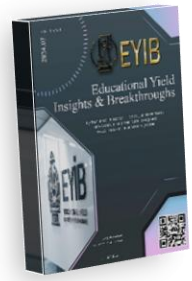
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Artificial Intelligence and the Future of Tourism Employment: Opportunities and Challenges for Uzbekistan's Tourism Industry

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Annotatsiya

The introduction of artificial intelligence (AI) in the hotel, travel and the wider tourism industry is shifting away from automated reservation systems, to chatbot customer interactions, to predictive analytics and machine translations. AI can be used to enable more productive and efficient work. However, questions are raised around job creation, changing roles, and skill requirements. This paper discusses the impact AI may have on employment within the tourism sector within Uzbekistan. In 2025 there was a record number of international visitors to the country – 11.7 million – and has set a goal of reaching 20 million a year by 2030. This paper is based on a narrative review of journal articles, official statistics and national policy documents, and using thematic analysis four themes emerged around the topic of AI within tourism. The four themes identified were task based automation, changing skill requirements, uneven adaptation by employees and organisations, and human-AI collaboration. The evidence suggests that AI is most likely to automate tasks and transform roles rather than replace employees completely. If AI is to benefit Uzbekistan as a whole, with larger tourism numbers, then investment is needed in vocational training and access to digital capital. To support staff, the paper calls for a human centric approach to the integration of AI within tourism with strategies for trainers, tourism destinations and policy makers. Further research is needed with tourism employers and workers in Uzbekistan.

Kalit so‘zlar: artificial intelligence, tourism employment, digital skills, automation, Uzbekistan, human–AI collaboration, hospitality management

Introduction

Tourism promotes economic development through employment, in direct support for the community (e.g., local suppliers and employees), the attraction of investment into infrastructure, and the role of tourism as a catalyst for cultural exchange. Tourism cannot be mechanized to a significant degree, because much of what it sells is interaction with people. Facilities, travel companies, tour operators, transportation providers and sites of cultural and natural heritage all depend on their staff to provide information, respond to customers' needs, resolve problems and make visitors comfortable. Innovation in AI is, however, steadily reshaping the way those

services are supplied and the way that firms manage their people. Applications range from 'back office' automation and self-check-in counters to translation tools, recommendation engines, chatbots and predictive analytics. A recent review of the robotics literature found that the majority of studies to date related to hotels, airports, bars and restaurants (Ivanov et al., 2019). The review observes that technical advances allow robotics and employees to use technology in complementary ways, rather than as substitutes, but the relationship to tourism employment remains an open question. The tourism sectors' employment patterns are diverse, with jobs requiring very different levels of skills and training. Automation of routine tasks in one area can mean redefined roles, a downgraded skill requirement for some tasks, or fewer job opportunities. And new technology will require advanced digital skills, the ability to analyze data, problem-solving skills and the ability to communicate with international visitors, raising issues of education, human resources, management and economic policy. These issues are relevant for Uzbekistan, which experienced record numbers of international visitors in 2025 (11.7 million), with an additional 22.6% year-on-year increase in arrivals in the first seven months of 2026 (Euronews, 2026). A tourism strategy for the years 2026-2030 envisages 20 million international visitors a year and a 7% share of GDP (Euronews, 2026). By 2025 the country had 183,900 beds in 6,861 accommodation establishments, and 4,348 tourism-related firms and agencies (Uzbektourism, 2025); and data reveal that legally registered persons employed in food provision, accommodation and travel agency activities were notably larger in 2024 than in 2019 (National Statistics Committee, 2025). The historic cities of Samarkand, Bukhara and Khiva remain at the heart of the touristic growth, and the government has revealed plans for a new hotel complex and conference facility in Khiva (Qazinform, 2026). On the policy side, Uzbekistan is committed to digitalization and AI. Digital Uzbekistan-2030, which was approved in 2020, prioritizes digital infrastructure, electronic government services, the national digital technologies market and education in IT (HKTDC, n.d.). The Strategy for the Development of Artificial Intelligence Technologies until 2030 was approved by presidential decree in October 2024, setting targets of USD 1.5 billion in software products and services based on AI, and a position among the 50 leading countries in the Government AI Readiness Index (Ministry of Digital Technologies, 2024). The country has since climbed 17 spots in a global AI index to 70th of 188 countries (first in Central Asia; Anhor.uz, n.d.). No policy on AI and jobs in tourism, however, has yet been issued. International research on the impact of AI on tourism jobs has increased recently, but we know less about the specific experience of different country contexts. Goyipnazarov et al. (2024) examined AI, tourism occupations and skills in Uzbekistan, and more can be done to understand what AI will mean in terms of employment, skill levels and job opportunities in Uzbekistan. In this context, the study poses: How is AI going to impact jobs in tourism and how is Uzbekistan leveraging AI technology to support the sustainable development of its tourism industry? It aims at three targets:

