dynamics of prices for cryptocurrencies depends on two key components –speculative and mining. The speculative component depends on the traditional trend of growth or decline in digital prices, typical for any financial product in the market factors such as: psychological, information, political, insider. But the definition of the second component, the mining process, is more complicated.

Analysis of market development factors of cryptocurrency and price trends of market instruments was carried out on the basis of methods of technical analysis of financial market instruments and

statistics data. We concluded that cryptocurrency price formation is influenced by: the current rate of the cryptocurrency; the actual complexity of mining; the time between blocks; the reward for the block; the hashrate of the equipment; the algorithm works; the cost of electricity according to local conditions.

From the presented dynamics of indicators, it can be concluded that the bitcoin pricing is inversely proportional to the profitability of mining the digital currency (Appendix 3). This fact is due to the complication of the computing process every minute. However, if the profitability becomes too large, new users will be interested in mining, which will lead to a return to the previous level of profitability.

With the increasing complexity of mining, the "fair" price per unit of cryptocurrency (Appendix 4) is growing. The complexity of mining determines the amount of energy spent on computing operations, i.e. its cost.

In addition, the price structure largely depends on the degree of involvement in the mining process of main participants. Thus, the number of unique transactions per day directly affects the dynamics of the criptocurrency value. (Appendix 5).

Conclusions and Results

The present paper focuses on identifying key participants and tools involved in the market of cryptocurrencies, their main functions.

According to the comparative analysis of various segments of the financial market, the cryptocurrencies capitalization volume as total as in respect of individual cryptocurrencies can compete with the markets of various precious metals, large companies and the turnover of a number of the largest national currencies, amounting to about $ 400 billion at the moment. The capitalization of the cryptocurrency market is comparable to the gold&currency reserves of such countries as India.

The author's suggested the rating of cryptocurrencies, based on a comprehensive assessment of such criteria as “technology", "application", "innovation", which allows to identify the most and the least attractive cryptocurrencies for investment among the most popular ones.

Cryptocurrencies are of high importance in the global energy system. At the moment, the power consumption of crypto-operations is about 5.25 GW. The dynamics of energy consumption for operations shows a steady growth and trends for further increase in the consumption. At the moment, the energy consumption for bitcoin-related transactions is comparable to that of the average European state. As part of the analysis, it was found that the increase in the price of the digital currency bitcoin is inversely proportional to the increase in the complexity of the generated blocks. The price increase is occurring due to the costs of the operating process along with the required mining capacity.

Currently, there are over a thousand different cryptocurrencies that require the development of a single standard for their regulation, adaptation of tax legislation, as well as the identification of cryptocurrencies as income generating tool.

Based on international practice, we can see, that the regulation of cryptocurrencies seek to create a favorable climate for the development of new technologies (blockchain), seeing the huge potential of the use of technology in different sectors of economic and social activities and cryptocurrencies’ potential for small and medium businesses’ investments.

The legal status and regulations of cryptocurrencies is defined all over the world in very different ways. In Switzerland, bitcoin is equated to foreign currencies. In Japan, this is already a legal tender. In Germany, it is used as a unit of account. In China, it is used by individuals as a commodity, without restrictions. In the US, Canada, Belgium, the UK and other developed countries bitcoin is considered as a form of money, an investment asset with a corresponding attitude of tax services.

Australia, the Philippines, Mauritius, Switzerland and Luxembourg are ready to recognize the cryptocurrency as a means of payment following the Japan. Countries are preparing offshore ground for millions of startups, attracting the billions dollars of their potential customers.

In Russia, bitcoin is not prohibited, but any transaction using virtual currency can be suspected of money laundering from criminal activities. The issue of cryptocurrencies was considered so far one-sidedly, the emphasis was put on the shortcomings of virtual money: the risks of developing a shadow economy; the development of a system of tax evasion; the influence of the media on system participants; risks of freezing accounts and so on.

The general principles and technologies of the main crypto market's tokens allow us to conclude that this industry will continue to develop, not only as a segment of the financial market, but also as a source of revolutionary technologies for the banking business.

Discussion

The analysis results and further research can be useful both for improving the state monetary policy, for expanding the financial payment and investment tools based on the development of modern crypto technologies.

Directions of the subsequent researches can concern revealing of features of digital currency influence on process of a monetary policy realization. In future works it is planned to work out a correlation model of electricity miners' costs with the crypto-currency price.

Further research will continue a deeper analysis of the role of the crypto-currency market in the global economic community, the dynamics of its development and the factors that influence them. It worth to analyze key indicators of leading crypto-currencies development in order to determine the market prospects of such currencies in a modern payment system. It is necessary to determine and classify instruments and participants in the cryptology world more exactly, thereby properly identifying the crypto-currencies role in the different countries economies structure. As a result of subsequent research, ways of influencing the effectiveness of the monetary policy of central banks will be revealed.

Though the USD and CNY markets are tightly connected and are the largest world economies, it`s worth considering the impact of a booming Chinese crypto-market influence on the USD market.

Future research should also be focused on the study of specific crypto-currency risks. These risks include: investment risks, liquidity risks, storage risks, technical risks, the risk of losing control for the state, the risk of fraudulent operations, jurisdictional risk, and market and reputational risks.

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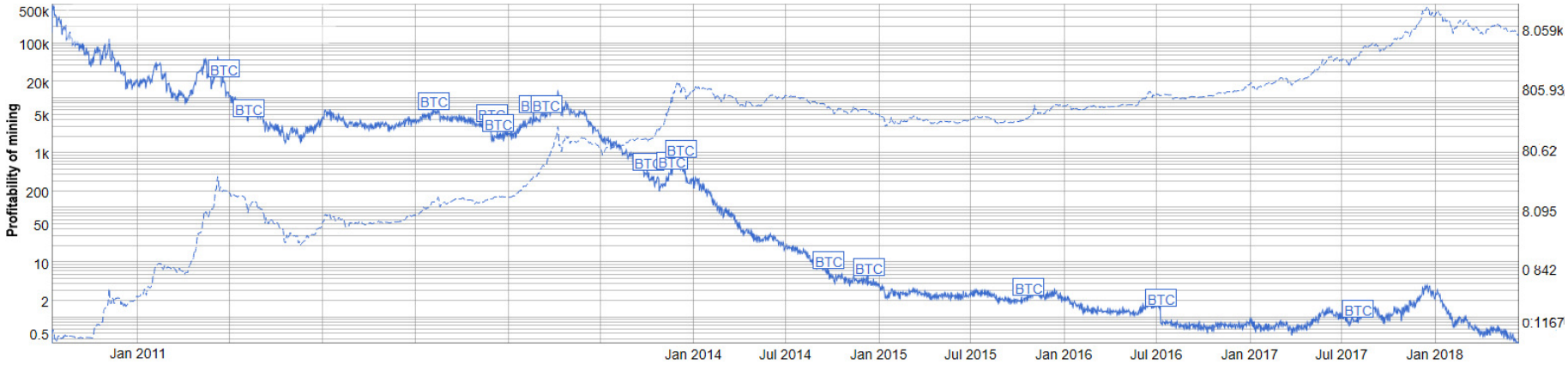
Appendix 1: Market capitalization of cryptocurrencies for the period from 05.2015 to 05.2018.

	capitalization, billion $				Absolute deviation (+ -), billion $			Share market cryptocurrency, %				Relative deviation, %			Growth rate (+,-), %			Average annual value, billion $		
	05.15	05.16	05.17	05.18	05. 2015 – 05. 2016	05. 2016 -05. 2017	05. 2017 – 05. 2018	05.15	05.16	05.17	05.18	05. 2015 – 05. 2016	05. 2016 - 05. 2017	05. 2017 – 05. 2018	05. 2015 – 05. 2016	05. 2016 - 05. 2017	05. 2017 – 05. 2018	05. 2015 – 05. 2016	05. 2016 -05. 2017	05. 2017 – 05. 2018
Cryptocurrency market	3,7	8,9	61,8	382,7	5,2	52,9	320,9	100,00	100,00	100,00	100,00	240,54	694,38	619,26	140,5	594,3	519,26	6,30	35,35	222,25
Bitcoin	3,3	6,8	28,8	143,8	3,5	22	115	89,19	76,40	46,60	37,58	206,06	423,53	499,31	106,6	323,5	399,31	5,05	17,80	86,30
Etherium	0	1,2	11,8	70	1,2	10,6	58,2	0,00	13,48	19,09	18,29	0,00	983,33	593,22	0,0	883,3	493,22	0,60	6,50	40,90
Ripple	0,21	0,21	11,3	27,3	0	11,09	16	5,68	2,36	18,28	7,13	100,00	5380,9	241,59	0,0	5280,9	141,59	0,21	5,76	19,30
BitcoinCash	0	0	4,4	21,5	0	4,4	17,1	0,00	0,00	7,12	5,62	0,00	0,00	488,64	0,00	0,0	388,64	0,00	2,20	12,95
EOS	0,071	0,18	1,6	11,5	0,109	1,42	9,9	1,92	2,02	2,59	3,00	253,52	888,89	718,75	153,5	788,8	618,75	0,13	0,89	6,55
Litecoin	0,057	0,2	1,5	7,8	0,143	1,3	6,3	1,54	2,25	2,43	2,04	350,88	750,00	520,00	250,8	650,0	420,00	0,13	0,85	4,65
Cardano	0,055	0,18	1,4	6,6	0,125	1,22	5,2	1,49	2,02	2,27	1,72	327,27	777,78	471,4	227,2	677,7	371,43	0,12	0,79	4,00
Other cryptocurrency	0,007	0,13	1	94,2	0,123	0,87	93,2	0,19	1,46	1,62	24,61	1857,1	769,23	9420,0	1757,14	669,23	9320,00	0,07	0,56	47,60
Averaged Crypto-Currency	0,528	1,253	8,686	41,214	0,725	7,433	32,53	14,26	14,08	14,05	10,77	176,82	1314,9	504,70	105,39	1229,2	404,70	0,89	4,97	24,95

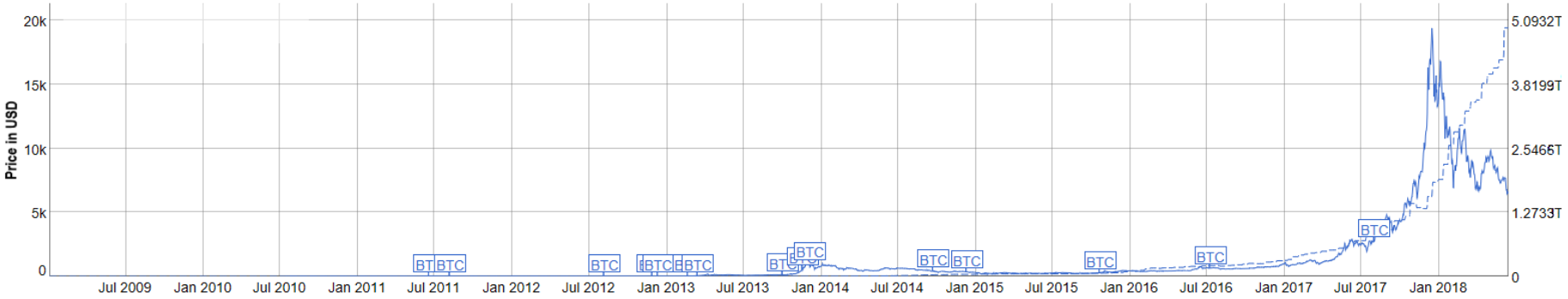
Appendix 2: Dynamics of energy consumption for cryptooperations from 02.2017 to 05.2018

Period	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Date	02.2017	03.2017	04.2017	05.2017	06.2017	07.2017	08.2017	09.2017	10.2017	11.2017	12.2017	01.2018	02.2018	03.2018	04.2018	05.2018
Energy consumed for mining BTC, TW*h per year	9,6	10,4	11	12,7	14,8	14,4	15,4	16,6	20,2	26,6	32,6	39,8	48,3	54,9	60,2	66
Absolute deviation, TW*h per year		0,8	0,6	1,7	2,1	-0,4	1	1,2	3,6	6,4	6	7,2	8,5	6,6	5,3	5,8
Relative deviation, %		108,33	105,77	115,45	116,54	97,30	106,94	107,79	121,69	131,68	122,56	122,09	121,36	113,66	109,65	109,63
Growth rate, %		8,33	5,77	15,45	16,54	-2,70	6,94	7,79	21,69	31,68	22,56	22,09	21,36	13,66	9,65	9,63
Average annual value, TW*h per year		10	10,7	11,85	13,75	14,6	14,9	16	18,4	23,4	29,6	36,2	44,05	51,6	57,55	63,1

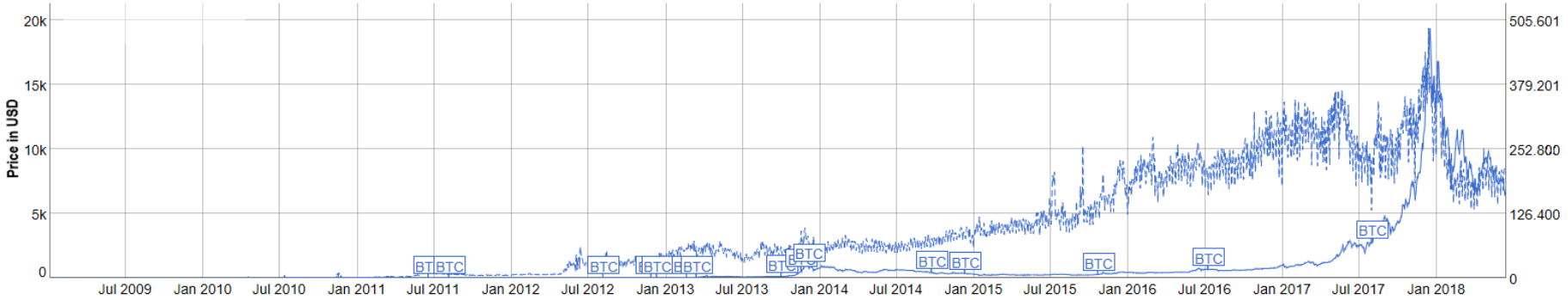
Appendix 3: Profitability of mining and the price per unit of bitcoin ($ th.)



