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# The Impact of Digital Technologies on the Labor Market of Belarusian Youth

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Received: July, 2021 1<sup>st</sup> Revision: September, 2021 Accepted: September, 2021 The article examines the impact of modern digitalization processes on the youth labor market in Belarus within the framework of the risk theory. This made it possible to assess the possible negative consequences of digitalization and to determine the ways to regulate them. On the empirical base of data analysis of two studies of youth, conducted with the participation of the authors, the contradictory influence of digitalization on the youth labor market is highlighted: the characteristics of the youth professional trajectories and labor values are described. The article also discusses the possibilities for the develop-ment of entrepreneurial initiatives and the information and communication environment of modern youth. Particular attention is paid to the analysis of risks in the youth labor market: the imbalance of supply and demand, unemployment, the emergence of new forms of labor relations.

It is concluded that the key to the problem of balancing the youth labor market is the modernization of the education system in accordance with the requirements of digital transformation: focus on the formation of the students' digital competencies; introduction of new information technologies (IT) in the educational process, etc. Improvement of the institutional conditions for doing business can enhance youth activity in entrepreneurship and allow young people to successfully adapt to new forms of labor relations.

**Key words:** risks of digitalization of labor, digital technologies, youth labor market, labor values, youth unemployment, new forms of employment.

Титаренко Лариса, Резанова Катерина. Вплив цифрових технологій на ринок праці білоруської молоді. У статті досліджено вплив сучасних процесів цифровізації на молодіжний ринок праці в Білорусі з позиції теорії ризику. На емпіричній базі даних двох досліджень молоді виокремлено позитивні та негативні наслідки впливу цифровізації на ринок праці, охарактеризовано професійні траєкторії молоді й трудових цінностей, розглянуто можливості для розвитку підприємницьких ініціатив. Описано інформаційно-комунікаційне середовище, у якому формуються цінності білоруської молоді. Особливу увагу приділено аналізу зовнішніх і внутрішніх ризиків на молодіжному ринку праці, створених цифровізацією: дисбаланс попиту й пропозиції, структурне безробіття, нестабільні форми трудових відносин. Зниження цих ризиків може сприяти оптимізації ринку праці молоді. Зроблено висновок про необхідність модернізації системи освіти відповідно до вимог цифрової трансформації економіки (цілеспрямоване формування цифрових компетенцій молоді, упровадження дистанційних технологій в освітній процес), а також реформування законодавчих основ формування ринку праці молоді (відмова від системи розподілу, поліпшення інституційних умов ведення бізнесу та ін.). Запропоновано стратегії, спрямовані на допомогу молоді за допомогою зниження потенційних ризиків цифровізації ринку праці.

**Ключові слова:** ризики цифровізації праці, цифрові технології, молодіжний ринок праці, трудові цінності, молодіжне безробіття, нові форми зайнятості.

### INTRODUCTION

The innovative development of the country and the growth of the well-being of the population depend on the active implementation of digitalization processes in all spheres of society. The modern industrial revolution, characterized by a high level of information technology, has created a situation where digital technologies become an instrument for achieving public good. It actively influences all spheres of public life. Therefore, the progress of society depends of the level of development and efficiency of communi-

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cation processes: speed of innovation, new automated information processing systems, dynamics of communication processes (Zhovnir, 2019). The introduction of informatization and digitalization processes makes it possible to reach a new scientific and technological level.

The development of digital technology and the movement towards a new economy is accompanied by a change in the labor sphere. Automation, robotization and artificial intelligence are transforming supply and demand in the labor market; employers are making new demands on the quality and quantity of professions and jobs. This also applies to everyday life and leisure time of the population. The **research question** is how the global digitalization trends influence the youth labor market in Belarus, and what are the positive and negative consequences of this influence.

