

# Modern Problems of Development of the Digital Economy

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## ABSTRACT

The development of the Russian economy requires widespread dissemination of information technologies. This is an issue of national security and technological independence of Russia. Information and communication technologies, software products, computer, and telecommunication equipment became part of the structure of the activities of all economic agents. Digital technologies, being implemented in socio-economic and technological processes, certainly participate in the formation of the added value of the final product (service), regardless of its purpose (a type of activity and sector of the economy). The intensification of these processes in the last decade in Russia has aroused much interest from the scientific community in such phenomena as the digitalization of society and the digital economy. The article considers the essence of the digital economy phenomenon. Information and communication products are directly produced in the ICT sector, each type of activity develops, implements and uses its own ICT solutions, "digital personnel" and "digital capital", which are not directly accounted for and measured. In this regard, there is a need to improve approaches to assessing and measuring the volume of the digital economy at different territorial levels, including in regional economies. The study analyzed the concept of a digital economy, formulated the concept of a regional digital economy, investigated the essence of innovative implementation of digital transformation of the market, provided recommendations for eliminating existing obstacles and limitations for the creation and development of high-tech businesses in the Russian Federation.

**Keywords:** *digital economy, digital technologies, digitalization, information and communication technologies, regional economy*

## 1. INTRODUCTION

The term "digital economy" is often used today in the mass media.

In 1995, Nicholas Negroponte called the advantage of the "digital economy" as a new type of economy (no physical weight of products, replaced by information volume, lower resource costs for the production of electronic goods, several times less area, occupied by products (usually electronic media), and also instant global movement via the Internet) [1]. Don Tapscott, in his book "The Digital economy: promise and danger in the age of networked Intelligence" [2], uses the concept of "age of networked intelligence", the essence of which is "not only in networked technologies ... but also in the interaction of people through network technologies", which "combine intelligence, knowledge and creativity for leapfrog to the creation of social capital and well-being" [3]. Thomas L. Mesenburg determined e-business infrastructure, e-business and e-commerce as three main components of the "Digital economy" concept

In the international information space, there are 3 approaches to a more modern interpretation of the "digital economy", its definition, namely:

- Digital economy as an organization of doing business on the Internet;
- Digital economy as a system of relations based on the use of digital technologies;
- The digital economy as the organization of specific production.

Consequently, the digital economy is characterized by widespread implementation of new product knowledge.

The development of the digital economy is one of the priority directions for most countries. As a rule, they are characterized by a long period of implementation of the "digital development agenda" and a continuity of priorities - from building a basic information and communication infrastructure to the formation of a coordinated policy in this sphere and programs to support the widespread implementation of digital technologies [6]. The World Development Report 2016: Digital Dividends of the World Bank, show, that information technology is gaining in ever-greater importance in the economic development of all countries of the world without exception.

Countries with the most developed digital economies include Norway, Sweden, Switzerland, Denmark, Finland, Singapore, South Korea, Great Britain, Hong Kong, the USA. Having analyzed the current state and growth rates of the digital economy in each state, Mastercard and the

School of Law and Diplomacy named after V. Fletcher at Tufts University divided countries into 4 groups:  
 Leaders. Singapore, United Kingdom, New Zealand, South Korea, UAE, Estonia, Hong Kong, Japan, and Israel. The status of a "digital leader" is ensured by openness to innovations and stimulation of their implementation  
 Decelerating growth rates. South Korea, Australia, as well as countries in Western Europe and Scandinavia.  
 Promising. China, Kenya, Russia, India, Malaysia, Philippines, Indonesia, Brazil, Colombia, Chile, Mexico.  
 Troubled. South Africa, Peru, Egypt, Greece, Pakistan, etc. [7].

