

# **Smart Innovation, Systems and Technologies**

Volume 254

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Editors

# Smart Technologies for the Digitisation of Industry: Entrepreneurial Environment

 Springer

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# Preface

The book is designed to fuse technology and a body of knowledge through the elaboration of theoretical concepts and conceptual frameworks to ensure the economic growth of the Russian Federation by utilizing the huge potential for innovative and environmental entrepreneurship in Russia. The research is intended to solve the most challenging problems facing digitalization in the field of environmental entrepreneurship in the country: the need for specialized personnel training; the considerable financial resources needed for the maintenance of digital technologies; how to market environmentally focused enterprises and organizations, as well as the environmental goods, works, and services that they provide; the greening of consumer preferences; and the emergence and development of a green economy and green investment and financial instruments designed to support greener industrial development and agricultural projects. The proposed results will create the conditions for a systemic approach to tilting the Russian economy toward supporting new eco-businesses through an improved regulatory framework—currently virtually absent in the field of environmental entrepreneurship at the national level.

The book will make it possible to identify new common points of law and economics and to define the prospects for investment in renewable energy sources, circulation of energy resources, and energy efficiency improvements to gain positive economic effects from the introduction of new eco-friendly technologies in Russia. The aim is to create conditions and incentives for energy efficiency improvements and support the energy and environmental security of the Russian Federation by balancing private and public interests in renewable energy sources (RES), circulation of energy resources and energy efficiency improvements, and to define the prospects for improvement of the Russian legislation.

To solve particular problems that have been identified in the Strategy for the scientific and technological development of the Russian Federation, it is necessary to collect empirical evidence on the current interactions between society and nature,

interdisciplinary studies on the impact of sophisticated technologies in the field of renewable energy sources (RES), information on the circulation of energy resources and energy efficiency improvements on the state of the environment, the health and safety of citizens, and the current state of public and state institutions designed to contribute to environmental protection. The study of the dynamics of interactions between economic and legal institutions in the field of RES development, the circulation of energy resources, and energy efficiency improvements make it possible to formulate some specific proposals to enable the consistent expansion of RES as one of the green sectors of the economy.

The rapid technological progress being achieved by contemporary society is manifested in the wide use of digital technologies in various spheres of production, business management, health care, provision of services in the banking sector, and the social sphere. Higher living standards for individuals, security for processes through qualitatively new regulatory approaches, the provision of State security (including cybersecurity), overcoming the adverse effects of natural disasters, the prevention of man-made disasters are some of the dozens of goals and problems that cannot be achieved or solved without the use of digital information technologies. As a result, the wide range of issues related to the development and support of digital infrastructure in various areas of the economy cannot be ignored: virtual reality technologies, the creation of innovative entities using, inter alia, augmented reality technologies, cross-industry solutions, resource management, and utilization mechanisms both within the Common Market and in the institutions of the Eurasian Economic Union (EEU) and BRICS, cross-cutting technologies used to control the transborder movement of capital both at the global level and at the domestic level, integration of new technologies and new mechanisms of communication between parties to judicial proceedings in the judiciary system.

This book brings together collected empirical evidence, important pilot projects run by the author team, as well as proposals for the modernization of Russian legislation and existing economic regulations that can be used to train highly qualified personnel in law and economics at the most important higher educational establishments in the Russian Federation.

Russia is currently actively investing in the digital sector of the economy. However, digital innovations technology presents new problems. Many questions are left regarding the legally justified implementation of the digitization strategy. Digital transformation affects data protection, information technology security, contract development, settlement of liability issues and gives rise to other problems of legal regulation. In addition, the use of digital innovation has an impact on the environment. A study conducted in France in 2019 and presented at the International Weather and Climate Forum (IWF) showed that only 40% of the survey participants are aware of the strong link between digital and climate change. It turned out that currently most of the energy is consumed mainly by small items: smartphones, tablets, connected

objects, computers. Scientific research has confirmed that the digital sector creates several different types of pollution: the pollution from manufacturing IT equipment; the pollution from electronic waste, that is, used electrical and electronic equipment; the pollution from our daily digital use. Thus, the digital sector may well be invisible, but it has very real consequences for our environment.

Sustainable development is largely associated with the preservation of the biosphere and natural capital together with the technosphere and sociosphere. However, in real life, environmental aspects are overlooked. Essential changes are needed in the mechanism of economic and regulatory legal regulation of entrepreneurship, in particular, strengthening its environmental component through the use of neo-industrial technologies. In this regard, the search for effective “common grounds” between digital technologies and environmental entrepreneurship is particularly significant and promising. Digital technologies and environmental entrepreneurship should not be mutually exclusive. The environmental effect of digitalization will primarily be achieved through the digital environment, which will manifest itself in ensuring the efficient use of resources. One of the tools contributing to the ecologization of the economy and law can be a system of a “green” economy. In addition, technological change is directly related to the use of big data, artificial intelligence, and robotics, which are generally transforming global manufacturing, industrial processes and as a result changing labor power. The digital economy serves the effective automated management of urban and rural production in the context of advanced information technologies. The digital economy serves the effective automated management of urban and rural production in the context of advanced information technologies. All this makes it possible to carry out both scientific–technological progress and the development of environmental entrepreneurship, also for the purpose of a safe environmental state. The two pillars—digital technology and environmental sustainability—should complement and reinforce each other as mutually conditioning components. The unity of digitalization and industrial production should strategically coexist in the interests of the society, in the interests of the ecological environment safety, and the sustainability of the ecosystem.

