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**ADAPTATION OF ECONOMIC ENTITIES OF THE
MACROREGION TO THE DIGITAL ECONOMY**

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Abstract

The current stage of development of the economy and society is characterized by the fact that the main trends in their evolution are determined by new technologies. The most dramatic changes in the global economic and social space are taking place under the influence and with the participation of digital technologies. The emerging digital age presents the creators of the economy with the need to transform and use advanced technologies to survive and maintain their niche in the market field. These technologies also force traditional (line) businesses to change and adapt to new environments. In these conditions, it is especially important to determine the list of industries and types of economic activities in which it is possible to get the maximum effect from the transition to a digital development model. At the same time, although the role and influence of advanced technologies on the processes taking place in the economy and society are obvious, many issues concerning their impact on participants in market relations remain not fully understood. It should be especially noted that insufficient attention is paid to the adaptation of business entities to functioning in the digital economy; issues of automation and digitalization, including the use of special programs, remain without due attention. The implementation of the measures will create a new basis for the regional economy, which can quickly adapt to the conditions of the digital economy, become more successful and leave the zone of backwardness and depression, painlessly fit into the new system of economic relations.

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1. Introduction

The world is rapidly moving towards the digital economy. Digital technologies, which began to spread rapidly, are making dramatic changes in all aspects of economic activity and the life of society. The structure of the economy is changing, new business models, platforms and ecosystems are emerging, which overshadow traditional (linear) companies. The effectiveness of the work of specialists of different profiles becomes dependent on what technologies they are armed with and how productively they can use them. But this aspect is not becoming prevalent; another trend is picking up speed, which is that advanced technologies are replacing workers; there is an automation and digitalization of jobs.

In developed countries, there is an increase in research and development related to digital technologies. In the European Union, projects and programs are being developed, in which the development of the digital economy is key. It is noted that the economic growth of the countries that make up the Union will depend on the effectiveness of the use of innovations and digital technologies.

In Russia and the regions, attention is also paid to this issue, but the pace of implementation of tasks related to the use of innovative developments, software products and digital technologies remains at a low level.

2. Problem Statement

Currently, many countries are beginning to master the basic foundations of the digital economy. The parameters of the digital economy were outlined by Tapscott (1995), who summarized its main functions and proposed the following formulation: "it is an economy based on the use of information computer technologies" (p. 173). The digital economy, judging by the publications of foreign (Bukh & Heeks, 2017; Goldstein, 2017; Martin-Shields & Bodanac, 2017) and domestic researchers (Gretchenko et al., 2018; Korovin, 2019; Kozyrev, 2018; Sorokin, 2018; Zubarev, 2017) is a high-tech system in which it is possible to organize interaction between various technologies, using other technologies, to create a new product with specified requirements, new business models and new markets, new means of production, which sometimes may not have a physical basis. However, these characteristics do not end with the features of the digital economy.

The UN Digital Economy Report notes that "for most countries, the digital economy and its long-term implications remain a poorly understood area, and existing strategies and regulations are not keeping pace with the rapid transformation of economies and societies under the influence of digital technologies" (UN, 2019).

In the studies of Russian scientists on this topic, they refer to the wording given in the decree of the President of the Russian Federation of May 9, 2017 No. 203 "On the Strategy for the Development of the Information Society in the Russian Federation for 2017–2030." It sounds like this: "the digital economy is an economic activity in which the key production factor is digital data, the 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, sales, delivery of goods and services. "

The regulatory framework for participants in digital transformations is the Digital Economy of the Russian Federation Program, approved by the Government of the Russian Federation of July 28, 2017 No. 1632-r.

It is undeniable that human society has approached such a stage of its development, the main characteristic and fundamental basis of which is increased attention to digital technologies, which take the form of intellectual capital, become the most important resources and direct productive force of development.

But this does not mean that we should forget about other technologies, in particular innovative ones. In addition, in conditions of underdevelopment or crisis phenomena, the main factors on which countries, regions and economic entities place their bets to get out of an unfavorable situation are technologies (Komkov, 2017).

The use of technology requires the subject (country, region, business entity) to pursue a certain industrial policy. This is indicated by historical practice (Reinert, 2008) and theoretical developments by various authors (Bailey et al., 2019; Lenchuk, 2018; Thomson & Atukorala, 2020).

The measures proposed by the authors are aimed at developing various measures to overcome the crisis, especially the work (Bailey et al., 2019), which proposes the use of industrial policies focused on certain industries or certain regions.

