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THE ROLE OF THE STATE IN THE DIGITAL ECONOMY'S DEVELOPMENT IN RUSSIA

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Abstract

This article provides a detailed analysis of the key points in the development of the digital economy, as well as the problems of its development in the Russian Federation. The authors discuss the state of the resource potential, which contributes to the development of the digital economy, the development of regulatory and legal regulation of the digital economy, and the role of the state in the development of information and telecommunication technologies. The paper also highlights the goals and objectives set by the Government of Russia for the development of the digital economy. In order to further develop digitalization in Russia, it is necessary to modernize legislation related to digital technologies, to provide individual entrepreneurs, small and medium-sized businesses with access to the necessary blockchain technologies, Big Data and the like. It is necessary to provide access to databases, to ensure the security of the digital economy, and also support the development of the digital environment in the regions, stimulate investment companies and tax incentives innovative companies. In conclusion, the authors admit that certain actions have already been taken in implementing the digitalization program of the Russian economy. The state provides substantial support, which guarantees the formation of a single digital environment in the Russian Federation and thus gives domestic companies an equal opportunity to compete with developed countries under the conditions of digital economy.

Keywords: Digital economy, electronic business operations, information, information and telecommunication technologies, infrastructure, personalized service models**.**

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1. Introduction

An important direction in improving the modern economy is the introduction of digital technologies in all spheres of economic activity. The digital economy is a special area of economic reality that operates using digital technology. The digital economy is not only the introduction of computer programs in economic activity, but also the creation of electronic services that will almost completely replace the work of physical entities. The digital economy has such advantages as the speed of services when making a transaction, the convenience of various operations, a tremendous saving of time and others.

In some areas of the digital economy, Russia lags behind the pace of its introduction and development from the leading countries of Western Europe, the USA, Japan, as well as in the mass production of electronics from China and India. For various reasons, international investors are more interested in the development of digitalization in these countries. The total investment in the digital economy of these countries in 2017 amounted to more than 1 trillion dollars. Russia has adopted its own digitalization program for the economy – "The Digital Economy of the Russian Federation".

The main investor in the implementation of this program is the state. However, due to significant resource savings, rationalization of logistics, increased production efficiency and other advantages, the payback period of digitalization projects has significantly decreased and now amounts to only 2-3 years. This is very important for business. Small and medium-sized businesses were the first to adapt to the digitalization of the economy, since it is these subjects of economic relations that have the best reaction to innovative changes.

2. Problem Statement

At the present stage of the development of society and the formation of new social relations humanity has entered the next phase of its development, which is commonly called the era of digitalization. During this period, human activities are directly related to the creation, processing and use of intangible resources, among which intellectual capital and information presented in digital form, occupy the most important place. Under the current conditions, the digital economy is beginning to take an active position in all areas of public life. Digitalization of the economic system is the main direction of the development of the state, economy and public relations, and the digital economy is becoming a breakthrough technology in the system of sustainable development of society (Kivarina, 2019).

The development of the digitalization of the economy is, mainly, the replacement of habitual physical objects with digital ones, where real operations become electronic. Electronic operations are based on the introduction of digital technologies, which in turn are based on digital computing technology. Digital technologies are defined as a discrete system based on the methods of encoding and transmitting information that allows you to perform many diverse tasks in the shortest time intervals. The list of these technologies has long been the subject of discussion by scientists from different countries, and this issue remains widely discussed at many scientific conferences dedicated to the digital economy (Kulikov, 2018).

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Based on these discussions, the "Industry 4.0" concept was created, which allows us to conclude that digital technologies are able to digitalize all physical assets and create a digital ecosystem with digital products and services (Pooh, 2016).

It can also be stated that digitalization is developing in parallel in three directions. These are "The Internet of Things", "Big Data" technologies and machine learning. Of course, there are digital technologies that are used for certain economic sectors: in accounting and corporate finance, there are systems of "cloud" computing and data transfer; in the field of human resources, remote interviewing and hiring of employees via the Internet are used. For the information sector and corporate finance, special analytical programs have been developed. There are technologies of unmanned vehicles, electronic control over the movement of goods. All this allows to reduce costs from 7% in the field of human resources, and up to 40-50% in the field of accounting and corporate finance.

