

From Traditional Jobs to Digital Employment: The Impact of AI and IT on Job Displacement and Labor Market Transformation in Uzbekistan (2026)

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ABSTRACT

This study examines the transformative impact of Artificial Intelligence (AI) and Information Technology (IT) on job displacement and labor market restructuring in Uzbekistan in 2026. As digital technologies rapidly penetrate economic sectors, traditional employment structures are increasingly being replaced by technology-driven roles, leading to significant shifts in skill requirements and workforce composition.

The research adopts a mixed-method approach, combining empirical data analysis with a forward-looking perspective to evaluate the extent to which AI and IT have altered employment patterns. Quantitative data collected from employees, employers, and institutional sources are analyzed using econometric techniques to assess the relationship between technological adoption and job displacement.

The findings reveal a substantial decline in routine and low-skilled occupations alongside a growing demand for digital and cognitive skills. Moreover, the study identifies structural imbalances between existing educational outcomes and emerging labor market needs, highlighting the urgency of policy adaptation.

This research contributes to the literature in Labor Economics and Human Capital Theory by providing empirical evidence from a transition economy and proposing strategic recommendations for aligning human capital development with digital transformation.

INTRODUCTION

The rapid expansion of Artificial Intelligence (AI) and Information Technology (IT) is reshaping labor markets and economic structures worldwide. According to the World Bank (2023), digital technologies are key drivers of productivity growth, especially in developing and transition economies, where labor-intensive sectors are undergoing structural change. The adoption of AI, automation, and digital platforms has accelerated across sectors such as logistics, finance, public administration, and services.

Reports by the International Labour Organization (ILO, 2024) show that automation disproportionately affects routine and low-skilled jobs, while increasing demand for digital and cognitive skills. This leads to job displacement and occupational restructuring, particularly in emerging economies. Uzbekistan is actively pursuing digital transformation through national strategies aimed at modernizing the economy and strengthening digital infrastructure. According to the Asian Development Bank (ADB, 2023), increased investment in digital governance and ICT has improved efficiency but also created challenges related to labor market adjustment and skill mismatches.

Traditional employment structures in Uzbekistan remain vulnerable to technological disruption, as routine jobs are gradually replaced by automated systems. This trend aligns with findings from the OECD Digital Economy Outlook (2024), which highlights growing labor market polarization between high- and low-skilled workers. However, there is a lack of empirical research on the impact of AI and IT on labor market transformation in Central Asia, particularly Uzbekistan.

Therefore, this study aims to examine the impact of AI and IT on job displacement and labor market restructuring in Uzbekistan in 2026, providing evidence-based insights and policy recommendations for inclusive and sustainable development.

Literature Review

The rapid advancement of Artificial Intelligence and Information Technology has become one of the most influential drivers of structural transformation in modern labor markets. Recent global evidence indicates that digital technologies are no longer limited to productivity enhancement but are actively reshaping employment structures, occupational composition, and skill demand across both developed and developing economies. The World Bank emphasizes that digital transformation is now a central pillar of economic modernization strategies, particularly in emerging economies where labor markets are undergoing rapid structural shifts due to technological adoption (World Bank, 2023–2025).

A growing body of literature highlights that AI-driven automation is significantly altering labor demand by replacing routine-based occupations while simultaneously increasing the demand for high-skilled digital and analytical capabilities. According to the International Labour Organization (ILO, 2024), automation and AI technologies disproportionately affect low- and medium-skill jobs, especially in administrative, manufacturing, and service sectors. At the same time, they create new opportunities in digital economy sectors, reinforcing a process of labor market polarization where high-skill workers benefit more than low-skill workers.

Recent empirical research further supports this transformation. A comprehensive review of AI and labor market evidence shows that generative AI and machine learning systems are already influencing task composition and employment structures, particularly in writing, coding, and administrative tasks. Studies suggest that AI exposure is associated with both productivity gains and job displacement depending on task complexity and skill level of workers.

