

GCPMED 2020
Global Challenges and Prospects of the Modern Economic
Development

THE INFLUENCE OF DIGITALIZATION ON THE PROCESS OF
PERSONNEL TRAINING IN RUSSIA

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Abstract

The purpose of the research within this article is to study the impact of digitalization on the training process in the field of the digital economy. To achieve this goal, the national program "Digital Economy of the Russian Federation" and the federal project "Human Resources for the Digital Economy" were studied, which are aimed at developing the digitalization process, including effective, responsible personnel management in this area, which is a basic condition for sustainable development of the digital economy. The relevance of the article lies in the focus of world development on digitalization of all spheres of public life. The formation of an appropriate institutional environment is an important aspect of the effective development of the main spheres of human activity in the digital economy. The article examined the main problems of training qualified personnel for the digital economy and proposed ways to solve them. The paper also presents the results of a study devoted to the shortage of IT specialists in the Russian Federation, analyzes the prerequisites of this problem at the secondary education level and problematic aspects of the educational process when training personnel in the IT sphere in the system of higher professional education. The main problem lies in the inconsistency of the current education system with business needs. The results of the study showed that to ensure the competitiveness of the national economy in the world arena in the context of global digitalization, it is necessary to modernize the training process.

2357-1330 © 2021 Published by European Publisher.

Keywords: Digitalization, digital economy, education, personnel



1. Introduction

To form an effective and competitive national economy in the context of global digitalization, it is necessary to use the world achievements of scientific and technological progress. At the same time, the main aspect of the development of socio-economic systems is the transformation of industrial economies into information-network economies, which determines the creation of the digital economy as a new stage in the evolution of the world economic system. The digital economy refers to economic activities based on digital technologies, their use as planning and management elements, as well as in the process of creating products and services. The transition to an information society was secured back in 2000 by the Okinawa Charter, according to which information and communication technologies are one of the most important factors influencing the formation of society in the twenty-first century (Okinawa Charter for the Global Information Society, 2000). In the Russian Federation, the development of the digital economy is legislatively enshrined in the program "Digital Economy of the Russian Federation", the goal of which is to create such an ecosystem of the country in the period from 2019 to 2024, where digital data will become the main factor of production in all spheres of society (Program «Digital Economy of the Russian Federation», 2017). The digitalization process is penetrating every day more and more into the everyday life of society, into various activities. It changes the consciousness of citizens, and also has a significant impact on the structure of employment of the population and on the education sector, which is a supplier of personnel.

2. Problem Statement

The changes taking place in the economy as a result of its digitalization predetermine a change in the role of human capital in the enterprise system. Managing human resources through traditional methods becomes ineffective, therefore, its transformation is one of the main directions of the enterprise development strategy (Limonova et al., 2018). The process of digitalization of the economy creates a need for qualified personnel, and, as a result, in the systematization of personnel risks as the most significant risks of digital development in the world (Levchenko et al., 2019).

For the progressive development of the digital economy in Russia, it is necessary to attract more specialists to the IT industry, since their shortage is one of the most serious constraints. For example, in the USA the number of IT specialists is 4.5 million, in India - 3 million, in China - 2 million, in Russia - about 400 thousand. According to the statement of Peskov, the representative of the President of the Russian Federation for digital development, the labor market deficit in key digital competencies ranges from 2 to 3 million people (Tadviser, 2020).

According to the largest online recruiting company HeadHunter, in Russia the share of IT vacancies in the total number of vacancies has increased by 2.3% over the past two years (10.2% in 2016 and 12.5% in 2020) (HeadHunter, 2020). At the same time, the number of offers of employers in the IT sector has the highest growth rate in the entire job market as a whole, and the competition index between specialists in this area has a downward trend from year to year. In 2020, according to HeadHunter, about 40% of the total number of employers' proposals in the IT sector falls on the development and programming area. But, despite the growing demand, the number of specialists in this field continues to fall. The main reason is the

lack of a set of competencies required by the employer among graduates of higher educational institutions. Based on this, we can conclude that there is currently no necessary connection between the education process and business in Russia.

