UDC 331.108

Iryna Bashynska
Kostiantyn Brylenko

RISK MANAGEMENT MECHANISM FOR SKILLED WORKFORCE IN THE CONTEXT OF THE POST-WAR RECOVERY PERIOD

Odesa Polytechnic National University

Abstract: *This paper explores the key risks associated with managing skilled labor in the post-war period, outlines a structured risk management mechanism, and highlights the role of digitalization and smart technologies in workforce stabilization.*

Key words: post-war period, *risk management mechanism*, skilled workforce.

The post-war period presents a complex set of challenges for workforce management, particularly in industries requiring skilled labor. Armed conflicts lead to significant disruptions in labor markets, causing workforce shortages due to migration, displacement, and loss of human capital [1; 2]. Additionally, economic instability and infrastructure destruction further complicate the process of reintegrating skilled professionals into the workforce. At the same time, the recovery phase offers unique opportunities for transformation, modernization, and the development of innovative risk management mechanisms. A critical aspect of post-war workforce management is the ability to identify and mitigate risks associated with labor shortages, skill gaps, and structural changes in the economy. Digitalization and smartization play an increasingly important role in this process, offering AI-driven workforce planning tools, automation solutions, and new forms of remote work that can help bridge labor market inefficiencies. Governments, businesses, and educational institutions must collaborate to develop policies and programs that support workforce reintegration, retraining, and adaptation to emerging economic conditions.

The post-war period introduces a volatile and uncertain environment for labor markets, particularly affecting skilled workforce availability and management. The rapid transformation of economies, coupled with demographic shifts, infrastructure challenges, and geopolitical uncertainties, necessitates the development of a structured mechanism for managing workforce risks [3]. This mechanism must incorporate traditional risk assessment methodologies alongside innovative AI-driven solutions, digital workforce management platforms, and predictive analytics to enhance labor market stability and efficiency [4]. Managing skilled workforce risks begins with a thorough identification and assessment of potential threats affecting labor market stability. Workforce-related risks in the post-war period can be categorized into several key areas:

First, demographic and migration risks arise as war-induced displacement leads to significant shifts in workforce demographics. Many skilled professionals migrate to safer regions or abroad, creating labor shortages in critical industries, while the return process remains unpredictable due to security concerns, economic instability, or lack of infrastructure.

Second, skill gaps and mismatches emerge as the industrial landscape changes, requiring new sets of skills that the existing workforce may not possess. The demand for highly technical and digital skills increases, while traditional industries struggle to find employees with relevant expertise. Without proactive upskilling and reskilling programs, enterprises face severe productivity losses.

Additionally, psychosocial and adaptation risks present another challenge, as skilled workers affected by war-related trauma may experience difficulties reintegrating into professional environments. Emotional distress, PTSD, and social adaptation issues can significantly reduce workforce efficiency and increase turnover rates.

Moreover, technological disruption and automation risks must be considered, as digitalization and automation, while addressing labor shortages, also pose challenges related to workforce displacement. The

integration of AI and robotics in industrial processes may reduce the demand for certain skill sets, necessitating large-scale workforce reskilling initiatives. Economic and political risks further complicate labor market stability, as unstable economic conditions, inflation, and shifting government policies impact businesses' ability to offer competitive salaries and maintain workforce stability. Insufficient governmental incentives and regulatory uncertainty can also deter foreign investment, limiting employment opportunities.

To address workforce-related risks, a comprehensive set of strategies must be implemented at governmental, business, and institutional levels. *Government-led policies and incentives* play a crucial role, as post-war governments must prioritize workforce reintegration programs by offering tax incentives, financial grants, and subsidies to businesses investing in hiring and training returning workers. Policies that encourage the return of skilled migrants through financial aid, relocation support, and employment guarantees help stabilize labor markets. *Industry-specific workforce development initiatives* are also essential, particularly in sectors experiencing the highest demand for skilled labor, such as construction, engineering, and healthcare. Targeted workforce development programs, apprenticeship models, and certification programs help bridge skill gaps and prepare workers for new roles.