Scholars note both positive and negative consequences of digitalization on the labor sphere. The positive consequences are: economic growth, increase in labor productivity and global competitiveness in the digital sector, e-commerce and network business; an increase in the welfare and quality of life of the population, growth of IT competences due to online education (Avdeeva, Polyanin, Golovina, 2019; Odegov, Pavlova, 2018). However, these positive effects are not ensured at a fast pace, sometimes they have to wait for years. The negative consequences of the digitalization include an increase in structural unemployment as a result of automation, a decrease in social protection, a weakening of social guarantees for young workers, an increase in income inequality and gap in access to digital technologies, as well as an uncertainty in the career planning and in labor market forecasting (Schwab, 2016; Kapelyushnikov, 2017; Yanchenko, 2020; Titarenko, 2021).

Belarus is not among the leaders of the "fourth industrial revolution" and did not have a high technological level of economic development (Vasyuchenok, 2017, p. 8). The fourth technological level prevails in its economy - this is about 68,7 % of all technologies used in Belarus. The fifth and sixth technological orders include only 7,7 % of technologies (Shumilin, 2015, p. 246). Industries with higherlevel technologies are just beginning to develop in the country: artificial intelligence, the Internet of things, augmented reality, additive manufacturing, composite materials etc. According to economists' calculations, the share of innovative products related to nanotechnology does not exceed 0,1 % (Ermakova, 2018). Therefore, the task is to join the number of countries with a developed sixth technological order in the foreseeable future. The main driving force on this path is the sector of information and communication technologies (Shumilin, 2017). Unfortunately, Belarusian scientists indicate a lack of investment in innovative production, accompanied by a shortage of young highly qualified personnel capable to combine the country's intellectual and technological resources for innovative activities in the domestic and global markets (Zubritsky, Zenchuk, Zubritskaya, 2017). That's why a modernization of the entire education and training system is needed. During this process it will be necessary to take into account the position of all subjects of the innovation process and use a strategic approach in forecasting the labor market (Mosiychuk, Krapiva, 2016). All this has a contradictory effect on the youth labor market.

Thus, on the one hand, it is necessary to modernize personnel training through the education system, on the other - consider the changes in demand and supply of the labor market. Currently, even a skilled worker needs good knowledge of digital technologies, while specialists with higher education must have knowledge of new professional programs and information and analytical systems. At the same time, the entry of young people into the digitalized labor market is associated not only with new opportunities, but also with risks. Some of these risks are due to the ongoing pandemic which stimulates digitalization, but has a dual impact on its results (COVID-19..., 2021). In this context a significant part of organizations, like universities in Belarus, have been transferred to remote methods of work and learning. These measures made a positive contribution to the assimilation of new IT by young people, although at the same time they exacerbated the problem of assessing and monitoring the work process. Youth started to use IT more often for entertainment than for education reasons (Titarenko, 2021).

Under conditions of current digitalization and pandemic it is important to investigate the specific characteristics of the youth labor market caused by the digital technologies. Young people have to take these specifics into account when make a decision about their education, employment and career. It seems that the existing conditions of digitalization and the related risks will remain influential for the coming decades.

#### 1. PURPOSE AND TASKS OF THE ARTICLE

The purpose of this article is to characterize the impact of digitalization processes on the youth labor market from the perspective of a risk-based approach.

The tasks include the following: analysis of internal and external risks of the functioning of the youth labor market; study of the professional trajectories of young people and the system of labor values; assessment of objective and subjective opportunities for the development of entrepreneurial initiatives of the younger generation; analysis the influence of the information environment of modern youth on the processes of self-determination and professional development; identification of preventive measures for the consequences of digitalization on the youth labor market.

### 2. THEORETICAL FRAMEWORK OF THE STUDY AND ITS EMPIRICAL BASIS

Our research is based on the theory of risk society developed by U. Beck (Beck, 1992). This theory explains why the modern society can't avoid numerous risks – not only natural, but human made. According to the risk approach, development of a modern society always has contradictory consequences. Risks produced by the digitalization are related to the processes of modernization. Most of such risks are manufactured by human activity (Giddens, 1999). They need a deep scientific reflection before making attempts to moderate them. In regard to digitalization the scholars select its positive and negative consequences for the sphere of labor. They are inevitable but can be partly moderated. Risk approach helps the scholars to evaluate potential opportunities and risks for subjects of labor relations in the youth labor market and determine ways to reduce them (Yanchenko, 2020, p. 113).