3. Research Questions

The state plays a key role in the integration of these technologies, and provides various tools to support them. In the case of a competent approach, digital technologies can become one of the factors for the growth of the Russian economy in the long term. Thus, opinion polls in the business environment show that the use of digital technologies allows for a simultaneous increase in gross revenue and annual profit of about 3-4%. Foreign respondents are even more optimistic. They believe that their costs due to the use of digital technologies will be reduced in the near future by $ 421 billion, and their annual revenue will increase by almost 500 billion (Blagikh, Gazizullin, Yakovleva, & Titov, 2017).

When introducing digital technologies, companies in developed countries usually focus on the client. For example, automobile giants (BMW, Mercedes-Benz, and Toyota) use Big Data technologies to interact with their customers and adapt the products planned for launch to their requirements. In different countries, the goals of business digitalization are somewhat different. While Germany and Japan concentrated mainly on the introduction of digital technologies in the internal activities of companies (in order to reduce transaction costs), companies in the United States use digital technologies to create new or modernize existing goods and services (Berkana, 2018). Chinese companies, despite some lagging behind their colleagues from the above countries, use digital technologies in both of these areas with record-breaking rates of implementation. The total investment in digital technologies of companies in Western Europe, China, Japan, the United States and India in 2020 will amount to more than 900 billion dollars a year. We are talking about machine learning technologies, training relevant specialists, creating a digital culture and simplifying the digital environment for customers (Klau, 2016).

4. Purpose of the Study

The State and the Government provide significant support in the development of digital technologies. Digitalization in Russia was officially launched by the message of the President of the Russian Federation Vladimir Putin to the Federal Assembly of Russia in December 2016, in which he proposed the development of a digital economy through the introduction of digital technologies. This

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message was fundamental and laid the official benchmark in the development of the digital economy in the Russian Federation.

In July 2017, a program for the development of the digital economy with the same name "Digital Economy" was approved. The goal of this program is to improve the digital economy in the Russian Federation, through the large-scale use of digital technologies in various sectors of the economy, the introduction of a digital economy in the regions and the creation of a common digital infrastructure and digital environment.

Thanks to government support, such projects have been created and exist to promote digitalization as Innotribe (Bank of Russia) - search for the best startups related to digital financial technologies; Finnet – the development and implementation of digital technologies that reduce intermediaries in banking.

Given the above, the purpose of the study is to analyze in detail the key moments in the formation of the digital economy, as well as the problems of its development in the Russian Federation.

5. Research Methods

The study is based on a rationalist approach using the methods of logical-structural, comparative and situational analysis. The findings and recommendations can be used for the further development of economic science and practice in modern conditions of digitalization of the economy.

The Internet of Things (IoT) technology appeared with the proliferation of third generation (3G) cellular networks in the early 2000s, making electronic devices able to communicate with each other through machine telemetry. A new direction was identified related to communication on the principle of "machine-machine" (M2M). Later, with the advent of new communication technologies and types of equipment, this model expanded and was called "The Internet of Things".

According to analysts, by 2020 the number of devices on the Internet of Things network will be from 20 to 50 billion units. This technology is already used in such sectors of the economy as energy, industry, agriculture, transport, etc. In some foreign countries, such as South Korea, China, and a number of countries in Western Europe, smart city technologies have been created on its basis that allow saving energy and unload the transport network. In the UK and the United States, smart metering technologies have been introduced to save energy. This technology allows businesses to reduce costs and develop new sources of income. For example, about 25% of buyers of residential real estate in the US choose devices with smart home technology.

Big Data technologies are also becoming more and more popular in the world, as more and more data is being produced (data produced from 2013 to today exceeded all that was produced in the world before) (Slaughter, 2018). In order to effectively store and work with this information, new digital technologies and specialists are needed. Today, in large companies, banks, and government bodies, this is not done by internal departments, but by specialists outside these structures.

