



ARTIFICIAL INTELLIGENCE AND THE LABOR MARKET: NEW PROFESSIONS AND DISAPPEARING JOBS

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Abstract: *This article provides a comprehensive analysis of the impact of artificial intelligence (AI) technologies on global and Uzbekistan's labor markets. Drawing on recent research by the World Economic Forum, McKinsey Global Institute, Oxford University, ILO, and other authoritative organizations, the study identifies and systematises professions most vulnerable to automation alongside new occupations being created by AI. The findings are supported by statistical data, tables, and data visualisations, culminating in practical policy recommendations for Uzbekistan.*

Keywords: *artificial intelligence, labor market, automation, future of work, digital transformation, Uzbekistan, emerging professions, job displacement.*

1. Introduction

Today's global labor market is undergoing the most profound structural transformation in modern history. The rapid advancement of artificial intelligence (AI), robotics, and automation technologies is fundamentally reshaping not only individual occupations and professions but the entire sectoral composition of economies [1]. According to the World Economic Forum's Future of Jobs Report 2025, by 2030 approximately 85 million existing jobs are expected to be displaced while 97 million new roles will emerge — a net gain, but one that masks significant disruption for workers whose skills become obsolete.

This transformation is not limited to advanced economies. For transition economies such as Uzbekistan — where the labor force grows by 600,000–700,000

entrants annually and a significant proportion of existing jobs involve low-skill, routine tasks — the stakes are particularly high. The country's Digital Uzbekistan 2030 strategy has positioned digital transformation as a national priority, making the alignment of human capital with future technological demands an urgent policy imperative [2].

The purpose of this article is to: (1) analyse AI's quantitative impact on global labor markets; (2) identify which professions face the highest displacement risk and which new roles are emerging; (3) assess Uzbekistan's specific labor-market exposure; and (4) formulate evidence-based policy recommendations for educational reform, workforce reskilling, and social protection.

2. Literature Review

The foundational study on automation risk was published by Frey and Osborne (2013) at the University of Oxford, which analysed 702 US occupations and found that 47% faced a high risk of computerisation within two decades [3]. Subsequent research refined and extended these findings: Arntz, Gregory and Zierahn (OECD, 2016) argued the risk was lower (9%) when task-level heterogeneity within occupations is accounted for, while McKinsey Global Institute (2023) took an intermediate position, estimating that 300–375 million workers globally may need to change occupational categories by 2030 [4].

The International Labour Organization's World Employment and Social Outlook 2024 highlights that developing and transition economies face disproportionate automation exposure because their labor markets are concentrated in low-skill manufacturing, agriculture, and service roles — precisely the categories most susceptible to early-stage AI adoption [5]. Acemoglu and Restrepo (2022), however, caution against technological determinism: historical evidence consistently shows that technology destroys and creates jobs simultaneously, and net outcomes depend heavily on institutional responses, educational investment, and innovation ecosystems [1].

For Uzbekistan, there is a paucity of dedicated empirical studies. The present article addresses this gap by applying established international methodologies — particularly WEF and McKinsey frameworks — to available national data, generating sector-specific estimates for domestic labor-market risk.