The empirical basis for studying youth problems includes the research materials from two studies conducted with the participation of the authors. The first was carried out by the Belarusian Institute for Strategic Studies in April 2020. The target of this national study was young people - 18–29 age. The sample size was 1590 people, the sample is representative by sex, age and place of residence. The method of individual face-to-face interviews was used on a multi-stage stratified sample. The sampling error was  $\pm$  4%. The data from this study will be used for analysis of the immediate risks on the youth labor market.

The second study was conducted among the employed population of Minsk in March 2021. The sample size included 415 persons using IT in their work. The sampling error was  $\pm$  5 %. The young people aged 18–29 consisted a good part of this sample; therefore, this data can be used for our research.

### 3. ANALYSIS AND DISCUSSION

### 3.1. Assessment of Digital Risks

Let us first consider how the young people assess the risks of digitalization in general. A study conducted in 2021 revealed that employed youth evaluates digitalization in positive. The majority of young people (90 %) noted the positive impact of digital technologies in the following areas: career growth and education (93,7 %); creativity, self-realization and self-expression (86 %); an increase in the level of cohesion and trust (51,7 %); possibility of interesting leisure time (66 %).

Much less young people understand the negative consequences of digitalization. When being asked how a shift to the remote regime influenced their work 24 % respondents said that it takes more time to do any job, because they are constantly distracted by instant messengers and e-mail in their computer. 41 % of the sample indicated that they have to work harder or faster when working remotely due to new technologies. Almost 18 % worried that they often lack the skills to work with new software / mobile applications in order to complete the tasks assigned to them, but only less than 10 % admitted that they had uncertainty and fear due to rapid technological updates and need to learn new technologies. It is evident that if the positive aspects of digitalization of labor are considered obvious, then the risks from the introduction of the IT are realized only when the employee faces them himself.

The young people are the most vulnerable group when entering the labor market. Young professionals are often discriminated against when recruiting: in case of lack of work experience they are perceived as less competent. Almost all vacancies require work experience in the specialty of at least two years. Therefore, the phenomenon of entering the labor market and gaining primary experience while studying is becoming widespread (Cherednichenko, 2020, p. 261). According to Belarusian studies, 30 % of senior students have a job (Titarenko, Shirokanova, 2020, p. 131). However, this phenomenon leads to negative consequences:

academic performance decreases, the health of young people worsens. The discipline of students also decreases in proportion to the growth of their employment, therefore, the combination of study and work negatively affects the educational process (Gurova, 2011, p. 180).

Among the negative consequences of digitalization for the youth labor market, which have been studied in 2020, there are risks at different stages of professional self-realization of young people. Firstly, these are the difficulties that young people are facing at the stage of professional self-determination and job search. Secondly, these are the risks that arise in the framework of labor activity and concern the working conditions and the implementation of social guarantees. University graduates in Belarus if they studied at the expense of the state still have the mandatory distribution to the first job. This legislative measure reduces youth unemployment but leads to the fact that after completing the prescribed term at least a half of young specialists change their jobs (Denisov, Belov, Kotlenok, 2013).

# 3.2. Labor Values and IT Competences of Youth

At the stage of professional self-determination, young people are often unclear about the set of knowledge, skills and abilities they will possess at the university. Their professional choice often reflects theoretical expectations about the future work, so, it is not always a deeply thought-out decision made in accordance with internal needs, interests and abilities (Sharova, 2009). Even when they enter the labor market, they are often not aware of the necessary work qualification and their professional career. A collision with labor reality leads to a reorientation or degradation of labor values, which negatively affects the socio-psychological state of young people and the loss of the value of professionalism by young people (Lerner, 2010, p. 70).