This approach is acceptable for the regions of the North Caucasian Federal District, where the subjects are characterized by the same state and legal norms, but differ in socio-economic indicators. The district is characterized by the fact that it belongs to the underdeveloped regions. According to the parameters of economic development, the Okrug ranks last among other districts. Currently, new conditions have been created associated with the development of digital technologies and opportunities have arisen to solve problems that have remained unresolved for a long time.

For the North Caucasus Federal District, it is necessary to focus on solving two problems: the development of fundamentally new high-tech sectors and the deep technological modernization of traditional industries and industries. These tasks are difficult, but "their combination can provide a frontal launch of the technological revolution in the medium term" (Idrisov et al., 2018, p. 12).

3. Research Questions

The scientific hypothesis of the study consists in the assumption that the economy of a problem region can be brought out of a depressive state based on the adaptation of economic entities of the region to the conditions of the digital economy through the use of special software products and digital technologies.

4. Purpose of the Study

The purpose of the study is to find out the possibilities of adapting economic entities in the subjects of the North Caucasian Federal District (NCFD) of the district to the requirements of the digital economy.

5. Research Methods

The research is based on the use of the system approach methodology, the use of methods of economic and statistical analysis, scientific abstraction, analogies and scientific generalizations. In the course of the development of the proposed topic, classical and modern works of domestic and foreign scientists, statistical and empirical material prepared in the process of field research were used.

6. Research results (data obtained)

In modern conditions, the competitiveness of economic entities is determined by the opportunities they have in order to use innovations and advanced technologies. Under other or other options, the loss of market positions is possible with the ensuing negative consequences. The need to switch to the use of advanced technologies, especially digital ones, is also explained by the fact that in order to interact with other actors of the economy and the market, one must be on the same wavelength with them or communicate in a "language" that is understandable to each other, and such software and digital technologies.

In the global space, the process associated with the use of digital technologies occurs at a sufficiently high speed, and if the country and its regions do not possess them or miss some technical and technological solutions, this can lead to lagging behind and loss of competitiveness.

According to Suleimanov (2019);

Now the world economy is fighting for leadership in the field of digital technologies, which make it possible to acquire indisputable analytical advantages. The emerging digital economy has created a new type of resource – data, which, for all the controversy of such a statement, is a modern factor of successful economic activity. (para. 5)

Against the background of the trends that are taking place in other regions on the use of advanced technologies, in the subjects of the North Caucasus Federal District they are characterized by a small number of their use. This situation leads to the fact that enterprises and products remain uncompetitive, labor productivity and resource efficiency remain low. The most critical thing in this situation is the conservation of technological backwardness.

Meanwhile, special software and digital technologies remain the most important tools for transferring the economy of the subjects to a higher level of development. Consider the state of the use of advanced technologies in the subjects of the North Caucasus Federal District.

Table 1. Use of special software and new technologies in organizations of the North Caucasus Federal District

Subjects	Organizations, using special programmatic facilities - Total			for design rationing			For driving automated and technologized processes			CRM, ERP, SCM – systems			Share of enterprises using new technologies, %		
	2015	2018	2019	2015	2018	2019	2015	2018	2019	2015	2018	2019	2015	2018	2019

RF	84,8	85,9	85,9	11,0	13,0	13,0	15,1	16,7	16,5	15,4	19,6	20,5	14,9	21,0	23,5
SKFO	80,3	70,7	66,6	7,6	7,0	7,8	11,1	10,3	11,1	10,8	10,0	10,2	4,3	7,5	9,4
RD	71,1	53,6	52,3	3,6	3,7	2,7	4,5	4,8	4,9	4,4	3,6	3,6	3,1	3,6	5,2
RI	84,1	89,9	91,7	4,4	4,4	5,3	8,2	8,9	8,3	8,8	13,7	16,5	-	1,3	1,8
KBR	70,1	72,6	75,8	7,8	6,9	7,2	8,9	9,4	8,1	11,2	10,9	13,4	5,5	6,7	7,0
KCHR	79,7	85,5	85,3	6,3	7,1	7,9	11,6	10,5	12,6	9,4	11,8	12,7	3,7	5,0	8,2
RSO-A	80,3	79,6	67,6	6,8	7,6	7,2	10,8	12,4	10,7	9,3	11,7	10,2	0,7	6,1	5,8
CHR	65,1	48,6	42,0	3,1	3,1	11,4	5,7	5,8	12,0	8,5	3,6	4,7	8,9	5,4	5,8
SK	94,3	91,1	89,3	12,5	12,5	11,3	17,7	18,3	18,1	16,1	18,7	18,9	5,1	13,1	19,1

Source: authors' calculations

Source: Compiled on the basis of data from "Regions of Russia. Socio-economic indicators. 2016, 2019, 2020 ", 2020.