By the end of the decade, investments in this area will exceed $ 70 billion: we are talking about investments in technology for processing user requests, in storage management technology. Since the Big Data technologies are connected with sensors, cameras, control devices at enterprises, it is interfaced with IoT. The symbiosis of these digital technologies will allow, for example, to optimize traffic, hotel business, logistics business, and agricultural industry, to manage energy networks more efficiently. In

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second place are artificial intelligence technologies. Artificial intelligence is the use of digital technology to recreate human thinking in machines. Cars no longer work on a specific algorithm, now they make their own decisions, analyzing a huge array of embedded data or self-training. Machines have already learned to recognize people and images of objects, recognize their speech and make decisions themselves (Carnevale, 2016). On the basis of these technologies, in the 21st century, such machines were created as: assistant Internet search engines that recognize speech (Siri, Cortana, Echo and domestic Alice); robotic and self-learning systems that, based on external parameters (weather, environment), can change the operating algorithm (unmanned vehicles) or even think and perform tasks themselves (Watson from IBM). Robots that can play board games better than humans (Chesska chess robot) also belong to the same group.

Machines created using these digital technologies are already able to help people save resources, calculate profitability and choose the best business project, control the processes in the company. The volume of investments in artificial intelligence technologies is growing more and more, especially from such giants as Google, Apple, IBM, Microsoft and others (Heyman, 2016). In Russia, machine learning technologies are still less developed than in Europe, the USA, China and Japan. This is due to both a lack of investment and the complexity of introducing new technologies and regulations into the activities of commercial companies in the existing legislative environment.

There are a number of problems faced by pioneers in the field of digital technology implementation. These include:

- lack of qualified specialists working with these technologies. The market that prepares employees of this kind is growing at a slow pace;
- unwillingness of customers to accept digital technologies, the lack of an appropriate culture, which is one of the main barriers to the spread of digital technologies.

Businesses in Russia faced the same problems, which, starting in the early 2000s, began to use digital technologies in their activities. The most successful company in this area was Yandex. Do not stand aside and banks. One of the first digital banks in Russia - Tinkoff Bank - opened in 2006. Thanks to this method of conducting business, the bank can save significant funds. He does not need to open and maintain the functioning of branch offices, have a large number of employees, etc. The bank's net profit in 2017 amounted to 19 billion rubles, which is almost 10 times higher than in 2015 (Schwab, 2016).

Sberbank is also actively introducing digital technologies. According to the head of Sberbank German Gref, in the context of digitalization, the only way to continue successful activity is to unite into ever larger structures. Therefore, in 2013, Sberbank began digitalization with the purchase of the Yandex Money service. Also, this bank is actively developing such digital technologies as: electronic customer identification, artificial intelligence technologies, mobile banking, etc. Sberbank is creating its own digital platform, which it plans to fully switch to in the early 2020s. The bank's annual revenue from the use of implemented digital technologies already exceeds 700 million rubles (Buravchikova, 2018).

Banks are still ahead in the digitalization of their activities. Despite the historical conservatism of banks, they have already introduced many digital technologies and plan other radical changes in the

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digitalization process by the beginning of the next decade. The flow of investments in digitalization of banks from year to year is only increasing, but meanwhile Russia has already created:

- several digital banks;
- FinTech Association, supported by the state and implementing a digital transformation;
- training programs for banking professionals and future programmers who can work in digital banks.

The experience of Sberbank, which bought 75% of Yandex Money and began to cooperate with Yandex Market, was so impressive that other banks also began to expand the range of services offered to customers and collaborate with other companies. Banks contributed to the development of marketplace sites that link many participants in economic relations and allow them to complete transactions using a particular bank. The expansion of the marketplace brings more income to the bank.

The speed with which digitalization of the consumer sector occurs is much higher than it might seem at first glance. For example, the number of people paying only in cash over the past six years has decreased by more than 50%. Today, every citizen of Russia on average owns two cards. In less than five years, the number of active users of mobile banks has grown 7 times. Experts estimate the share of the digital economy at about 3% of GDP (2017) and note that digital technologies have been most successfully implemented in the public sector of the economy (Grant, 2017).

If small companies use the help of third-party specialists, large ones create their own e-commerce systems. They also use automated systems to distribute workload. CRM systems allow you to distribute the tasks of employees based on big data: congestion at different points of the day, employee skills. The system can draw up employee schedules, control their working hours using biometric identification, etc. Based on the data from these systems, others (geographic information systems) can choose the best place to open a new branch, predict its profitability, and determine how to sell goods more expediently.