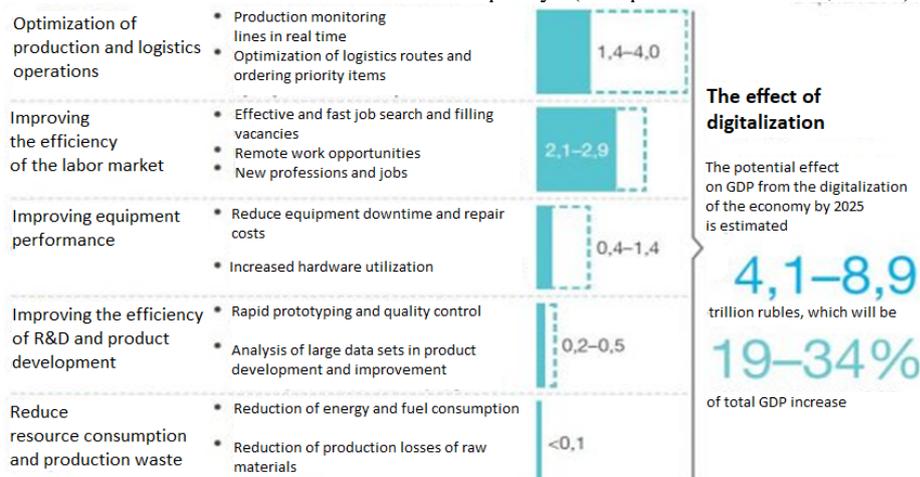
Currently, many developed countries (USA, China, Japan, EU countries, Russia and others) are beginning to accelerate the process of digitalization of major part of the economy, taking into account the changes, that have begun in the global economy. Numerous programs of the digital economy of developed countries (USA, Austria, Australia, Great Britain, Korea, etc.) are focused on the social orientation of "digital medicine" and "smart city". Some leading countries in the process of digitalization chose contradictory approaches [4]. For example, the United States chose the market, and China - the planned economy. The rest of the countries adhere to certain intermediate options. It should be noted, that in the context of the digitalization program of the United States, like China, we see a new stage of globalization.

## 2. METHODOLOGY OF THE STUDY

The state plans to invest a total of 2 trillion rubles in the development of the digital space over several years. The course towards the transition to the digital economy, announced at the highest level, is intended to bring Russia into the ranks of the leading economies of the mid-21st century.

Modernization of traditional production and service industries, organization of trade and procurement procedures, related financial and logistics operations, changing consumption structure against the background of end-to-end penetration of information technologies and digitalization of economic processes creates the basis for the formation of new markets and new conditions of market functioning, as well as new approaches to analytics, forecasting and management decision making [8]. Forming and developing, the Digital economy changes the traditional wisdom of the work of enterprises; of cooperation between different companies; of services, information and products, that consumers can receive.

A digital economy, in which the development of digital technologies is increasing labor productivity, stimulates competition, investment, and innovation, which leads to a better quality of services, increased choice for consumers, creation of new job sites, reduction of poverty and social inequality (European Commission, 2018) (Figure 1).



**Figure 1** Sources of GDP growth in the Russian Federation by 2025 due to digitalization

A unified concept of the digital economy is still absent in Russia. The existing key wordings can include the following:

- The economy of a new technological generation (Address of the President of the Russian Federation to the Federal Assembly of December 1, 2016);
- Economic activity, in which digital data is a key factor in production; the processing of large volumes of this data and using the results of its analysis in comparison with traditional forms of management can significantly increase the efficiency of various types of production, equipment, storage, sale, delivery of goods and services (Strategy for the Development of the Information Society of the Russian Federation for 2017-2030) [6].

The "Strategy for the Development of the Information Society of the Russian Federation for 2017-2030", approved in Russia, provides the following definition of the digital economy: "The digital economy is an economic activity, in which the key factor of production is digital data, processing of large volumes and the use of the analysis results of which, in comparison with traditional forms of management, can significantly increase the efficiency of various types of production, technologies, equipment, storage, sale, delivery goods, and services". [Decree of the President of the Russian Federation of May 9, 2017, No. 203.] [9].