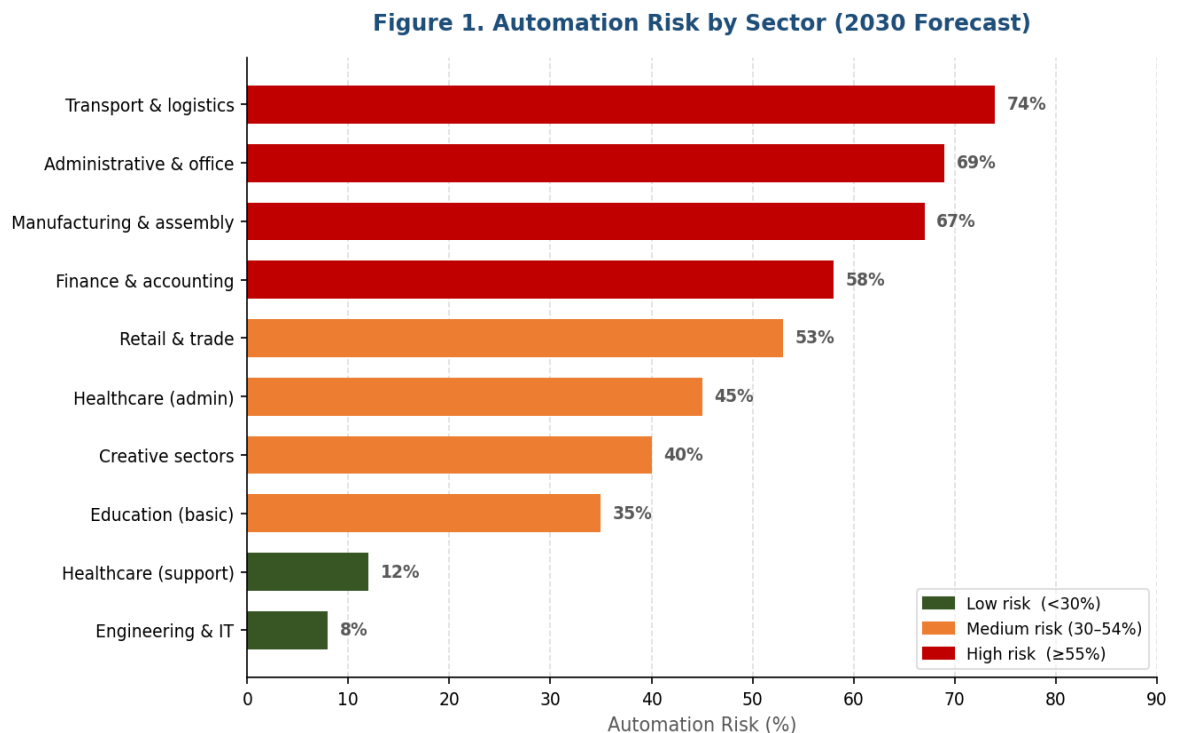
3. Automation Risk by Sector: Global Evidence

Contemporary research identifies high-automation-risk occupations as those characterised by: (a) routine, rule-based cognitive tasks; (b) low-skill manual or physical activities; and (c) predictable, structured environments. Table 1 synthesises findings from McKinsey Global Institute, WEF, ILO, and Oxford Economics [4, 5]:

Table 1. Automation Risk Across Key Sectors and 2030 Displacement Forecasts

Sector / Occupation	Automation Risk	Jobs at Risk (million)	Source
Transport & Logistics (drivers, couriers)	74%	85	McKinsey, 2023
Administrative & Office Work (secretarial, clerical)	69%	150	WEF, 2023
Manufacturing & Assembly	67%	200	ILO, 2024
Retail & Customer Service	53%	120	Oxford Economics, 2023
Finance & Accounting (routine operations)	58%	90	Accenture, 2024
Healthcare (diagnostic support roles)	35%	40	WHO/WEF, 2023
Education (basic instructional tasks)	40%	60	UNESCO, 2023
Engineering & IT	8%	−50 (new)	WEF, 2025
Creative Industries (design, media)	12%	−35 (new)	OECD, 2024

Source: Compiled by the authors based on McKinsey Global Institute (2023), WEF (2023), ILO (2024), and Oxford Economics (2023).



Source: Authors' visualisation based on McKinsey Global Institute (2023), WEF Future of Jobs Report (2023), ILO (2024).

Figure 1 illustrates that the transport and logistics sector faces the highest automation risk (74%), driven primarily by advances in autonomous vehicle technology and AI-powered route optimisation. Administrative and office work (69%) is highly vulnerable to large language models such as GPT-4 and its successors, which can automate drafting, scheduling, data retrieval, and basic correspondence. Crucially, engineering and IT show a negative displacement figure — these sectors are expected to generate 50 million additional jobs rather than lose them, underscoring the importance of STEM education investment [1, 4].

4. Emerging Professions in the AI Era

While automation displaces certain job categories, it simultaneously generates demand for entirely new roles. The LinkedIn Economic Graph (2024) reports that demand for AI engineers and prompt engineers grew by 442% between 2022 and