The telecommunications sector is focused on extending the coverage of 4G networks and creating 5G zones. Companies are also introducing Big Data technology to track customer actions and create better rates. Operators begin to offer new services: digital television and radio, payment services, in collaboration with banks. In addition, companies need to develop data centers, as traffic is growing more and more from year to year. To do this, they resort to the help of cloud computing. Russian companies spend about 30 billion rubles a year on these services; technology is provided by Microsoft, IBM and the Russian company Parallels.

Transport companies have recently literally revolutionized. The pioneer in this area is Yandex Taxi. Created in the likeness of a foreign company Uber, the activities of the Yandex Taxi service consist in bringing taxi drivers and customers together. The company sets tariffs, deals with customer complaints, etc. Yandex also introduced machine learning technologies into the tariff setting system (it depends on weather, time of day, traffic, etc.).

The digital technologies introduced in modern Russia are diverse and are almost not far behind, and in some respects they are ahead of Western competitors. Large companies in the industrial, financial and transport sectors of Russia keep up with the times, optimizing their business and increasing its

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efficiency with digital technologies. This allows them to succeed in the conditions of global competition, improving the quality of goods and services provided to customers.

6. Findings

Due to the digitalization of the economy and management technologies, fundamental changes are taking place in the public sector of the economy and in business structures. Russia has somewhat missed the moment of the beginning of these changes and is currently intensively increasing the pace of introducing digital technologies so as not to lag behind developed countries. The article showed the development of the most popular digital technologies in the Russian economy. These include Big Data, cloud computing, artificial intelligence, the Internet of Things, robotics, machine learning, and the development of basic digital platforms.

The Russian government, although belatedly, has quite successfully begun to digitalize the economy. It outlined a clear plan of action, created the conditions for business and regional authorities to develop the digital economy. Digital technologies, as shown in this article, are actively used in Russian banks, industry, trade and transport. At the same time, despite the fact that these industries are actively introducing digital technologies, and in such indicators as the use of “big data” technologies and “cloud” services, they are already on a par with Western European countries, the lack of high-quality Internet in some regions and a single digital ecosystem inhibits their further digitalization. It is necessary to remove these barriers in order to further digitalize the country's economy, improve economic security measures in this area, and encourage private companies to develop and introduce electronic technologies.

Optimism is inspired by the fact that more than 50% of the polled Russian companies noted that currently the greatest impact on their activities is exerted by:

- mobile technology;
- digital design;
- virtual reality technology;
- IoT technology.

About 50% also noted that to one degree or another, the company's business today is affected by:

- Big Data technologies, cloud technologies;
- robotics;
- blockchain.

The companies surveyed believe that in 5 years this influence will become even stronger and spread to a larger number of companies. The impact of IoT technologies, virtualization, mobile applications and cloud technologies will increase (by 10%). These companies evaluate the effect of the introduction of digital technologies as meeting their expectations, they got the opportunity to save time, resources, reduce the number of employees. The implementation of these projects, according to companies, is hampered by the lack of qualified specialists in the field of digital technologies.

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7. Conclusion

We can conclude that, despite the fact that there are more external barriers to digitalization than internal barriers, most of the companies surveyed noted local barriers, namely: a low budget for programs, the expensive cost of implementing and supporting digital projects today. External barriers are mainly related to differences in the legal field in the field of digital technologies, an unstable economy and the sanctions imposed by the US and EU on Russia.

The digitalization of the Russian economic system is proceeding quite rapidly. The experience of Aeroflot, Severstal, Yandex, Sberbank, KAMAZ and others, considered in the framework of this work, is a clear confirmation of this. Large companies, even if at the moment they do not feel an urgent need for development, for example a blockchain, are ready, with the support of the government, to develop this aspect of the digitalization of the economy in the interests of the future. Under these conditions, it is necessary to modernize legislation related to digital technologies, provide individual entrepreneurs, small and medium-sized businesses with access to the necessary blockchain technologies, Big Data and similar access to databases, ensure the security of the digital economy and support the development of the digital environment in the regions, stimulate investment companies and tax incentives for innovative companies (Blagikh, 2017).

The analysis of the state program "Digital Economy of the Russian Federation" carried out in the article allows us to conclude that certain actions in implementation have already been taken. The state provides substantial support to accelerate the development of the digital economy, which acts as a guarantor of the formation of a single digital environment in the Russian Federation and companies will be able to compete with developed countries in the digital economy under equal conditions.

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