Thus, the digital economy is a new model of economic development, based on the exchange of data in real time,

using digital technologies, institutions, regulatory and legal framework, skills, business to accelerate economic growth and labor productivity, improve the quality of life and the investment climate.

In framework of implementation of the Decree of the President of the Russian Federation of May 7, 2018 No. 204 "On national goals and strategic objectives of the development of the Russian Federation for the period up to 2024", including with the aim of solving the problem of ensuring the accelerated implementation of digital technologies in the economy and social sphere, The Government of the Russian Federation, on the basis of the program "Digital economy of the Russian Federation", formed the national program "Digital economy of the Russian Federation", approved by the minutes of the meeting of the Presidium of the Council under the President of the Russian Federation for strategic development and national projects No. 7, dated June 4, 2019 [10].

The program determines goals and objectives within the framework of 5 basic directions for the development of the digital economy in the Russian Federation for the period up to 2024: statutory regulation, personnel and education, the formation of research competencies and technological premise, information infrastructure and information safety. [8]

The main goal of the direction, related to statutory regulation, is the formation of a new regulatory environment, that provides a favorable legal regime for the emergence and development of modern technologies, as well as for the implementation of economic activity related to their use (digital economy) [8].

Taking into account the need for statutory and legal regulation of most of the measures, that are planned to be implemented in order to achieve the set goals within the framework of the basic and applied directions of development of the digital economy, in the development and implementation of concepts of priority, medium-term and comprehensive measures to improve the statutory regulation of the digital economy in the framework of the direction of statutory regulation, it is necessary to fully take into account the proposals for statutory and legal regulation of other basic and applied directions, which implies close interaction of competence centers, created for each direction, with a competence center, that monitors and improves the legal regulation of the digital economy [8].

Thus, in accordance with the Concept for the development of the Digital Economy of the Republic of North Ossetia-Alania, approved by the Order of the Government of the Republic of North Ossetia-Alania dated December 27, 2017, No. 474-r "On approval of the concept for the development of the Digital Economy of the Republic of North Ossetia-Alania", digital economy development problems are:

- Insufficient development of the regulatory and statutory environment for the formation of new institutions of the digital economy, the development of information and telecommunication technologies and related types of economic activities;

- Poor digital competencies of residents of the Republic of North Ossetia-Alania, including a serious gap in digital skills between individual groups of the population;

- Low level of use of personal computers and the information and telecommunications network Internet in the Republic of North Ossetia-Alania;

- Digital inequality at regional and municipal levels;

- Insufficient training of personnel and inadequacy of educational programs to the needs of the digital economy;

- Shortage of personnel in the educational process at all levels of education; high crime rate in the digital environment;

- Low level of digitalization and the use of information and telecommunication technologies in local governments [11].

In the Republic of North Ossetia-Alania, legal support in the studied sphere is focused primarily on the issues of the development of the information society (Decree of the Head of the RNO-Alania "On measures to develop the information society in RNO-Alania" dated January 19, 2010, No. 10); open government (Decree of the Head of the RNO-Alania "On providing access to information on the activities of executive authorities and local self-government bodies of the RNO-Alania, posted on the Internet" dated August 27, 2010, No. 115); mechanisms for the functioning of an open government in the activities of the republican authorities and local self-government bodies of the RNO-Alania (Decree of the Government of the RNO-Alania "On providing access to information on the activities of the executive authorities of the RNO-Alania" dated November 12, 2010, No. 309). It is important to note that the RNO-Alania developed and introduced a bill "On state support for the development of the digital economy" to the Parliament of the Republic. The bill is aimed at: - creating a legal environment, that provides favorable conditions for the development of the digital economy; - increasing the competitiveness and investment attractiveness of the Republic of North Ossetia-Alania; - carrying out economic activities, related to the use of digital technologies; - creating a unified state digital platform, that overcomes the fragmentation of departmental systems and is based on a unified data array; - transforming public services into digital format and digitalization of interdepartmental document flow with the provision of the growth of the electronic state and municipal services [11]. The bill has as its primary goal to stimulate the activities of the subjects of the digital economy. "Among the measures of state support, it is possible to highlight the provision of subsidies, assistance in obtaining credits, the provision of tax benefits, the organization of personnel training, etc. The bill proposes to introduce the concepts of "subjects of the digital economy" and "digital innovations", which make it possible to identify the recipients of support measures" [6]. The adoption of this bill creates effective legal