Therefore, the state is faced with the task of creating a relationship between education and business in such a way that after graduating from universities, graduates have skills that meet the needs of their potential employers. The concepts of “School-University-Business” should be inseparably linked. At the moment, many large IT companies cooperate with universities, and also invest in their own educational programs. The “school” link in this chain is also very important, since applicants can enter a university without any skills that should have been formed at an earlier stage. The solution to this problem can be the creation of training programs by companies that involve schoolchildren and students at the same time. The latter can act as supervisors for high school students in the implementation of real IT projects with the support of the company's experts. In this case, schoolchildren will receive the practice of conscious work in this area, and students - the practice of meaningful project and team management. With the creation and successful functioning of the School-University-Business system, the problem of the lack of the necessary competencies among potential IT specialists, and, consequently, the problem of the lack of specialists themselves, will be eliminated. Thus, in the future, companies will themselves form the set of required skills for potential employees not only in the IT industry, but also in other areas, which will radically change the labor market and bring human resources to a new level.

According to experts, in order to reduce the shortage of personnel in Russia and provide the necessary conditions for the development of the digitalization process on an equal basis with other countries, it is necessary to increase the training of specialists by 2.5 times, which is about 120 thousand people a year, and over the next ten years, there should appear more than 2 million qualified personnel.

Also, one of the main problems in the training of qualified personnel was the lack of the necessary level of financing in this area, for its solution in June 2019 in pursuance of the federal project “Personnel for the digital economy” of the national program “Digital Economy of the Russian Federation” by the Ministry of Economic Development of the Russian Federation and Russian Venture Company a document was signed on the opening of a venture fund to support the development of promising educational technologies of the digital economy, improve the efficiency of the education process and its accessibility (Passport of the federal project «Personnel for the digital economy», 2019, Program «Digital Economy of the Russian Federation», 2017). The fund is faced with the task of developing Russian companies in the field of education and their subsequent expansion to foreign countries, as well as the transfer of global technologies in this area to the Russian Federation. By the end of 2021, it is planned to create twenty advanced training programs in competencies that are in demand in the digital economy, while the expected number of trained people is 5 million).

3. Research Questions

The transition to the digital economy in Russia is taking place against the background of the existing contradiction between the ubiquitous spread of digital technologies and the insufficient willingness of citizens to use them in their daily and work activities to create favorable and comfortable living conditions. As practice shows, traditional methods of interaction turn out to be unsuitable for the new digital era, there

is a transformation of institutions through which knowledge is formed, recorded and transmitted, as well as skills are created. Foreign scientists pay attention to the increasing differentiation of society, to information stratification, which consists in restricting the access of certain social groups to IT technologies, world information resources, and education. For this reason, the digital society is threatened with a transition to a state of decline, degradation. They believe that the knowledge society that is being formed at the moment entails the division of the population into two parts: the first, smaller one, which has access to all information and communication technologies, and, consequently, to information resources in general; and the second, consisting of large groups of people, countries that do not have this opportunity (Min, Jeanne, & Suk, 2018). This phenomenon is called the digital divide in the Okinawa Charter, despite the development of technologies that increase the availability of information. All this runs counter to the Constitution of the Russian Federation, namely, with the strategic goal of implementing the concept of a social state.

The positive side of the processes of automation and informatization is the release from heavy and routine work, and, consequently, the release of labor resources, the emergence of more opportunities for the implementation of their own potential among personnel (Digilina & Lebedeva, 2020). Due to the reduction in working hours, the quality of life for citizens is significantly improved, there are more opportunities to take care of health, relax, engage in self-development, spend time with their families, which subsequently has a positive effect on the quality of human capital. Also, the possibility of remote work instead of maternity leave ensures that women retain their professional qualifications. All this creates favorable conditions for solving the existing demographic problem.

The negative consequences of the digitalization process are the high likelihood of a catastrophic level of unemployment, which can lead to serious social upheavals. The ubiquity of artificial intelligence poses a threat to the growth of inequality both within the economy of a particular country and at the global level. In the Russian Federation, the situation is becoming more complicated due to the wide territorial and social differentiation of the population. At present, the country is experiencing distinct centripetal migration processes. Thus, an increase in labor productivity due to the spread of digitalization contributes to an improvement in the demographic situation in the country, but also the existing trends in socio-economic development increase the interregional imbalance and in the future can probably lead to a catastrophe on a national scale.

4. Purpose of the Study

Due to the fact that the digital economy completely transforms traditional economic ties and business models, information and labor resources become the key factors of production, while the most significant factor is human capital, which determines economic growth, as well as contains new information and network properties and competencies (Manakhova & Limonova, 2018). Thus, the main goal for fundamental research in the field of personnel training is to study the forms of manifestation of human capital in the digital economy and create a strategy for managing its transformation.

