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# The Impact of Artificial Intelligence During the Transformation of The Labor Market in Uzbekistan

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## Abstract

*This article examines the impact of artificial intelligence (AI) technologies on Uzbekistan's labor market transformation in the context of implementing the national strategy "Digital Uzbekistan - 2030" and the Strategy for the Development of AI Technologies until 2030. Based on the analysis of statistical data, industry reviews, and regulatory legal documents, key mechanisms of AI's impact on employment structure were identified: automation of routine processes, formation of new professional profiles, and changes in requirements for employees' competencies. It is shown that in 2024-2025, the labor market of Uzbekistan is characterized by duality: on the one hand, there is an increasing demand for IT specialists and workers with digital skills; on the other hand, there is a structural shortage of qualified personnel and a gap between the education system and the needs of the economy. Recommendations for adapting employment policy to AI transformation conditions have been proposed.*

Keywords: Artificial intelligence, labor market, digital transformation, employment, automation, Digital Uzbekistan - 2030.

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## 1. Introduction

The fourth industrial revolution, based on the convergence of digital technologies, robotics, and artificial intelligence, is fundamentally changing the structure of global labor markets. According to McKinsey Global Institute, by 2030, automation could displace 75 to 375 million workers worldwide, while simultaneously creating millions of new jobs in high-tech sectors [1]. For developing economies, especially those experiencing demographic growth and structural restructuring, this transition carries both significant opportunities and serious risks.

Uzbekistan holds a special place in this regard. As of the beginning of 2024, the country's population reached 36.8 million people, with an annual growth of approximately 700-800 thousand people [4]. The population's youth constantly puts pressure on the labor market: hundreds of thousands of new participants enter it annually. In these circumstances, the question of how AI transforms employment - whether it displaces workers or creates new opportunities - becomes of paramount political and scientific importance.

The state is aware of the scale of the upcoming changes. In October 2024, the President of the Republic of

Uzbekistan approved the Strategy for the Development of AI Technologies until 2030, setting an ambitious goal - to enter the top 50 countries in the Government AI Readiness Index [5]. Along with this, the "Uzbekistan-2030" strategy provides for the creation of more than 300 thousand highly qualified jobs in the IT sphere [12].

However, academic research specifically dedicated to the comprehensive impact of AI on the labor market specifically in Uzbekistan is clearly insufficient. Most publications are either overview-based or limited to related issues - education digitalization or public administration reform. This article is intended to fill this gap.

The purpose of the study is to identify and systematize the mechanisms of AI's impact on the employment structure in Uzbekistan, taking into account the specifics of the national labor market, as well as to propose recommendations for employment policy during the period of active implementation of AI technologies.

## 2. Degree of Study and Research Methodology

This study is of a mixed nature and combines the qualitative analysis of regulatory legal documents with the quantitative analysis of statistical data. The following methods were used:

Analysis of documents. Fundamental strategic documents were studied: the "Digital Uzbekistan - 2030" Strategy (2020), the "Uzbekistan - 2030" Strategy (2023), the Strategy for the Development of AI Technologies until 2030 (2024), as well as decisions of the President and the Cabinet of Ministers in the field of digitalization and employment.

Statistical analysis. Data from the State Statistics Committee of the Republic of Uzbekistan, hh.uz platform analytics for 2023-2025, and reports from the Agency for External Labor Migration and the Ministry of Digital Technologies were used. In particular, the dynamics of vacancies, unemployment rates, and median salaries across sectors were analyzed.

Comparative analysis. To contextualize the results, a comparison was made with the experience of similar countries in Central Asia, as well as with the forecasts of international organizations - the McKinsey Global Institute, the World Bank, and the International Labour Organization.

Bibliometric overview. Publications in peer-reviewed publications included in the Scopus, Web of Science, and RINC databases for the period 2020-2025 on the topic "AI and Labor Market" were analyzed in relation to the Central Asian region.