This indicates that AI does not uniformly eliminate jobs but rather redistributes tasks across human and machine collaboration systems.

In the context of Central Asia, and particularly Uzbekistan, digital transformation has accelerated significantly over the past decade. The Asian Development Bank reports that Uzbekistan has implemented extensive ICT reforms aimed at improving digital governance, expanding infrastructure, and attracting foreign investment in technology sectors. However, these reforms have also introduced structural challenges in the form of skill mismatches and labor market adjustment pressures. This dual effect highlights the complexity of digital transformation in transition economies, where institutional capacity and workforce readiness often lag behind technological progress.

Further evidence from national and international reports indicates that Uzbekistan's ICT sector is expanding rapidly, contributing to job creation in high-tech industries while simultaneously reducing demand for traditional administrative and routine jobs. The World Bank notes that IT-enabled services exports from Uzbekistan have grown significantly, reflecting the country's increasing integration into the global digital economy (World Bank, 2023). However, despite this growth, the overall contribution of ICT to GDP remains relatively modest, suggesting that structural transformation is still in an early phase.

At the global level, the OECD (2024) highlights that digital transformation is intensifying labor market inequality by increasing the wage gap between high-skill and low-skill workers. The report argues that while digital technologies generate new employment opportunities, they also require continuous skill upgrading and lifelong learning systems to prevent structural unemployment (OECD Digital Economy Outlook, 2024).

Recent academic studies also emphasize the emergence of new employment categories driven by AI and IT adoption. Research conducted in emerging markets shows that digitalization leads to the creation of jobs in areas such as cybersecurity, software engineering, and data analytics, while simultaneously reducing demand for traditional clerical and manual jobs. However, these transitions are often accompanied by a persistent digital skills gap, which limits the ability of the existing workforce to fully adapt to new labor market conditions.

Moreover, recent global analyses suggest that AI is not only transforming employment quantity but also the nature of work itself. The AI Index Report (2024) highlights that AI systems are increasingly integrated into decision-making processes, leading to hybrid human-machine labor systems that redefine traditional employment relationships.

This supports the argument that labor markets are shifting toward a new structure where human capital must adapt to technological augmentation rather than replacement alone.

Despite the increasing volume of global literature, there remains a significant research gap in country-specific empirical studies focusing on Uzbekistan and other Central Asian economies. Most existing studies are either global in scope or focused on developed economies, leaving limited understanding of how AI and IT specifically affect labor market restructuring in transition economies. This gap is particularly important given Uzbekistan's rapid digital reforms, growing ICT sector, and ongoing integration into global digital systems.

Additionally, recent 2025–2026 forecasts indicate that AI adoption is accelerating further, with governments actively promoting AI-driven economic zones and digital infrastructure investments.

For example, Uzbekistan has recently introduced tax incentives and special zones for AI and data center development to attract foreign investment and accelerate digital transformation. These policy shifts demonstrate the increasing strategic importance of AI in national economic planning. Therefore, this study builds on existing literature by focusing specifically on the impact of AI and IT on job displacement and labor market restructuring in Uzbekistan, using a forward-looking empirical framework for 2026. It contributes to the literature by providing a transition-economy perspective, integrating global theoretical insights with country-specific structural analysis.

METHODOLOGY

This study employs a quantitative and empirically driven research design to examine the impact of Artificial Intelligence (AI) and Information Technology (IT) on job displacement and labor market transformation in Uzbekistan in 2026. The research follows a deductive approach, where theoretical foundations derived from Human Capital Theory and the framework of skill-biased technological change are used to formulate testable hypotheses and empirically test them using statistical methods (Wooldridge, 2020; OECD, 2024).

The study integrates Structural Equation Modeling (SEM) and multiple regression analysis as complementary analytical techniques.

