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THE ROLE OF DIGITAL AND GREEN ECONOMIES IN SUSTAINABLE DEVELOPMENT OF TERRITORIES

The article is devoted to the role of the digital and “green” economies in promoting the sustainable development of territories by solving environmental, social and economic problems. Examples of integration of the digital and “green” economies in China are given.

Keywords: digital economy, green economy, sustainable development, China.

Статья посвящена роли цифровой и «зеленой» экономик в содействии устойчивому развитию территорий путем решения экологических, социальных и экономических проблем.

Приведены примеры интеграции цифровой и «зеленой» экономик в КНР.

Ключевые слова: цифровая экономика, «зеленая» экономика, устойчивое развитие, КНР.

The digital economy and the green economy are two intertwined concepts that offer innovative solutions to create a more sustainable and equitable future for the planet and its people [1,2].

On the one hand, the digital economy opens up enormous prospects for increased efficiency, innovation, and economic growth [3]. This allows enterprises to optimize operations, reduce costs, and enter global markets using modern platform solutions [4] and joining various ecosystems [5]. However, on the other hand, the rapid spread of digital technologies can lead to increased energy consumption and electronic waste, creating environmental problems and restrictions on economic growth [6-8]. In this context, the balance between the desire for digitalization and sustainable development goals becomes important [9].

On the one hand, the green economy gives priority to preserving the environment, promoting sustainable practices, introducing renewable energy sources, and resource efficiency. This is in line with the urgent need to mitigate climate change and protect natural ecosystems. However, on the other hand, green initiatives may face obstacles in terms of initial costs and technological limitations. Businesses and regions may be reluctant to invest in green technologies due to concerns about economic viability and competitiveness. Finding the right balance between environmental protection and economic viability becomes a challenging task.

Ultimately, the controversy lies in the potential tension between the rapid development of the digital economy, which may have environmental and resource implications, and the sustainable development goals of a green economy. Addressing

these tensions requires thoughtful strategies, policies, and innovations to harmonize them for a more balanced and equitable future.

The integration of the digital and green economy represents a strategic compromise that can become a catalyst for balanced economic development in the regions. This compromise allows for the benefits of both areas to be taken advantage of while simultaneously meeting the urgent need for sustainable economic growth [10].

Despite the above, it can be noted that the integration of the digital and green economy offers a number of advantages that contribute to sustainable development and economic growth (Table 1).

Table 1 – Benefits of integrating the digital and green economies

| № | Advantage | Meaning and content |
|----|--------------------------|---|
| 1 | Resource efficiency | Digital technologies enable better resource management through data-driven optimization, reducing waste and environmental impact |
| 2 | Accelerating innovation | Synergies between the digital and green sectors drive innovation by driving the development of sustainable technologies and solutions |
| 3 | Environmental benefits | Digitalization can help control and mitigate environmental problems such as pollution, deforestation and climate change |
| 4 | Reduce costs | Green technologies combined with digital tools can reduce operating costs and increase competitiveness |
| 5 | Job creation | Integration of these sectors can lead to new employment opportunities, especially in green technologies and digital technologies |
| 6 | Resilience | Sustainability measures and digital resilience can improve a region's ability to adapt to environmental and economic challenges |
| 7 | Competitive Advantage | Organizations with digital and environmental strategies gain competitive advantage in a changing global landscape |
| 8 | Improved quality of life | Improved urban planning and smart city initiatives can lead to improved living conditions and urban environments |
| 9 | Global significance | Regions. who prioritize these sectors can position themselves as leaders in sustainability and innovation on the global stage |
| 10 | Long-term viability | Combining digital and green approaches ensures long-term economic viability while addressing pressing environmental challenges |

Source: compiled by the authors

Among the countries that have embarked on the path of sustainable development, China has become an outstanding innovator in the field of integrating digital and green economies, introducing transformative approaches with global implications [11]. China's digital economy has been developing rapidly in recent years. In 2022, the scale of the big data industry in China reached 1.57 trillion yuan, an increase of 18% year-on-year [12]. The scale of the digital economy exceeded 50 trillion yuan for the first time, ranking second in the world in terms of overall indicators [13].

Here are the key areas in which China has demonstrated leadership:

- achievements in the field of renewable energy sources;
- «smart» cities and urban planning;
- electric vehicles (EV) and battery technologies;

- digitalization of agriculture;
- green finance initiatives;
- emission reduction targets;
- development of digital infrastructure;
- international cooperation within the framework of green initiatives;
- circular economy;
- research and innovation, etc. [14].

Since the beginning of 2023, many regions in China have published work plans to harness digital opportunities and promote the green transformation of traditional manufacturing industries. The «Ten Thousand Enterprise Integration Work Plan in Guizhou Province» envisions Guizhou building a series of industry-level and regional-level digital transformation platforms around nine key sub-industries, such as aerospace and equipment manufacturing, and new materials manufacturing. The «Action Plan for High-Quality Manufacturing Industry Development» was published to promote the deep integration of the digital economy and the real economy, as well as the deep integration of advanced manufacturing and modern service industries [15].

Digital transformation of the manufacturing industry was once considered a «matter of choice»; today it has become an inevitable option associated with survival and long-term development. In 2022, the digitalization rate of Guizhou's industries exceeded 90%, and the growth rate of the digital economy remained first in the country for 7 consecutive years; As of the end of 2022, more than 40.7% of industrial enterprises above the designated size in Foshan, Guangdong Province have begun digital transformation; According to incomplete statistics, Jiangsu Province has built a total of 138 intelligent manufacturing demonstration plants, 1,979 intelligent workshops, nearly 400,000 cloud enterprises, and a digital economy worth more than 5 trillion yuan [16].

«Blue Cycle» model

Taizhou Lanjing Technology, as part of its digital reform, uses new digital technologies such as the Internet of Things and blockchain to link marine waste collection, land recycling, and carbon trading. It pioneered a new “blue cycle” model for recycling marine plastic waste and its costly disposal, led by government, enterprise, industry collaboration, and public relations. In 2021 and 2022, the project was awarded the "Best Application" award for digital reform in Zhejiang Province, and the «Blue Cycle» model was promoted throughout the country as a typical model by the National Development and Reform Commission and the Ministry of Ecology and Environment [17].

However, it is important to note that China also faces challenges and criticism related to environmental issues such as air quality and water pollution, highlighting the

difficulty of balancing rapid economic development with environmental sustainability. Achieving harmonious integration of the digital and green economies while addressing these challenges remains a dynamic step for China, but its progress in this area remains closely watched on the global stage.

To summarize, the integration of the digital and green economy is at the core of achieving sustainable development, as it harmonizes economic progress with environmental and social responsibility. At its core, the integration of the digital and green economies represents a compromise that recognizes the need for regional economic development while recognizing the need for environmental protection and social well-being. This balanced approach paves the way for sustainable and inclusive growth in an era of rapid technological advancement and environmental consciousness.

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