1. Main AI uses disrupting tourism jobs and workplace tasks.
2. Describe research on the employment shifts, risks and skills requirements associated with the adoption of AI in tourism.

3. To identify the implications of this transition for Uzbekistan and to make recommendations for practical and sustainable strategies for the development of its tourism workforce.

2. Literature Review

The discussion of technology and jobs has moved on from "will entire occupations disappear?" and is now asking "which part of a job can be done automatically, and which can't?" Autor, Levy and Murnane (2003) said that computer capital replaces workers in routine cognitive and manual tasks but complements workers in non-routine problem-solving and interactive tasks, and that most change occurs within identical nominally unchanged jobs. Frey and Osborne (2017) presented the more pessimistic projection that 47% of US employment was at risk of computerization (with risk decreasing with wages and level of education). The more recent findings on generative AI take the other view. Gmyrek et al. (2023; Gmyrek et al., 2025) concluded that generative AI will primarily augment rather than automate occupations, with only clerical occupations highly exposed. This suggests that the key tourism question is not "will jobs disappear?" but rather "which tasks will be contracted out to machines and what remains for human workers?" Works on automation in tourism have focused on service robots. An early review found that research in this area was sparse and documented service automation in restaurants, hotels, events, theme parks, airports, car rental firms, travel agencies, information centres and museums (Ivanov et al., 2017). It refers to a later mapping of the field into the contexts of the robot, the human, the servicescape, and education and training (Ivanov et al., 2019). An article in the 2022 Handbook of e-Tourism issue discusses the economics of robot adoption, resistance to robotic labour and customers' reactions to robot-served service (Ivanov et al., 2022). Regarding employment specifically, Ivanov et al. (2025) put forward a framework in which the services supplied by robots can replace, augment, transform or create tourism jobs depending on the level of automatable tasks and front- or back-of-house implications: the same technology can eliminate one task and enhance another and generate a third position. Huang and Rust (2018) classify four kinds of intelligences in service work: mechanical, analytical, intuitive and empathetic; as AI develops roughly in this sequence, the substitution will go from eliminating some tasks of a job (called augmentation by the authors) to outright replacing a full position. With AI taking on the routine analytical work, intuitive and empathetic skills will become essential for human service workers. In hospitality, where the guest wants personal attention and judgement, this points to a division of labour: AI will do the analytical and routine work and staff will do personal service. Employer surveys support this. The World Economic Forum (2025) states that most employers' most frequently cited core skill is analytical thinking and that AI and big data are the most rapidly growing skills. Hospitality education confronts its own challenge: a 2026 HSMAI Foundation research found that hospitality students believe they are barely prepared (2.78) to use AI in work tasks (3.24), and called for more structured onboarding, governance and operational training on AI in practice (HSMAI Foundation, 2026). The authors also caution that this change would not benefit everyone equally; the ILO examines exposure to automation by country income group and gender: in 2025 estimates women are affected twice as often as men, as a consequence of their large presence in clerical jobs (Gmyrek et al., 2025). The ILO