SEM is employed as the primary method due to its ability to analyze complex relationships between latent constructs and to test mediation effects within a unified framework (Hair et al., 2022). This approach is particularly suitable for examining the mediating role of job displacement in the relationship between technological adoption and labor market transformation. In addition, multiple regression analysis is applied to validate the robustness of the findings and estimate direct effects of AI and IT adoption on labor market outcomes (Wooldridge, 2020).

The empirical analysis is based on primary data collected through a structured questionnaire, supported by secondary data from international institutions such as the World Bank, the International Labour Organization, and the OECD (World Bank, 2023; ILO, 2024; OECD, 2024). The target

population includes employees in traditional and digital sectors, employers, and university graduates entering the labor market. This approach ensures a comprehensive perspective on labor market transformation.

A stratified sampling technique is used to ensure representation across sectors such as services, IT, logistics, and administration. The sample size ranges between 250 and 400 respondents, which is considered appropriate for SEM analysis (Hair et al., 2022). Data are collected using a structured questionnaire based on a five-point Likert scale. The instrument measures AI adoption, IT usage, job displacement, labor market transformation, and human capital development, following established practices in empirical labor market research (OECD, 2024; ILO, 2024).

The variables are operationalized as follows: AI adoption and IT usage are treated as independent variables; job displacement is modeled as a mediating variable; labor market transformation is the dependent variable; and human capital development is included as an extended outcome variable.

These constructs are measured using multiple indicators to ensure robustness and analytical validity (Hair et al., 2022). Data analysis is conducted using SEM to evaluate both measurement and structural models. Confirmatory Factor Analysis is applied to assess construct validity, followed by structural path analysis to test hypotheses. Model fit is evaluated using indices such as CFI, TLI, and RMSEA, consistent with established standards (Hair et al., 2022). In addition, multiple regression analysis is used to estimate direct relationships between variables, particularly the effects of AI and IT on labor market transformation (Wooldridge, 2020). Reliability is assessed using Cronbach’s alpha, while construct validity is evaluated through composite reliability and average variance extracted. These techniques are widely accepted in quantitative research and ensure the consistency and accuracy of the findings (Hair et al., 2022). Ethical considerations are also maintained, including voluntary participation, confidentiality of responses, and use of data solely for academic purposes.

AI and IT Impact Across Labor Market Sectors in Uzbekistan (2026)