The results of our 2020 study showed that the values of labor and its social utility are much weaker than the material interests of youth in the labor sphere. The main three preferable orientations for the selection of a work place included: wages, good working conditions, and the ability to combine work and family responsibilities. At the same time, access to social guarantees and work in a prestigious organization are rated by young people as the least significant: only one in six recognized their importance in employment. Young people strive to earn as much as possible at the expense of receiving additional social benefits (see Table 1).

Professional Value Orientations of Youth, %

Table 1

| Get a good salary                                       | 78,6 |
|---|------|
| Have good working conditions and working regime         | 55,0 |
| Be able to combine work and family responsibilities     | 37,4 |
| Be relatively independent in work                       | 36,9 |
| Realize your knowledge, experience, qualifications      | 33,0 |
| Have a good team relationship                           | 30,1 |
| Promote, make a career                                  | 28,7 |
| Be useful to society                                    | 28,2 |
| Work without overload and overtime                      | 22,5 |
| Make interesting and new projects                       | 21,8 |
| Work with qualified colleagues                          | 21,1 |
| Have connections with people of different social groups | 18,6 |
| Work in a prestigious organization                      | 15,9 |
| Have access to benefits, social guarantees              | 15,1 |

Source: authors' archive.

Our results seem to be similar to the data obtained earlier by other scientists, which testified the growing importance of materialistic values and indicated the crisis in the traditional labor values of young

people. Many young people do not consider the work sphere as the important means of self-realization: it is viewed by young people primarily as a source of income. For them, work lost its independent value and turned into pragmatic activity (Davydov, 2018, p. 96). The upward trend in the importance of wages was formed under the influence of many factors, including low wages for young specialists and the impossibility of self-realization in a particular type of work. Still, many young people preserved such values as career, independence, professional development, although they are less pronounced.

## 3.3. Youth Strategies on a Labor Market

When the young people are not satisfied with the level of wages offered by employers, but cannot change their workplaces, they look for additional sources of income. Our study (2020) revealed a high level of secondary employment among the young people: 25 % of respondents had an additional occupation that brought additional income. However, as a rule, these are casual earnings. Few have regular additional work in another place or in the main place of work. Secondary employment seems to be the main tool of social adaptation in the face of crisis in the economy, which leads to a decrease in the level of real money income of the population and to a decrease in the standard and quality of life (Taranova, 2013).

In the context of digitalization and widespread distribution of IT, youth unemployment is becoming a key risk in the modern labor market. According to the Belarusian National Statistical Committee, the highest unemployment rate is observed in the 20–24 age group (13,5 %), that is, when young people are determined with their first job after graduating from special secondary or higher education institutions (table 2).

Distribution of Unemployed by Sex and Age, %

Table 2

| Age   | 15/19 | 20/24 | 25/29 | 30/34 | 35/39 | 40/44 | 45/49 | 50/54 | 55/59 | 60/74 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total | 6,9   | 13,5  | 12,5  | 11,4  | 11,6  | 8,8   | 9,2   | 8,7   | 7,8   | 9,7   |
| Men   | 5,9   | 12,5  | 12,5  | 10,5  | 14,6  | 9,1   | 8,7   | 10,9  | 6,6   | 8,6   |
| Women | 8,4   | 15,1  | 12,3  | 12,6  | 7,1   | 8,5   | 9,8   | 5,3   | 9,5   | 11,3  |

Source: Belarusian National Statistical Committee (Belstat, 2021, p. 26).

One of the reasons for youth unemployment is the disproportion between the competencies of young specialists and the demands requested by the employers. The system of education is faced with the need for transformation and modernization in the context of digitalization; it has to change the usual forms and methods of teaching. Currently, the most urgent issue is the formation of digital competencies among the young specialists. Young people should be able to work with various information resources and technologies, apply the basic methods and means of obtaining, storing, searching, organizing, processing and transmitting information. Also, the highly qualified specialists should be flexible, able to adapt to changing conditions, and be ready for continuous education and self-education.

Today, a diploma of a higher education does not guarantee a successful employment and a good career. Scholars note the phenomenon of "inflation" of higher education: despite its subjective attractiveness and prestige in public opinion, it begins to depreciate in terms of economic indicators (Sharova, 2009, p. 119). The reasons are numerous: they include not only a lack of the IT knowledge acquired from the years of study. The important economic reason is that an insufficiently innovative economy of Belarus cannot absorb the growing number of specialists with higher education (Titarenko, 2016, p. 144).