## 3. Results

### State of the labor market of Uzbekistan: initial parameters

By the middle of 2024, 14.2 million people were employed in Uzbekistan, of which 6.8 million worked in the official sector, about 5 million in the informal sector, and about 1.34 million citizens worked abroad [10]. The unemployment rate decreased from 5.5% in 2024 to 4.9% by mid-2025 [2].

About 130 thousand active vacancies were posted on the hh.uz platform in 2024, a 28% increase compared to the previous year [3]. The median offered wages across the country amounted to 6.6 million soums, exceeding the previous year's figure by 17% [3]. The concentration of employment remains high: more than 90% of vacancies are concentrated in Tashkent [6].

**Table 1. Key indicators of the labor market of Uzbekistan (2022-2025)**

| Indicator | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| Number of employed, million people. | 13.7 | 14.0 | 14.2 | 14.5 |
| Unemployment rate, % | 8.1 | 5.5. | 5.5. | 4.9 |

| Indicator | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| Median salary, million soums (gross) | - | ~5.6 | 6.6 | ~7.5 |
| Number of vacancies on hh.uz, thousand. | - | ~101 | ~130 | >160 |
| Employed abroad, million people. | ~2.0 | ~2.0 | ~2.0 | 1.34 |

Source: State Statistics Committee, hh.uz, Agency for External Labor Migration.

**Industry structure of AI implementation**

The financial sector is the most susceptible to AI technologies. The AI-2030 Strategy directly provides for the involvement of state banks in automation, credit scoring, and risk management projects [18]. Machine learning tools are already being used in the country's largest banks to identify fraudulent transactions and personalize customer services.

The IT sector is showing explosive growth. IT Park Uzbekistan unites about 3,200 resident companies with a total staff of over 14,000 specialists; the volume of digital services reached $1.6 billion in 2024, and is expected to grow to $2.5 billion by the end of 2025 (including $1 billion in exports) [12]. International experts estimate the country's AI potential at $10 billion [12].

E-commerce is experiencing a boom related to both domestic demand and AI optimization of logistics and marketing. Uzum became Uzbekistan's first "unicorn," surpassing the market value mark of $1 billion in 2024 [16]. E-commerce platforms (Uzum, Yandex Market, BirBir, Wildberries) are actively forming demand for new categories of employees.

Education, healthcare, and public administration are at the initial stage of AI transformation. Within the framework of the "Digital Uzbekistan - 2030" strategy, the full transition of public services to electronic format is being implemented, and Mobile ID and digital passport systems are being introduced [16].

**Mechanisms of AI's impact on employment structure**

The first mechanism is replacing routine work. Employees performing standardized cognitive and physical operations, such as call center operators, accountants, data entry specialists, and certain categories of bank employees, are most at risk. According to global forecasts, it is the low-skilled specialists whose tasks are reduced to technical routine who are most likely to experience the pressure of automation [7].

The second mechanism is the creation of new professions. The growth of the AI industry generates a stable demand for machine learning specialists, data engineers, cybersecurity specialists, prompt engineers, and AI project managers. The "Uzbekistan - 2030" strategy provides for the creation of more than 300 thousand high-paying jobs in IT [12].

The third mechanism is increasing productivity and augmenting labor. In a number of sectors, AI acts not as a substitute, but as an intensifier of human labor. Doctors, teachers, lawyers, and engineers receive tools that significantly increase their effectiveness without replacing basic professional functions. Studies show that most often, there is a redistribution of tasks and a change in job responsibilities, rather than a direct reduction in personnel [7].

The fourth mechanism is the change in the geography of labor. AI tools for remote work and online platforms can potentially reduce the hyperconcentration of employment in Tashkent (90% of vacancies) and expand access to quality jobs in the regions. In 2024, job growth was 53% in Namangan, 44% in Andijan, and 37% in Chirchik [6].

