Management of digital technology development in the national economy

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Abstract. The article is devoted to managing the development of digital technologies in the national economy. The analysis carried out in the study showed that the Russian Federation ranks 23 out of 32 in the digital economy development index, however, Russian companies and the economy do not intend to stop and a number of industrial enterprises are ready to invest tens and hundreds of millions of rubles in digitalization in the coming years. The work identified obstacles and risks of transition to the digital economy associated with the lack of necessary infrastructure, knowledge, state support, financial resources, cyber security risks and other factors. As a result, the study proposed a model of factors affecting the development of the digital economy, the management of which will ensure a qualitative and quantitative transition to innovative and digital technologies. In conclusion, the study presents the main findings and results of the work.

1. Introduction

In recent years, the digitalization of the national economy has come to the fore; today, decrees and laws have been adopted aimed at creating the conditions for the transition of the economy to innovative and digital technologies. The development of digital technologies began at the end of 2016, when it was necessary to systematize, streamline and automate individual business processes performed at enterprises and processes carried out at the state, regional and municipal levels [1]. To achieve this goal, programs and projects related to the transition to innovative and digital technologies are being adopted at corporate and industry levels [2].

It is assumed that the transition to digital technologies will not only increase the efficiency of individual business processes at enterprises of the economy, optimize costs and increase productivity, but also ensure the overall development of the national economy [3]. All this will contribute to increasing the competitiveness of economic sectors, the quality of goods and services and the creation of new business models and network structures in the economy [4, 5]. At the same time, digital
technologies are supposed to be used in public administration, healthcare, education, business, households and the public.

However, despite the fact that the digitalization of the economy has positive effects and, in general, will contribute to the development of the economy, today there are no significant quantitative and qualitative changes in the digital environment. In this regard, it seems relevant to conduct a study aimed at analyzing and assessing the level of digital development of the national economy.

2. Materials and methods

The purpose of this study is to analyze and evaluate the level of digital development of the national economy. To achieve this goal, the following tasks:

- analyze the current state of the digital environment of the national economy;
- present the factors influencing the development and use of digital technologies.

In the framework of scientific research, methods of descriptive, historical, factorial, statistical, logical, comparative, economic and system analysis, the method of expert assessments, which allowed the authors to solve the tasks, were used. The information base of the study was information from government statistics agencies, materials from various studies, analytical materials and corporate reports of organizations.

3. Results

In recent years, to assess the level of development of the digital economy, a national index of the development of the digital economy has been developed, which contains a measure of the availability, use and impact of digital technologies in different countries of the world [6]. In the study [6], the digital development level of 32 nation states was analyzed, as a result of which the most developed countries were identified, including the Netherlands, Finland and Norway, and countries with a low index, among them Greece, Romania and Bulgaria. The general national development index of the digital economy with the maximum and minimum index is presented in figure 1, which shows the Russian Federation for comparison [6].

![Figure 1. Rating of the Russian Federation based on the pilot development index of the digital economy.](image-url)
It can be seen from the figure that this rating was compiled for 9 industries, while the Russian Federation ranks approximately 23rd in the digital economy development index, which indicates a partial development of digital technologies in certain areas of activity, but further development and implementation of digital technologies in the economy of the Russian Federation [6].

Next, we consider the average amount of planned investments in digitalization in 2019 by type of economic activity (figure 2) [7].

![Figure 2](image_url)

**Figure 2.** The average amount of planned investments in digitalization in 2019, by type of economic activity, million rubles in year.

It can be seen from the figure that different companies are ready to annually send tens of millions of rubles to the development of digital technologies, while the leader is telecommunications activities. At the same time, today a number of companies have developed digital transformation projects for 3-4 years, for which investments in the amount of more than 1 billion rubles have been approved [7].

According to the results of KPMG research, it is planned that the expected payback period of investments in digital technologies is about 2 years; this indicates that the business does not want to invest in expensive digital projects [7, 8, 9]. At the same time, obstacles that Russian companies face in switching to innovative and digital technologies are highlighted, among them are insufficient maturity of processes or insufficient level of automation, lack of necessary competencies, low level of digital literacy of company employees, lack of infrastructure for switching to digital technology and financial difficulties [7, 10]. It is worth noting that digitalization threats are identified among the obstacles, which are associated with information security risks, a decrease in the number of jobs, and deterioration in process control and efficiency in the short term [7]. At the same time, not only domestic companies, but also foreign business representatives adhere to such an opinion [11].

Thus, the transition of the economy to digital technologies is associated not only with increasing the efficiency and development of business and the state apparatus, but also with the risk of new problems for business, society, the state and the economy as a whole [12, 13]. In this regard, it is necessary to determine the factors affecting the development and use of digital technologies and offer recommendations for the further development of the digital economy.

4. Discussion

Factors affecting the development of the digital economy should be comparable with the obstacles and risks of introducing the “numbers” in industrial production and public administration. However, in each case, factors may depend on various circumstances that cannot always be foreseen at the stage of transition
to digital technologies, they may be related to the lack of necessary technologies, poor digital infrastructure, the conditions and features of the operation of digital devices, and the lack of a prepared base of enterprises and others [14, 15]. At the same time, the development of digital technology, in the opinion of the authors of the article, should be based on seven main factors, the management and regulation of which will allow for a smooth transition of the commercial and public sectors into the age of the digital economy (figure 3) [6]. At the same time, at each management level, it is necessary to carry out gradual restructuring not only from the point of view of technical and technological adjustment of equipment, but also the conditions for obtaining, organizing, processing, analyzing, storing and transmitting information and information flows that will allow us to build a digital chain of production management and various types of public services.

Figure 3. Model of factors affecting the development of the digital economy [6].

It can be seen from the presented model that the factors that ensure the development of digital technologies include not only research work, but also the interest of the state apparatus, human capital, digital infrastructure and others, which due to the integrated management of these factors will contribute to the development of the digital.

5. Conclusion
Thus, the study allowed us to analyze the development of the digital economy in the Russian Federation. A rating on the development of digital technologies was presented in which Russia ranks
23rd out of 32 countries analyzed. The study provides information on the planned annual amount of investment in digital development, ranging from 30 to 100 million rubles, while the business expects a return on investment in two years. At the same time, the work identified obstacles and risks of transition to the digital economy, associated with both a number of national and corporate factors. In order to manage the factors that ensure the transition to the digital economy, the study proposed a model of factors affecting the development of the digital economy.

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