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AmurCon 2021: International Scientific Conference**DIGITALIZATION OF THE RUSSIAN ECONOMY IN THE
CONTEXT OF TECHNOLOGICAL CHANGES**

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Abstract

In the conditions of technological changes in the economic system, the contours of the development of the basic branches of the economy are determined. The emergence of the latest digital technologies, platforms and infrastructures of economic life is largely transforming innovation and entrepreneurship. The purpose of the study is to analyse the impact of technological changes that increasingly determine the features of the digitalization of the economy. Within its framework, new types of trade, a new combination of economic resources in the production, distribution, exchange and consumption of goods and services in society are already being considered. In addition to using new tools for entrepreneurship, digital technology systems have broader implications for the creation and functioning of the modern Russian market. The formation of powerful new digital technologies and structures of economic life has largely transformed innovation and modern entrepreneurial activity. The development of digital technologies has made significant adjustments and new principles to the very mechanism of economic growth of the modern Russian state. In the new situation, a new set of economic growth goals is being formed. The essence and significance of the listed problems determined the subject and content of the study. The theoretical and methodological basis of the research is the conceptual provisions of fundamental and applied scientific works of leading domestic and foreign scientists on the problems of the digital economy. In the article, the authors consider the issues of the development of the digital transformation of the economy.

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1. Introduction

We see the specifics of the digitalization of the Russian economy in the fact that a new principle of interaction of factors of production is being formed and is operating, which is based on information technology platforms that change the value of limited economic resources. Digitalization covers everything related to computers, software, mobile communications and data transmission in a specific territory (Krasota et al., 2019). It seems to us that the central element of the digital economy is the increase in labour productivity in new and traditional industries through the use of digital technologies in the processing and transmission of information based on Internet resources and mobile communications. Digital data processing and transmission technologies stimulate the development of innovative technologies. Associated with innovation, the digital revolution can significantly change the structure of economic life. At the same time, the role and importance of the industries of intellectual services, information, processing and data transmission are increasing, which are already equated with the main production factors of production. The dominant mechanism of functioning of the digitalization of the economy consists of innovation-oriented industries, industries and sectors. We believe that taking into account global best practices and the main stages of the development of the digital economy on a global scale is of strategic importance in the context of technological changes. It is important to identify the scientific problem of correcting the trajectory of the digital economy and choosing an alternative sustainable competitive advantage.

2. Problem Statement

We believe that it is important to study the features of the formation of new powerful technological changes and structures of economic life, which have largely transformed innovation and modern entrepreneurial activity in the process of information transformation of the modern economy of Russia.

It is important to identify the scientific problem of the upcoming opportunities for transformational changes in the Russian economy in the conditions of total digitalization. We consider it significant to have a detailed understanding of the essence of technological changes in the Russian economy, an understanding of the problem of the upcoming adaptation of the Russian state in supporting digital activities within the framework of the modern economic system of Russia.

3. Research Questions

The subject of our research is technological changes that predetermine the digitalization of the economy in modern Russian conditions, as well as the study of sustainable competitive advantages in the conditions of the Russian economic system.

4. Purpose of the Study

The purpose of the work is a scientific analysis of the development and formation of digitalization of the Russian economy in the context of technological changes. The topic we have outlined seems to be very relevant and requires its further scientific solution, both at the theoretical and practical level.

5. Research Methods

The theoretical and methodological basis of the undertaken research is the conceptual provisions of fundamental and applied scientific research of domestic and foreign scientists on the digital economy in the modern conditions of Russia. The problem we have identified is the subject of research, first, by specialists working at the junction of scientific knowledge and developments. It is important to note the significant contribution to the theoretical development of the designated problem by such scientists as Liu, M. Z., Zha, Sh. He, W. (as cited in Kondratieva, 2017). Scientific works of well-known Russian scientists and public figures, such as Oleinik A. N., Sukharev O. S. (as cited in Krasota et al., 2020; Rochlitz, 2017), and many others are devoted to these issues.

We believe that the analysis and synthesis of existing scientific concepts and approaches to the study of the development of digitalization of the Russian economy in modern conditions are not fully resolved and require further scientific study both at the state level and at the international level. Description of the methods used in the research.

6. Findings

It should be noted that in the global best economic practice, there is already a modern model of transition to the digitalization of the economy. It makes sense to identify four leading fundamental platforms that make up the framework of the digital economy:

- 1) institutional environment;
- 2) scientific and educational sphere;
- 3) high-speed information infrastructure;
- 4) branches of development and dissemination of new technologies.