mechanisms for the further development of the digital economy in RNO-Alania [11].

In North Ossetia, the "Digital economy" project office was created one of the first in the country. It develops plans for the digital development of all sectors of the republic [6].

The digital economy can help level the economic development of megacities and lagging rural regions, but it can also lead to the concentration of monopoly control over transactions in the hands of a small number of data-corporations. The risks and vulnerabilities, that open up during the transition of the economy and public administration to "digital", are quite equatable to the opening opportunities [12].

The Institute for statistical studies and economics of knowledge of the NRU HSE published, in partnership with the Ministry of Telecom and Mass Communications of the Russian Federation and Rosstat, a short statistical book "Digital Economy: 2020". The publication presents key indicators, reflecting the level and dynamics of development of the digital economy in Russia, calculated on the basis of official statistics for 2018, as well as using materials from the Bank of Russia, OECD, Eurostat, International Telecommunication Union, United Nations Conference on Trade and Development (UNCTAD), The World Organization for Intellectual Property and Development ISSEK NRU HSE:

- The share of households with Internet access in Russia - 77% of the total number of households have Internet access. In the Republic of Korea and Japan - 99%.

- Connecting to the Internet from mobile devices in Russia - 65% of the adult population use mobile phones (smartphones) to access the Internet outside of home or work. In Italy and Japan - only 39% of the population, and in the Republic of Korea - 96%.

- Email use in Russia - 42% of adult Internet users send or receive email. In Finland and Sweden - 94%, the Czech Republic - 93%, Great Britain and Germany - 92%.

- Participation in social networks in Russia - (78%), residents of Japan - 89%, French - 48%. and the Germans - 57%.

- Reading/downloading online newspapers, magazines, e-books in Russia - 23% read online newspapers, magazines, or download e-books. In the Republic of Korea - 94%, in the Czech Republic - 91%, and in Finland - 90%.

- Online education - 3% of Russians use the Internet for distance learning. In the USA and the Republic of Korea - 20% of Internet users, in Sweden - 18%, Finland - 17%.

- Online shopping in Russia - 35% use the Internet to order goods and services. In the UK - 83%, Sweden - 78%, Germany - 77%.

- Financial transactions on the Web in Russia conduct online financial transactions. - 39%. In Finland - 94%, Sweden - 91% and Estonia - 90%, in Japan - 15% trust financial transactions to the Web.

- Job search through the Internet in Russia 8% are looking for a job on the Internet. In the Czech Republic - 6%, in Finland - 31% and Sweden - 29% [5].

The digitalization of the economy evokes two different reactions in society: on the one hand, it is a denial of the need for it carrying out, the identification of threats and risks, on the other hand, the popularization of global trends and possible positive effects. Studies have shown: already at the present stage, more than 80% of the population uses digital technologies, which can be considered as the initial stage of development of the digital economy [14].

The process of organization of the digital economy can be divided into:

- Creation of the necessary conditions for the development of the digital economy;

- The emergence and functioning of digital economy platforms in the most economically developed subjects for digital transformation;

- Implementation of the most promising solutions in the field of the digital economy on the entire economy scale.

The cross-country analysis revealed significant differences between Russia and the EU countries in terms of access to the Internet and the digital economy, as well as their influence on GDP and social processes in the country. The study results show, that Russia is in the top ten countries by the ICT Development Index and the Networked Readiness Index.