When the young specialists face the difficulties of labor market after graduation, they often reorient themselves in their career choices. According to the results of our 2020 study, about 40 % of respondents did not work according to their specialty. Most of such young people found a new employment in the public sector (74,8 %), management (64,9 %), less became entrepreneurs and farmers (17,2 %). It means that their education is not in demand, because the transition from school to work is considered successful when a graduate took a place according to the received qualifications. The workplace should suit the conditions and regime of work, wages, job security, career opportunities and creative self-realization. Work outside the obtained specialty hides in itself many socio-economic problems and indicates that society wasted its resources. Unfortunately, a significant part of the youth expresses their unwillingness to be employed by profession even being the students (Titarenko, Shirokanova, 2020, p. 132).

There is a contradiction between the number of graduates with high ambitions and desires to find modern workplaces at the labor market and the lack of such opportunities at the real labor market. Labor market is annually replenished with large groups of graduates, while the state is unable to create new high-tech jobs even for employment of those young professionals whom the state is obliged to employ according to the law. State regulation of education which does not keep pace with socio-economic changes leads to an imbalance in the markets of educational services and labor (Titarenko, Shirokanova, 2020, p. 129). It is required to balance the content of education and abandon the outdated legislative form of state distribution of graduates.

The success of the educational modernization is determined by some conditions. Firstly, high-quality software is needed to ensure an equal access to educational resources for all young people. Secondly, this is the introduction of information (distance) technologies in the educational process, as well as the creation of conditions for online learning. This will contribute to an increase in the level of assimilation of knowledge, the development of students' creative abilities and independent thinking (Strokov, 2020). Only recently the distance form of education was legislatively approved in Belarus, which can contribute to the flexibility of the organization of the educational process (Resolution..., 2021).

Pandemic significantly changed the influence of digitalization on the sphere of work. Distance work is widespread. It is a form of employment in which the employer and employee are at a distance from each other in the process of work, transmitting and receiving technical specifications, labor results and payment (Razumova, Yanchuk, 2021, p. 86). Distance work (especially if it is an additional source of income) is one of the strategies that helps young people to cope with difficulties in the labor market.

Distance work organically fits into the communication environment in which the young digitalized generation socializes. However, distance work can carry risks for the professional self-realization of young people. It is characterized by isolation and lack of contact with colleagues and the management of the organization. In case of difficult situations, colleagues will not be able to quickly help each other. It is more difficult for a manager to evaluate the results of work and efforts of a worker, his leadership and communication skills. Therefore, it is more difficult for young professionals to adapt and move up the career ladder. Still, distance work has an advantage for the younger generation such as the opportunity to work for several customers at the same time, effectively combine main work and part-time work in different organizations. They can independently build their working hours and plan the day taking into account the own psychophysiological characteristics. According to our survey (2020), these criteria meet the priorities of the labor values of young people: 37 % noted the importance of independence in work, the ability to combine work and family responsibilities (the latter is more typical for young women).

Another strategy for adapting to the new labor market is the development of new forms of employment for workers. These forms include the sharing of workers' labor, joint employment, intermediate management, one-time work, mobile work based on information and communication technologies, crowdworking, crowdsourcing, freelancing (Lyutov, 2019, p. 119).

Freelance is becoming very popular. It is a form of employment without formalized procedures for concluding labor relations. The advantages of such work for the freelancer himself are the flexible working hours, the absence of managers and the need to be present in the office. The disadvantages are the needs for a freelancer to independently look for orders, deal with accounting, and also require high self-organization (Eremina, Chuprova, Eirich, 2021, p. 47).

In recent years, the number of self-employed in Belarus, for whom freelancing is a sole source of income, has grown. According to our research, one out of ten young person would like to work as a freelancer, regardless of the new risks in the labor market: no social guarantees for employees in case of accidents, disability, non-observance of labor protection and safety conditions; as well as accounting for such work upon retirement (Tomashevsky, 2020, p. 406).

