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**Innovation Management and  
Technology in the Era of Globalization:**

**Materials of the XII International  
Scientific-Practical Conference**

**January 2-4, 2025  
Liverpool (UK)**

**Volume I**

**Liverpool, 2025**

**UDC 005  
LBC 65.290-2  
I 64**

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**I 64      Innovation Management and Technology in the Era of Globalization: Materials of the XII International Scientific-Practical Conference. In three volumes. Volume I – Liverpool (UK): Regional Academy of Management, 2025. – 318 p.**

**ISBN 978-601-267-338-8**

This is a compilation of the materials of the XII International Scientific-Practical Conference "Innovation Management and Technology in the Era of Globalization", that was held in Liverpool (UK), on January 2-4, 2025.

Submissions cover a wide range of issues, primarily the problem of improving management, sustainable economic development and introduction of innovative technologies, improved training, and enhancement of the development of "human capital", interaction between the individual and society, psychological and pedagogical foundations of innovative education.

Materials addressed to all those interested in the actual problems of management, economy and ecology, social sciences, and humanities.

**UDC 005  
BBC 65.290-2**

**ISBN 978-601-267-338-8**

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## **SECTION I / СЕКЦИЯ I**

### **ECONOMIC AND MANAGEMENT SCIENCES / ЭКОНОМИЧЕСКИЕ И УПРАВЛЕНЧЕСКИЕ НАУКИ**

#### **1.1. Analysis of Changes in the Structure of Employment and Professional Qualification Requirements in the Era of Digitalization of the Economy**

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In the article the consequences of digitalization of the economy for the labor market and the personnel training system are examined. It is shown that under the current conditions, we can talk about the cardinal nature of transformations in the professional and educational spheres. At the same time, the main problem is the unprecedented high speed of the changes taking place. The labor market has been experiencing a decline in manufacturing professions and the growth of the service sector for a long time, but recently the situation has been aggravated by the rapid decline of “traditional” professions with the simultaneous emergence of new ones. At the same time, even for the preserved professions, the qualification requirements for employees have undergone a significant change. This situation has created corresponding challenges for the education system, which in its current form has proved unable to cope with the tasks assigned

to it. Today, the Kazakh education system needs to solve two problems simultaneously: to organize streaming training of specialists whose competencies correspond to the changed needs of the market, and to modernize technologies and teaching methods in accordance with new trends. At the same time, those educational institutions and people who will not be able or unwilling to rebuild their activity taking into account modern requirements will soon have no place in the educational environment.

The modern economy is increasingly moving towards digitalization – the widespread introduction of advanced technologies of the latest generation (information, communication, robotics, artificial intelligence, etc.) into economic activity, completely changing the usual business processes. It can be argued that digitalization is a key factor in the transformation of the social structure of almost every country in the world, affecting all spheres of economic and social life. In this regard, the question arises how its consequences will manifest themselves in the future, how deep they will be for both states and the average person. Among the many aspects of this issue, an assessment of the impact of digitalization on the labor market and the personnel training system deserves special attention.

Accordingly, the purpose of the study is to analyze the impact of digitalization of the economy on the labor market and the system of training professional personnel. At the same time, due to the fact that the effects of digitalization have significantly increased recently, it is also necessary to consider the latest trends in changes in professional qualification requirements for graduates. During the research, both theoretical and empirical materials and methods were used, as well as theoretical and applied materials contained in the works of domestic and foreign scientists and specialists.

The analysis of scientific works allows us to conclude that the issue of the relationship of scientific and technological progress with the structure of employment and the education system has always been given sufficient attention. So, back in 1998, Hannah D. for the first time drew attention to the challenges created by digitalization for higher education [1]. Later, T. Clark pointed out the importance of the field of education for the formation of the knowledge economy and showed the deep contradictions between the modern economic system, the economic structure and technological challenges [2]. Olssen M. and Peters A. the mechanism of the influence of technological changes on the forms and methods of education has been revealed [3]. Has U. She considered the latest trends in the transformation of the labor market under the influence of digitalization [4].