Appendix 4:Complexity of mining (TW*h) and the price per unit of bitcoin ($ th.)



Appendix 5: Dynamics of daily transactions number and unit price of bitcoin ($ th.)



Digitalization of Management as the Way of Increasing the Social and Labor Activity of Young People

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Abstract

The relevance: digital technologies become the main resource of the society, therefore, information and communication provision is an integral part of management activity and it is also a necessary condition for effective functioning of organizations and the society. Currently, digital technologies are used in all spheres of management, and the use of such technologies in youth policy is of great importance. The main goal of the study is to develop a project of a regional youth information portal, which could help to increase the social and labor activity of the youth in the region. The results: the problems of digitalization of the state youth policy in Russian regions have been revealed and analyzed; we have put forward the project of the regional youth information portal as the way of increasing the effectiveness of state youth policy. Field of application: the information related to the project of the youth information portal can be profitably used in other Russian regions. Practical relevance: the results obtained during the research supplement and develop the ideas of digitalization of management and the use of digital technologies in implementation of the state youth policy.

Keywords: youth policy, increase of social and labor activity of young people, digital management technologies.

Introduction

Undoubtedly, at the present stage of the development of the society, the implementation of the priority goals and tasks of the state youth policy cannot function fully without information technology, the technical component of management. Certainly, this conclusion refer not only to the youth policy, but also to any sphere of the government, as technologies enter our life everywhere and allow us to make more effective management decisions, as well as to make the activities of the government bodies more open and transparent.

Since digitalization characterizes not only the sphere of the state youth policy, but the whole complex of public administration, we consider it important to describe the term "digitalization of management".

According to Fang Z.E. (2002) digitalization of management implies the use of information and communication technologies in the activities of public authorities (in providing services to the population and business, organizing public procurement, financial transactions, obtaining and providing information).

At the present stage, the digitalization of management is the result of the interaction among the public

authorities by means of electronic resources (mainly by means of the Internet) in the following areas:

1) providing the population with reliable and complete information on the activities of state bodies, following the principles of openness and accountability. Providing access to programs for economic and social development, reports on the activities of the state bodies, budgets, legislative initiatives, etc.;

2) when making government decisions, the state authorities should cooperate with citizens and get feedback;

3) access of the population to public services targeted at the consumer. The access is to be provided by means of electronic resources.

These directions are increasingly being introduced into the activities of public authorities, and now their existence is impossible without electronic resources.

The last evolutionary form of public administration, mentioned by S.G. Kamolov - "Intelligent (electronic) government" is the stage at which digital governance becomes more accessible to all segments of the population, and at which it is also capable of self-development and improvement.

Electronic government allows to solve a number of topical problems:
- decrease in financial and labor resources of public authorities for the purpose of information exchange between different departments;
- improving the quality of services provided to the population by the state;
- letting citizens spend less time on receiving public services, by increasing the speed of service provision, using information and communication technologies, which also results in saving budget funds;
- improving the efficiency of the system and mechanisms of public administration;
- providing transparency and openness of the public administration system, increasing the ability to control the activities of the government authorities by citizens;
- reduction of the number of citizens' submissions to the state authorities in the traditional way, which demands less administrative work.

First of all, it is worth noting that "e-government" increases the openness and accessibility to the government bodies, which has certain results at present time. Thus, according to the VTSIOM (All-Russian Center for Study of Public Opinion) data, 35% of Russian citizens believe that the authorities have become more open, 9% believe that the reverse process is going on, 39% have not noticed changes lately, and 17% do not know what to say. Thus, we can conclude that the population cooperates with the authorities more effectively, which, first of all, is achieved due to the development of e-government of the country.

In her study of the development of "Electronic Government" A.A. Golubeva (2005) defined several stages of digitalization of the government bodies:
1) The basic site. At this stage, the network provides primary information about the state body. Such a site contains a minimum list of information, consisting of the structure, functions performed, and officials of the body.
2) Publication of information. At the second stage, the content of the state authority becomes more informative, the structure of the sites becomes more complicated, and the first interactions with external resources are provided. At this stage, it is impossible to exchange information with other sources.
3) Development of interaction. At this stage it is possible to receive feedback. The state authority begins direct interaction with the population by means of the Internet: e-mail, surveys, forums and discussion centers. In addition, thanks to the digital resource, users have an opportunity to receive some information services, such as access to documents.
4) Development of transactions. The fourth stage involves the development of the information structure of the state agency to such an extent that the user can conclude various kinds of real-time transactions, such as paying taxes, registration and licensing fees, fines, etc.
5) Full integration. The final stage assumes the functioning of a single portal, where it becomes possible to get access to consolidated information of all the government agencies and to a full range of public services.

Currently, young people in the Russian Federation are to contribute to the country's social and economic development. That is why one of the priority areas in modern Russia is the development of the state youth policy, which is designed to preserve and increase the potential of the country's youth, and create conditions for socialization and self-realization of young people.

State youth policy is an independent activity of public authorities, which provides for the creation and maintenance of the necessary social conditions for innovative development of the country, carried out through comprehensive interaction with civil society institutions, public organizations and youth associations.

Fundamental principles, goals and priorities, as well as mechanisms for implementing the state youth policy of the Russian Federation, are defined in the main document in the sphere of youth policy "Fundamentals of the State Youth Policy of the Russian Federation for the period up to 2025".

According to the "Fundamentals of the State Youth Policy of the Russian Federation for the period up to 2025", the objectives of the state youth policy are to improve the legal, social and economic, organizational conditions for the successful self-realization of young people, aimed at revealing their potential for the further development, and promoting the successful integration of young people in the society and their role in the life of the country. One of the main principles of the state youth policy is to increase the effectiveness of the use of information resources and infrastructure to implement the state youth policy.

The information support system for young people has a rather complex structure and is characterized by three levels. The main federal resource containing the basic information necessary for young people is the official website of the Federal Agency for Youth Affairs “Rosmolodezh”. The site contains basic information about the agency, events, forum campaigns, news in the field of the state youth policy, as well as other information which is important for young people [9].

On the basis of the official “Rosmolodezh” website, the Automated Information System "Youth" has been created. The main goal of the system is to automate the processes of interaction of young people with federal executive bodies, executive authorities of the constituent entities of the Russian Federation, local government bodies, public associations and other organizations that participate in the implementation of the state youth policy, as well as monitoring, processing and accumulating information on implementing youth programs, holding competitions and events in the sphere of the state youth policy.

The main targets of the Automated Information System "Youth" are:
- planning activities in the field of the state youth policy;
- the unified registration of participants in the forum campaigns and events held with the participation of the federal, regional and municipal executive authorities, youth and children's associations; providing access to this registration;
- providing for interaction between the state and the youth public associations and their full support;
- monitoring the implementation of the youth policy throughout the Russian Federation.

Finally, urban and rural youth information centers are established at the local level. There are also problems associated with the development of urban and rural youth information centers at the municipal level. Such centers are underdeveloped in small villages and the authorities hardly make any efforts to attract young people. Of course, this should be changed.

Methods

When carrying out the research we applied a normative approach and based on the key provisions of the Federal Law related to the issues connected with "Information, Information Technologies and Information Protection". The Law provides for the right to search, receive, transfer, produce and disseminate information, to use the information technology and to protect information.

The research methodology is based on the theory of the system analysis, methods of expert assessments, monitoring, and analysis of Web sites. Also, the statistical methods of data processing were applied. The authors made contextual queries using Russian and foreign search engines. The authors also made a comparative content analysis of the official website of the PR department of the

regional administration and the Vk group "Youth Policy" within the period from March to April in 2018.

The development of the project of the regional information portal was based on the analysis of the statistics materials, on the results of the theoretical studies of Russian and foreign authors who also dealt with the above mentioned problem. The authors also referred to the Internet open information sources: official websites of organizations, administrations and region authorities.

Results and Discussion

Carrying out the analysis of the regional youth support system we made the following conclusions.

The support of young people in the field of science is provided thanks to regional scholarships and annual grants. The region annually holds a competition to provide regional nominal scholarships in various areas - from economics to medicine - and annually 53 most gifted students of the region receive scholarships in 20 categories and regional grants in 6 categories. In our opinion, regional nominal scholarships and grants stimulate young people to carry out scientific, educational, public and sports activities, which develop various positive qualities of young people.

Regional authorities help young people to get an additional professional education. In particular, in the region, they provide budgetary allocations for the payment and provision of educational services for theoretical and industrial training (industrial practice), internships; for the rent payment of educational organizations. The unemployed citizens are provided with vocational training. In addition, targeted contract training of young specialists for the needs of the region is organized.

Along with the importance of targeted contract preparation, there are a lot of problems related to this area in the region, namely:
- the specialties regional students choose are not always demanded in the region;
- the system of targeted contractual training does not provide for targeted recruitment by organizations of any form of ownership.

The next direction of support of young people, according to the “Youth Policy” Law, is the support in the sphere of labor and employment. This direction is currently actively supported by the regional administration, and in recent years there have been made significant changes in employing young people. This is shown in Figure 1.

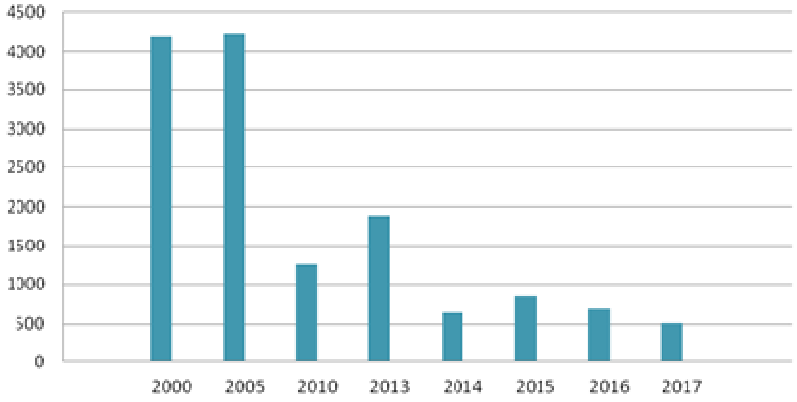

Figure 1 : The number of unemployed young people registered in the state job centers

According to the statistics, in 2017 the number of unemployed young people registered in the state job centers is 510, which is 185 fewer than in 2016 and 1367 fewer than in 2013.

Despite the effective work done in the sphere of the state youth policy, there are still a lot of problems to solve.

One of the main problems is the lack of involvement of young people in educational, cultural, sports

youth events, as well as in social activities. There is a state program "Development of the Civil Society Institutions" (2014-2020). Its effectiveness in the regions is reflected in Table 1.

Table 1 : Indicators of involvement of young people in the regional social projects

Indicators	Percentage		
	2015	2016	2017
Young people (at the age of 14-30) who take part in social initiatives	21	22	24
Young people (at the age of 14-30) who participate in the activities of youth public associations	24	25	26
Young people (at the age of 14-30) who are involved in the projects and programs for young talents implemented by the regional executive authorities	22	22,5	23

According to the statistics, the involvement of young people in social initiatives, the activities of youth public associations and in the projects for young talents, is not more than 26%.

In our opinion, the main reason for that is that the majority of young people are not aware of such programs. This results from insufficient work in the sphere of digitalization of the state youth policy.

The development of information and communication technologies in the youth environment should be effective at all levels of the federal system of information support for young people. Since electronic resources are actively used by young people, it is necessary to take certain measures that could involve more young people in implementation of youth programs.

First, it can be done by means of information portals and the Internet resources that are connected with youth mass media. Youth media are the main source providing the young generation with the basic information about current news in the field of the youth policy, students' life and other social events for young people. However, according to the research, only 19% of Russian youth media have an audience of more than 30 000 people, 28% have an audience of 15 000 - 30 000 people, 15% interact with 5 000 - 15 000 people, and the remaining 38% attract less than 5 000 people. Moreover, youth information resources whose audience is more than 15 000 people function in large cities.

The above statistics indicate that the youth media are underdeveloped in Russia, have a small audience. In our opinion, this trend is caused by the fact that large information portals and Internet resources designed for a wider audience do not get enough support from the authorities. In turn, large resources do not actively interact with the youth media due to the lack of motivation and distrust. In our opinion, such authorities should create a motivation for large information portals and Internet resources. This should be achieved thanks to comprehensive support of the media, interacting with young people, i.e. through budgetary allocations, tax benefits and additional preferences. These measures will increase the awareness of young people about the major events and activities in the field of youth policy.

