

# Human Capital Development in the Context of Economy Digitalization

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**Abstract.** The paper analyses the factors that define qualitative characteristics of the population providing successful formation of digital economy. It is proved that digital technologies lead to the transformation of behavioural strategy of the population that is caused by universal introduction of information communications into social and economic spheres. In this regard, solving the problem of information technologies implementation into economy and social life there are problems with adjustment of flexible system of communications with the population. These problems are caused by different level of people's open-mindedness to digitalization processes. The purpose of this paper is to define factors that form qualitative characteristics of population and their role in the conditions of active implementation of digital technologies in economic and social life at all levels of administrative management. The authors conclude that digital competences of population gain special importance and they need to be supported at the high level by lifelong learning.

## 1. Introduction

The program "Digital Economy of the Russian Federation" (further the Program), approved by resolution № 1632-r of the Russian government was introduced on June 28th, 2017.

The main directions of human capital development in the Program are:

- creation of key conditions for training specialists in digital economy;
- improvement of education system, providing digital economy with competent personnel;
- orientation of labor market to requirements of digital economy;
- creation of motivation system for development of necessary competences and participation of personnel in development of digital economy of Russia [1].

The directions listed in the Program speak to the fact that digitalization means, first of all, change of management paradigm at all levels of national economy. Essentially new control system formed by all subjects of economic relations: business, state, population, has to become a basis for "high-quality updating of human resources in the conditions of rapid change of technological contexts" [2].

The processes of globalization and informatization for a long time going at the level of world economy act as prerequisites of digital economy formation. They are characterized, firstly, by broad informatization of used technologies, significant increase of knowledge intensity in the made goods

and services within the country and growth of the share occupied by them in the international markets, and secondly, by formation of global cross-cultural and educational space.

In this context, objective necessity of Russia in coordination of requirements of digital economy formation and the directions of development of population qualitative characteristics becomes more and more obvious.

## **2. Methods**

The works of Russian and foreign scientists devoted to problems of reorganization of labor markets, education systems, motivation in terms of digitalization of economic and social spheres of society activity as well as open information resources containing information concerning features of digitalization in various spheres of activity formed theoretical and methodological framework and information base of the research.

The main method of the research is system analysis which essence consists in search of interrelation between various phenomena and processes.

There is extensive discussion of problems of formation and development of digital economy in Russian and foreign scientific literature.

Many authors agree that digital innovations invest human capital with a key role in the solution of the major problems of society activity and in this regard, it is necessary to focus on upgrading in complementarity of new technologies and human abilities. In particular, it is necessary to make more efforts for understanding of what new skills will be required, how the existing jobs will change, and what should be done for improvement of educational programs and programs of vocational training right now [3].

The reality of modern labor market is not clear nowadays and the question of what changes occur in this market in terms of digitalization is still open. There are works that research reforming labor market institutes for support in the future when with a growth of labor market flexibility the considerable share of workers changes jobs and employers more often [4; 5; 6]. Some scientists study reforming of welfare system and its strengthening for flattening out economic transformations and mitigation of negative consequences of digitalization of production and economy on the busy population [7].

Analysis of Russian and foreign scientific works shows that the qualitative condition of the population defining its ability to provide this success is one of the major success drivers in development of digital economy.

Pitirim Sorokin said that the fate of any society depends, first of all, on properties of its members, "attentive studying of the phenomena of blossoming and death of the whole nations shows that one of the main reasons for prosperity and death were sharp quality change of population in this or that party" [8].

The population quality we understand as population ability to adapt to the changing environmental conditions, gaining the new properties allowing to carry out the activity in the changing conditions and bringing to society benefit. Qualitative characteristics take the form of quantitative indices. The experts in the field of population quality research and assessment note that backbone characteristics of population quality are:

- physical, mental and social health;
- professional and educational abilities that form intellectual potential;
- cultural and moral values as well as spirituality of people and their sociocultural activity [9].

One more essential element that should be taken into account when determining qualitative characteristics of the population is motivation of a person. Scientific literature notes changes in motivational behavior of youth that enters labor market. A priority for this group of the population is the model of target behavior at work, career values, aspiration to recognition of work results and high income [10]. There are changes in behavior of employers as well. So, intelligence, ability to study and other soft skills become gradually more important for employers, than professional experience. As analysts of the Forbes magazine note, only two thirds of employers in the world look for candidates

with relevant experience, that is, on every third vacancy they are ready to take a person without any experience. Famous researcher in the field of talent management Josh Bersin also confirms it. According to him, skills and university knowledge become quickly outdated today and ability of an applicant to study quickly becomes much more important [11].

