

STATISTICAL-INSTITUTIONAL ANALYSIS OF THE DEMAND FOR HUMAN RESOURCES IN THE TOURISM INDUSTRY AND STRUCTURAL IMBALANCES IN THE EDUCATION SYSTEM

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Abstract

This article systematically analyzes the current state of the tourism industry in the Republic of Uzbekistan, the dynamics of investments directed toward the sector, and the real demand for human resources. Within the framework of the study, structural gaps ("Skills Mismatch") between labor market requirements and the qualification levels of graduates of the tourism education system (higher education institutions and professional education) are assessed using empirical and statistical methods. The analysis reveals the insufficient integration of the public and private sectors in training hospitality professionals who meet international standards and develops institutional recommendations for improving the efficiency of human capital in the sector.

Keywords: Tourism industry, human capital, labor market, Skills Mismatch, IAR model, hospitality sector, professional education.

Introduction

In the global economy, the tourism industry is considered one of the key driver sectors in terms of contributing to gross domestic product (GDP) formation and creating new jobs. According to data from the World Tourism Organization of the United Nations (UN Tourism), international tourism flows have recovered rapidly in the post-pandemic period, contributing approximately 3.3 percent to global economic growth in 2024–2025. Under modern conditions, the diversification of tourism services and digital transformation processes (Tourism 4.0) are placing entirely new demands on the quality of human resources in the sector (UN Tourism, 2024).

In the Republic of Uzbekistan, tourism has also been designated as a strategic sector, and within the framework of the "Uzbekistan - 2030" Strategy, increasing the number

of foreign tourists to 15 million and significantly increasing the number of people employed in the sector have been identified as priority objectives. However, a significant gap is being observed between the rapid expansion of infrastructure (new hotels, logistics centers, tourism clusters) and the capacity of the personnel managing them. Academic studies indicate that the State Educational Standards (SES) in the education system do not have a sufficiently flexible (agile) response to the dynamic changes in the labor market (Baum, 2018).

The purpose of this study is to statistically analyze the real demand for human resources in the tourism industry of Uzbekistan and to diagnose structural problems in the personnel training model of educational institutions.

Methods

The study employed a combination of quantitative and qualitative analysis methods. The statistical database consisted of official reports for 2021–2025 from the Statistics Agency under the President of the Republic of Uzbekistan and the Tourism Committee under the Ministry of Ecology, Environmental Protection and Climate Change.

To assess the quality of services in the sector and the shortage of qualified personnel, a survey ($n = 75$) was conducted among HR managers and executives of 45 hotels and 30 tour operator companies operating in the major tourist centers of the Republic (Tashkent City, Samarkand, Bukhara, and Namangan regions). To examine imbalances in the labor market, the “Skills Mismatch Index” (SMI), which is widely used in international practice, and the parameters of the IAR (Institutional-Agile Regulatory) approach proposed by the author were applied:

$$SMI = \sum_{i=1}^n S_{id} - S_{is}$$

- S_{id} – the actual demand of the tourism industry for a specific type of skill (soft skills, digital skills, foreign languages) (in percentage terms).
- S_{is} – the actual supply of graduates of educational institutions and the level of their practical skills in the respective area (in percentage terms).

Results (Research Findings).

An analysis of statistical data for the past five years shows that the total number of tourists visiting Uzbekistan increased from 1.8 million in 2021 to 7.4 million by the end of 2025. Accordingly, the number of hotels and accommodation facilities increased from 1,420 to 2,150. However, this rapid growth has resulted in an imbalance in the composition of labor resources (Table 3.1).’

Table 3.1 Key Indicators of Uzbekistan’s Tourism Industry and Personnel Dynamics

Indicators	2021	2023	2025	Growth Rate (2025/2021, %)
Total number of tourists (million people)	1.8	5.2	7.4	411.1%
Accommodation facilities (hotels, hostels, etc.)	1,420	1,890	2,150	151.4%
Total employees in the sector (thousand people)	210	285	340	161.9%
Annual number of graduates from higher education institutions and colleges	8.4	11.2	14.5	172.6%
Personnel shortage according to HR surveys (%)	22%	38%	46%	+24%

The results of the HR survey conducted showed that, by 2025, the shortage of qualified personnel had become a critical problem in 46% of tourism enterprises. The greatest shortages were observed among middle-level managers (Front Office and F&B managers) and in the field of digital tourism (Digital Marketing specialists and professionals working with GDS systems).