Secondly, we consider it especially important to create unified youth sources on the basis of the information resources of the state authorities of the subjects of the Russian Federation. This measure makes young people trust the authorities thanks to the official source. In addition, such resources are the best way to impart the information, since young people actively use youth portals and thus they can pass on the information they receive to the other layers of the society.

Thirdly, it is necessary to create a system for the use of modern information and media technologies in all spheres of working with young people. Digitalization of management in the youth environment will allow to reach a wider audience, as young people use modern technologies more actively.

In our opinion, young people should get the information about cultural, sports, educational and socially significant events and about the activities of youth public associations from a single official source that is popular with the majority of the population and has a large audience with different views and interests. This information should be provided by the authorities implementing regional youth projects and supporting youth projects of public associations. Accordingly, these regional executive authorities that should effectively inform young people about the main activities and

projects, and they should also support youth public associations and educational institutions by means of electronic sources.

In our opinion, the PR Department of the regional administration does not work efficiently in this sphere. The official site of the PR Department of the regional administration has been created where we can find the "Youth Policy" section. This section contains general information on contests, promotions, the activities of the Regional Youth Parliament, volunteering and the work plan. However, only general information is provided and it has not been updated for a long time.

In addition, the news on the state youth policy and the activities of the Office is posted on the main website of the PR Department. We should mention that this news is seldom published and when it is posted it is not up-to-date. However, the news that is not mentioned on the official website of the Office is published in the Vk group.

However, social networks are not an ideal way of imparting information because of the unofficial status of groups, which makes the information seem doubtful. In addition, this group is not very popular with the young people of the region: the "Youth Policy" group has only 1 233 members, while in the region there are more than 260 000 young people aged 14-30. Thus, only 0.4% of the youth receive basic information on the regional youth policy.

As it was mentioned earlier, the information on the youth policy is not fully provided on the official website of the management, and the information from unofficial sources in the social networks might cause some doubts. In March-April of 2018 we carried out a comparative content analysis of the official site of the PR department of the regional administration and of the "Youth Policy" group on Vk. Our research helped us to define the main directions of the state youth policy of the region (Table 2).

Table 2 : the results of the comparative content analysis of the official site of the PR department

№	Direction of the state youth policy of the region	Number of references on the official website	Number of references in the Vk group
1	Patriotic education	24	41
2	Volunteering	13	39
3	Youth Projects	13	27
4	Youth public associations	18	43
5	Youth and politics	12	21
6	Work with children	7	14
7	Youth competitions	8	12
8	Forum campaign	9	13
9	Youth policy in municipalities	3	49
10	News of educational institutions	5	23
11	Other	3	15
	TOTAL	115	297

This comparative content analysis showed several trends that need to be adjusted for the most effective work in the sphere of implementation of the state youth policy.

Firstly, the official website of the PR department does not touch upon all the main directions of implementation of the state youth policy of the region. There is hardly any news about the state youth policy, which means that the population's awareness of this area is declining. In its turn, the Vk group presents a broader amount of information on implementation of the state youth policy, but this information is provided to a small number of users, which means that it has a local character.

Secondly, in comparison with the Vk group, little attention is paid to the news about the youth policy in the municipalities of the region. In our opinion, this is unacceptable, since information on the activities of municipalities is no less important for the region and should be fully provided. One of the directions of the state youth policy of the region is the development of youth policy in the municipalities of the region, and the most effective tool is motivation of municipal authorities and

municipal youth public associations by means of official sources that can provide for popularization of their activities.

Thirdly, the official website of the PR department pays insufficient attention to the news related to the activities of higher and secondary educational institutions of the region. As we know, the majority of young people study at higher and secondary schools. Because of the low level of informational support from the official authorities, state authorities hardly communicate with educational institutions. It should also be noted that the Vk group that publishes such news, cannot replace the official source, which means that the official authorities should focus on providing information support.

Our content analysis and the problems we defined in our study underline the necessity to create an official source of information on the state youth policy of the region. This source should be related to the PR department of the regional administration. It is to cover the topical news about the youth policy and to provide various tools to support youth public associations, higher and secondary educational institutions, and youth entrepreneurship. In addition, this information resource should promote the employment of young people and the development of students' educational process. It has to focus on the youth policy in the regional municipalities.

Conclusions

The youth information portal of the region should become the official website of the youth policy on the basis of the PR department. The work of this site should be directly controlled by means of the youth management programs of the PR department. This department interacts both with all youth public associations in the region and higher and secondary educational institutions. It also supervises the work of the municipal youth committees. Having a wide range of connections, this department accumulates a large amount of information in the sphere of youth policy of the region, which means that it can fully inform the population about the main trends in the youth policy of the region.

In our opinion, to solve the problem, the portal should publish timely, complete, competent and vivid information about the main youth events of the region. It is necessary to provide the "News" section on the site (Figure 2).

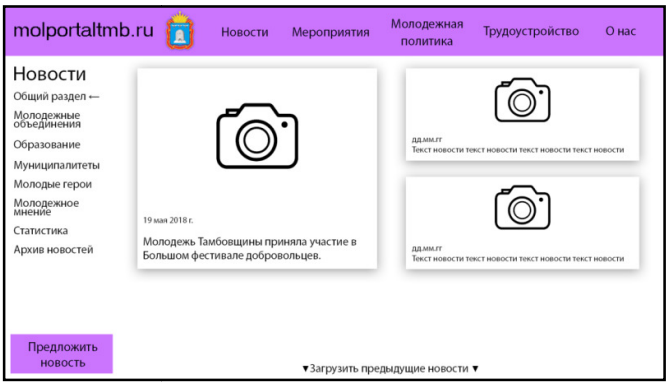

Figure 2: The "News" Section of the Youth Information Portal

It is also important to give an opportunity to young people to share the information by means of the "News" section. This section should also contain the "Archive" so that it could be easy to find the news.

The "News" section should have interesting headings, for example, "Young Heroes", "Youth Opinion", as well as various polls, statistics, lottery and other things that could attract young people. Moreover, thanks to the useful information content the youth portal can inform young people about the main events, educate them and develop their positive qualities. Another thing that should be included in the youth information portal is the "Events" section (Figure 3).

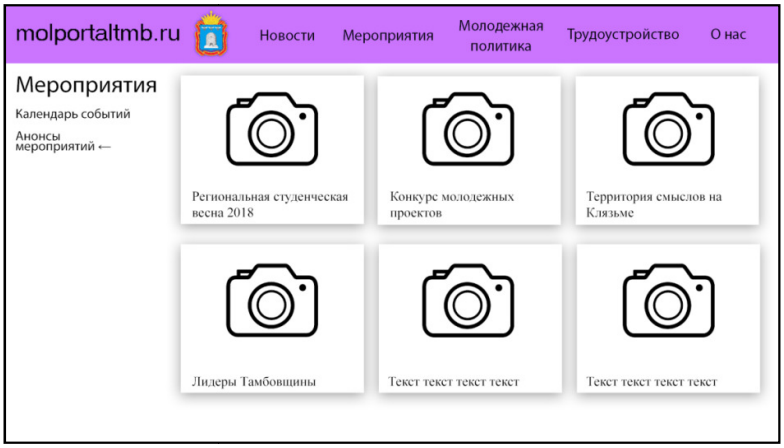

Figure 3 : The "Events" Section of the Youth Information Portal

As we have already mentioned, young people are often unaware about cultural, sports, creative, educational and social youth events held in the region, as well as about the federal and regional forums and competitions. The "Events" section should contain a full list of activities that take place both in the region and at the federal level. It is important to provide for the possibility of registering for regional events through an information portal.

The "Youth Policy" section should be placed on the regional youth information portal and as it will perform the function of informing the people about the activities of the public authorities in the sphere of youth policy (Figure 4).

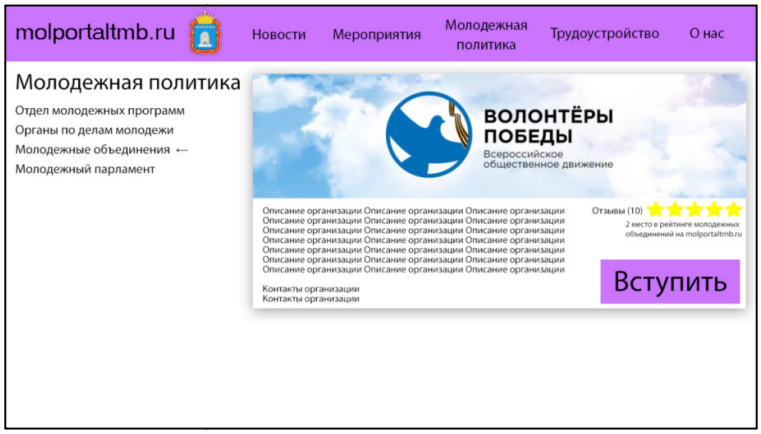

Figure 4: The "Youth Policy" Section of the Youth Information Portal

This section should contain, first of all, the information about the youth management programs of the PR department, the main documents of the department, contact details and other important information. There should be similar information about other departments dealing with the municipal youth policy.

As we have noted before, enterprises are not interested in hiring young specialists as they suppose that it is hard to find efficient young employees. With the help of the youth information portal the regional administration will have an opportunity to partially solve this problem.

Firstly, on the youth information portal there should be an electronic database of students and graduates of higher education institutions and secondary vocational schools of the region. The "Employment" section should contain the "Portfolio of graduates".

Secondly, the "Employment" section of the regional youth information portal should contain a similar system for the employers: it should provide a list of organizations interested in young specialists. This section could be called "Employers". Organizations can be included in the list of the employers only if they are willing to recruit or train young specialists.

Undoubtedly, the youth information portal can become an authoritative source for all the youth of the region and increase the authority of the regional government bodies implementing the state youth policy of the region. Let's summarize the main directions of the youth information portal:
- the "News" section providing the relevant news of the youth public associations of the region, educational institutions and municipalities of the region, as well as other regional news;
- the "Activities" section, which contains a full list of events held both in the region and at the federal level with the possibility of online registration and redirecting to the AIS "Youth" site;
- the "Youth policy" section providing the information on the authorities implementing the regional youth policy and on the youth public associations;
- the "Employment" section providing electronic databases of students and graduates of universities and colleges and organizations interested in young professionals. This section aims at providing young people with jobs.

Thus, the youth information portal will be a major official source of information for young people, which will be administered and supported by the regional authorities and will contain a large amount of information necessary for the full development of young people. It will facilitate the employment of young people and increase their participation in the life of the region.

The portal is designed to help to solve problems in the sphere of digitalization of management of the regional youth policy. First of all, the youth information portal will provide for the interaction between the regional authorities and the population by means of electronic sources of information. It cannot be denied that the functioning of the youth information portal will contribute to solving a number of young people's problems, and therefore this portal is especially important for the implementation of the regional youth policy.

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Integrity in Management Sciences: Moving Beyond the Normative Versus Positive Opposition

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Abstract

The study of integrity as a specific concept first began in the early 1990s. Many distinguished scholars have treated the subject, such as Roger Mayer, James Davis, David Schoorman, Robert Solomon and Michael Jensen. The term has also been used by many professionals to designate one of the core values of their company (e.g. Guiso, 2005). However, there is still no theoretical consensus about what integrity actually means. One major reason would appear to be that researchers either follow a normative or a positive approach, without successfully reconciling the two. We propose the following paper to further advance the discussion.

Keywords: integrity, normative approach, positive approach.

A dividing line currently exists in management science between researchers who study the concept of integrity.

On the one hand are authors who feel that integrity is a normative judgment. For example, Mayer et *al*. (1995) define integrity as the act of adhering to a set of acceptable principles. They explicitly base this definition on the philosophical work of McFall (1987), who makes a distinction between moral integrity, which is shared by a society, and personal integrity, which is specific to the individual agent. Solomon (1992) also feels that integrity is "the key to Aristotelean ethics, not, perhaps, as a virtue as such but rather as the linchpin of all of the virtues, the key to their unity or, in conflict and disunity, an anchor against personal disintegration. "Integrity" is a word, like "honor" its close kin, that sometimes seems all but archaic in the modern business world" (p. 328). He adds: "in harmony or in conflict, integrity represents the integration of one's roles and responsibilities and the virtues defined by them" (p. 328).

On the other hand are those who espouse the positive approach. In 1999 for example, Tony Simons conceived the conceptual model of Behavioral Integrity (BI), which he defines as "the perceived degree of congruence between the values expressed by words and those expressed through action" (p. 3). In 2002, he redefined it as "the Perceived Pattern of Alignment Between an Actor's Words and Deeds," before immediately adding: "It entails both the perceived fit between espoused and enacted values, and perceived promise-keeping" (p. 19). Werner Erhard, Michael Jensen and Steve Zaffron build on this definition by adding the notion of reparation. For Erhard et *al.* (2016), integrity means honoring one's word, doing what one promised to do, or, failing which, making it known as soon as possible and seeking to make amends for failing to have kept one's word.