In this regard, researches of the trends caused by the going changes in requirements to human capital quality in terms of digitalization and those factors that form certain barriers on the satisfaction of these requirements become sharply relevant.

### 3. Results and discussion

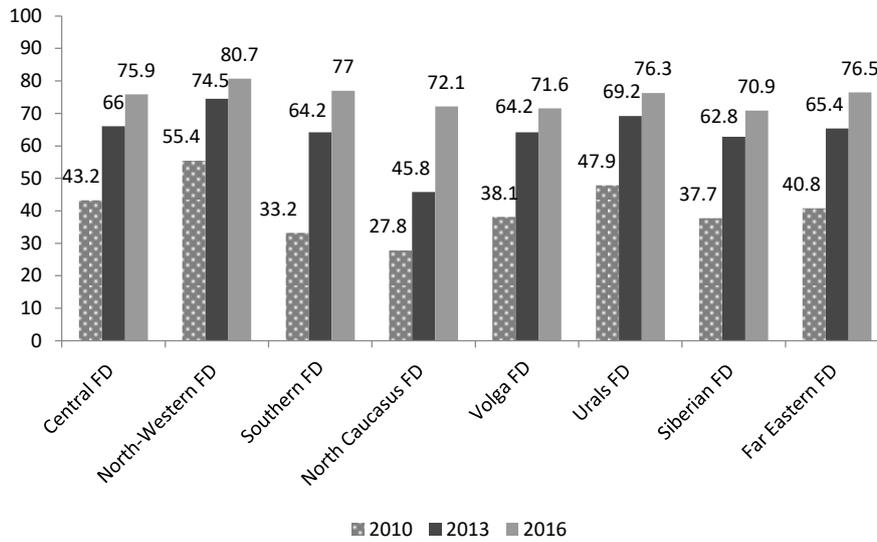
We consider the important factors that prevent formation and development of qualitative characteristics of the population in modern Russia are the factors that define inequality of the population in access to those benefits that play a key role in human development (education, health care, culture, ecology, etc.). The main of these factors are:

*Social differentiation* that generally increased recently its growth in many regions of Russia and prevents active implementation of information technologies. In 2016 in general across Russia R/P 10% ratio (the ratio of the average income of the richest 10% to the poorest 10%) accounted for 15.6 times, in some regions reaching 16.8 times (Yamalo-Nenets Autonomous Okrug). In Moscow this indicator was 16.6 times. Threshold of the indicator in the countries developing digital economy this indicator reaches the level of no more than 10-12 times. Except differentiation, the absolute value of per capita incomes in the majority of Russian regions remains quite low (at the level of 3 minimum living wage (MLW)) over a number of years. According to the researches of All-Russian Center of Living Standards in modern Russia. The line between poverty and extreme poverty followed by impenetrable misery is at the level equal 2.5-3 MLW per month.

*Availability and quality of education.* If we consider education as a basis of successful transition of society to digital economies, then the traceable growth of imposition of charges for education in Russia increases risk of sharp stratification of society because of ignoring of the constitutional principle of equality in receiving quality education. This risk considerably increases with changes in the pension system of Russia since 2019, in pursuance of which retirement age for men increases up to 65 years, for women up to 60 years. To mitigate effects of the made decisions, it is necessary to take measures for supporting people with the investments into education to slow down aging of qualification and skills that without continuous updating outmode much quicker. Throughout the whole working life people have to be engaged in continuous training, otherwise to retirement age they can actually appear without education. Scope of people training at adult life is very low in Russia. The closer to retirement age, the less is coverage of aged population with educational programs.

*High level of informal labor relations* demonstrating considerable popularity of secondary labor market with a low wage, weak social protection or its total absence, bad working conditions of the offered jobs. In 2016 in Russia nationwide the level of informal employment was 21.7% of occupied in public production, i.e. every second worker was in the informal labor relations with the employer. Statistic analysis shows that the situation is not equal on federal districts of the Russian Federation. The worst situation is in the North Caucasian Federal District where 44.7% of the busy population have informal labor relations. There is close dependence between the size of income, level of the general unemployment and a share of "off the books". It should be noted that retirement-age increase amplifies many times over the risk of secondary labor market expansion, unemployment growth, and consequently, deterioration of life of a considerable part of the Russian society.

*The territorial inequality* caused by considerable climatic, geographical, industry characteristic of Russian regions that define differentiation of their social and economic development. However, it is necessary to distinguish digital inequality from other types of inequality that directly defines conditions of implementation of information technologies in economic and social life of the Russian society. At the same time, this type of inequality amplifies not only lack of access to information technologies, but also a problem of their use owing to various reasons caused by influence of the first four factors of inequality.