The development of the digital economy is one of the strategically important issues for the Russian Federation, which determines its global competitiveness. This means, that our state must create conditions for the development of the digital economy, direct it to the most relevant, strategically important industries. One more important aspect of our national economy is that state-owned companies (or state-owned companies) generate the major part of GDP. This will allow to create the necessary infrastructure for the rapid development of the digital economy and the dissemination of relevant technologies. For our region, digitalization of most of the economy should be focused on the following directions: logistics, data processing, tourism, sales and production of real estate, telecommunications, power industry, transport, healthcare, taxes and fees. This allows to create an appropriate infrastructure and technological base.

About 76% of Russian SMEs stated, that their companies want to actively develop in the digital environment and enter international markets. However, most SMEs lack technology education programs. The main goal of the Russian government is to increase the share of employed in SMEs up to 25 million. An important point is the increase in the share of non-resource exports from 8.6% to 10% by 2024

According to a survey among small and medium-sized businesses in Russia, conducted by Facebook in conjunction with the Agency for Strategic Initiatives (ASI) and GfK, the majority of respondents consider that digital promotion is a key factor for business growth. At the same time, about 40% say, that online tools are the most frequent promotion tools. More than half of the respondents are going to "go online" in the near future, set up websites and pages on social networks. However, the

survey showed, that companies acknowledge, that they lack education in digital technologies and knowledge of mobile first approach to business. At the moment, only 53% of Russian SMEs have both websites and a mobile version of the site. At the same time, about 90% of companies, as a result of a lack of knowledge, are focused only on the Russian markets. In order to help medium and small-sized business, money is invested in various trainings and courses. And also in special Internet applications, with the help of which any user can learn how to successfully navigate the digital space.

In Russia, as in the whole world, small and medium-sized businesses largely rely on digital channels and tools for their launch and development, it is necessary to help them learn simple, but effective tools, through which they can find their audience and grow. Today on Facebook, over 90 million SMEs use the platform to communicate with customers. Since November 2019, Facebook for the first time in Russia has successfully launched the Boost Your Business program for medium and small businesses, which is being carried out all over the world. The program includes various trainings on the use of social networks, dialogue with industry experts on business development in the conditions of digitalization and acquaintance with Facebook experts.

Also, representatives of SMEs actively use Facebook Blueprint online courses to promote their business. They include more than 75 courses in Russian, certification programs for specialists (six million Russian SMEs use this resource).

A clear understanding of the mobile economy is a key component for the development of the socio-economic sphere. The presence of digital channels helps Russian companies to be successful and competitive in the international market.

Competition in all areas will grow and become global as a result of the dissemination of the digital economy.

The plan of the Ministry of Communications assumes the implementation of electronic technologies in all industries:

- Management of energy, water and fuel resources;
- Creation of smart cities;
- Decrease in transaction costs;
- Change of the system of division of labor;
- Opening of high-tech medical centers [9].

By 2024, the state intends to carry out a comprehensive digital transformation of the economy and social sphere of Russia. This requires:

1. Personnel for the digital economy. Improvement of the education system, which should provide the digital economy with competent personnel. Transformation of the labor market, which should rely on the requirements of the digital economy. Creation of a motivation system for the development of the necessary competencies and the participation of personnel in the development of the digital economy of Russia

2. Information infrastructure. Development of communication networks, development of a system of Russian data processing centers, implementation of digital

platforms for working with data to meet the needs of citizens, business and government

3. Information safety. Achieving a state of protection of the individual, society and the state from internal and external information threats, which ensures the implementation of constitutional rights and freedoms of person and citizen, decent quality and standard of living of citizens, sovereignty and sustainable socio-economic development of the Russian Federation

4. Digital technologies. Creation of a support system for search, applied studies in the field of the digital economy (research infrastructure of digital platforms), ensuring technological independence by each of the directions of end-to-end digital technologies, that are globally competitive, and national security.