The presence of a developed institutional environment - formal and informal restrictions (rules of the game) are factors in the development of the digitalization of the economy. Such an institutional environment performs several very important, as we see it, and necessary functions: accelerating digital development and education, promoting competition in the market, strengthening and supporting stability and comfort in the social sphere of the state.

At the same time, a new system of resource and factor support of production is being formed. The digitalized regional scientific and educational sphere plays a fundamental role in the universal development of human capital (De Soto, 1995). With the help of this sphere, it would be possible to ensure a sufficiently high quality of training for employees of the digital economy, including the innovative direction. In our opinion, it is important to create sustainable competitive advantages of such training. A prerequisite for the implementation of such a local sphere, innovative in nature, is the

development of the state scientific and educational sphere. It seems to us that it is capable of creating an effective combination of science, education and business, corresponding to the tasks of digital development of the Russian Federation. This area in the structure of the digital economy can function more intensively. Firstly, it generates and distributes new ideas, know-how, patents, grants, etc. Secondly, it forms many competitive alternatives to the creative development of human capital. At the same time, under the influence of digital technologies, there is a concentration of the content part of the local scientific and educational sphere. As a result, there is an increase in scientific knowledge, the generation and promotion of their materialization. In the scientific and educational sphere, there are significant opportunities for implementing the creative functions of the digital economy. They are characterized by openness to change, flexibility, consistency, that is, receptivity to exclusive projects, actions. At the same time, it can stimulate the diffusion of the latest technologies. At the same time, it should be noted that the scientific and educational sphere is a local spatial concentration of universities, research centres and research institutes that specialize in the creation and implementation of new technologies and having appropriate high-tech technologies and structures. Their effective functioning presupposes a high level of development of the state's information infrastructure. This implies a significant integration of universities, scientific organizations, industrial structures and their strategy orientation, first of all, to achieve common goals in the long term. As a result, in our opinion, the efficiency of the functioning of the scientific and educational sphere increases. The activity of universities, research centres, and academic institutes is being intensified. The well-known scientist Arrow notes that "knowledge is not just a useful and necessarily good, but also an object of purchase and sale" (as cited in Pokida & Zybunovskaya, 2017, p. 55). In economics now, as Daniel writes, "it is knowledge, not labour, that acts as the primary source of increasing labour efficiency" (as cited in Gaspareniene & Remeikiene, 2016, p. 23). In the digital economy, the subjects of the scientific and educational sphere, thanks to digitalization and flexible logistics, have high opportunities for dynamic interaction within intellectual and educational clusters.

In modern conditions of technological changes, the development of human capital, increasing its level of intelligence, creative abilities becomes a determinant factor of digital economic activity. Under the influence of digital transformation, intellectual labour becomes the dominant type of labour. Physical labour is gradually being pushed out of the sphere of material production and, of course, its flexibility, adaptability, efficiency and activity are increasing. Under the influence of the constant growth of applied research and R&D, the cognitive function of intellectual activity is being replaced by transformative. In the conditions of total digitalization of Russian society, abstract thinking is distinguished as an independent form of activity of individuals.

It is important to say that digital technologies and platforms as a form of an individual's existence significantly change the ways of thinking and acquiring knowledge and skills. These technologies have a profound, comprehensive and revolutionary impact on people. To this advantage of digital technologies, it is necessary to add the permanent and steady expansion of their functions, multimedia capabilities and accessibility for a wide range of users, including intellectual workers.

Our research has shown that in the modern conditions of the Russian economy, professions with a predominance of intellectual labour account for the main increase in employment. At the same time, the quality of the employed is changing, higher and postgraduate education is becoming basic and necessary

for many modern professions. At the same time, postgraduate education acquires a strategic character, becomes more active, acquires an expansive all-encompassing character.

In the conditions of digitalization, the fundamental basis of the state employment policy is the active involvement, rehabilitation, training and retraining of employees. They must be capable of performing a wide variety of scientific, industrial, innovative and other tasks. It is important to note that the strategic prerequisites for the success of this type of economic "adaptability" are:

- 1) practical mastery of several newest segments of the production process by each employee at once;
- 2) a sufficiently high level of general and technical education of employees;
- 3) significant "role-playing" mobility within the production team;
- 4) simplified structure of the qualification hierarchy (overcoming barriers between workers, masters and technicians);
- 5) the direct interest of all production participants in improving the quality of goods and services, in the efficiency of production activities and in saving quality resources and innovation.

At the same time, a fairly stable trend is being formed in digital economic activity, when creative thinking of individuals develops within the scientific and educational sphere. Intellectual activity in the structure of the digital economy as an object of cognition, the mental activity allows us to move from the consideration of thinking in general to creative thinking. Nowadays, creativity and innovation play a crucial role in creating sustainable competitive advantages (Gasparyniene et al., 2017; Mazhar & Jafri, 2017).