In their work, both Tony Simons and Erhard et *al.* (2016) explicitly rule out any normative considerations. Tony Simons (2002) admits that the *Random House College Dictionary* (1975, p. 692) defines integrity as "adherence to moral and ethical principles," but he adds "though, BI does not consider the morality of principles" (p. 19). Erhard et *al*. (2016) observe that for the *Webster's New World Dictionary*, integrity means not only being whole, complete, intact, sound, and in perfect condition, but also to be morally sound—i.e. to be just, honest and sincere.

The stance adopted by Tony Simons and by Werner Erhard and his colleagues would appear to originate in past criticism of researchers studying normative aspects in economic science. Robbins (1935) in particular felt that there was a risk that the moral judgment of the researchers would interfere with the scientific validity of their work.

However, we feel that, for two reasons, researchers in management science can--and must--move beyond the stance of Tony Simons and of Werner Erhard and his colleagues.
It is in fact entirely possible to distinguish, like Weber (1922), between the value judgments established through scientific research and the judgments of the actors themselves with respect to these values. For example, when a researcher in management science studies organizational justice, he studies how justice is perceived by the members of the company itself, without expressing his personal opinion concerning justice as it applies to this organization. With respect to integrity, it is entirely possible for a researcher in management sciences to make this distinction as well, by studying the ways in which the agents believe that their normative values are—or are not—respected, without the researcher's judgment getting involved.

What's more, both Tony Simons and Erhard and his colleagues admit themselves that the concept of integrity cannot be fully grasped through a positive approach alone, and that this is problematic. Simons (2013) freely admits that responding in the affirmative to the question "Did Hitler possess behavioral integrity?" would be unacceptable to his audience at the Academy of Management. In 2015, Simons also recognizes that when someone is questioned about the alignment between an actor's words and deeds, she cannot help but make a judgment about the goodness of these words. Erhard et *al.* (2016) reintroduce the question of morals when they state that all the member of a group promise to respect the rules, whether it be implicitly or explicitly. The reader can only deduce that a failure to respect these norms is evidence of a lack of integrity.

At this point in our study, we can reach an initial conclusion: integrity is a moral question, and it is entirely possible for the researcher to take a scientific interest in the opinions of the actors concerning this question, provided that the researcher does not give his own opinion.

What could integrity mean for the actors?

Palanski and Yammarino (2007) noted that the literature on integrity often touches upon the question of courage, honesty, justice, consideration, concern or, more generally, good character. They consider, with Audi and Murphy (2006), that integrity cannot be any one of these specific virtues, which have already been precisely defined, nor can it be a good character, which is a broader concept than integrity. They observe that aligning one's acts with one's deeds is a behavior that, up until now, has not been designated by a specific term and therefore refer to it as integrity, without specifying its scientific content. The reasoning of Palanski and Yammarino (2007) is based only on the notion of parsimony: one word, and one word only, for each concept, with no concept omitted. Nonetheless, the weaknesses that we described earlier in the definition given by Tony Simons remain. The concept of integrity must be based on different terms, from the point of view of the actors.

An idea mentioned somewhat incidentally by each of the authors cited above caught our attention. For Mayer et *al.* 1995, "The issue of acceptability precludes the argument that a party who is committed solely to the principle of profit-seeking at all costs would be judged high in integrity (unless this principle is acceptable to the trustor)" (p. 719). Solomon (1999), when referring to a party with no integrity, speaks of opportunism and of the conscious decision to advocate self-interest. Tony Simons (2002) considers that "a colleague who openly advocates self-interest, rather than the common good, as a basis for personal actions might be despised". Erhard et *al.* (2016) also write that "applying cost-benefit analysis to honoring your word guarantees that you will be untrustworthy" (p. 3).

It seems to us that in both the normative approach and the positive approach, the authors essentially consider a person with integrity to be someone who refuses to be an opportunist—i.e. someone who

refuses a personal gain not foreseen in the contract, and which could be obtained by taking advantage of information asymmetry. We believe that integrity defined in this manner makes it possible to move beyond the apparent opposition between the authors espousing both approaches, and hope that further research will enrich the discussion.

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Potential Threats during Controlling System Implementation And Financial Controling System Budgeting

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Abstract

Financial controlling system implementation is not only complex but also long-term process. Its application requires many difficult tasks from different areas of company which are usually performed by outside companies. Financial controlling implementation is exposed to various risks which should be identified. This would allow to prepare a preventive action plan. It is therefore extremely important to develop budget for financial controlling system implementation which includes, besides normal operations, the protection against identified risks. The aim of this article is to measure comprehensively budgeting of projects to implement financial controlling related with anticipated threats. In the article there will be discussed principles for determining level of threat, appropriate duration of preventive actions and rules for costs planning. This paper is based on a case study of controlling system implementation in enterprise.

Keywords: budgeting, system implementation, financial controlling.

Introduction

The process of financial controlling system implementation is exposed to many negative factors such as:

1) long time of its implementation, often longer than a year,

2) performance of tasks by various independent entities such as employees of enterprise in which controlling system is implemented, consulting companies and the IT solution providers,

3) performance of tasks in many important areas of business operations such as accounting, human resources and business processes,

4) adaptation of advanced conceptual tools.

Therefore quite often it appears that processes of financial controlling system implementation do not reach expected goals. It can be observed due to different factors such as for example:

1) significant prolongation of implementation time,

2) complete abandonment of already started activities,

3) significant exceeded of project budget,

4) lack of interest of controlling system management stuff,

5) inadequate usage of tools,

6) mismatching of implemented tools to business specificity,

7) lack of measurable effects,

8) high operating costs caused by high labor effort.

In many companies the above mentioned issued appeared. In that cases managers stated that financial controlling system is outdated and ineffective. It should neither be implemented at all nor should it be continued if it already exists in enterprise. Quite often controlling is identified as budgeting. The negation of its use is justified by the well-known concept of demanding outside the budget. These statements, however, are a consequence of negative experiences gained during failed controlling system implementations. Companies in which those implementations have been successful have quite opposite opinion. It is believed that controlling implementation is one of the most effective activities.

Methodology

In this article the following methods were used:

1. Direct interviews at various Polish enterprises.

2. Analysis of the background documents of enterprises.

3. Observation and analysis of the controlling development and implementation processes.

4. Case-study analysis of controlling system implementation in Polish enterprise.

Types of Risk Factors in Financial Controlling System Implementation

An important reason for failures during financial control system implementation is the occurrence of unforeseen negative factors. These are all kinds of factors that are not covered by the implementation plan. However, they have a negative impact on it. In order to maximize their negative impact on implementation, it is therefore worthwhile to perform the following actions such as:

1) identify potential threats,

2) classify threats according to their significance and probability of occurrence,

3) prepare scenarios for preventive actions,

4) introduce preventive measures into controlling implementation budget.

Limited funds should not be considered as an obstacle. Failures in such projects are often determined by insufficient funds. When financial resources are limited, the implementation process should be extended over a longer period and the scope of works should be reduced.

Most important factor that could interfere implementation of this system seems to be lack of sufficient knowledge among many groups of workers. Knowledge of controlling should apply to the following groups of employees:

1) management board,

2) financial controllers,

3) managers of responsibility centers,

4) executive staff.

Having an appropriate knowledge would allow to learn principles of construction and usage of various control tools. This would secure process of its implementation against any negative factors. Due to implemented solutions tailored to company's needs it is possible to meet current requirements. This knowledge is also essential for financial controllers because they are responsible for:

1) developing schedule and scope of implementation,

2) selection of detailed design solutions for implemented tools,

3) supervision on implementation process correctness.

Other employees should also have adequate knowledge of controlling. However it should cover issues of application rather than tool design. In the case of management, this knowledge would allow to properly:

1) oversee implementation process,

2) eliminate conflicts occurring during implementation.

The negative factors for controlling system implementation can be classified into several ranges which are presented in table 1.

Table 1: Negative factors for controlling system implementation and suggested preventative measures

Areas of threats occurrence	**Potential negative factors**	**Negative effects**	**Standard preventive measures**
Education of management stuff	Lack of controlling acceptance	Discouragement in the absence of effects achieved in the short term with the accomplishment of many tasks for a long period	General trainings of broad group of employees regarding idea of controlling and adopting practical company solutions
	Lack of knowledge about correctness of construction of	Implementation of tools mismatched to specificity of company functioning which are incompatible with the	Advanced trainings of controlling specialists before its

	implemented tools	current standards	implementation
Implementation time	Too short time to implement it	Exceeding scheduled implementation time Performing many tasks in insufficiently detailed	Start of implementation at the beginning of the financial year so that enterprise can carry out many tasks throughout the year
	Implementation period does not take into account seasonality of company	Planning implementation tasks in periods of intensified activities	Taking into consideration different intentions of works in particular periods
Scope of works	Inadequate scope of works	Individual tools do not use each other's capabilities. The lack of synergy results in decrease in the ratio of effort paid to the resulting effects.	Detailed planning of implementation schedule
	Too wide implementation range for limited period	Execution of too many tasks with limited personal, financial means and limited time	Detailed planning of implementation schedule
Detailed implementation planning	Planning budget implementation within too synthetic items	Exceeding the implementation budget Abandonment of necessary works due to budget constraints	Planning implementation of task-based method. Each stage should have specific tasks to perform. There should be avoided to plan general categories of tasks.
IT support	Lack of IT support	Too much labor-intensive implementation works and then servicing current controlling system	Start up the available IT systems and selecting best system that would fulfill long-term IT needs
	Subordination of implementation under IT system requirements	Limiting usefulness of the controlling system	Proper specification of requirements with respect to IT system providers

External support	Lack of IT support	Applying outdated solutions that do not meet the current standards Long-term implementation process Lack of knowledge about reference solutions	Selection of external consultants with recognized references Using corporate headquarters support - an option for company within capital group

Source: own elaboration.

Classification of Interfering Factors

Classification seems to be the impact force on the implementation process. This factor may be important for financial controlling implementation. This can cause significant problems in terms of time, cost or project tasks. An important factor may even lead to failure of implementation project. Other factors Interfering factors which were identified have different meanings and therefore they can be divided according to the following criteria:

1) strength of influence on the implementation process,

2) probability of occurrence,

3) costs of preventive measures.

In the mentioned negative factors criteria it is extremely important to put them in correct order. The most important way for this may cause slight perturbations.

Budgeting implementation of funds for preventive tasks carried out without any need for a disturbance factor. Preparation of preventive measures in activities without indicating budgetary resources financed by transfer of funds in project budget without increasing it.

Good Budgeting Practices

The proposed methods of creating budgets for such projects will result in several categories of budget items. Division presented in table 2 will be based on their relevance and the way how budgets are mobilized.

Table 2: Allocation of funds for tasks execution in projecting budget of financial controlling system

Category of tasks		**Budget item**	
Tasks related to the implementation of controlling system	significant	Individual budget item for each task	Basic budget of the project
	Less rank	One budget item for multiple tasks	
Tasks to secure implementation	Finance method 3		
	Finance method 1	Individual budget item for each task	
	Finance method 2	Individual budget item for each task	Budget of preventive actions run conditionally

Source: own elaboration.

These methods are related to current good budgeting practices which are presented in table 3.

Table 3: Selected good budgeting practices in budgeting implementation project of the financial controlling system

Recommended Budgeting Principles	**Description**
Project budgeting	Each important task should have an individual budge in order to indicate effect of its implementation on the results of combined undertakings
Activity budgeting	Project budget should identify items related to implementation of single itemized tasks. This allows detailed planning of material tasks in different periods, enables also to indicate responsibilities and justification of total budget
Walking budgeting	Budget should be updated during its implementation. This allows to match it to the current situation. Primary budget planning used to take place in advance and that is the reasone why not all current factors were not known
Budgeted flexible	Budget allows to transfer of funds between individual items. This enables updating it without changing overall value of the funds. For these activities project manager may responsible
Variable budgeting	During planning phase budget should have different variants prepared as at that stage it is sill quickly and easily to adapt it to current conditions
Detailed budgeting of important items and	Budget should present items which are significant. This would allow to justify costs of important tasks. This would also allow you to analyze

general tasks of lesser importance	process of their implementation. On the other side it is not recommended to detail bugdet especially regarding less important tasks This would allow budget manager to decide on what tasks funds would be allocated.

Source: own elaboration.

Conclusion

Implementing financial controlling system is a long-term, complex and risky undertaking. Type, probability of occurrence and costs of preventive actions of these threats tend to be very various. For this reason, it is worth for this type of project to take into account its specificity. It should be created in accordance to flexible budget rules. This means it is possible to change available funds depending on occurred conditions. Rules of this changes could be flexibly planned. A scenario for eliminating anticipated threats is created for this purpose. The aim of this study is to show that modern flexible budgeting methods are the right planning tool for this type of projects.

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A New Level of Marketing Thinking – Macromarketing (1)

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Abstract

In this paper we address the role of marketing in society by approaching the concept of macromarketing. We intend to examine the core aspects of the concept based on the investigation of the academic literature. We are trying to analyze the concept in connection with other concepts like society, quality of life, human welfare and to delineate the framework within they are connected. The purpose of this paper is to put the bases for further research regarding the field.

Keywords: macromarketing, society, quality of life, human welfare

JEL classification: M31.