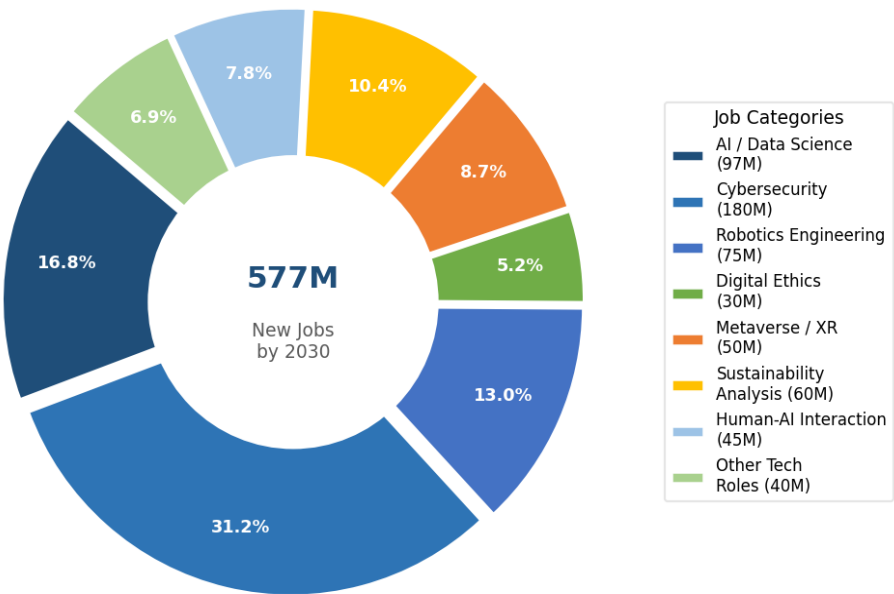
2024 alone [6]. Table 2 presents the most significant emerging occupations, projected global demand, and current compensation benchmarks:

Table 2. Top Emerging AI-Era Professions: Global Demand and Salary Benchmarks (2030)

Emerging Job Title	Description	Demand by 2030 (mln)	Avg. Annual Salary (USD)
AI Engineer / Prompt Engineer	Training & instructing AI models	97	120,000–200,000
Data Scientist	Big data analysis, predictive modelling	140	95,000–160,000
Cybersecurity Specialist	Protecting digital infrastructure	180	100,000–170,000
Robotics Engineer	Programming and maintaining robots	75	85,000–140,000
Digital Ethics Specialist	Overseeing AI ethical standards	30	80,000–130,000
Metaverse Architect	Designing virtual environments	50	90,000–150,000
ESG / Sustainability Analyst	Environmental & social data analysis	60	70,000–110,000
Human-AI Interaction Designer	Optimising human-AI interface design	45	85,000–130,000

Source: WEF Future of Jobs Report (2025), LinkedIn Economic Graph (2024), Glassdoor Salary Data (2024).

Figure 3. Distribution of Emerging AI-Era Job Categories (Global, 2030)



Source: Authors' visualisation based on WEF Future of Jobs Report (2025) and LinkedIn Economic Graph (2024).

5. Uzbekistan's Labor Market: Current State and Projections

Uzbekistan presents a distinctive set of labor-market characteristics. With a population exceeding 36 million and a rapidly growing working-age cohort, the country faces the dual challenge of absorbing large annual labor-market entrants while simultaneously preparing its existing workforce for technological disruption. Table 3 summarises key indicators and forecasts:

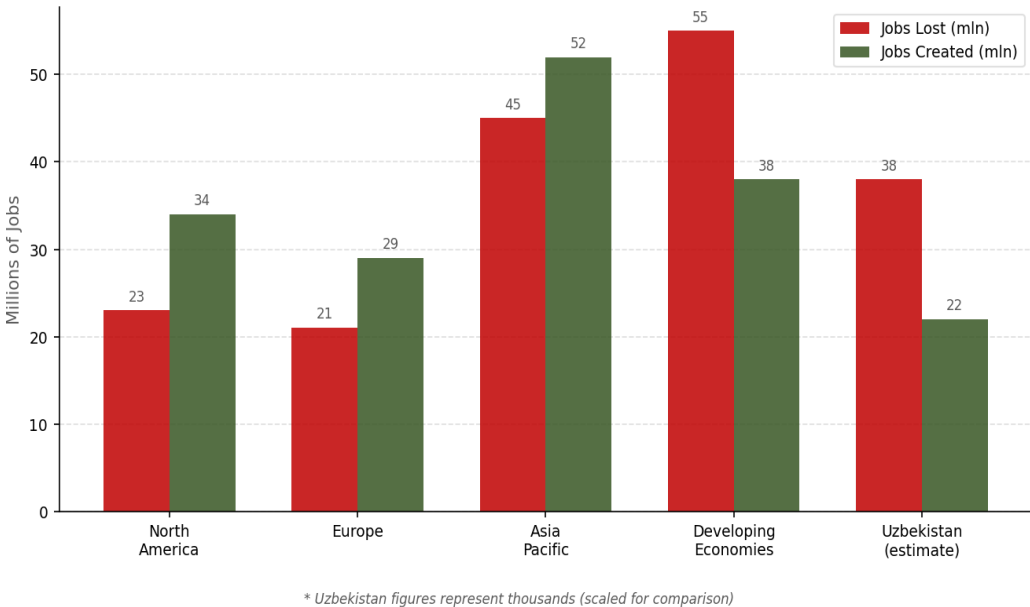
Table 3. Uzbekistan Labor Market Digital Transformation Indicators