**Figure 1.** Share of households with Internet access (from any gadget)<sup>1</sup>

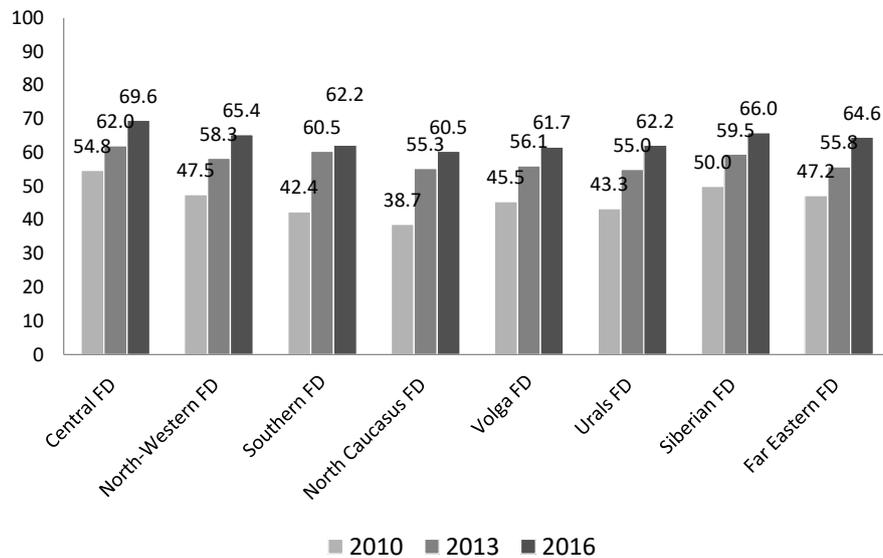
The lack of access to information technologies limits considerable number of people in receiving educational, medical, leisure services, or even in communication with friends and relatives for that matter. As the data on security of households with Internet access during 2010-2016 provided on fig. 1 testify, there are distinctions on federal districts of the Russian Federation not only in security level, but also at rates of its growth with a tendency of sharp reduction of growth rates to the end of the analyzed period. Households of the Northwestern Federal District are best of all provided with Internet access, while the most difficult situation on this indicator in Siberian Federal District is observed.

In 2016 the share of organizations that had internet-connected personal computers fluctuated on federal districts of the Russian Federation from 60 to 70% and average annual growth rate was no more than 3% (fig. 2). The most difficult situation on this indicator was observed in the North Caucasian, Volga, Southern and Ural Federal districts.

Concentration of resources on the key directions of information technologies implementation means necessary active involvement of the state in this process. In many respects this necessity is caused by system failures of the market incapable to make the public benefits necessary for formation of social and economic development potential.

According to G. Cameron, there are three alternative ways to form economic or social policy: 1) to have no impact on dynamics of the going processes (noninterventionists); 2) to carry out insignificant adjustment by stimulation labor migration and investments (adaptors); 3) to influence intensively social and economic processes (radical transformers) [12].

<sup>1</sup> Source: [http://www.gks.ru/free\\_doc/doc\\_2017/soc-pol.pdf](http://www.gks.ru/free_doc/doc_2017/soc-pol.pdf)



**Figure 2.** Number of internet-connected personal computers in organizations, %<sup>2</sup>

The majority of the countries nowadays follow adaptive model of development policy. Those countries that ignored this model of policy implementation faced firstly considerable territorial disproportions in development and secondly problem of under exploitation of development resources.

#### 4. Conclusions

We strongly believe that regional features of social and economic development has to take place in formation and implementation of policy of human development quality. At the beginning of the 20th century Ford plants created several tens of thousands of low-skilled jobs per a year, at the beginning of the 21st century the sphere of booming information technologies for the same time creates no more than several hundred jobs, but demanding high professional knowledge and skills. On that basis, when the states develop strategies of human resources development it is necessary to consider the actual and predicted structure of various technological ways in economy of the region that impose absolutely different requirements to qualification and number of staff. It is impossible to get rid suddenly of outdated technological ways and to introduce new ones. There has to be an accurately built stage-by-stage program of modernization. The policy formed in this context is capable to provide a complete solution of all problems available in the territory, covering all stages of population reproduction and conditions of its activity.

#### 5. Acknowledgment

This work was supported by the Presidium of Russian Academy of Sciences under project № 18-6-7-39 “Scientific and methodical tools for socioeconomic assessment of households resources availability as a factor of regions’ dynamic development”

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<sup>2</sup> Source: [http://www.gks.ru/free\\_doc/doc\\_2017/soc-pol.pdf](http://www.gks.ru/free_doc/doc_2017/soc-pol.pdf)

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