Among domestic and foreign researchers working in this direction, it is necessary to single out such authors as Tebaev Zh.Zh., Zagiparov N.G. [5], Buganova A.A., Umirzakov S.Y., Nurpeisova A.A. [6], Shatilo Yu.E. and Kopkova ES, who investigated the impact of digitalization processes on employment and unemployment in the economy [7], as well as Bodrunov S.D., Demidenko D.S. and Plotnikov V.A., who studied the impact of

automation and the resulting reduction in employment on the professional training of specialists [8]. Later Belyaev G.Yu. He analyzed the threats facing the education system of Kazakhstan in the context of digitalization [9], and Ivanov V.G., Kaibiyainen A.A. and Miftakhutdinova L.T. considered the problems of education reform in the context of digitalization [10].

In addition, the work used the results of monitoring universities conducted by the Committee for quality assurance in education of the Ministry of education of the Republic of Kazakhstan, as well as the authors' own research on the employment of graduates of economic specialties [11].

According to an analytical report by the Mackenzie company, between 400 and 800 million people may be unemployed in the near future [12]. However, unlike in previous periods, when job cuts were not so widespread, when laid-off workers had a chance to stay working at the same enterprise (in the same organization), or at least in the same industry, now the reduction is more and more irreversible. The most striking example of such influence in the Republic of Kazakhstan is the development of electronic taxi ordering services ("InDrive", etc.), which in large cities today have actually killed the profession of a taxi dispatcher. Other examples include the professions of a librarian, a typist, a bookstore employee, as well as activities related to printed publications. A very large number of people working in these fields do not have any career prospects today. The scale and speed of change is such that retired workers often have no alternative but to change their qualifications.

On the other hand, the emergence of new technologies is accompanied by the emergence of new professions. Although today the number of jobs created as a result of digitalization is not yet comparable to the number that disappears as a result of the same process, this phenomenon in itself is very significant. At the same time, it has a number of distinctive features from similar processes that took place earlier.

Aware of the challenges posed by digitalization, leading countries are taking the necessary measures to improve their educational systems. For example, in the United States, improving education has been one of the priorities of public policy for more than fifteen years [13]. It should be noted that in Kazakhstan this issue received its attention only in 2017 [14].

An important factor is the speed of the changes being made. Digitalization and the introduction of new technologies accelerates all processes without exception. However, the education system often remains unnecessarily inert, which leads to its lagging in the context of adaptation to new conditions. The direction of progress is such that more and more operations, actions and procedures are performed almost instantly. In a developed society, this becomes an unspoken standard. In this light, the "classical" educational system turns out to be too slow.

Summarizing the above-mentioned processes that occur in the market structure, the following challenges for the education system can be outlined (table 1).

Table 1 - Consequences of the digitalization of the economy and challenges for the education system

The consequences of digitalization	Challenges for the education system
Overall acceleration of management and production processes, movement of goods and provision of services	The time cycles that the existing education system lives on are proving to be too long
Uncertainty of technology development: it is difficult to definitely predict what production technologies will be in ten years	The difficulty in predicting technological development leads to the fact that it is difficult to make prospective requirements for students and students
The massive spread of such a format as remote work destroys the usual ideas about the profession and workplace	The modern education system (higher and secondary) is strictly tied to the "classical" ideas about work and profession
Changing the structure of the economy, a decrease in industry and an increase in the service sector	Reducing the need for vocational education in previously sought-after specialties
The emergence of new professions and the expansion of the list of skills of average workers	The need to organize professional development and retraining

The educational phenomenon generated by digitalization is as follows. On the one hand, over time, each person will increasingly need constant professional development, obtaining a sought-after profession, and access to high-quality information. Almost any employee at the moment is faced with the need to constantly improve their qualifications, study, and acquire new skills. On the other hand, "classical" educational formats will become less and less in demand.

In general, it can be said for sure that the need of each person to maintain their level of competitiveness creates a stable demand for high-quality educational services. Education must meet, first of all, the criterion of prospects.