One of the directions of the National Program "Digital Economy of the Russian Federation" is "Human Resources for the Digital Economy", the goal of which is to achieve the following indicators by 2024:

- 120,000 people a year receive higher professional education in areas of training related to information and telecommunication technologies;
- 800,000 people a year receive higher and secondary vocational education, while possessing competencies in the field of information technology on average in the world;
- 40% of the population has digital skills.

The main goals of the Human Resources for the Digital Economy project are: ensuring digital literacy of the population through the formation of a system of motivating citizens to study the required competencies, introducing requirements for the necessary competencies of the digital economy into the education system, as well as implementing a lifelong learning strategy, mechanisms for retraining, qualifications and involvement in the digital economy of civil servants, pedagogical workers, specialists over 50, pensioners and disabled people. Until 2024, it is planned to spend 139 billion rubles on the implementation of these measures, including the creation of a venture fund for educational startups, as well as the development of online platforms for teaching digital skills, issuing educational certificates and retraining officials. It is also planned to create a support system for students with abilities in mathematics and programming, train 30,000 officials in the Chief Data Officer program, train them in data-based management and conduct a comprehensive assessment of a person's digital competencies in the field of economics (Passport of the federal project «Personnel for the digital economy», 2019).

5. Research Methods

In the current conditions of the rapidly developing process of digitalization, the state, whose tasks are to organize the employment of citizens and provide business entities with labor resources, is faced with the need to resort to fundamentally new approaches to providing the labor market with the necessary personnel. This, in turn, entails the need to change the existing education system by introducing new requirements for the competencies of graduates of educational institutions. A fundamentally new direction in regulating the process of training personnel in the digital economy is the launch of an open online platform, which was mentioned earlier, for teaching adults digital competencies. In the work on this study, the method of theoretical analysis of literary and documentary sources was used. The analysis of secondary information was also applied. The information base was formed by regulatory documents regulating the digitalization process in Russia. In addition, general scientific research methods such as induction, deduction and comparative analysis were used.

6. Findings

Summing up, it should be noted that the system of strategic management of an enterprise's human resources can function effectively only if it responds in a timely manner to external and internal changes, taking into account the requirements of the digital economy.

It can be concluded that human capital plays a key role in ensuring the effectiveness of an organization's activities, since with the expansion of the use of high-performance technologies and an increase in the speed of their spread, it is labor resources that can provide an increase in labor productivity and economic growth. Therefore, it is very important to systematically train personnel that meets the

modern requirements of global digitalization. Enterprises with a qualitatively new human capital are becoming the most competitive in the world arena.

Unfortunately, at this stage, the degree of knowledge of the problem of using human resources in the context of the digitalization process does not correspond to its significance. At the same time, there is a shortage of specialists with the required qualifications, which can lead to serious social difficulties, and if the necessary measures are not taken, the level of digitalization of the Russian economy may remain at a critically low level.

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To ensure the required level of personnel development in the digital economy, it is necessary to implement the following measures:

- create a system of motivating citizens to master the necessary competencies and participate in the development of the digital economy of Russia;
- to form and introduce into the education system requirements for key competencies of the digital economy;
- create key conditions for training digital economy personnel;
- ensure the necessary and sufficient use of competency profiles and personal development paths;
- ensure that the tasks of the digital economy are taken into account in the qualification requirements for employees and in qualification assessment systems.

The increase in labor productivity, in turn, due to the spread of digitalization, contributes to the improvement of the demographic situation in the country. But the current trends of socio-economic development in Russia increase the interregional imbalance, and in the future, the absence of changes in the field of education may lead to a catastrophe on a national scale.

Thus, the main task of government bodies is to ensure the harmonious development of the country within the framework of the implementation of the constitutional concept of the welfare state by relying on the knowledge economy and digital tools.

7. Conclusion

By 2025, the following results should be achieved:

1. A scientific environment will be formed in the Russian Federation, taking part in international fundamental and applied research and development.
2. Russia will become a competitive and attractive country for IT specialists.
3. The problem of retraining and advanced training of the relevant personnel will be resolved in full: supply and demand in the labor market will be balanced.
4. Educational programs will be designed in such a way as to form the skills required for the digital economy.
5. The created competency certification systems will become effective and variable.
6. A system will be created that reflects the development of a person's competencies throughout his life.

In conclusion, it should be noted that in the near future even for ordinary personnel such competencies as computer literacy, knowledge of technologies in the field of artificial intelligence and big data analysis, knowledge of common programming languages, etc. The widespread development of these skills by the population of Russia is necessary now, in order for human capital to become the basis for the further development of the digital economy.

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