5. Statutory regulation. Formation of a new regulatory environment, that provides a favorable legal regime for the emergence and development of modern technologies, as well as for the implementation of economic activities, related to their use

6. Digital public administration The implementation of digital technologies and platform solutions in the spheres of public administration and the provision of public services, including for the benefit of the population and small and medium-sized entrepreneurship, including individual entrepreneurs [13].

Constraining factors of the development of the digital economy in Russia:

– Enforcement of rights in the digital world. Идентификация, Сохранность данных. Trust in the digital environment. Analysis of the regulatory and legal framework, governing the development of digital technologies in the constituent entities of the Russian Federation, allows to conclude, that in this area of regulation, by-laws of regional authorities prevail. So, for example, in the Republic of Tatarstan, a "road map" was developed, aimed at the implementation of the National technology initiative and the program "Digital Economy of the Russian Federation" in the Republic of Tatarstan for 2018-2020 [5]. It is important to note, that regulation of the issues of the development of the digital economy in the constituent entities of the Russian Federation at the level of legislative acts is less common. Often, legislative regulation in this sphere is limited to the regulation of state information systems (Law of the Komi Republic, dated September 29, 2010, No. 94-RL "On state information systems of the Komi Republic"; Law of the Udmurt Republic, dated December 14, 2006, No. 59-RL "On informatization in the Udmurt Republic") [11].

Often, regional legal acts are aimed at the implementation of strategic, conceptual documents of the Russian Federation, as well as state programs and projects. It should be noted, that this kind of regulatory and legal acts are used by regional authorities as a form of approval of the regional coordination bodies in the field of digital technologies (for example, in the Republic of Tatarstan and the Republic of Mordovia), as well as in order to create information systems (for example, in the Republic of Bashkortostan and the Republic Tatarstan).

– the digital transformation should be implemented by the state with a focus on ethical principles. The most vulnerable groups can pay for possible mistakes of civil servants: pensioners and residents of remote settlements - due to the difficulties of access to technologies and the inability to navigate them, children and youth - due to the fact, that they cannot yet understand the value of their data and are not able to protect, financially disadvantaged citizens - as potential victims of scoring models, etc. The state cannot foresee all the ethical risks of digital transformation and overcome them, but it must make the ethical principles of digitalization its priority for the near future [12].

– the growth of the scale of computer crime, including international; lag behind leading foreign countries in the development of competitive information technologies;

– low level of development of promising IT.

– insufficient efficiency of scientific studies (related to the creation of promising information technologies, a low level of implementation of domestic developments, as well as an insufficient level of staffing in the field of information safety);

– global competitive pressure in the development of IT.

The purpose of the direction, concerning information safety, is to achieve a state of protection of the individual, society, and the state from internal and external information threats, which ensures the implementation of constitutional rights and freedoms of person and citizen, decent quality and standard of living of citizens, sovereignty and sustainable socio-economic development of the Russian Federation in the conditions of the digital economy.

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## 3. CONCLUSIONS

The effective use of new digital technologies will determine the international competitiveness of the Russian Federation and individual companies, that form the infrastructure and legal environment for digitalization [6]. For the Russian Federation, the objective of strategic importance is the development and implementation of technologies, the development of national programs for the development of the economy of a new generation, the analysis of "big data" and forecasting, the implementation of new management methods in the context of the socio-economic well-being of states.

Summarizing, it should be noted, that in modern conditions the state is assigned a crucial role, associated not only with the formation of the legal framework for the functioning of the digital economy, but also to contribute to further innovative development [11].

At the same time, the state is entrusted with the responsibility to prevent the dissemination of crime, associated with the use of digital technologies and to ensure the organizational and legal frameworks of information safety. In our opinion, there is currently a necessity to conduct large-scale studies, related to identifying the influence of digital economy instruments on the state. It is equally important to preserve the economic sovereignty of the state against the background of globalization and the implementation of digital development programs by other participants of the world market.

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