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JOB CREATION AND JOB REDUCTION IN THE ERA OF DIGITAL TRANSFORMATION

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Abstract. This article analyzes the impact of digital transformation on the labor market and employment. The article also examines the changes taking place in the structure of the labor market as a result of the development of artificial intelligence and automation technologies, particularly the reduction of certain traditional jobs and the formation of new professional fields.

Keywords: digital transformation, labor market, employment, artificial intelligence, automation, digital economy, jobs, digital competencies, cybersecurity, human capital.

INTRODUCTION

One of the fundamental factors determining the structural and institutional dynamics of the modern global economic system is the process of digital transformation. The rapid convergence of information and communication technologies, artificial intelligence algorithms, cloud computing architecture, Big Data, and production automation systems is fundamentally modifying traditional economic models. These technological paradigms not only create opportunities to increase operational efficiency and minimize costs in the production and service sectors, but also contribute to the formation of new value chains and competitive environments at both macro and micro levels. The expansion of digital architecture inevitably requires the institutional and functional evolution of the labor market as well [1].

As a result of technological determinism, traditional forms of labor characterized by routine and mechanical tasks are being displaced, while entirely new segments requiring high cognitive abilities and digital competencies are emerging. In particular, an exponential increase in demand for intellectual labor resources is being observed in areas such as Data Analytics, software engineering, cybersecurity, and systems involving neural networks. This process, in turn, has elevated labor force adaptability and the concept of lifelong learning to the level of strategic determinants of sustainable economic growth.

The analysis of existing economic literature and scientific paradigms shows that although the impact of digital transformation on sectoral efficiency has been studied at a fundamental level, its influence on the architecture of employment, particularly the correlation between the asymmetric creation and reduction of jobs, namely job creation and job destruction, has not been examined in a systematic and comprehensive manner. Especially in the context of developing economies undergoing structural transition, conceptual approaches concerning the institutional adaptation of the labor market to digital evolution, the demand for new types of skills, and mechanisms for mitigating the risk of transformational unemployment still lack sufficient empirical grounding.

METHODOLOGY

In assessing the impact of digital transformation on labor market dynamics, particularly on the processes of structural job creation and job reduction, that is, job creation and job destruction, the study relied on the principles of comprehensive macroeconomic analysis [5]. The methodological basis of the research involves the convergence of qualitative and quantitative approaches, namely the mixed methods approach. This integrated framework makes it possible to link the theoretical and conceptual foundations of the phenomenon under study with empirical and statistical indicators.

This research, based on a descriptive and analytical research design, aims to systematize the socio-economic consequences of digital evolution. The empirical analysis was fully focused on secondary data sources. For this purpose, global statistical indicators and dynamic series developed by reputable international institutions such as the World Bank, the International Labour Organization (ILO), and the World Economic Forum (WEF) were decomposed and analyzed. Alongside these quantitative sources, fundamental scholarly articles, reputable periodicals, and analytical reports related to the research problem were also subjected to critical analysis.

In selecting the data set, the criteria of validity, namely reliability and relevance, served as the primary filter. Priority was given to the most recent scientific and statistical sources reflecting labor market asymmetry, automation drivers, and changes in the demand for digital competencies. As a result, a highly representative empirical base was ensured.

Three interrelated methods of analysis were applied in interpreting the collected data architecture:

Comparative analysis: the specific features and institutional differences in the impact of digital transformation on the employment structure in developed and developing economies were compared.

Content analysis: the conceptual views, hypotheses, and theoretical models of contemporary economic schools and leading scholars on the topic were systematized.

Statistical analysis: the rates of decline in traditional occupations, the evolution of new professional profiles, and the dynamics of demand for digital skills were quantitatively assessed.

The selected multifactorial methodological principles provide a sufficient analytical basis for objectively assessing the impact of digital transformation on the labor market, consistently identifying current trends, and forecasting future transformational changes through scientifically grounded models.

RESULTS AND DISCUSSION

The research findings confirmed that digital transformation has a dual impact on the labor market. On the one hand, the widespread implementation of automation and artificial intelligence technologies is leading to a decline in repetitive jobs and occupations requiring low levels of skills. On the other hand, new professions that require highly qualified labor and digital competencies are emerging [6]. In particular, the level of employment in areas related to IT services, data analytics, cybersecurity, and artificial intelligence has demonstrated a significant upward trend.