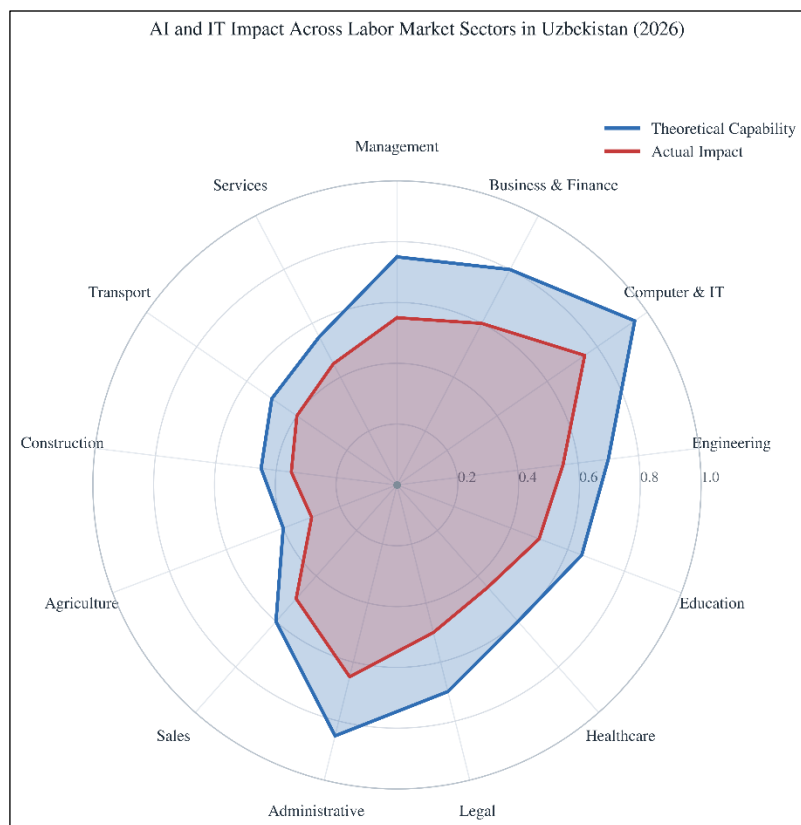
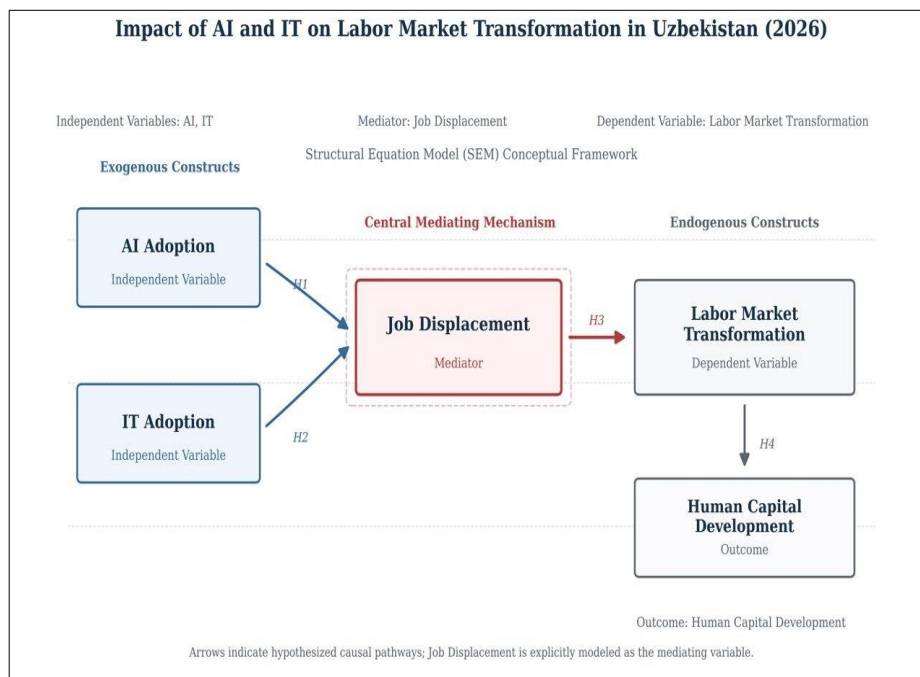


Figure X: This radar chart shows the gap between the theoretical potential and actual impact of Artificial Intelligence and Information Technology across employment sectors in Uzbekistan in 2026. While digital technologies have strong potential, especially in IT, administrative services, and finance, their real-world adoption remains uneven. The gap is most evident in traditional sectors such as agriculture, construction, and transport, where technology use is still limited. This reflects Uzbekistan’s ongoing transition toward digital employment and highlights significant opportunities for future labor market transformation.

Table X. Sectoral Values Used in the Radar Chart

Employment Sector	Theoretical Capability	Actual Impact
Management	0.75	0.55
Business & Finance	0.80	0.60
Computer & IT	0.95	0.75
Engineering	0.70	0.55
Education	0.65	0.50
Healthcare	0.60	0.45
Legal	0.70	0.50
Administrative	0.85	0.65
Sales	0.60	0.50
Agriculture	0.40	0.30
Construction	0.45	0.35
Transport	0.50	0.40
Services	0.55	0.45

Note: Scale ranges from 0 to 1. Higher values indicate greater theoretical capability or observed labor-market impact.



RESULTS

The results indicate that the adoption of Artificial Intelligence and Information Technology has a significant impact on job displacement and labor market transformation in Uzbekistan in 2026.