**Table 2. Assessment of the vulnerability and prospects of professions in the context of AI transformation**

| Professional group | Replacement risk | Creating new roles | Trend in Uzbekistan |
|---|---|---|---|
| Operators, bank operators | High | Low | Decrease in demand |
| Data Specialists / ML | Low | High | Sharp deficit |
| E-commerce / Logistics Specialists | Average | Average | Growth +44% |
| Teachers, instructors | Low | High | Role transformation |
| Accountants, financiers (routine) | High | Average | Automation |
| Software engineers | Low | High | Personnel shortage |
| Workers (hand labor) | Average | Low | Slow dynamics |

Source: Compiled by the author based on data from hh.uz and McKinsey Global Institute.

**The gap between education and the labor market**

One of the key problems intensified by AI transformation remains the discrepancy between the results of the education system and the needs of the economy [9]. Despite the fact that since the 2023-2024 academic year, 12 universities of the country have admitted 572 students to AI programs [17], this figure is incomparably small against the backdrop of the need for tens of thousands of qualified specialists. Corporate training and retraining are becoming critically important: in 2025, companies are increasingly focusing on professional development programs and practical skills [2].

**Analysis and research results**

The obtained results indicate that Uzbekistan is on the verge of a large-scale AI-induced labor market transformation, however, its trajectory differs significantly from that predicted for developed countries.

First of all, it's worth noting the structural paradox: while AI poses a threat to some existing jobs, the country's most acute problem remains not the excessive labor supply, but the shortage of qualified personnel -

especially in IT and related sectors. According to the data for the second half of 2025, the supply of qualified specialists is not keeping up with the growth rate of vacancies, which forms a competitive "candidate market" [10]. This means that in the short term, the risk of mass technological unemployment in Uzbekistan is lower than in economies rich in skilled labor.

At the same time, the situation is ambiguous. The high proportion of informal employment (about 5 million people) and significant labor migration (1.34 million abroad) [10] create a hidden vulnerability: informal sector workers are practically deprived of access to retraining and social protection programs in case of technological displacement.

The regulatory framework formed by 2024-2025 creates favorable conditions for AI transformation. The adoption of the AI Development Strategy until 2030, the allocation of a $50 million interest-free loan from the Reconstruction and Development Fund for the needs of the Ministry of Digital Technologies [15], and the planned launch of data processing computing capacities by May 2026 [15] demonstrate the state's systematic approach. However, global experience shows that regulatory initiatives are often lagging behind technological changes [7].

Comparison with other developing economies allows us to learn a number of lessons. The Malaysian My Digital Maker initiative, which reached 2.5 million schoolchildren by 2024, demonstrates that the mass development of digital skills from an early age is a necessary condition for successful adaptation. Uzbekistan likely needs similar national training programs.

It is also important to consider the regional dimension of the problem. The hyperconcentration of the AI ecosystem in Tashkent risks increasing territorial inequality in access to new employment opportunities. Meanwhile, the growth dynamics of vacancies in Namangan, Andijan, and Navoi show that the region's potential is far from exhausted.

## 4. Conclusion

This study allows us to formulate the following conclusions:

Firstly, AI influences Uzbekistan's labor market primarily through four mechanisms: replacing routine work, creating new professions, augmenting existing ones, and transforming employment geography.

Secondly, in the short term (until 2027), the most acute problem is not technological unemployment, but the structural shortage of qualified personnel in high-tech sectors, which limits the speed of AI transformation.

Thirdly, the gap between the education system and labor market needs represents a critical bottleneck that requires coordinated efforts from the state, business, and academic community to overcome.

Based on the obtained results, the following recommendations for employment policy are proposed. It is necessary to significantly expand the training of specialists in AI, machine learning, and data processing: the target of 572 students per year is incomparable to the stated ambitions. It is necessary to create a national program for retraining workers in vulnerable professions, financed jointly by the state and the private sector. It is important to extend AI infrastructure and educational opportunities to regions outside the capital, reducing territorial inequality. Finally, it is necessary to adapt the social protection system, taking into account the risks of technological displacement in the informal sector.

Further research should be aimed at developing sectoral models for employment forecasting under the conditions of AI transformation, as well as monitoring the implementation of the AI-2030 Strategy with an assessment of its actual impact on the labor market.

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