Introduction: Marketing, Society and the Macromarketing Concept

In this paper we address the role of marketing in society. There are not rare the situations when the goal of marketing and the interest of the society are considered of being divergent (Seth and Sisodia, 2015) or acrimonious (Seth, 1992). This has led to important consequences on how the concept of marketing is perceived. Despite the fact that many research show a loss of customers trust, the goal of marketing is a noble one and it implies considering the customers' interest first (Seth and Sisodia, 2015). On the other hand, statements like "marketing's role is to «deliver a higher standard of living»" (Kotler, Keller et. al., 2009, p. 7) - even if part of the social definition of marketing, or interesting and provocative questions like the one proposed by Sirgy, Yu et. al. (2012) - *"Does the level of marketing activity in a country contribute to societal well-being or quality of life?"* – might generate confusion both for non-specialists but also for some marketing specialists, especially practitioners. In our study we are questioning if this dimension of marketing is more visible as part of the macromarketing way of thinking and how the academic literature is approaching the resorts connecting micro and macro – marketing, under the lens of the society's interests, quality of life, standards of living or other related concepts.

According to our observations, the concept of macromarketing is not one of the most popular in the marketing academic literature. However, over time, scholars have tried to extract and define the essence of the concept in a significant number of definitions. In the 80s, Hunt (1981, p. 8) described macromarketing as "a multidimensional construct", indicating that "a complete specification would (should) include the following: Macro-marketing refers to the study of (1) marketing systems, (2) the impact and consequence of marketing systems on society, and (3) the impact and consequence of society on marketing systems." About 10 years later, according to Sheth (1992, p. 155) m*acromarketing* „refers to the understanding, explanation and management of the relationship between marketing and society. It is a bridge where marketing and society meet, exchange, and interact with each other." More recently, American Marketing Association defines macromarketing as „the study of marketing processes, activities, institutions, and results from a broad perspective (such as a nation), in which cultural, political, and social as well as economic interaction are

investigated. It is marketing in a larger context than any one firm." (American Marketing Association. AMA Dictionary, 2017).
The general background of macromarketing consists of mutual relations between marketing and society with the purpose of improving the standards of living within the society. Still, there is not a well defined conceptual framework of how this noble purpose can be accomplished. The concept of marketing systems identifies as a key concept in understanding macromarketing. A high level of understanding macromarketing would be to determine how the structures of marketing systems are affecting the daily lives of individuals and the society as a whole (Mittelstaedt, Kilbourne and Shultz, 2015, p. 2513). Mittelstaedt, Kilbourne and Shultz are also identifying two ways through which macromarketing is a distinct high-level dimension of marketing: the first refers to the unit of analysis (which is not the firm or the consumer, but the general marketing system), and the second to the relationship between marketing and society regarding the ways they shape each other.

Another concern of macromarketing scholars is the distinction between micro- and macro-marketing. According to Bartels and Jenkins (1977, p. 17) the difference between micromarketing and macromarketing is made based on: the organizational unit considered (single entrepreneurial units vs. entrepreneurial systems of multiple units) and the function of management (the management of single entrepreneurial unit vs. processes of marketing managed by governmental or other public agencies). In this context, macromarketing system is presented as a function of the micromarketing decisions made each day, within the context meant to link the micromarketing objectives with the goals of macromarketing (Mick, D. G., Bateman, T. S. and Lutz, 2009, p. 98) as part of the marketing-society integrative vision.

Marketing scholars were challenged to make the effort to augment the marketing thinking "to a higher – larger – level of management" because of the great potential benefits this approach can bring to society (Reidenbach and Oliva, 1982, p. 142; Bartels and Jenkins, 1977). Despite all the effervescence developed around the macromarketing concept, Sheth (1992, p. 154) noticed that macromarketing was far from receiving the pedagogical attention and support it deserves, and we consider that the situation is still the same. There are still premises for change and macromarketing could get more popularity in line with what Pirson and Varey (2013) consider to be a "growing megatrend call for marketing rethinking"; even if this idea is mentioned in the context of the concept of humanistic marketing.

The appearance of macromarketing as a domain of interest is a consequence of the growing concern regarding the influence of the business environment on society (Sheth and Gardner, 1982, p. 53). The first germs of the macromarketing thought are considered to come from the '60s, but an important stage was in 1981 when the new released Journal of Macromarketing included in the first volume the *"What is macromarketing"* Colloquium (Shapiro, 2006, p. 307). Over time, the interest for the concept has led many scholars to bring their contributions for giving marketing a new dimension of thinking.

Macromarketing, quality of life and human welfare

An important but difficult aspect that needs to be clarified when defining the conceptual framework of macromarketing is the relationship between marketing and society. Historically, this relationship has been seen mostly acrimonious instead of harmonious (Sheth, 1992, p 155-156). In fact, marketing is probably one of the most misunderstood economic disciplines. Mittelstaedt, Kilbourne and Shultz (2015) explored the nature of the relationship between marketing and society, and the results led them to conclude to the existence of two antagonistic schools of thought: one is the developmental school and it claims the positive influence of the marketing systems on the economic development and social well being (including here quality of life, economic development and contribution to a peace over conflict context) and the other is the critical school who claims a negative influence of marketing systems on the society (as a result of aggressive competitive materialism and its worldwide spread).

In 1977, Bartels and Jenkins (1977) argue that there are four components of the macromarketing thought: macromarketing data of the marketing system as a whole; macromarketing theory; macromarketing normative models correlated with society's best interest; and macromarketing management as public regulations and programs meant to optimize the entire marketing process. According to Sheth (1992, p. 154) the "purpose of macromarketing is, or ought to be, the development and maintenance of a harmonious relationship between marketing and society" and he sets the goal convergence and the process convergence as pillars. The marketing-society goal convergence is grounded on agreeing a shared vision that can be focused, according to Sheth (1992, p. 156) on quality of life, customer satisfaction. Later, Seth and Sisodia (2005) argue that emphasizing more the customer-perspective in marketing will be able to improve the consumers' quality of life, and eventually this will generate a positive influence in the society as a whole.

The most recent approaches regarding the understanding of macromarketing are placing the concept in an increasingly complex and profound aura. If Mick, Bateman and Lutz (2009) are exploring wisdom – "the pinnacle of human virtues" – as a value capable to connect the micromarketing and macromarketing goals through a unified vision, Mittelstaedt, Kilbourne and Shultz (2015, p. 2513) are linking the concepts of macromarketing and positive marketing, suggesting that the last one is centered around the idea that marketing has a "vital and productive role in human development".
Other scholars are offering more concrete approaches. For Sirgy, Yu et all, (2012) the connection between the above-mentioned concepts (marketing activity, quality of life, societal well-being) is less intuitive but underlined through the results of their research. According to their study, even if it is admitted that the marketing activity should be considered in a more broadened framework, a positive influence of marketing system on the societal well-being is highlighted. Peterson and Lunde (2016, p 105) state that, over time, six macromarketing sub-domains (quality of life, ethics, environment, systems, history and poor countries) captured the attention offered by scholars to the macromarketing concept.

As part of our investigation into the macromarketing academic literature, we were questioning to what extent the academic literature considers in the articles related to the macromarketing topic the concepts like quality of life, standards of living, human welfare, etc. For that, we investigated a number of 97 scientific articles published between 2014 and 2018 in the prestigious Journal of Macromarketing regarding the keywords associated with these articles. For this research, we didn't consider the articles published in special issues with very specific topics. We collected the keywords from 97 articles and data mined the content using Computer Assisted Qualitative Data Analysis Software (CAQDAS). We used applications like Leximancer and QDA Miner/WordStat (Provalis Research, 2018) to perform the analysis. Our study is exploratory in nature, based on content analysis as research method. According to the results, excepting the macromarketing keyword found in most of the articles, the keywords with the highest frequencies are those related with sustainability, marketing systems and social-related concept (e.g. social marketing, dominant social paradigm, social development, etc.). Using QDA Miner and WordStat we extracted the general topics behind the keywords of these articles and the results are presented in the chart below.

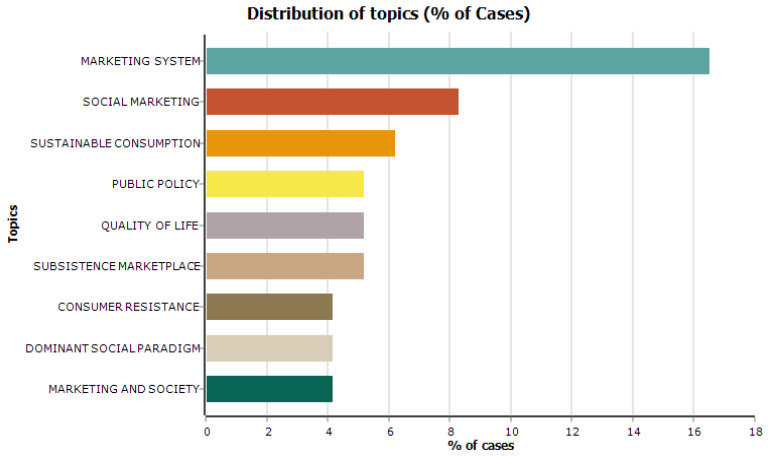

Fig 1: Distribution of topics (% of cases)

Conclusion

In our opinion, an integrative manner should be considered when approaching the micro- and macro-marketing concepts. There is a general idea in the academic literature that macromarketing is based on the interaction between marketing and society. How this relationship will be operationalized in order to achieve the purpose of macromarketing and to define a conceptual framework/theory is still under debate. A strategic dimension and an operational dimension should be also considered when defining the concept. There are also important questions to be answered. We highlight the following two ideas: as part of the strategic dimension - *how to define value in macromarketing?;* as part of the operational dimension - *how to implement systems in the society capable to create the context for the value-creation process?*.

Due to its interdisciplinary inner power and the beneficial potential impact its systems may generate in society, we consider macromarketing as a very challenging concept and, also, the kind of concept capable to generate increasing interest, exciting debates and even passions among scholars. On the other hand, we consider that macromarketing does not receive yet the attention it deserves. The reasons are probably the ones mentioned by Sheth in 1992, especially the fact that a clearly defined conceptual framework/theory is still missing. Another significant drawback of macromarketing construct is that, in comparison with micromarketing, it is abstract, without a rigorously clarified mechanisms and structure, except of its purpose. Under the circumstances of increasingly consistent and dedicated research, macromarketing can gain the role it deserves both in the economic context but also in the society as a whole.

Acknowledgement

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Irrational Behavior as a Factor of the Risk of the Incorrect Economic Solutions Acceptance by Individual

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Abstract

In this paper, the factors of individual-personal predisposition to irrational economic behavior are revealed, and a method for diagnosing the propensity to irrational economic behavior is proposed. The relationship between the individual psychological features of the individual and the styles of rational economic behavior in adolescence is studied.

The definition of rational economic behavior is formulated as a result of this research. It is a system of social actions that, first of all, are aimed at gaining profit from the circulation and using economic values (resources) which are different in function and purpose.

The results have shown that there is a relationship between between emotional instability, life-purpose orientations (LPO) of young people and their level of irrational economic behavior. The factors of irrational economic choice in adolescence were developed and based on the analysis of literature, the study of diagnostic approaches and the revealed relationships.

Keywords: Rationality, rational economic behavior, economic thinking, economic irrationality.

JEL codes: D14, D81, D91.

Introduction

The article explores the styles of irrational and rational behavior of students when making economic decisions. The purpose of the study was to identify the characteristics of economic irrational behavior of students; analysis of the relationship between the individual characteristics of the individual and the ability to rationally choose and make financial decisions in students, identify the psychological prerequisites for making irrational economic decisions.

As a result of the research, psychological, sociological, and economic literature on the topic of irrational economic behavior was analyzed. Specific methods for studying the individual and typological characteristics of the student's personality, the level of their anxiety, emotional stability, self-esteem, ability of non-standard thinking and mathematical (economic thinking) were selected.

The author reveals the psychological features and their relationship to the styles of irrational economic behavior of students at the University of Economics.

Literature Review

Approaches to the study of rational human behavior should be viewed from three perspectives - *economic, sociological and psychological*.

The economic approach - considers rational behavior as the behavior of the "economic person": it is cost-effective; needs are limited by available resources; it demonstrates the stability of tastes, judgments and preferences.

Thus, the economically rational behavior of a person is behavior aimed at individual preference of a

result in conditions of limited resources. The assumption of stability of expectations makes it possible to form a reliable basis for modeling reactions to changes, but the expectations of individuals "by no means always remain stable, if we bear in mind market goods and services" (Becker, 1976).

In this concept, the basic principles of rational behavior are considered: orientation to the average statistical opinion, habits, traditions, etc. In this approach, therefore, there is simultaneously a desire for rationality, and its limitations. F. Knight (1921) expressed the essence of limited economic rationality as follows: "It is rational to behave irrationally, when the costs of rationality are too great".

The sociological approach is connected with the study of rational behavior of people in the light of their position in the social structure of society. The rational behavior of a sociological person is described by the model SRSM (Socialized, Role-Playing, Sanctioned Man), proposed by S. Lindenberg (2015) - it is a "socialized person, performing roles, whose behavior is sanctioned by society".

Psychological approach - is the identification of the rational nature of consumer behavior, as well as the underlying motivations of the individual's behavior. A special feature of economic psychology is the close attention to subjective, psychological characteristics that have a decisive influence on economic behavior. Economic science is not interested in differences in the economic behavior of people, but the general, typical, which allows you to build economic models for predicting the typical behavior of economic individuals.