Entrepreneurial activity seems to be the most promising form of self-employment for young people. In the 2020 survey about 40 % of youth expressed a desire to do it. However, the current conditions for business development in the country are critically assessed: every second young person called them unfavorable. Entrepreneurs who already have experience in doing business in Belarus confirmed this opinion. They think that the main barriers to increasing business activity in the country are the high

uncertainty of the economic environment, macroeconomic instability, low demand, mistrust of the legal system, and the high cost of borrowed funds (Business in Belarus, 2021). Improvement of the institutional conditions for doing business will enhance youth activity in entrepreneurship.

### 3.4. Communicative Environment

The communicative space of youth changed greatly: it became virtual in the context of digitalization. Real social connections are gradually being replaced by connections created on the Internet. According to the 2020 survey, almost all young people (96,4 %) use the Internet every day. The majority of respondents (84,1 %) use the Internet to communicate in social networks, every second is interested in news and entertainment sites, 38,7 % of respondents order various goods through an online store. It is important for only a third of young people to use educational sites and sites with scientific and reference information. The most popular Internet messengers are Viber (66,2 % of daily users, 20,9 % of weekly users) and Telegram (24,8 % of daily users, 13,6 % of weekly users).

Digital technologies have spread on the highest level in Minsk, where more than a quarter of the population are young people. According to the study of the Institute of Sociology of Belarus, the majority of citizens use available technical innovations for communication (Lebedeva, Deniskina, 2020, p. 106).

Virtual networks of young people are becoming not only a space for entertainment or political activity, which has clearly manifested itself in the last year. It is also a field for the implementation of creative abilities and business ideas, a tool for distance learning and professional self-realization. When the young people have an opportunity to benefit from the results of digitalization, they can successfully self-actualize (Shkurova, Poklad, 2020). Otherwise, in the absence of the IT skills and competencies, they can feel socially excluded. Such feeling may lead a young person to depression not only in the work and study group, but also in everyday life (Chernyak, 2020).

According to Russian studies modern youth views their active inclusion in network communications as a condition for life success, a possibility of self-realization and an increase in competitiveness in the labor market (Semenov, 2018, p.105). The younger generation convert their virtual network communication into an opportunity for personal, creative and professional self-realization.

### **CONCLUSIONS**

As a result, digitalization is viewed as a necessary step of the global economy in its move from one technological level to another and in the process of improvement of the well-being. This is an important trend in the modern world and a necessary stage in the transition of the economy to subsequent technological levels, which allows to ensure a higher level of well-being of the population.

Global digital transformation is the dominant factor that drive changes in the global economy and lifestyles. In the context of the digital transformation of the economy and labor the population's need for mastering digital technologies is growing rapidly. This also applies to leisure time and everyday life of the population.

Digitalization has significantly transformed the sphere of human labor activity. The quantitative characteristics of employment are changing the ratio of supply and demand in the labor market, the emergence of new and the disappearance of old professions. The qualitative characteristics of employment are being transformed: new formats and forms of labor relations are emerging.

Under the current conditions, the modernization of the education system in accordance with the requirements of digital transformation is extremely important. Its main aspects include the formation of the students' digital competencies; availability of high-quality software, widespread introduction of distance IT in the educational process, etc. A stimulating role in the active inclusion of young people in the labor market can be played by the rejection of the outdated system of compulsory distribution of graduates who studied for the state budget money. An independent search for such a place could provide more opportunities for youth self-realization.

The development of entrepreneurial youth initiative demands the improvement of the institutional conditions for doing business, adoption of comprehensive legislative measures to regulate labor relations in the framework of new forms of employment. After these changes entrepreneurial activity will greatly contribute to the adaptation of young people to the labor market.

We believe that our research confirms the transformation of the quantitative characteristics of the youth labor market under the influence of digitalization. At the same time, it is necessary to continue researching strategies for adapting youth to the new conditions of labor relations.

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