Indicator	2023 Status	2030 Forecast	Source
IT Sector Share of GDP	2.1%	5–7%	Digital Uzbekistan 2030
IT Park Residents	1,200+	3,500+	IT Park Uzbekistan, 2024

Indicator	2023 Status	2030 Forecast	Source
IT Professionals (total)	~50,000	~150,000	MICT, 2024
Jobs at Risk from AI	~1.2 mln	~3 mln	Authors' estimate
Digital Literacy Rate	43%	75–80%	Digital Uzbekistan 2030
Annual IT Graduates	~15,000	~50,000	Ministry data

Source: Digital Uzbekistan 2030 Strategy, IT Park Uzbekistan (2024), Ministry of Digital Technologies data.

Figure 2. Projected Job Displacement vs. Creation by Region (2030)

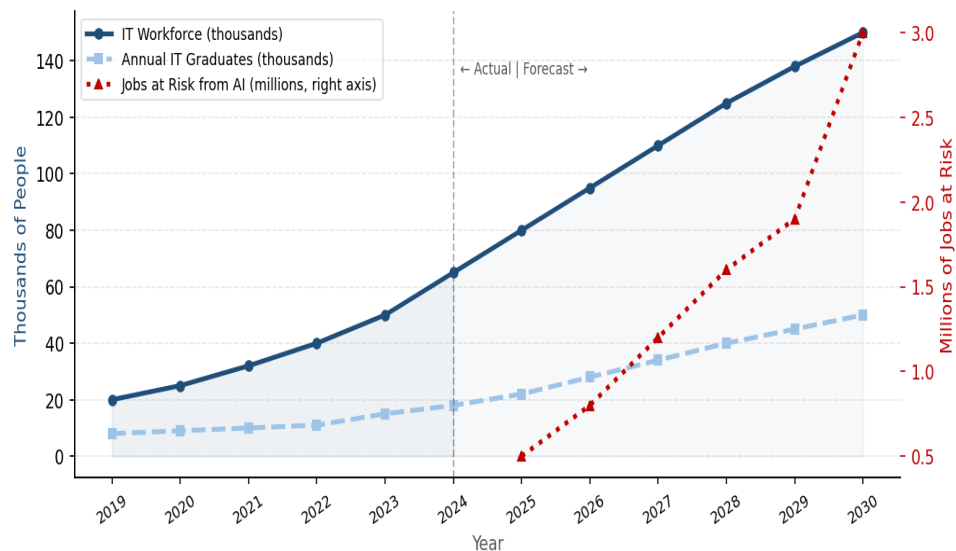


Source: Authors' visualisation based on WEF (2023), McKinsey (2023), ILO (2024), and authors' estimates for Uzbekistan. * Uzbekistan figures scaled for comparative visualisation.

Figure 2 reveals a globally consistent pattern: in developing economies, job displacement projections substantially outpace job creation projections in the near term, reversing only as reskilling and education investments take effect. For Uzbekistan, the authors' estimates suggest approximately 1.2–1.5 million jobs may be substantially affected by 2030, concentrated in agriculture (mechanisation and

precision farming), retail trade (e-commerce displacement), and public administration (AI-assisted document processing and service delivery) [2].

Figure 4. Uzbekistan IT Workforce Growth vs. AI Job Displacement Risk (2019-2030)



Source: Authors' compilation based on IT Park Uzbekistan (2024), MICT (2024), Digital Uzbekistan 2030 Strategy, and authors' projections.

Figure 4 illustrates Uzbekistan's IT workforce growth trajectory against the rising curve of AI-related job displacement risk. The gap between IT workforce capacity and displacement risk widens through 2026–2028 before converging — provided current government reform programmes proceed as planned. This "transition gap" represents the primary policy challenge: how to upskill the displaced workforce faster than displacement occurs.

