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THE PROBLEM OF UNEMPLOYMENT IN THE PROCESS OF DIGITALIZATION: CAUSES AND SOLUTIONS

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Abstract: This article examines the problem of unemployment in the context of rapid digitalization and the transformation of the modern labor market. The study focuses on the main causes of digital unemployment, including the automation of routine tasks, the introduction of artificial intelligence, the growing demand for digital skills, and the mismatch between workforce qualifications and emerging job requirements. Particular attention is given to the social and economic consequences of technological changes and the challenges faced by workers whose traditional occupations are being transformed or replaced.

Keywords: digitalization, unemployment, labor market, automation, artificial intelligence, digital skills, retraining, employment, workforce, lifelong learning.

Introduction. The rapid development of digital technologies has significantly transformed the structure and functioning of modern economies and labor markets. Digitalization, automation, artificial intelligence, and the widespread use of digital platforms are creating new forms of employment while simultaneously changing or reducing the demand for certain traditional occupations. As a result, unemployment has become an increasingly important social and economic issue in the process of digital transformation.

One of the major causes of unemployment associated with digitalization is the automation of routine and repetitive tasks. Modern technologies allow organizations to perform many operations more quickly and efficiently with fewer employees. At the same time, the emergence of new professions requires workers to possess advanced digital, analytical, technological, and communication skills. The gap between existing qualifications and the requirements of the digital labor market can therefore increase structural unemployment.

The problem is particularly important for workers whose professional skills are closely connected with occupations undergoing technological transformation. Without opportunities for retraining and professional development, such workers may face difficulties in finding new employment. Therefore, digitalization should not be considered only as a technological process; it should also be examined as a major transformation of human capital and employment relations.

Literature review. The relationship between digitalization, technological change, and unemployment has been widely discussed in economic and social research. Existing studies show that digital transformation can simultaneously create new employment opportunities and increase the risk of job displacement. [1] Autor argues that technological progress does not necessarily eliminate employment completely but significantly changes the structure of jobs. According to the author, automation mainly affects routine tasks, while demand for occupations requiring creativity, problem-solving, and interpersonal skills tends to increase. [2] Acemoglu and Restrepo examine the relationship between automation and employment. Their research demonstrates that the introduction of automation technologies may replace certain labor tasks and reduce employment in some sectors, while new technologies can also generate new tasks and occupations. [3] Frey and Osborne analyze the potential impact of computerization on employment and emphasize that occupations involving

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repetitive and predictable activities are particularly vulnerable to technological substitution. Their findings have become an important basis for discussions about the future of employment in the digital economy. [4] Brynjolfsson and McAfee emphasize that rapid technological development is transforming the labor market and increasing the importance of digital competencies. They argue that technological progress can increase productivity while simultaneously creating challenges for workers whose skills do not correspond to new labor market requirements. [5] World Economic Forum reports that technological transformation is expected to change the structure of employment considerably. The development of artificial intelligence, automation, and digital technologies increases demand for technological literacy, analytical thinking, creativity, and continuous professional development. [6] International Labour Organization (ILO) focuses on the social consequences of technological transformation and emphasizes the importance of skills development, lifelong learning, social protection, and effective labor-market policies. The organization considers workforce adaptation a key factor in reducing the negative employment effects of digitalization. [7] OECD studies highlight the importance of education and lifelong learning in adapting workers to technological changes. According to the OECD, investment in digital skills and retraining can help workers transition into new occupations and reduce structural mismatches in the labor market.

Materials and methods. The study used a descriptive and comparative research approach to examine the relationship between digitalization and unemployment. The research materials included statistical reports, international studies, and labor-market indicators related to automation, digital skills, and employment. The data were analyzed using comparative, statistical, and analytical methods.