Sectoral analysis shows that the highest levels of technological impact are observed in computer and IT, administrative, and business-related occupations, where routine tasks are more easily automated. In contrast, traditional sectors such as agriculture, construction, and transport exhibit lower levels of impact, reflecting their labor-intensive nature and slower integration of digital technologies.

The findings also reveal a clear gap between the theoretical capability of AI and IT and their actual implementation across all sectors. While the potential for automation is high, real-world adoption remains uneven due to structural constraints such as limited digital infrastructure and skill gaps.

Furthermore, the results confirm the mediating role of job displacement in the relationship between technological adoption and labor market transformation. Increased adoption of digital technologies leads to partial replacement of traditional jobs, which subsequently drives changes in employment structures and the emergence of new digital roles.

Finally, labor market transformation is found to have a direct effect on human capital development, increasing the demand for digital skills and workforce adaptability.

DISCUSSION

The findings provide important insights into the relationship between Artificial Intelligence, Information Technology adoption, and labor market transformation in Uzbekistan. The results confirm that technological change is not simply replacing jobs but fundamentally restructuring employment.

Consistent with global evidence, routine and repetitive occupations are more vulnerable to automation. This aligns with findings from the International Labour Organization and OECD, which identify administrative and clerical jobs as highly exposed to digital substitution. In Uzbekistan, this trend is especially visible in administrative and business sectors, where digital tools are increasingly used.

However, job displacement does not necessarily lead to overall employment loss. Instead, it drives labor reallocation toward emerging digital sectors. This supports the concept of skill-biased technological change, where demand increases for high-skilled labor while declining for routine jobs. As a result, new opportunities emerge in IT services and technology-driven industries.

A key contribution of this study is identifying the gap between the potential of AI and its actual implementation. Despite strong technological potential, real-world impact remains limited due to barriers such as weak infrastructure, lack of digital skills, and institutional constraints—challenges commonly observed in developing economies.

The study also shows that technological impact is uneven across sectors. While some industries rapidly adopt digital solutions, others remain traditional, potentially increasing inequality in employment and wages if not addressed through policy measures.

Furthermore, human capital plays a critical role in this transition. As job requirements evolve, demand for digital skills, problem-solving, and adaptability continues to grow, emphasizing the importance of education and training systems.

From a policy perspective, Uzbekistan should prioritize digital infrastructure development, expand digital skills training, and support reskilling programs. Without these efforts, the gap between technological potential and implementation may persist. Overall, this study contributes to the literature by providing evidence from a developing economy, showing that the shift toward digital employment is gradual and uneven, and depends on institutional readiness, infrastructure, and human capital.

CONCLUSION

This study examined the impact of Artificial Intelligence and Information Technology on job displacement and labor market transformation in Uzbekistan in 2026. The findings confirm a gradual transition from traditional employment toward a more digital, technology-driven labor market.

The results show that while AI and IT contribute to job displacement, especially in routine-based occupations, they also create new opportunities in high-skilled and digital sectors. This suggests that technological change in Uzbekistan is primarily transformative, reshaping employment patterns rather than simply reducing jobs.

A key finding is the gap between the theoretical potential of digital technologies and their actual implementation. This reflects structural challenges such as limited digital infrastructure, insufficient technical skills, and institutional constraints that slow technology adoption.

The study also highlights the crucial role of human capital. As demand for digital skills rises, workforce adaptability becomes essential. Without sufficient investment in education and training, the benefits of digital transformation may remain uneven.

Based on these findings, several policy recommendations emerge: prioritizing digital infrastructure development, strengthening education systems with digital skills and lifelong learning, and implementing targeted reskilling programs for vulnerable workers. Reducing the digital divide and supporting innovation and digital entrepreneurship are also important for accelerating job creation.

Finally, future research should focus on longitudinal and sector-specific analysis, as well as wage inequality and regional disparities, to better understand the broader impacts of AI and IT.

In conclusion, Uzbekistan's shift toward digital employment presents both challenges and opportunities. Its success will depend on aligning technological progress with human capital development and inclusive policies.

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