Psychosocial support and workplace adaptation programs must also be implemented to ensure the mental well-being of employees affected by war. Businesses should introduce psychological support services, including counseling programs, stress management workshops, and workplace reintegration plans, to facilitate a smoother transition for returning employees. Public-private partnerships for skill reskilling and upskilling provide another effective strategy, as collaboration between governments, businesses, and educational institutions ensures tailored reskilling programs that align with emerging labor market needs. The integration of AI-driven learning platforms and micro-credentialing systems allows workers to acquire new competencies efficiently. *Smart employment and remote work solutions* can further enhance workforce adaptability by enabling businesses to explore alternative employment models such as remote work, gig economy platforms, and hybrid workforce solutions, offering greater flexibility for skilled workers who are unable or unwilling to relocate immediately to war-affected regions. Additionally, *foreign investment and workforce development agreements* can encourage foreign investments in key industries, providing financial stability and attracting skilled professionals back to the country. Special economic zones, investment-friendly policies, and joint ventures with international enterprises create employment opportunities and enhance workforce resilience.

Artificial intelligence and digital platforms play a pivotal role in managing skilled workforce risks, offering predictive analytics, automated recruitment solutions, and personalized learning pathways to enhance labor market efficiency. AI-powered workforce planning enables businesses and policymakers to proactively address shortages and skill mismatches by analyzing labor market trends, demographic shifts, and industry needs. Automated talent matching platforms streamline the hiring process by using machine learning to match employee profiles with job opportunities based on qualifications, experience, and location preferences. Digital credentialing and skill verification ensure that workers' qualifications are securely stored and easily verifiable, which is particularly useful in post-war environments where documentation may be lost or damaged. AI-enabled remote work and collaboration tools, such as AI-powered project management software, virtual training systems, and augmented reality workspaces, expand employment opportunities beyond geographic constraints, allowing businesses to tap into a global talent pool. Furthermore, smart labor market monitoring systems continuously track workforce trends using AI-driven labor market analytics, providing real-time insights into employment patterns and helping businesses and governments implement timely interventions.

Smart workforce planning integrates predictive analytics and real-time labor market insights to optimize workforce management, ensuring that businesses and policymakers can anticipate future labor demands and allocate resources efficiently. Predictive workforce demand modeling leverages machine learning algorithms to analyze historical labor market data, economic indicators, and business growth trends, enabling proactive talent acquisition and training initiatives. Dynamic workforce allocation strategies help enterprises adjust their workforce structures in response to market fluctuations by leveraging AI-based workforce allocation systems to dynamically redistribute labor resources across different projects or regions. The integration of smart technologies in HR management enhances employee retention, improves performance evaluation processes, and personalizes career development paths based on individual skill progressions. Resilience planning for workforce sustainability also plays a crucial role in smart workforce planning, incorporating risk

diversification strategies such as cross-training employees in multiple roles, building talent pipelines for key industries, and ensuring workforce flexibility to adapt to unexpected economic shifts.

In conclusion, managing skilled workforce risks in the post-war period requires a multifaceted approach that integrates traditional risk assessment methodologies with modern digital and AI-driven solutions. By leveraging predictive analytics, smart workforce planning, and AI-powered employment platforms, governments and enterprises can enhance labor market resilience, mitigate skill shortages, and foster economic recovery. Implementing comprehensive workforce risk management mechanisms will not only stabilize post-war economies but also create a foundation for long-term industrial and technological development.

REFERENCES

1. Bashynska I., Brylenko K., Dovbniak N. Analysis of global experience in managing the risks of skilled personnel during the post-war recovery period. Investments: practice and experience. 2024. № 8. C. 65-70.
2. Vasyl'yeva, O., Horoshkova, L., Shvydka, S. The imbalance of the labor market in Ukraine: current trends and guidelines for overcoming disproportions. University Economic Bulletin. 2023. №57. P. 99-109.
3. Filyppova S., Bashynska I., Kholod B., Prodanova L., Ivanchenkova L., Ivanchenkov V., Risk management through systematization: Risk Management Culture. International Journal of Recent Technology and Engineering. 2019. № 8(3). P. 6047-6052.
4. Bashynska I., Prokopenko O. Mitigating Cyber Risks in AI-Driven Circular Economy Implementations. Scientific Journal of Bielsko-Biala School of Finance and Law. 2024. № 28 (4). P. 65-71.

Bashynska Iryna – Doctor of Economics, professor, professor of the Department of Economics, Odesa Polytechnic National University, Odesa. e-mail: i.a.bashinskaya@op.edu.ua

Brylenko Kostiantyn – PhD student, Odesa Polytechnic National University, Odesa.