When the structure of demand and supply was analyzed using the “Skills Mismatch Index” (SMI) methodology, the following results were obtained (in place of Diagram/Figure 3.1):

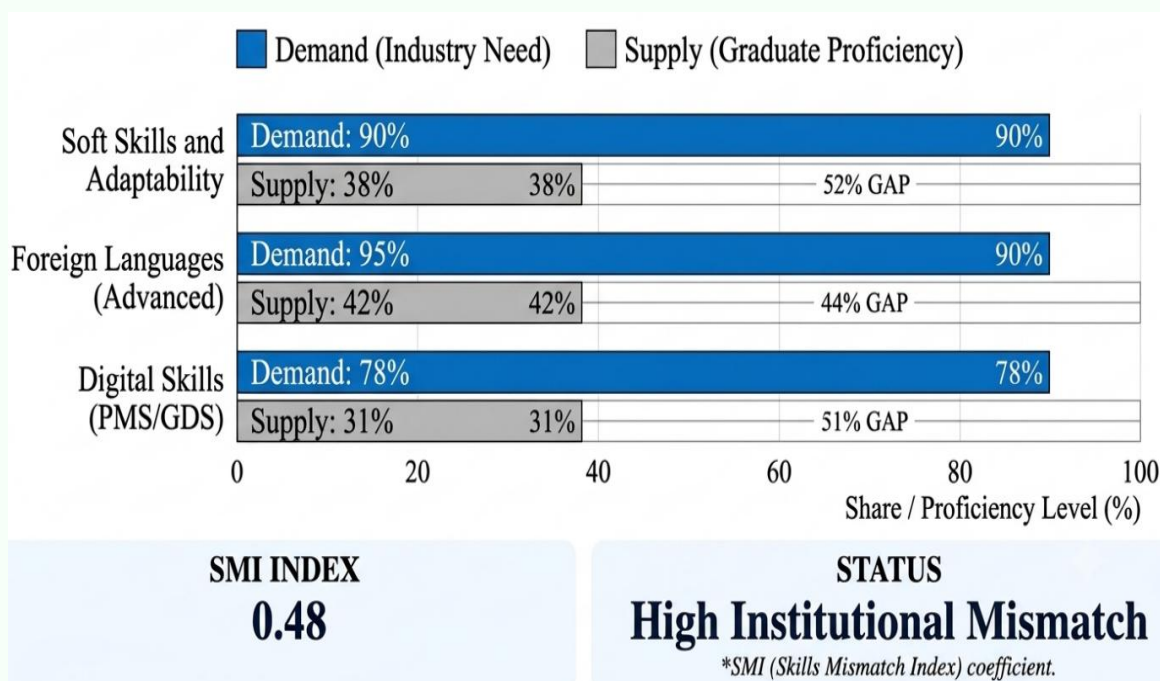


Image 1. Market demand and graduate proficiency by competencies and skill types

The calculated overall SMI coefficient was 0.48. According to international methodology, a coefficient above 0.30 indicates a deep institutional gap between the education system and the real economy, as well as the inefficient allocation of state budget funds.

Discussion

The research findings indicate that although the annual growth in the number of graduates (\$172.6%\$) is quantitatively high, it does not meet the requirements of the labor market in qualitative terms. The fundamental reason for this is the static nature of traditional education mechanisms. In the experience of developed tourism countries (Spain, Switzerland), educational programs are updated annually in an agile manner by professional councils involving representatives of the private sector (Whitelaw et al., 2019).

In Uzbekistan, however, Public-Private Partnership (PPP) models are often declarative in nature. Hotels and tour operators generally regard students only as passive internship participants and do not participate in the development of curricula (curriculum transfer). The IAR (Institutional-Agile Regulatory) model proposed by the author is specifically aimed at eliminating this gap and envisages granting

universities the authority to independently modify certain components of curricula according to market conditions without requiring prior authorization.

When assessing the effectiveness of investments in human capital, it is necessary to move toward a system in which the performance of higher education institutions is measured not only by the number of scientific publications but also by graduates' time to find employment (T_{search}) and their monthly salary level in the first year of employment (W_{grad}) (Becker, 1964).

Conclusion

The current state of human resources in Uzbekistan's tourism industry requires systemic reforms. In order to transition from a stage of quantitative growth to a stage of qualitative development, the following measures must be implemented:

1. **Agile curricula:** Grant higher education institutions and colleges offering tourism programs the authority to independently modify up to 30% of curriculum modules annually based on employers' requirements.
2. **Dual education mechanism:** Organize students' weekly workload according to the 50/50 principle (3 days of theoretical education at the university and 3 days of practical training at a hotel/tourism company).
3. **Incentive system:** Legally establish tax preferences providing full exemption from profit tax for investments made by private-sector enterprises in the educational process and in the establishment of laboratories.

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