There are many problems in establishing the relationship between the results and the research methodology in the economic and legal sciences. Many of the findings obtained as a result of economic research cannot be applied in practice, since there is no mechanism for interaction between representatives of these two branches of scientific knowledge. On the contrary, the expansion of the “green” sectors of the economy (the production of environmentally friendly products, the development of “green” energy, the development of eco-tourism, insurance and audit, etc.), effective counteraction to the global environmental threats (the climate change, the need for the development of renewable energy sources) requires not only the development of specific legal norms but also taking into account modern economic concepts (e.g., the concept of The Circular Economy by Ken Webster), which effectively counteract

environment degradation state in Russia. In addition, in order to preserve and restore the environment and protect natural resources, there is a necessity for the integrated use of the end-to-end digital technologies, including neo-industrial technologies, which ensure the accelerated development of the “green” economy in the Russian Federation and the environmental entrepreneurship.

The actuality of solving this problem is due to the fact that the use of digital technologies in modern society, as well as the development of technical capabilities, forms a new digital environment, as well as in the system of environmental entrepreneurship. The digital environment plays a definite and increasingly important role in the relationship between the technosphere and the natural environment. The impact of digitalization on the economic and legal regulation of environmental entrepreneurship is unavoidable.

The scientific problem, which the project is aimed to solve, is to develop balanced mechanisms for the impact of digital technologies on the effective production regulation and non-production areas of environmental entrepreneurship at the present stage of Russian development using the scientific methods of economics and law interaction. It is also planned to develop economic and legal mechanisms for the interaction of scientific methods of jurisprudence and economics concerning the cross-sectoral problem of the renewable energy sector development, the turnover of energy resources, and energy efficiency.

The scientific and practical relevance of solving the indicated problem is that it will allow creating scientific premises in the form of the theoretical concepts’ development and conceptual foundations in the stated field of research, at a level close to the world level, ensuring the economic growth of the Russian Federation through the intensive involvement of the Russian environmental entrepreneurship potential. The study assumes the solution of the most serious challenges facing digitalization in the field of environmental entrepreneurship in modern Russia—training of specialized personnel, significant financial costs for operation digital technologies, marketing of the environmentally friendly enterprises and organizations, as well as environmental goods, works, and services, and the formation of the ecological component of consumer preferences. The proposed results will create conditions for a systematic approach to changing the vector of the Russian economy toward the eco-market and eco-business and identify promising areas for improving the Russian regulatory framework, which is currently practically absent in the field of environmental entrepreneurship at the state level.

The proposed scientific research will reveal new “common grounds” of jurisprudence and economics, determine promising areas for investment in the renewable energy sources’ development, the energy resources turnover and improve energy efficiency, get a positive economic effect from the introduction of new environmentally friendly technologies, create conditions for the implementation of the international obligations in the field of environmental protection by the Russian Federation. The



proposed solutions will create conditions and incentives for increasing energy efficiency and ensuring the energy and environmental security of the Russian Federation, will balance private and public interests in the development of the renewable energy sources (RES) sector, the energy resources turnover, and increase energy efficiency, and will identify promising areas for improving Russian legislation.

The proposed project is closely related to the formation of the scientific–technological premise for economic growth and social development of the Russian Federation. Solving specific tasks set in the Strategy for Scientific and Technological Development of the Russian Federation assumes the collection of empirical data on the current situation in the field of interaction between society and nature, cross-sectoral research on the impact of modern technologies in the field of renewable energy sources, energy turnover and energy efficiency on the environment, life and the health of citizens, the state of public and governmental institutions aimed to participate in environmental protection. The dynamic study of the interaction between economic and legal institutions in the field of RES development, energy turnover, and energy efficiency will make it possible to formulate a number of specific suggestions to the authorities, allowing to gradual expanding RES as one of the “green” sectors of the economy. The collected empirical materials, doctrinal developments of the authors’ team, suggestions for the modernization of Russian legislation, and existing economic regulators can be used to train highly qualified personnel in higher educational institutions of the Russian Federation, in law and economics faculties.

In the modern world, there is a staged greening of industrial, agricultural, and other products, which manifests itself in a gradual decrease of the negative impact on the environment. This work is carried out to achieve several goals related to reducing greenhouse gas emissions (which should help slow down the process of global climate change), with the transition to sustainable development standards, with a reduction in waste production and consumption, etc. However, to achieve the set goals, typically the narrow-industry approaches are used, limited either to a separate approach (instrumental, university, according to the social belonging of the consumption of the goods, according to the objects of research) within the framework of economic science, or to any separate branch of law (environmental law, civil law, and financial law).