The development of the creative approach of employees depends on their general level of culture, on economic traditions, on the level of development of science and education, on technological conditions and the state of the economy. The creative thinking of employees significantly affects the development of their abilities to learn new things, overcome inertia in economic thinking.

Consequently, the formation of modern creative thinking of employees is one of the priorities of the scientific and educational sphere in the structure of the digital economy. In practice, creative thinking is formed, as a rule, in two directions:

- 1) there is a direct mental reproduction by individuals of empirical action, economic experience, natural phenomena and processes;
- 2) assimilation and mental processing of accumulated knowledge on educational and scientific works is carried out (theoretically, within the framework of research universities).

It is important to say that creative thinking acts as intellectual property. This shows the ability of an individual to reflect, comprehend economic and other phenomena, to know their essence, to assimilate and correlate concepts, categories, concepts, theories, requirements of legislative and regulatory legal acts with reality and to build his intellectual activity accordingly. This implies the tasks of continuing education, the development of interest in the systematic replenishment and assimilation of knowledge, skills, and abilities. It is important to form incentives and motives for creating economic activity in the context of the digital economic revolution. Different individuals show different thinking abilities in mastering the knowledge, skills and abilities of economic analysis, in activities and the production of goods and services. Some are easier to assimilate knowledge, quickly master the skills of analysis, others

are slower. The development of the digital economy involves the development of people's thinking abilities and adequate stable competitive conditions are created for this.

L. Esaki believes that a person's thinking abilities can be divided into two main categories:

1) the first category is evaluative ability. It allows you to understand the basic theoretical and practical principles and build your abstract judgments. The first category works in the processes of analysis, understanding, selection and making the right judgment about the situation.

2) the second category is creative thinking. It gives the ability to put forward innovative ideas thanks to the imagination of the individual. Mainly, this form of intellectual creativity provides the movement of the force of scientific and technological progress, it was it that determined the development of modern Russian society (Yap et al., 2018).

It is worth noting that the effective interaction of these abilities gives an individual more extensive opportunities in the digital economy. Creative imagination reflects individuality and is directed to the future. Evaluation abilities are based mainly on the totality of existing and used knowledge. Considering all this, it is possible to pay attention to a very important and practical aspect. The fact is that the scientific and educational sphere in the digital economy is primarily aimed at developing evaluative, analytical abilities and does not interfere with the education of creative thinking. But if we want to move forward in scientific research, we need a creative workforce, since it is the basis of the innovative sphere of the digital economy of the state. In modern conditions, the quality and content of intellectual work determine the future development of society (Nomokonov, 2017).

This trend is related to the shift that has occurred in the nature and content of economic activity under the influence of the total digital revolution. This is manifested, first of all, in the transition from predominantly physical labour to predominantly intellectual labour as the basis of the new economic activity of modern Russian society. In the conditions of digital transformation, the professional structure of employment is changing significantly, old professions are dying out, and professions containing intellectual functions are appearing more and more. Such an economic transformation, due to the growth and development of the digital economy, entails fundamental changes in education, content, methods, technical means and organizational forms of employee training. The innovative needs of the digital economy in conditions of sustainable competitive advantage imply a sharp increase in the role and importance of the scientific and educational sphere. At the same time, for her the dominant task is the following:

1) to make employees capable of conducting new economic activities by establishing common goals and values for them;

2) create structures for coordinating the creative efforts of employees;

3) conduct education and training so that employees can solve the set innovative tasks of the digital economy in the modern conditions of Russia.

Digital forms of economic activity and the scientific and educational sphere should "transform knowledge and education from a luxury item and an elite ornament into a direct productive force of society, into what is called the true capital of any economic system.

At the same time, the ubiquitous spread of digital technologies in conditions of sustainable competitive advantage leads to a change in culture, traditional approaches to education and serves the interests of accelerated deployment of the digital economy.

It seems to us that the digitalization of society and its development should act as a fundamental platform and a catalyst for the technological restructuring of the modern Russian economy. As a result, there is a coordinated movement towards new digital structures and clusters. It should be noted that until now there is no unified strategy of digitalization of modern society in Russia, which would cover the entire state evenly. But, as it seems to us, this fact will contribute to the fact that the integration of the Russian Federation into the global economy will take place partially. However, the economic system may lose its unity, integrity and sovereignty. To neutralize this result, in our opinion, it is important to synchronize the development of the regions of the Russian economy. The main means of such synchronization can be information and technological cluster structures of the modern Russian economy (Huang, 2017).