The hierarchical Maslow model (1969) distributes in the order of their importance the needs of the person in terms of levels: physiological, security needs, in love and belonging to the community, in respect and self-actualization.

Tversky and Kahneman created a theory of perspectives (1979) for explaining the irrationality of human economic choices. They described a total of eleven "cognitive illusions" that distort the person's ability to rationally assess, and gave them a systematic explanation.

The above differences in approaches to the concept of "irrationality" are largely due to a different understanding of the nature of economic rationality.

The difference in the relations between psychology, economics, and sociology is determined, first of all, by an approach to the fundamental principle of economic rationality: the prerequisite for the rational behavior of economic subjects. Rational behavior in this case from the economic point of view is the promising maximization of income. Therefore, actions such as charity, voluntary free labor, play in the lottery, are viewed within the framework of economic behavior as irrational.

Also, economic rational behavior can be considered as an "institutionalized value", i.e. as the norm of behavior to which the majority of individuals aspire (Lea et al, 1995).

Supporters of a rational approach to the economic behavior of an individual lead to evidence of the rational roots of irrational human behavior. Becker (1976) investigated economic methods for assessing human behavior. He describes such aspects of human life as education, suicide, drug addiction and family from the point of view of mathematical models. The researcher also created "rational" models for the formation of religious beliefs and emotions. Such rationalists as Becker (1976) blame the supporters of the behavioral economy (irrational behavior), for example Camerer (2003), in that they use any suitable psychological theory to find an explanation for the problem under investigation, substituting a consistent scientific approach for this.

Hypotheses

The main hypothesis: There is a connection between the individual mental characteristics of the personality of 17-18 years and the irrational choice in making economic decisions. These features appear irrational behavior at the level of economic values, social attitudes and economic behavior.
Specific hypotheses:

• The increased level of neuroticism in students is more associated with irrational economic behavior;
• The propensity to compete is associated with irrational economic choices among students;
• Overestimated self-esteem is associated with irrational economic choices among students;
• Such life-purpose orientations as "Control locus I" and "Life control locus" (Leontiev, 2000) are associated with irrational economic behavior.

Data & Methodology

The main research methods for students aged 17-18 are:

1. Questionnaires and a standardized interview on the study of the economic and psychological characteristics of the individual (Zhuravlev et al, 2003),
2. The test of the life-purpose orientations (LPO) (Leontiev, 2000),
3. The personal questionnaire EPI test of neurotism (Eysenck, 1964),
4. Test of self-identity (Dembo-Rubinstein, 1970).

The base of empirical research is Plekhanov Russian University of economics. 230 first-year students of 17-18 years old took part in this research: 149 women and 81 men (Table 1). Sex differences were not included in the research goal, therefore the group is considered entirely.

Table 1: Sex and age characteristics of the sample (person)

	17 years old	18 years old	19 years old	20 years old
female	64	81	4	-
male	31	41	4	5

Source: Compiled by the author

In order to study the most important psychological features of the individual that affect the irrationality of behavior, we analyzed the following emotional and personal qualities of young people: emotional-personal instability, the level of self-esteem, the type of character and the sense-life orientations of the individual. The economic and psychological characteristics of the individual were also investigated. assessment of the individual's focus on economic competition.

To solve the set tasks for identifying the formation of installations for economic competition, questionnaires were used and a standardized interview was conducted using the methodology of studying the *economic and psychological characteristics of the person (*Zhuravlev et al, 2003). Economic and psychological characteristics of a person are understood as a system of ideological and psychological qualities that affect the characteristics of the economic behavior of the consumer and his adaptation to the economic conditions of life (the importance of money, business activity, the desire to be the owner, the optimal level of economic risk, attitude to socio-economic conditions of life in country and city, ideas about the modality of the role of money (the purposes of their use), attitudes to wealth and poverty).

With the help of the *personal questionnaire of Eysenck (EPI Temperament Test)* (1964), we will determine the type of young man's temperament, taking into account the introversion and extroversion of the personality, as well as neuroticism (emotional stability - emotional instability).

Test of self-identity (Dembo-Rubinstein, 1970) shows the level of self-esteem of a teenager as a person..

We conducted the *diagnostics of rational behavior* of young people through a game that simulates real life situations that require a rational economic choice. This author's game technique is based on the materials of the research and tasks ideas of Kahneman and Tversky (1979), that were transferred to the

economic field. The goal of this gaming technique is to identify trends in the rational or irrational economic behavior of a freshman student.

The initial stage of this research concerned the identification of a predisposition to rational or irrational behavior when making economic decisions.

According to the author's methodology, we estimate the level of rationality of behavior on the basis of an economic game that simulates decision-making under conditions of financial choice.

150 students with positive financial result from 230 individuals were identified according to the game results. Carrying out a number of rational mental actions and steps in the area of financial decision making allowed them to obtain income (not a loss).

80 students with negative financial result were identified from 230 individuals according to the results of the game. It may indicate incorrect, irrational actions and steps taken by them in the game. Thus, conditionally we consider that 150 students belong to the rational group, and 80 - to irrational behavior.

The next stage of the study was to assign each student the appropriate style of economic behavior. Graduation of economic behavior took place according to 8 styles of behavior according to the financial results of the passage of each stage of the assignment. Also, 7 students of atypical behavior were identified, that can not be attributed to any of the above behaviors (see Table 2).

Table 2: Behavior patterns of students based on the assignment results of the author's methodology for assessing rational / irrational behavior, the number of people

1	2	3	4	5	6	7	8
extremely irrational	markedly irrational	soft markedly irrational	soft irrational	soft rational	soft markedly rational	markedly rational	extremely rational
6 people	14 people	34 people	25 people	31 people	49 people	34 people	30 people
irrational - 79 people				rational - 144 people			

Source: Compiled by the author

The further stage of this research concerned the identification of the degree of self-esteem, emotional-personal stability, extraversion / introversion and the sense of the orientations of first-year students from each group of rational behavior.

Answers to the blocks of questions about the way of life, self-esteem, the meaning-life orientations, as well as the degree of satisfaction of economic needs and economic claims; attitudes toward money; business activity and to economic risk allow to create a picture of the student's economic and psychological behavior.

Our research included several stages in accordance with the tasks set for the identification of the relationship between personality traits and irrational choice in making economic decisions among students, and to determine the relationship between personality traits and styles of irrational behavior as well. The first stage is a general assessment of the results of the study of the student's psychological characteristics using the tests of Zhuravlev-Kupreychenko (2003), Eysenck (1964), Dembo-Rubinshtein (1970), Leontiev (2000). The second stage is the evaluation of the relationship between the styles of behavior and the economic and psychological characteristics. Finally, the third stage is the evaluation of the connection between the styles of behavior and the parameters of self-esteem, temperament, neuroticism, and meaningful orientations.

Table 3 presents the results of a statistical analysis of the all groups students in relation to the

entrepreneurial or performing (active or passive) nature of their future work on the methodology for studying the economic and psychological characteristics of the person.

Table 3: Distribution of economic and psychological characteristics in the styles of rational / irrational behavior

Characteristic		Styles of behavior		Chi-square	The importance of differences
		rational	irrational		
Stressful / comfortable work	Comfortable	83	50	0,677	0,411
	Stressful	61	29		
Executor / Manager	Executor	60	30	0,289	0,591
	Manager	84	49		
Economic Risk / Stability	Economic risk	80	50	1,256	0,262
	Stability	64	29		
Employee / Owner	Employee	65	36	0,004	0,951
	Owner	79	43		
High / Low Income	High income	131	74	0,501	0,479
	Low income	13	5		
Propensity to competition	yes	59	38	1,055	0,304
	no	85	41		

Source: Compiled by the author

As can be seen from Table 3, the distribution of the characteristics of "Stress / Comfort Work", "Executor / Manager", "Economic Risk / Stability", "Employee / Owner", "High / Low Income", "Propensity to competition" do not significantly differ for rational and irrational behaviors. A similar analysis carried out for all 9 behavior styles on the rationality scale did not reveal significant differences as well.

Next, we compare the styles of economic behavior with the parameters of self-esteem, temperament, neuroticism, meaningful orientations). Table 4 presents the results of comparing the indicators of psychological methodologies for each style using a single-factor analysis of variance (ANOVA).

Table 4: Results of a single-factor variance analysis of the comparison of behavioral styles with psychological parameters

Psychological parameter	The importance of differences (ANOVA)
Neuroticism	**0,000**
Extraversion	0,886
Self-evaluation	0,160
LPO Goals in life	0,245
LPO The process of life	0,084

LPO Life Result	0,640
LPO "Control locus I"	**0,026**
LPO "Life control locus"	**0,007**

Source: Compiled by the author

It can be ordered on the rationality-irrationality scale (from extremely irrational to extremely rational) if the study based on the assumption that all styles of behavior rationality (except for atypical). We performed a correlation analysis between the style scale and each psychological parameter.

Results

The conducted research allows to formulate a number of conclusions:

1. The developed methodology for assessing rational / irrational economic behavior (a game that simulates reality) has shown its effectiveness in identifying different styles of such behavior among students of economic universities.
2. Emotional stability, self-esteem and life orientations influence the rationality of choice when making economic decisions among students of economic universities.
3. Irrational behavior in the decision-making process of economic nature among students of economic universities is associated with high emotional instability, high self-esteem and high indicators of meaningful orientations LPO "Control locus I" and LPO "Life control locus" that indicate a marked underestimation of the degree of risk.

Conclusion

Thus, as a result of the research it was shown that such individual psychological characteristics of a teenager as emotional stability, self-esteem, life orientations can influence his rational choice. Thus, the main hypothesis of the study was confirmed that there is a connection between personality characteristics and irrational choice when making economic decisions among students of economic universities, as well as particular hypotheses:

- High emotional instability (a strong degree of neuroticism) of a student can determine his irrational economic behavior, and conversely, the rationality of behavior is typical for emotionally stable students;
- Overestimated self-esteem can contribute to the student's irrational economic choice;
- The factors of irrational behavior and choice among students can be individually typological characteristics of the personality, such as meaningful orientations LPO "Control locus I" and LPO "Life control locus".

The hypothesis that the propensity to compete is connected with the irrational economic choice of students has not been confirmed.

This study will enrich the subject field of behavioral finance in terms of specific economic and psychological characteristics, attitudes to economic choice, and the identification of emotional and personal indicators of irrational behavior. It was revealed that the psychological characteristics of the individual (mental processes, personality orientation, LPO) affect the irrational economic behavior of students.

The obtained research results can be used by economic institutes and universities when selecting students for educational programs or when assessing the propensity to adopt irrational economic decisions in other areas of human activity.

For the reliability of the research results, it is necessary to take into account in the future the fact that

the beginning of the university is a highly stressful life period for young people: it presents a critical life event (a change in the life cycle stage), and intensive everyday training overloads take place. Therefore, these factors could affect the objectivity of investigating the irrationality of behavior. Also, when conducting future research in this area, it is necessary to take into account possible coping strategies and psychological protections that can be formed in the process of starting the training at the university under the influence of this stress.

It should be noted that the number of studies performed is not sufficient for high reliability of the result or objective quantitative analysis. It is necessary to test this hypothesis on a sample of 500-600 students of this age at other economic universities. The obtained results show the prospects of further research.

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Perceived Quality of Contents and Evaluation Efforts in Students' Usage of User-Generated Content for Academic Purposes

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Abstract

With the emergence of Web 2.0, Internet users developed from mere consumers to producers of information that is openly accessible on the Internet, without prior editorial control. Popular examples for the provision of such "user-generated content" are Wikipedia and YouTube, but also contents within blogs, forums, question-and-answer sites and even social media like Facebook belong to this category. Based on an explorative interview study, this paper investigates how students perceive the quality of contents across these different informational platforms, and how they evaluate information quality when using user-generated content for academic (learning) purposes. The findings showed that students perceive the quality of contents rather as good, especially on Wikipedia and YouTube. In contrast, question-and-answer sites were widely seen as having a strongly mixed or poor quality. In terms of quality evaluation, students reported a comprehensive system of quality criteria embracing content-related and source-related factors as well as visual perceptions. Besides the image of a source, especially comprehensibility, accuracy, and coverage played a major role. Visual appearance was less important. However, the evaluation efforts varied strongly across the applications and among the participants. In this regard, students' assessment approaches ranged from a rather non-reflective usage of information in single cases up to more sophisticated approaches. This has important implications for universities and lecturers, as the outcome indicates that further training is required to level up and standardize students' information literacy competences. The results are preliminary in their nature and are, therefore, to be validated in further research.