The proposed project is aimed at developing an integrated approach to the study of economic and legal mechanisms for the development of digital technologies in the regulation of environmental entrepreneurship; will allow attracting both the results of the latest researches in the field of economics and the latest achievements of the several branches of Russian and foreign legal science. The theoretical standards development for cross-sectoral interaction between economics and law will help to build a balanced system of mechanisms for the economic and legal regulation of the production and non-production areas of environmental entrepreneurship. The development of an economic and legal strategy will allow a more complete reflection

of the economic science achievements and to a more complete reflection of the main elements of economic incentives for environmental protection and support for environmental entrepreneurship in the proposed draft Federal Laws.

The methodological basis of the research is a systematic approach, which will be applied within the framework of the materialist view of nature and the general method of research—dialectic materialism. The systematic approach will be implemented through the use of a number of interrelated methods, namely analysis, synthesis, system-element, system-structural, system-functional, system-communication, system-integrative, system-historical methods. The study will use an interdisciplinary approach that allows combining the achievements of economic and legal sciences. Using the systemic–structural method of scientific knowledge, the place of environmental entrepreneurship in the system of types of entrepreneurial activity and the green economy as a whole will be identified, as well as its importance for achieving the sustainable development goals (SDGs). This method will also make it possible to formulate a list of forms and methods of economic incentives within the framework of state support for Russian businesses that use neo-industrial technologies to expand the “green” sectors of the economy. This will allow substantiating the measures’ targeting of state support for environmental entrepreneurship at the federal and regional levels, the reasoning for the delimitation of environmental entrepreneurship from other areas of entrepreneurial activity, and, as a result, proposing a program document—the Strategy for the Development of Economic and Legal Regulation of Environmental Entrepreneurship in the Russian Federation.

General scientific methods used in the project are divided into three groups. The group of theoretical methods includes the method of rising from the abstract to the concrete, hypothetical-deductive method, axiomatic method, and the formalization method in building models for the formation of new social relations within the framework of the “green” economy and its part—the environmental entrepreneurship.

The group of empirical methods provides the collection of data (including the composing of the dataset and the formation of a database), comparison, description, measurement, and assessment of the impact of digital technologies and environmental entrepreneurship on modern social development.

The group of general logical methods includes abstraction, generalization, idealization, induction, analogy, modeling, probabilistic, and statistical methods, which will make it possible to achieve consistent scientific conclusions in exact accordance with the objectives of the project.

As a part of private scientific legal methods, the project will use the dogmatic, legal, and technical method, the method of interpreting the law, state legal modeling, comparative legal method, which allows forming a scientifically based structure of legal regulation of the rights and obligations of entities whose economic activities are directly related to production and commercialization of environmental goods,

works, and services. As a part of private scientific economic methods, the project uses SWOT analysis, mathematical, graphical, comparative, formalization method, which will allow assessing the effectiveness of the use of regulatory mechanisms and neo-industrial end-to-end technologies for the development of environmental entrepreneurship as an element of a resource-saving and socially inclusive model of a green economy.

Using the political and cultural method, the experience of state support for environmental entrepreneurship in European and Asian countries will be investigated that will reveal the influence of political traditions on the content of measures for the development of environmental entrepreneurship and determine the measures applicable in the specific conditions of the Russian Federation. In addition, this method will make it possible to identify the effectiveness's conditionality of state support for environmental entrepreneurship by the status of the social–environmental culture, as well as to determine measures to increase its level through a series of educational, educative, and awareness-raising activities to popularize the socially inclusive model of the “green” economy and the effective use of digital technologies by people in everyday life.

Using a comparative method, the laws of the EAEU and BRICS countries, aimed at supporting various types of entrepreneurial activity, including environmental entrepreneurship, will be investigated. An analysis of the provisions of such laws and arising from them regulatory enforcement will make it possible to determine which of the measures provided by them are effective and deserve support in the model Strategy for the Development of Economic and Legal Regulation of Environmental Entrepreneurship in the Russian Federation, proposed by the authors' team, and which are contrary to the current legislation or standards of legal technology and economic laws.

The scientific works of representatives of foreign economic and legal science, dedicated to the development of state strategies and other political and legal documents in the field of environmental protection and the development of environmental entrepreneurship, as well as existing scientific approaches to the economic and legal regulation of environmental entrepreneurship, including the use of digital technologies, in Russia and foreign countries, will be investigated using the comparative method.

The uniqueness of the book, according to its editors, is not the study of end-to-end technologies themselves, but the economic and legal regulation of environmental entrepreneurship and innovation with the use of end-to-end technologies.

The book is aimed at developing a comprehensive approach to the study of economic and legal mechanisms for the development of digital technologies in the regulation of environmental entrepreneurship. This combined to attract the results of the latest research in the field of economics, as well as the latest achievements of several branches of Russian and foreign legal science. The theoretical development

of standards for the cross-sectoral combination of economics and law allowed us to build a balanced system of mechanisms for the economic and legal regulation of the production and non-production spheres of environmental entrepreneurship. The development of an economic and legal strategy will make it possible to fully reflect the achievements of economic science and to more adequately reflect in the proposed draft federal laws the main elements of economic incentives for environmental protection and support for environmental and innovative entrepreneurship.

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