State policy in the context of digitalization and technological Russian society must not only take into account the fundamental proposals and developments of industrial Russian enterprises, administrations of federal districts and leading Russian investors but also create conditions for sustainable competitive advantages. However, the digital policy and the directions of reforming the Russian digital modern society, which are based on the information path of development, should, as we see it, be combined with all levels and stages of development of the digital society in the conditions of total digitalization.

It is important to note that the global digital practice of the Russian state shows that it is important to develop a digital partnership in our country, where the subjects and participants of the federation and federal authorities will be able to cooperate in eliminating fundamental barriers to the development of information activities in the regions of Russia in the context of digital transformation. At the same time, such cooperation should stimulate state programs and projects for digital development and improve Russia's digital technological competitiveness.

This partnership should focus the goals of industrial, scientific, technical and regional policy on the formation of a modern information infrastructure in the region and contribute in every possible way to the formation of regional information clusters. Russia needs to gradually move away from the isolated development of the information and communication technology industry towards the development of digitalization of the country's economy as a whole and investment in the development of human capital capable of increasing labour productivity in a digital society.

It seems obvious that the Russian policy in the field of digitalization of modern society in Russia should serve as a basic tool for the development of the regional digital economy if it promotes the occupation of fundamental positions in one or more scientific or technological clusters of modern digital society.

In the context of the information technology revolution, as we see it, methods that assume the leading role of the Russian government in identifying industries with the highest potential for digital development and growth acquire high efficiency. These branches of the Russian economy in the context of digitalization in the future will be more dynamic, highly profitable and will provide a real opportunity

for significant growth in productivity and labour efficiency. Such a policy should, as we see it, lead to constantly decreasing production costs, increased internal competition in the market of the Russian state and, as a result, to a rapid reduction in prices and, at the same time, to an increase in investment flows in the context of the growth of digital economic activity.

As we believe, as a result of the implementation of such a state policy, there is a natural selection of enterprises that can withstand market competition not only on national but also on international markets, the possibilities of export and import operations of unique goods and services are expanding.

With the increase in the digital competitiveness of Russian society, interregional diffusion of technological innovations should accelerate, which in turn should lead to an increase in the growth rate of the digital economy.

It should be noted that digitalization is a process by which the subjects of the state adapt to modern technologies and information resources in the context of digital development. With the introduction of digital technologies (automation, cameras, sensors, touch screens, artificial intelligence, etc.), in our opinion, there will be an increase in pressure on companies to use them for additional profit (Kostakis, 2017). It is important to note that the digitalization of the economic system of Russian society is not only the introduction of new digital information technologies in all sectors of the economy. This is also an opportunity to expand the activities of market institutions and the possibilities of digitalization of production in all sectors of the modern Russian economy as a whole. At the same time, new opportunities for the development of human capital and entrepreneurship, in general, are rapidly expanding in the digital economic activity of the Russian economic system. The foregoing determines the objective prerequisites for economic growth, the creation of new jobs, the emergence of new types of goods and services for the population and business structures in the conditions of total digitalization of Russian society (Ukaz..., 2017).

Therefore, our analysis allows us to conclude the following. To effectively and sustainably establish and develop institutions in the conditions of digitalization in Russian society, to overcome the existing boundary of slow development that does not correspond to the pace of digital development of modern digital society, it is necessary to move forward in scientific research, creative labour is necessary for us since it is the foundation of the innovative sphere of the digital economy of the state. In modern conditions, the quality and content of intellectual work to a greater extent, in our opinion, determine the future development of Russian society. At the same time, it seems obvious that state participation and regulation itself should be a powerful and basic incentive for the development of human capital in the conditions of digitalization of the economic life of Russian society. The creation of effective functioning institutions of the digital economy within Russia seems to be very important here (Tomchuk-Ponomarenko, 2017; Williams et al., 2016).

7. Conclusion

We believe that it is important that state participation should serve as a fundamental and most important incentive for the development of the digital economy of Russia. At the same time, the state digital policy should have a stimulating and supportive effect on advancing the development of fundamentally new high-tech industries and structures of the Russian economic system, conducting deep

digitalization of functioning industries and industries of the whole society. It is important to say that the management of the development of human capital as the basic engine of the development of the economic system should be considered as a justified necessity in the conditions of large-scale and deep information integration of modern society. The most important thing is the formation of effective institutions and individuals in the digitalization of the economy, which will ensure the productivity and efficiency of its permanent development and formation (Huang, 2017). Institutions and individuals, as it seems to us, contribute to the digital development of permanent processes in the economic sphere and serve as the foundation for the effective development of modern Russian society, therefore, the solution of the tasks outlined by us acquires priority importance for the formation of the future digital foundation in the context of the modern economic system of the Russian state.

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