Keywords: Academic learning tasks, User-generated content, Quality evaluation criteria students employ, Perception of information quality

Introduction

When the Internet became broadly accessible, the provision of information was no longer restricted to the educational sector and to professional publishers (Lih, 2004; Metzger, 2007; Pscheida, 2008). Especially when Web 2.0 emerged, Internet users started to contribute to the knowledge available online as well (Pascu et al., 2007). Over time, a range of platforms and applications have been set up, inviting users to participate and to provide others with this user-generated content (UGC). Popular examples in this regard are Wikipedia, YouTube, blogs and forums in general, question-and-answer sites, and even social networks like Facebook (Pascu et al., 2007; Wunsch-Vincent and Vickery, 2007; Daugherty, Eastin and Bright, 2008; Flanagin, Hocevar and Samahito, 2014). Being based on "the wisdom of crowds" (Surowiecki, 2005) with self-selected contributors (Daugherty, Eastin and Bright, 2008; Schroer and Hertel, 2009) and a lack of editorial control before contents are published (Flanagin and Metzger, 2000; Gorman, 2007; Bauer, 2011; Yaari, Baruchson-Arbib and Bar-Ilan, 2011), has provoked discussions about their content quality in the academic field. Most of all, Wikipedia has long been criticized for being a non-reliable source due to its community-based content development (Kaplan and Haenlein, 2010; Giles, 2013; Gorman, 2013; König, 2013). Indeed, despite its intense quality-assurance efforts, some studies have found an uneven article quality (Lih, 2004; Magnus, 2006; Ehmann, Large and Beheshti, 2008; Liu and Ram, 2011) and a bias in the coverage of topics (Giles, 2013; Gorman, 2013) within the encyclopedia, although it provides users with first-class articles as well.

Nevertheless, UGC-based websites have become increasingly popular: According to Alexa.com (Alexa, 2018),YouTube, Facebook, and Wikipedia belong to the five most-visited websites worldwide. Their usage is not limited to the private area but is extended to work-related and educational use as well. Regarding the academic context, research has clearly shown that students use the Internet a lot for their learning and preparation activities, including UGC-based sources like Wikipedia, YouTube, and Facebook (Lim, 2009; Nagler and Ebner, 2009; Head and Eisenberg, 2010; Jones et al., 2010; Zakaria, Watson and Edwards, 2010; Margaryan, Littlejohn and Vojt, 2011; Yoo and Huang, 2011; Rowley and Johnson, 2013; Raith, 2018). On the one hand, these applications have the advantage that users are easily able to acquire information and knowledge. On the other hand, they carry the risk to provide consumers of information with inaccurate or incomplete contents without users recognizing it due to a lack of expertise in the field (Kaplan and Haenlein, 2010). Besides, studies on users' evaluation of information quality have indicated that non-experts tend to a reduced commitment in their assessment (even though their judgment efforts depend on the importance of the specific situation) (Metzger, 2007; Shah et al., 2015). In this connection, the questions arise, how students perceive content quality on UGC-based information sources they use for university-related purposes, and whether their quality perceptions influence their usage behavior. For this purpose, this paper investigates which criteria students have in mind to evaluate information quality of contents on the internet, and which of these criteria they employ regarding UGC-based applications. Therefore, an explorative interview study was conducted with students at a business and economics-related university in the German-speaking area.

Background

Literature has shown that an evaluation of information quality takes place on different levels: the information itself, the perception of a source's trustworthiness, and even the visual preferences. For a qualified evaluation of information quality on the Internet, the body of literature recommends verifying information considering its accuracy, authority, objectivity, currency, and coverage (Flanagin and Metzger, 2000; Metzger, 2007). In this context, authority especially refers to the author's and source's qualifications, credibility and trustworthiness (Rieh, 2002; Metzger, 2007). However, literature also states that the perception of these criteria depends on one's knowledge on the source and subject, and one's experience with the medium (Flanagin and Metzger, 2000; Rieh, 2002; Metzger, 2007; Shah et al., 2015), on situational conditions (Rieh, 2002), and the expectations arising thereby (Rieh, 2002; Lim, 2009). Hence, the quality of specific information might be assessed divergently by different (groups of) people (Metzger, 2007; Shah et al., 2015). In this regard, research has shown that, as compared to non-experts, experts are better capable of evaluating information that belongs to their discipline (Chesney, 2006). In addition, scholars generally verify information more carefully by considering "source credentials" (Metzger, 2007, p. 2089) like a source's reputation, type, and URL to evaluate its authority (Rieh, 2002). Due to a lack of knowledge, non-experts, in contrast, tend to cut their judgment efforts down to the general impression—at least if accuracy is not particularly important for them, like in the case of health problems (Metzger, 2007; Buhl, 2008). Studies with students brought results somewhere in between these two user groups. On the one hand, Rowley and Johnson (2013, p. 500) concluded that "authorship, currency, references, expert recommendation and triangulation/verification" based on other information sources and on previous knowledge were the most important factors for students' evaluation of digital content, followed by usefulness. On the other hand, they found that when data on the authorship was not available, students relied on their impression of the text style, grammar, and spelling in their "evaluative judgment" (Rieh, 2002, p. 146). Likewise, in other studies, students' assessment approaches were mostly reduced to "simple heuristics like visual appeal" (Metzger, 2007, p. 2089), the style of presentation (Metzger, 2007; Shah et al., 2015), and readability (Chesney, 2006), making them especially vulnerable for misinformation (Flanagin and Metzger, 2000; Metzger, 2007; Kaplan and Haenlein, 2010). In this context, Shah et al. (2015, para. 18) argued that students' problems in credibility judgments of web-based information built on their insufficient ability to "construct evidence-based explanations that involve collecting facts from different sources". In this regard, Lim (2009) highlighted that students were aware of possible risks relating to the unreflecting usage of Internet contents. On the other hand, to conveniently receive good information was usually more important for them than to get perfectly accurate information.

Based on these findings it should be further clarified which criteria students apply to evaluate the quality of contents when they use UGC-based information sources in their academic learning and working settings. Therefore, this work aims at investigating students' quality perceptions and evaluation approaches regarding their usage of UGC-based information sources for university-related purposes. For this reason, based on a qualitative interview study, this paper focuses on the following research questions:

RQ 1: What are students' perceived qualities of contents across different UGC-based information sources on the Internet?

RQ 2: What are their criteria for evaluating the quality of online sources in general, and that of UGC-based information sources in particular?

Methods

In order to examine students' usage of user-generated content for academic purposes and to answer the research questions, qualitative interviews were conducted with students of the WU Vienna University of Economics and Business. The participants were contacted on the campus and via a university-internal mailing list. Finally, 18 students of different majors and programs, who varied in their study progress, work experience, and nationalities took part in the study. Most of them were enrolled in bachelor programs, but also master students and doctoral/PhD students participated. Table 1 presents the sample in more detail. As an incentive, the participants received a voucher for having lunch on campus (€4.00). For the interviews, a semi-structured interview guide (see Appendix) was used to talk about comparable contents with the participants and embracing their individual experiences at the same time. Because of this, the duration varied strongly between 30 minutes and 85 minutes, with an average of about 50 minutes per interview. The topics talked about referred to their usage of the Internet in general and of UGC-based sources in particular. The interviews were conducted in German (16) and English (2). For one participant (interviewee 18), a personal interview was not possible. So, this person received the guideline and answered the questions in a written form. After the first few interviews, the guide was slightly revised.

The interviews were audiotaped and transcribed. The data were analyzed in ATLAS.ti, conducting an iterative analysis process based on Sarker, Lau, and Sahay (2001), an adapted Grounded-theory based approach after Strauss and Corbin (1990, 1998). Hence, data analysis was carried out in a multi-staged coding procedure, starting with an open coding phase and line-by-line coding. Subsequently, structures and hierarchies were derived based on the data, represented by categories and sub-categories that were linked to each other interpretively. During this process, students' quality perceptions and their assessment of information quality showed to be relevant in the context of research. Thus, the residual analysis focused on these aspects. Within this selective coding phase, information quality evaluation was identified as a core category to which the sub-categories were linked. Similar to Sarker et al. (2001), at this stage, literature about users' assessment of credibility and information quality served as a meta-theoretical framework, using established categories from literature as far as possible. (Table 4a and Table 4b describe the categories that were derived during the analysis process.)

Table 1: Sample of the qualitative interview study

No.	Program[a]	Major	Status	Side Job	Gender	Duration (min)
1	BA	International Business Administration	Beginner	20 h	f	50
2	BA	Business Law	Beginner	-	m	65
3	BA	International Business Administration	Advanced	8,5 h	f	55
4	BA	Business Administration	Advanced	20 h	m	70
5	BA	Business Law	Beginner	Holidays, weekend	m	50
6	BA	Business Law	Beginner	15 h	f	40
7	MA	Strategy, Innovation and Management Control	Final phase	-	m	60
8	PhD	International Business	Advanced	30 h	m	30
9	MA	Marketing	Beginner	6 h	f	50
10	BA	International Business Administration	Final phase	11 h	f	55
11	MA	Export and Internationalization Management	Beginner	20 h+	f	50
12	BA	International Business Administration	Beginner	10 h + holidays	f	50
13	BA	International Business Administration	Final phase	5-10 h	f	55
14	MA	Economics	Beginner	7 h + holidays	m	55
15	MA	Marketing	Beginner	40 h	m	75
16	BA	Information Systems	Beginner	-	m	85
17	PhD	International Business	Advanced	30 h	f	55
18	Dr	Information Systems	Final phase	Yes	m	Email contact

[a]BA = bachelor program, MA = master program, PhD = PhD program, Dr = doctoral program

Results

Students mainly used Wikipedia, Facebook, and YouTube for their academic purposes. Blogs, forums, and question-and-answer sites were consulted as well, but to a lesser extent (for this reason, they are presented in general designations, see Table 2). In sum, Wikipedia was used most, although it had a negative connotation for a number of students. Despite this, interestingly most of them used it as a source of information, at least occasionally (8 regularly, 9 occasionally). In this regard, however, five people out of those who used it as a source of information for university-related purposes, stated that they "tried to avoid" it. In contrast, regarding a frequent usage only, Facebook was the most important source, especially for younger students (11 regular usage, 4 occasional usage).

General Quality Perception of UGC-Based Information Sources

In summary, more students perceived these UGC-based applications as providing them with a good quality of contents than with a poor quality of contents. This especially applied to Wikipedia and

YouTube. However, the quality perceptions varied strongly across the different (kinds of) UGC-based applications and partly also within the single applications. At the same time, several students noticed a variation in the quality, particularly in the case of Facebook, YouTube, and question-answer-sites, depending on the respective contributions (see Table 2). Table 3a and Table 3b present examples of statements for students' quality perceptions across the different information sources.

Table 2: General quality perception across different UGC-based information sources (stated in number of interviewees)

UGC-based source	General quality perception in case of usage[a]					Not used/ not talked about source[c]	Total
	Good	Medium	Poor	Variation	Not stated[b]		
Wikipedia	12	2	2	1	-	1	18
Facebook	2	1	-	5	4	6	18
YouTube	6	1	-	3	1	7	18
Blog	1	-	2	1	2	12	18
Forum[d]	2	-	-	-	2	14	18
Q&A[e]	-	-	2	2	-	14	18
% of used	43%	7%	11%	22%	17%	-	-

[a]Sources used occasionally at least; [b]Quality of specific source not directly addressed within the interview; [c]Source was not used or no topic within the interview; [d]Except for the LMS forum which is administered by the university; [e]Q&A = question-and-answer site

Table 3a: Examples for classification of general quality perception

UGC-based source	General perception	Examples
Wikipedia	Good	"… I would say that (…), in general, (…) I think that Wikipedia offers me a trustworthy and accurate answer." (4) "…especially for academic topics (…): A lot of academics read it, and a lot of them don't like seeing a mistake. So, they are going to edit that mistake and make it the right thing." (15)
	Medium	"… In some cases, I recognized that contents on other sources were comparable, and Wikipedia presented something completely different that did not fit the other sources. (…) But overall, the information fits. So, I cannot badmouth it." (5) "I would rather classify it as medium, especially as you cannot really use it afterwards." (13)
	Poor	"…because in school, they always told us that it was not very reliable, because they meant that any people write in Wikipedia…" (6) "I try to use Wikipedia not too often. (…) the site's reliability rather leaves a lot to be desired. And it does not count as a source for papers." (11)
	Variation	I would not use it directly in a presentation of my research. In that case, it would be too insecure for me, too." (8)
Facebook	Good	"…because there are many groups in which people state questions (…). And then students help each other and explain it quite well." (2) "…you already know the users. Although you do not know them personally, you know: This is one who helps a lot and often. (…) And

		you know, you notice that they know what they are doing." (13)
	Medium	"Facebook 70 % [*reliability*] as there are people who push themselves to the fore and write something which is still not accurate." (3)
	Variation	"… there are people who are able to explain it really well. And then there are people whose answer you read and think: (…) That is incorrect from start to finish.'" (5)

Table 3b: Examples for classification of general quality perception

UGC-based source	**General perception**	**Examples**
YouTube	Good	"There is also a lot of good content in YouTube from professors or book authors that upload videos discussing or explaining different issues that are of particular interest." (18) "… I think YouTube is a really good source for languages. (…) native speakers explain it to you, and you listen to them." (11) "In my opinion, YouTube is good. Especially videos on SPSS are very useful because they explain it step-by-step, and you can pause and repeat the video." (13)
	Medium	I would say, YouTube is a bit worse than Facebook, because, on Facebook, people are in the lecture, because it is customized for the lecture. And on YouTube, people (…) deal with the topic differently or focus on different things." (3)
	Variation	"Especially on YouTube, the question arises who has authored the content because everyone with a camera and Internet access can upload something. There is a lot which is neither of high quality nor trustworthy." (14) "Partly, the videos are of very low quality. Then you have to filter a bit." (9)
Blog	Good	"I follow bloggers that write on my research area. These provide also high-quality content." (18)
	Poor	"…I have looked at them occasionally, but they are not very useful and are outdated, from 2000 or 2004. You cannot really use that anymore …" (1) "In my experience, blogs are not that professional—rather like I would write something." (11)
	Variation	"It is extremely different. (…) It is like you talk for half an hour with a person who deals with the topic a bit more than most others do. And like with every topic, there are people who are better (…) than others." (17)
Forum	Good	"…It is a relatively good source of information because every now and then, there are experts there, who really know what they are talking about." (15) "And it is really very, very, very useful for me." (16)
Question-and-answer sites	Poor	"Basically, this is always a bit unreliable. I have not had any positive experience so far." (9)
	Variation	"It is different. There are good contributions, but then there are contributions which are not that good." (6) "… The first writes this, the second that. And one must be false. (…) But apart from that, most answers matched. Therefore, I think it will be accurate there as well most time." (14)

These findings lead to the question of how students come to their perceptions. Therefore, the analysis focused on the quality criteria students perceive as important when they evaluate the quality of an

information or information source.