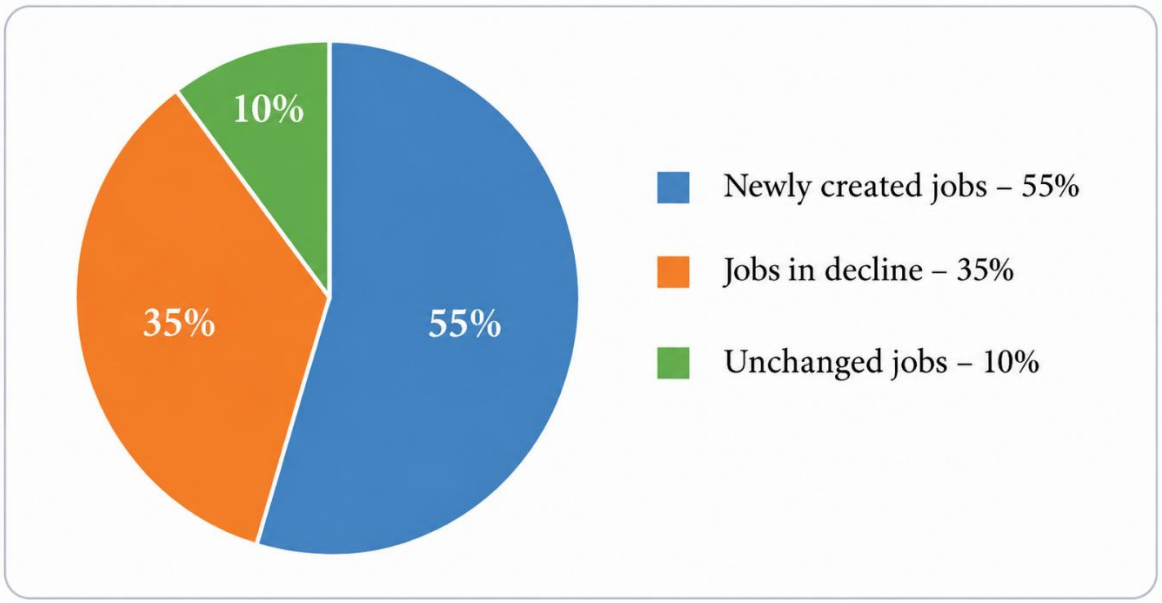
Table 1. The Impact of Digital Transformation on the Labor Market

No.	Indicator	Result
1	Jobs in decline	Cashier, operator, data entry clerk
2	Newly emerging professions	AI specialist, data analyst, cybersecurity specialist
3	Fastest-growing sector	Artificial intelligence and IT services
4	Main skill in demand	Digital literacy
5	Highest-risk group	Low-skilled workforce

The results showed that the impact of technological transformation is not uniform across all sectors. Due to the high level of automation in the service and manufacturing sectors, the reduction of traditional jobs is being observed more rapidly. This is mainly explained by enterprises' efforts to reduce costs and increase production efficiency. In particular, AI-based systems are economically beneficial for enterprises because they can perform simple operations that previously required human labor more quickly and at lower cost [7].

These findings are consistent with the studies conducted by Frey and Osborne. They emphasized that automation primarily poses a risk to occupations involving repetitive tasks. However, the results of the study also partially confirm the theory of "technological optimism" advanced by Brynjolfsson and McAfee, since new technologies are not only reducing jobs but also creating new forms of economic activity.

Figure 1. The Impact of Digital Transformation on Employment



As can be seen from the diagram, although the share of newly emerging professions is higher than that of declining jobs, this process does not automatically produce a positive outcome for the labor market [1]. This is because new jobs require a high level of qualification and modern digital competencies. The adaptation of low-skilled workers to new economic conditions is a complex process. In this regard, the research findings are consistent with the reports of the World Bank and the International Labour Organization, which indicate that the gap in digital skills may intensify inequality in the labor market [8].

The analysis also showed that the adaptation of the education system and vocational training programs to the requirements of the digital economy is not sufficiently rapid. This situation may increase the risk of a skills gap in the future, that is, a mismatch between existing qualifications and market needs. Therefore, the development of digital competencies should be considered one of the priority areas in state policy and in the activities of educational institutions.

CONCLUSION

This study demonstrated that the impact of digital transformation processes on the architecture of the labor market is non-linear, multifactorial, and deeply systemic in nature. Through empirical and conceptual analysis, it was established that the acceleration of artificial intelligence, algorithmization, and automation systems is significantly reducing traditional and routine labor segments, while simultaneously creating new professional profiles that require high cognitive skills and digital competencies.

In particular, a stable growth trend in employment was identified in sectors such as IT services, cybersecurity, Data Engineering, and the management of digital ecosystems. At the same time, it was found that the competitiveness of low-skilled labor in the market is declining significantly.

The conducted research confirmed the fundamental advantages of digital modification, such as increasing macroeconomic efficiency, optimizing operational costs, and stimulating innovative activity. Nevertheless, this process may deepen structural imbalances in the labor market, intensify the problem of qualification mismatch, namely the skills gap, and increase the risks of social stratification and inequality. In order to mitigate these risks, the development of digitally inclusive education, the institutionalization of reskilling programs, and the improvement of the efficiency of investments directed toward human capital should be defined as priority strategic areas within state economic policy.

The methodological and empirical scope of this scientific work has certain objective limitations. First, since the analysis is mainly based on secondary statistical data and global reports, some regional or sector-specific micro-trends may not have been sufficiently covered. Second, the exponential development of technological convergence and the high volatility of labor market dynamics impose certain limitations on the long-term universality of the obtained results.

In the context of future research, it would be appropriate to study the cross-sectoral asymmetry of digital transformation, its specific features across demographic groups, and the institutional adaptation characteristics of labor markets in developing countries on the basis of micro-empirical data. In addition, modeling the impact of generative artificial intelligence models on long-term employment strategies and assessing mechanisms for adapting the market of educational services to the needs of the digital economy are considered promising scientific directions.

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