The content and format of training in a particular specialty should be such that, upon graduation, the acquired knowledge remains in demand for some more time.

It is necessary to be aware that there are whole areas of activity that, due to digitalization, in principle have no prospects. At the moment, many educational institutions in the Republic of Kazakhstan are training students in professions that will soon be in little demand on the labor market.

The following areas can be identified in which reforms of the education system should be implemented in the context of the digitalization of the economy:

- updating the list of specialties and introducing a mechanism for quick editing of this list in the future;
- reduction of training time in specialties that have felt the strong impact of digitalization;
- compulsory teaching of key digital competencies;
- development of distance education;

- modularity of training.

The modern education system should be built as a multi-level structure aimed at training leaders in their competencies by forming an up-to-date set of theoretical and applied knowledge among students. It is extremely important that the education system be developed by educational organizations together with leading companies. In fact, basic education today should be developed on the basis of corporate programs and be focused on the practical application of the acquired knowledge. However, the realities of today are such that no more than 6% of university graduates demonstrate good practical skills in their specialty [15].

This situation can be corrected by increasing the participation of business representatives in the educational process. For example, in some foreign universities, the proportion of teaching practitioners reaches 50%. However, this in turn raises the question of changing the wage system in educational organizations.

The development of distance education should be a priority. At the same time, at the initial stage, distance learning programs may not have the character of a full-fledged higher education, but rather be formed in the form of applied online training courses that ensure that students receive the narrow-profile knowledge and skills necessary for employers. The system of online courses and lectures from teachers of leading universities has already successfully proved itself abroad. At the same time, according to experts, the number of people using various online resources for education and professional development has doubled over the past year.

The modern education system is waiting for such rapid and drastic changes that those people (institutions) who cannot (or don't want to) rebuild will simply have no place in the educational environment. The upcoming changes are a serious challenge for government agencies and education workers.

At the same time, it is also impossible to ignore existing challenges. Hypothetically, in each country there is an opportunity (depending on the available reserves) to "preserve" the existing state of affairs through direct and indirect state support for ineffective educational institutions, subsidizing training in specialties that will not be in demand on the market. Such a model of state policy in the educational sphere has a number of extremely negative consequences. First, the later the education system is reformed, the more significant the consequences of such transformations will be.

Secondly, such "conservative" educational sphere will constantly train graduates who have no prospects in the labor market. Thus, the success of the "restructuring" of the education system in the era of digitalization largely depends on how quickly such a "restructuring" will take place.

One of the mandatory elements of the state social policy is the fight against unemployment. Until today, the main tool of such a policy has been the constant desire to create additional jobs. In the current conditions, the main goal of public policy should be a new information policy in the field of

employment and education – full and comprehensive human awareness of really sought-after professions and skills (in strict accordance with the volume of reasonable, proven demand for these professions in the future) will be the main mechanism that will bring relations in the triangle into a state of equilibrium “education system – labor market – people”.

*This article was published within the framework of the grant project AP19676438 “Mechanism for ensuring balanced interaction of the labor market and the education system in the context of digitalization of the economy” – Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan).*

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## **1.2. The Mechanism of Digital Transformation of Small and Medium-Sized Entrepreneurship**

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At the present stage, in the context of the complex digitalization of the economy, the issues of ensuring the processes of digital transformation are becoming particularly relevant and practical. Digitalization of the economy becomes possible only if small and medium-sized enterprises (hereinafter referred to as SME), providing about 25% of Kazakhstan’s GDP, are included in these processes. The digital transformation of SME forms the basis for the digitalization of not only organizational, but also regional and

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January 2-4, 2025  
Liverpool (UK)

Volume I

Liverpool, 2025

All materials are published in author's edition.

The authors are responsible for the content of articles and for possible spelling and punctuation errors.

Все материалы опубликованы в авторской редакции.

Ответственность за содержание статей и за возможные орфографические и пунктуационные ошибки несут авторы.

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