Criteria Used to Evaluate Information Quality

Within the interviews, the participants reported a variety of quality criteria relevant to them for the general evaluation of information quality. These comprised content-related aspects, source-related factors referring to a source's authority, and the perception of the visual appearance of an information (source). Table 4a and Table 4b illustrate the three dimensions of quality and the accompanying quality categories derived within the analysis process, representing a comprehensive system of diverse aspects. However, not all participants mentioned the whole range of these criteria. Thus, their effort put into an evaluation varied strongly, ranging from a rather non-reflective usage of information in single cases to more sophisticated approaches embracing a combination of different factors. Table 5 highlights that the aspects students mentioned most frequently were a source's image and information comprehensibility, followed by coverage or depth of information, and accuracy. Besides, more than a half of the participants stated that an author's image, metadata (like site notice, date of generation, and information on the authorship) as well as their experience with the source were important. In terms of visual perceptions, especially the content's structure in text-based applications and its length were relevant factors for students' quality evaluation. The least important factors were a modern style, currency, and the number and kind of advertisements on an information source. To evaluate the content's accuracy, a range of students highlighted to use more than one information source for their researches—at least when they perceived something as suspicious. Thus, they compared contents stated on different sites and also compared this information with their prior knowledge on the topic.

With regard to UGC-based information sources, the findings highlight that students' evaluation approaches varied strongly across the different applications (see Table 5). Only in the cases of Wikipedia and YouTube most criteria were applied, followed by Facebook. Comparing the quality criteria mentioned in general with those employed on UGC, revealed that the perception of a source's image, which was mainly based on social influences, was perceived as most important as well, and was discussed even more intensely in the latter case. Other important criteria were, again, comprehensibility, accuracy, and coverage. The experience with a source especially played a role for Wikipedia and Facebook. Furthermore, visual appearance was primarily discussed in connection with Wikipedia due to its well-structured contents and the long articles, and for YouTube in terms of video quality. Summarizing, in general, the criteria were used more rigorously when an information should be used for university-related purposes as compared to private purposes.

Table 4a: Students' (self-reported) criteria for the evaluation of information quality

Dimensions of quality	Quality categories	Description	Concepts from literature
Content-related	Accuracy	Discover mistakes or inaccuracies (through comparison to previous knowledge or alternative information sources; suspicious impression/clear fake, tagged as inferior/citation missing	Accuracy (Flanagin and Metzger, 2000; Metzger, 2007)
	Currency	Actuality of information/material	Currency (Flanagin and Metzger, 2000; Metzger, 2007)
	Comprehensibility	Text style/style of explanation (good, bad), professional perception, level of language used (too high, too low)	Style of presentation (Metzger, 2007; Shah *et al.*, 2015); text style (Rowley and Johnson,

			2013); readability (Chesney, 2006)
	Coverage	Completeness, depth of information (too few, sufficient, extensive)	Coverage (Flanagin and Metzger, 2000; Metzger, 2007)
	Objectivity	Objective, fact-based information vs. subjective, biased impression	Objectivity (Flanagin and Metzger, 2000; Metzger, 2007)
	References	References stated within the content; well-founded statements; check of stated references	Stated references (Rowley and Johnson, 2013)

Table 4b: Students' (self-reported) criteria for the evaluation of information quality

Dimensions of quality	Quality categories	Description	Concepts from literature
Source-related	Image of the source	Impression on the source's reputation, based on social influence (peers, lecturers/teachers, etc.) and endorsement on the web (Google rank, number of citations, views; number of likes/dislikes, number of followers)	Authority (Flanagin and Metzger, 2000; Rieh, 2002; Metzger, 2007); source credentials, reputation (Metzger, 2007); knowledge on the source (Rieh, 2002)
	Image of the author	Image of a specific contributor (professional, someone), including personal perception	
	Metadata on the source	Kind of information about the information that is available on the source (e.g., site notice, authorship, date of generation)	
	Experience with the source	Individual experiences one has had with the source so far (good/bad, useful, etc.)	Experience with the medium (Flanagin and Metzger, 2000; Rieh, 2002; Metzger, 2007; Shah *et al.*, 2015)
Visual appearance	Visual appeal	Perception of how appealing a site is in terms of visual preferences	Visual appeal (Metzger, 2007)
	Advertisements	Number, style, and kind of advertisements	
	Effort put into the material	Professional perception, technologically skilled	
	(Un)modern style	Outdated or up-to-date impression	
	Structure	Visual perception of a text's structure	
	Text/video length	Short or long texts and videos	

Table 5: Students' employment of quality criteria regarding UGC-based information sources (in number of interviewees)

Dimensions of quality	Quality categories	General evaluation	Evaluation of UGC-based sources						
			W[a]	Fb[b]	Y[c]	B[d]	Fo[e]	Q&A[f]	Total
Content-related	Accuracy	14	13	6	3		1	3	26
	Currency	3	1	-	1	1	-	-	3
	Comprehensibility	17	10	5	8	1	1	2	27
	Coverage	15	12	4	3	1	1	-	21
	Objectivity	7	3	-	1	3	-	7	14
	References	7	5	-	2	-	-	-	7
Source-related	Image of the source	17	15	11	8	3	-	1	38
	- thereof social influence	*16*	*13*	*11*	*6*	*1*	-	*1*	*32*
	- thereof endorsement on the web	*11*	*7*	-	*3*	-	-	-	*10*
	Image of the author	11	4	3	4	1	-	-	12
	Metadata on the source	10	1	-	4	2	-	1	8
	Experience with the source	10	7	3	2	1	-	2	15
Visual appearance	Visual appeal	5	2	1	2	-	-	-	5
	Advertisements	3	-	-	-	-	-	-	-
	Effort put into the material	5	-	-	4	-	-	-	4
	(Un)modern style	2	-	-	1	-	-	-	1
	Structure	10	5	3	-	-	-	-	8
	Text/video length	10	4	-	2	-	-	-	6

[a]W = Wikipedia; [b]Fb = Facebook; [c]Y = YouTube; [d]B = blog, [e]Fo = forum; [f]Q&A = question-and-answer site

Discussion and Conclusion

Based on an explorative interview study, this paper has investigated students' quality perceptions and evaluation efforts regarding their usage of UGC-based information sources in the academic context. The findings have shown that students perceive the quality of contents of UGC-based sources as rather good, although a high variation in their quality perceptions was found. Likewise, the quality criteria they reported were, in sum, comprehensive, but their usage varied strongly across the information sources under investigation and between the participants. Regarding the single quality categories reported within the interviews, for UGC-based information, a source's image, comprehensibility, accuracy, and coverage were the most relevant factors.

The results are only partly in line with previous research which lead to mixed conclusions in this regard. First, the findings support previous research insofar that quality perceptions are not reduced to the quality of the information itself (Flanagin and Metzger, 2000; Rieh, 2002; Metzger, 2007; Lim,

2009; Shah et al., 2015). Students reported a range of content-related, source-related and visual appearance-related criteria for evaluating content quality. In this regard, content-related and source-related dimensions played the most important role. Visual appearance was discussed only for the most-used sources (Wikipedia, Facebook, and YouTube), for which, at the same time, most quality criteria were employed anyway. Only for the less used applications, students' evaluation efforts were rather reduced to single aspects. Regarding these applications, visual perceptions were no issue according to the interviews. This finding contradicts previous research arguing that students mainly evaluate visual perceptions (Metzger, 2007) and the style of presentation (Chesney, 2006; Metzger, 2007; Rowley and Johnson, 2013; Shah et al., 2015). However, quality perceptions and judgment efforts varied between the participants and across the different UGC-based information sources. This supports the notion that students and non-experts partly have problems in assessing the quality of contents and the credibility of information sources (Shah et al., 2015), although, at the same time, a rather unreflecting usage of information was reported only in single cases, and a number of participants highlighted to compare different information sources.

Summarized, the results have shown that students' quality perceptions of UGC-based information sources influence their actual usage of these sources. The importance of comprehensibility and coverage indicates that students often need further explanation or clarification in addition to their course materials. In this connection, they also use sources that are not accepted in deliverables, at least as a starting point. The image of a source was discussed most among the different quality criteria. In general, the perceived image was primarily founded on recommendation and social influences of peers and teachers/lecturers, but also on endorsement on the web. Thus, due to the depreciating attitude of teachers and lecturers, especially Wikipedia had a negative connotation for many students. Nevertheless, almost all participants in this study used it as a source of information. Furthermore, two-thirds of them perceived it as providing content of good quality. These findings suggest that their individual quality perceptions as well as the social influence of peers, and endorsement on the web outweigh lecturer influence in this regard.

On the other hand, that even students used these applications, who perceived their content quality as mixed or poor, indicates that other factors contribute to their usage of these UGC-based information sources. Literature offers a range of factors explaining the usage of information systems: Besides information and system quality (DeLone and McLean, 1992; Delone and McLean, 2003) or social influences (Ajzen, 1991; Venkatesh et al., 2003), for example, the perceived usefulness/performance expectancy, ease of use, and habits (Davis, Bagozzi and Warshaw, 1989; Venkatesh et al., 2003; Wilson, Mao and Lankton, 2010) might be potential drivers in this respect. That the sources under investigation are easily accessible and have partly high ranks in Google's hit lists as well as a broad acceptance among Internet users in general, encourages this line of thought. Thus, how far these other aspects influence the actual usage of UGC-based sources for academic purposes, might be clarified in further research.

This study contributes to the body of research on users' quality evaluation, with a focus on the usage of UGC-based sources for academic learning and working settings. Due to students' varying evaluation approaches, the findings have important implications for universities and lecturers, as they indicate that further training is required to level up and standardize students' information literacy competencies. In this connection, the question arises how teachers or lecturers and students can evaluate the quality of the different online information sources. In general, literature recommends verifying information in terms of accuracy, authority, objectivity, currency, and coverage (Flanagin and Metzger, 2000; Metzger, 2007). Accordingly, in its Information Literacy Competency Standards for Higher Education, the Association of College and Research Libraries (2000, sec. Standard Three, article 2) advises to use and compare different information sources and to analyze "the structure and logic of supporting arguments and methods". Regarding the single applications dealt with in this paper, in addition, different approaches might be useful to evaluate information quality: In the case of Wikipedia, first, article tags (e.g., inferior quality/citation missing, good article, excellent article), should be considered. Second, articles are usually based on the principle of a proper citation of reliable sources. Thus, readers can check the quantity, kind and content of the quoted references. Third, the article history, which is openly accessible, offers insights into the work on the article and

its stability. Furthermore, the respective talk page displays the community's discussions on the topic. In contrast to Wikipedia, on Facebook, YouTube, blogs, forums, and question-and-answer sites, users can identify the contributions of individual participants. Thus, an authors' expertise might be reviewed by looking up his/her residual contributions so far. The more specialized one's contributions are, the more specialized this person should be. Also, checking an author's professional background (as far as possible) might deliver a valuable indication of his/her expertise. On Facebook, YouTube, and blogs, authors should be conveniently identifiable. Furthermore, on Facebook, in forums, and on question-and-answer sites, the participants' discussion and reaction on each other's postings should be followed critically. In general, follower and (dis)like counts give a pointer to the popularity of a contributor or contribution but should be regarded with caution, as they are not always as trustworthy as it seems (Baym, 2013). Altogether, this elaboration shows that users have a range of opportunities to critically evaluate information quality on online information sources and UGC.

The results are preliminary in their nature and are, therefore, to be validated in further research.

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Appendix

Interview Guide: General Questions

- Besides your course materials, which information sources have you recently used when you have done or prepared something for university?
  (For example, this includes doing your homework, learning or writing seminar papers and your bachelor/master thesis/dissertation.)

- How have you already used these websites […] for your studies?
- How do you decide which information source you want to use?
- Why do you use these sites […]? (What is your motivation to use these sites?)
- How good do you think the contents on the websites […] are?
- How do you differentiate between information found on […] and that found in your course materials?
- Do you act differently, when you use these sites for private purposes as compared to your use for university? – Which differences have you already noticed?
- Are there any purposes for which you wouldn't use [...]?
  (For which purposes do you only use your course materials?)

- How do you learn most easily in general? What is your personal learning style?

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