6. Quantitative Projections for Uzbekistan (2025–2030)

Applying the WEF (2023) and McKinsey (2023) sector-level automation probability estimates to Uzbekistan's 2023 employment structure (Gosstat, 2024), the authors generate the following sector-specific displacement projections:

- Agriculture (mechanisation, precision farming): ~400,000 jobs affected;
- Retail and trade (e-commerce displacement, self-checkout automation): ~350,000;
- Banking and finance (robo-advisors, automated credit scoring, chatbots): ~120,000;

- Transport (autonomous freight vehicles, AI dispatch systems): ~180,000;
- Public administration (AI document processing, digital public services): ~200,000.

Aggregate displacement risk: 1.25–1.5 million jobs by 2030. Concurrently, IT Park Uzbekistan projections and government digitisation targets suggest 600,000–800,000 new digital-economy positions will be created over the same period. The resulting net displacement of 450,000–700,000 workers constitutes a significant socio-economic challenge requiring proactive policy intervention.

It is important to note that these projections represent occupational change, not necessarily unemployment — many workers can transition to new roles within the same sector if provided adequate reskilling support. The international evidence base (Germany, Singapore, South Korea) demonstrates that proactive state investment in workforce transitions can substantially narrow the gap between displacement and re-employment [5].

7. Policy Recommendations

7.1. Reform the Education System

University curricula across all disciplines — not only technical fields — must integrate data literacy, AI fundamentals, and computational thinking as compulsory components. For economics and business programmes specifically, this means embedding courses on digital business models, algorithmic decision-making, and AI ethics alongside traditional economic theory. Finland's nationally-led initiative to train 1% of the population in AI basics within twelve months provides a scalable model [2]. Uzbekistan's network of over 100 higher education institutions, combined with IT Park's growing ecosystem, provides the institutional infrastructure to replicate this approach.

7.2. Scale Reskilling and Upskilling Programmes

Publicly subsidised reskilling programmes — delivered through public-private partnerships involving IT Park, leading corporations, and international

development organisations — must be dramatically expanded. Germany's Kurzarbeit (short-time work) scheme, which funds workers to train during reduced hours rather than face redundancy, offers a directly applicable model. Uzbekistan should consider legislating a minimum annual training entitlement for workers in high-risk sectors [5].

7.3. Accelerate Digital Infrastructure Rollout

Affordable, high-speed broadband connectivity must reach rural and peri-urban areas as a prerequisite for both digital job creation and effective online reskilling delivery. The Digital Uzbekistan 2030 infrastructure targets must be treated as floor commitments, not aspirational ceilings. Special economic zones and tax incentives for digital businesses in underserved regions can further stimulate geographically distributed job creation [2].

7.4. Strengthen Social Protection Mechanisms

Expanded unemployment insurance, means-tested retraining stipends, and temporary income support for workers transitioning out of high-risk occupations are essential safety nets. Denmark's 'flexicurity' model — combining flexible labor markets with generous social support and active employment services — demonstrates that robust protection need not compromise economic dynamism. Uzbekistan's growing fiscal capacity from digitisation-driven efficiency gains can partially fund these investments [5].

7.5. Establish a National AI Governance Framework

A dedicated national AI strategy — distinct from but aligned with the Digital Uzbekistan 2030 strategy — should establish regulatory guidelines for AI deployment in employment contexts, mandate algorithmic impact assessments for large-scale workforce automation, and create an inter-ministerial coordination body. Estonia's e-governance framework and Singapore's Model AI Governance Framework provide internationally recognised templates [1, 2].

8. Conclusion

This article has demonstrated that artificial intelligence and automation are generating structural transformation in global labor markets of unprecedented scale and speed — and that Uzbekistan, given its demographic profile and current occupational composition, faces both significant risks and significant opportunities from this transition.

The key findings are threefold. First, between 1.25 and 1.5 million Uzbek jobs are at elevated automation risk by 2030, concentrated in agriculture, retail, transport, and public administration. Second, simultaneous digital-economy job creation of 600,000–800,000 positions means the challenge is one of transition management rather than net job destruction. Third, proactive, well-funded, multi-stakeholder policy responses — in education, reskilling, social protection, and governance — can substantially reduce adjustment costs and ensure that the benefits of AI-driven productivity growth are broadly shared.

The Digital Uzbekistan 2030 strategy provides a strong foundation; what is now required is a complementary national human-capital strategy that explicitly addresses the labor-market transition challenge at scale. The country has a narrow but real window of opportunity to shape — rather than merely react to — the AI transformation of its economy.

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