To clarify the state of the use of new technologies and software in the North Caucasus Federal District, a comparative analysis was carried out with the average Russian indicators (Table 01). Sectors of the real sector of the economy were selected as the object of research. The logic of our approach is that we believe that the basis of the economy, its foundation are the branches of the material sphere. Digitization and implementation of software products in this area is more labor-intensive process than in other industries. Of course, this comparison is relative and does not mean that other industries are less important.

The average Russian indicators of the number of organizations using special software remain stable and amount to 85.9 %. The question is – is it high or low? Judging in relation to the indicators of the North Caucasus Federal District, it is high, but judging by world standards, it remains low. In the conditions of the digital economy, to which the country is rapidly approaching, there can be no entities that would not use digital and information and communication technologies.

In the NCFD, the number of organizations using special means is decreasing. Over the past five years, the indicator has decreased by 13.7 %. The indicators of the Republic of Dagestan (52.3 %), North Ossetia-Alania (67.6 %), and the Chechen Republic (42.0 %) are at a low level.

In many countries and regions, the trend is to “transfer” design and production management issues to special software tools. Such tools can be CAD and BIM – for design, PDM PLM systems and RFID – for tracking product quality and equipment condition.

The use of these systems in the subjects of the North Caucasus Federal District is also at a low level. The lowest rates are typical for the Republic of Dagestan (2.7 and 4.9 %), respectively, the Republic of Ingushetia (5.3 and 8.3 %), the Kabardino-Balkarian Republic (7.2 and 8.1 %).

In modern conditions, it is unlikely that business entities will be able to maintain themselves and their presence in the market without effective resource management, customer relations, planning and supply chain management. These processes are carried out using CRM, ERP, SCM – systems. The indicators of the use of these systems in Russia as a whole tends to grow; in the North Caucasus Federal District they remain unchanged and, at the same time, are half the average Russian data.

In the course of the study, an attempt was made to determine the proportion of enterprises using advanced technologies (meaning advanced production technologies, innovative developments and digital technologies). Calculations revealed that the average Russian indicators are growing, but the total number

of entities applying new technologies remains small in terms of quantity. In the North Caucasus Federal District, the same tendency is also observed, but there are two and a half times less such enterprises.

The results of field research show that the economic entities of the district are actively involved in the interregional division of labor, which allows them to stay “afloat”. But those enterprises and regions with which the constituent entities of the district interact are intensively engaged in the introduction of information and digital technologies into production, they can go into the gap and it will be impossible to interact with them.

In general, it should be noted that the situation related to the use of new technologies remains ambiguous. At the same time, it is worth highlighting that some work is being done in the constituent entities of the district to get out of the existing situation. So, in the Kabardino-Balkarian Republic there is a plant of JSC "Terekalmaz", which is engaged in the production of unique metal-cutting tools and the production of diamond precision rollers, the production of the enterprise is of high quality and belongs to the world level.

In North Ossetia-Alania, there is a research, production and innovation center LLC VTTs "Baspik", which specializes in research and production of microelectronic products developed on the basis of microchannel and fiber-optic technologies. This enterprise is the only one that manufactures such products. There are similar enterprises in all constituent entities of the district, but their number is insignificant.

7. Findings

Proactive preparation for the conditions of the digital economy is becoming an urgent task for economic entities in the region. To solve these problems it is necessary:

- to complete the issue of the organization's transition to the use of ICT, in the regions there cannot be enterprises and organizations that would not be connected to the Internet;
- all organizations must develop projects that allow the use of special tools in accordance with their specialization,
- business entities need to develop programs for the digitalization of production processes and switch to the use of digital technologies.

In the conditions in which the region is located, an important side is the development and use of platforms that give an effect, which is confirmed by the practice of foreign companies (Kenny & Zisman, 2020; Moazed & Johnson, 2016).

8. Conclusion

The global trend in the formation of the digital economy and the widespread use of digital technologies also affect our country, which suggests that it is necessary not only to be aware of current events, but to prepare to build our work on the basis of the use of advanced (digital) technologies. Only by relying on these technologies is it possible to remain competitive and develop further. These questions are especially relevant for the subjects of the region, which are the objects of this study. They are

problematic, but they have a unique opportunity to change their position and leave the zone of backwardness.

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