Table 1. Main research materials

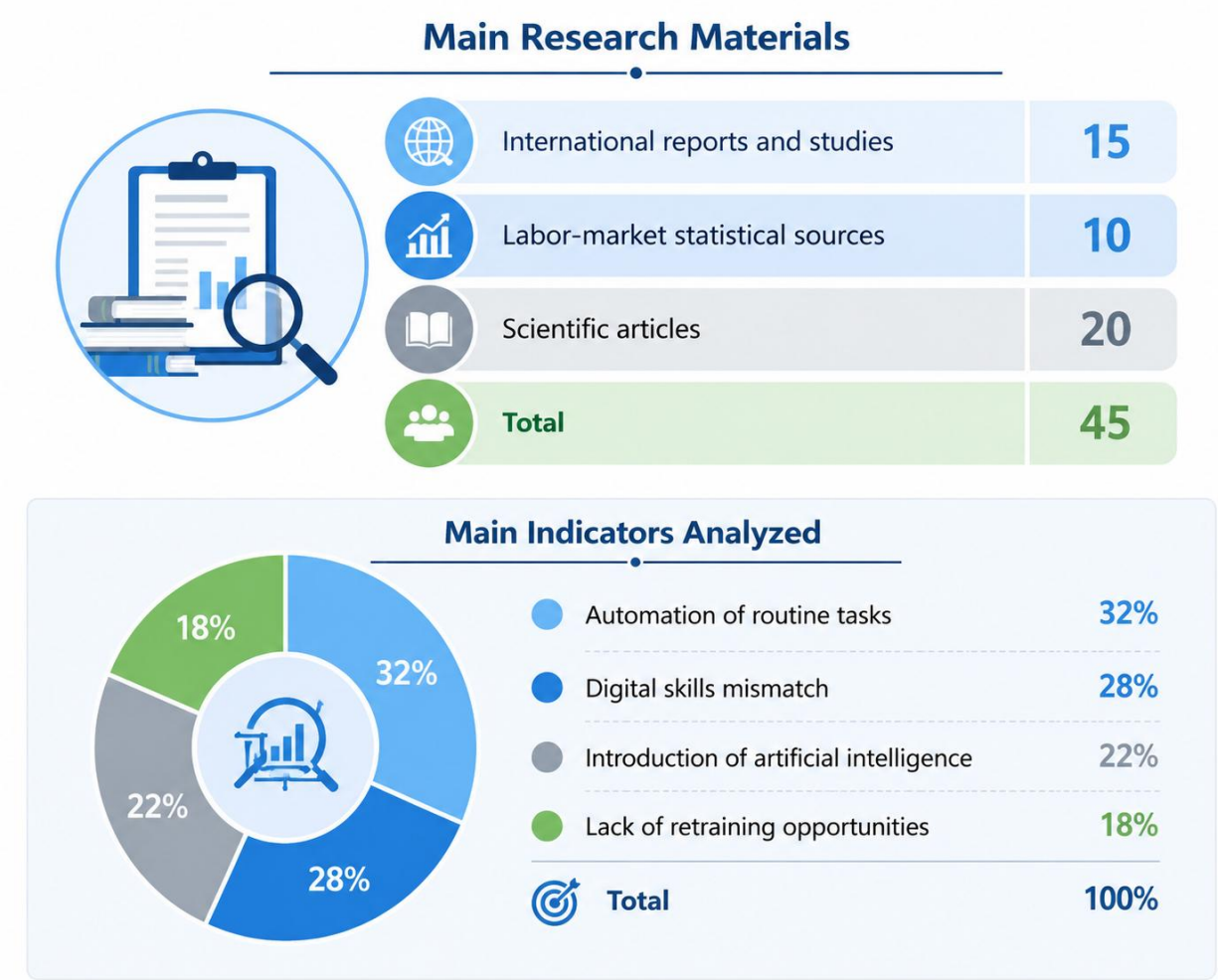
Research material	Number
International reports and studies	15
Labor-market statistical sources	10
Scientific articles	20
Total	45

The selected materials were analyzed to identify the main causes of digital unemployment and possible solutions. Particular attention was given to automation, artificial intelligence, digital skills, and workforce retraining.

Table 2. Main indicators analyzed

Indicator	Share, %
Automation of routine tasks	32
Digital skills mismatch	28
Introduction of artificial intelligence	22
Lack of retraining opportunities	18
Total	100

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1-Figure. Main Research Materials Used in the Study (n=45)

The obtained data were compared and interpreted to determine the major factors contributing to unemployment in the process of digitalization. The results were used to identify practical measures for improving employment opportunities through digital education, retraining, and lifelong learning.

Discussion. The results of the study indicate that digitalization has a dual impact on employment. On the one hand, automation and artificial intelligence can replace routine and repetitive tasks, increasing the risk of unemployment among workers whose skills are less adaptable to technological change. On the other hand, digital transformation creates new occupations in areas such as information technology, data analysis, cybersecurity, digital marketing, and artificial intelligence.

The analysis shows that the most important factors contributing to digital unemployment are the automation of routine tasks (32%), the mismatch of digital skills (28%), and the growing use of artificial intelligence (22%). These findings demonstrate that unemployment is not caused by technology alone; rather, it is strongly influenced by the ability of workers to adapt to changing labor-market requirements.

An important solution is therefore the development of digital skills and lifelong learning. Retraining and upskilling programs can help workers move from declining occupations to emerging sectors. Cooperation between governments, educational institutions, and employers is also necessary to ensure that education and training programs correspond to the actual needs of the digital labor market.

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Overall, the findings suggest that digitalization should be accompanied by inclusive employment policies. If technological progress is supported by accessible education, professional retraining, entrepreneurship opportunities, and social protection, its negative effects on employment can be reduced while its potential to create new jobs can be strengthened.

Conclusion. The study shows that digitalization is significantly transforming the modern labor market and has both positive and negative effects on employment. Automation and artificial intelligence can reduce the demand for workers in routine occupations, while simultaneously creating new jobs that require advanced digital and professional skills.

The main causes of unemployment identified in the study include automation of routine tasks, a shortage of digital competencies, the introduction of artificial intelligence, and insufficient opportunities for retraining. Therefore, reducing digital unemployment requires continuous investment in human capital.

Effective solutions include digital skills development, lifelong learning, retraining and upskilling programs, entrepreneurship support, and the creation of new technology-oriented jobs. Cooperation between governments, educational institutions, and businesses is essential for helping workers adapt to technological changes.

In conclusion, digitalization should be viewed not only as a source of employment risks but also as an opportunity for creating new forms of work. Appropriate education and employment policies can help ensure that technological development contributes to sustainable employment and inclusive economic growth.

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