urges policy to address uncertain job quality and fair transition (Gmyrek et al., 2023). For employers in tourism enterprises, barriers to adoption are employee resistance and costs (Ivanov et al., 2022). Results will also be sensitive to the size, resources and training opportunities of companies, hence country context. Goyipnazarov et al. (2024) investigate the effects of AI on tourism employment and skills profiles in Uzbekistan, providing a regional angle on the interface between technology, jobs and skills. The environment facilitates digitalization: the Digital Uzbekistan-2030 Strategy and 2024 AI strategy establish National aspirations (HKTDC, n.d.; Ministry of Digital Technologies, 2024), but these are broad and not tourism-specific. Human capital development is an ongoing concern: a project conducted by the Tourism Training Consulting Center in cooperation with the British Council aimed to improve linkages between education and industry and define professional standards (Embassy of Uzbekistan in India, 2018). Meanwhile, more recent commentary asserted that Uzbekistan's tourism and hospitality curricula have often been decades out of date and that a skills mismatch can constrain the sector's expansion (OCA Magazine, n.d.). These are opinions, not empirically based evidence, and suggest a need to research how Uzbek employers design and utilise AI.

3. Methodology

This is a qualitative narrative review. It is not a systematic review: it makes no claim to exhaustively consider all published work, and it was not based on any primary data collection. Its purpose is to distill the evidence on AI and the future of tourism jobs and skills, then assess its applicability to Uzbekistan. Sources were identified through selective searches in October 2026 of combinations of the words and concepts: artificial intelligence, automation, tourism, hospitality, employment, skills and Uzbekistan. The sources of data used were: (1) peer-reviewed academic journal articles and books, and working papers produced by research institutions, on information technology and work, and on service robots and automation in tourism; (2) government and official data sources in Uzbekistan, including the National Statistics Committee, the Tourism Committee and the decree on artificial intelligence issued by the president; and (3) recent reports from the private sector and think-tank reports. In the search, where news reports of fact with an official source use a figure or an estimate provided by an official organisation, the source is cited, and the news outlet is noted only as a caveat. Articles were included if they discussed tasks, skills and jobs that could be affected by automation or AI, or described the nature of the tourism sector, the workforce or the country's digital policy. Only the use of practitioner commentary was retained to provide context, and this is noted as such. The sources were thematically analyzed according to a methodology drawn from Braun and Clarke (2006). The sources were read, ideas noted, those ideas grouped into themes, and the themes checked against the original research question. Four themes emerged: task-based automation, changing skill needs, an unbalanced readiness and risk, and human-machine collaboration. The interpretation of the evidence by applying it to Uzbekistan is contained in Section 4. The search was not exhaustive, non-Western sources in Uzbek and Russian may have been missed, and most of the literature on international evidence is on other countries. Official employment data do not include informal employment, which may be significant in tourism. The paper's findings should be taken as hypothesis-generating, not as validated.

4. Results

Official data show that employment grew strongly between 2019 and 2024 in most of the tourism industries most exposed to AI-supported tasks (Table 1).

Table 1. Employees in selected tourism industries (legal entities), 2019 and 2024

Industry (employees in legal entities)	2019	2024	Change
Food and beverage serving	66,646	93,721	+40.6%
Accommodation for visitors	54,536	69,016	+26.6%
Travel agencies and reservation services	3,192	9,931	+211.1%
Air passenger transport	2,007	3,563	+77.5%
Road passenger transport	70,919	30,645	−56.8%

Source: National Statistics Committee of Uzbekistan (2025); calculated modifications of the author. Data for legal persons only.

Growth occurred in four out of five sectors. Food and beverage serving employment grew most strongly in absolute terms (+27,022 jobs), followed by accommodation (+14,542). Travel agencies and reservation services experienced the highest relative growth by a factor of 3.4, growing from 205 to 696 employees. Air passenger transport (broadly similar to air travel) increased by 572 (+77.5%). Road passenger transport was the only exception, contracting from 102,350 to 62,472 (-38.9%). This contraction outweighed some growth elsewhere: seven out of 10 employees in the overall tourism sector in 2019 were in road passenger transport, but now make up just under a third. Tourism workers are employed in every shop, hospitality and transport occupation, and the decline in road passenger employment cannot be easily explained. Total tourism employment in 2019 was 242,812; by 2014, it was down to 206,876 (+4.9%), 197,300 if road transport is excluded. 2019 also pre-dates the pandemic's upheavals and its variable subsequent recovery; these estimates therefore record net change, not year-on-year trends. Task-based analysis (Autor et al., 2003; Gmyrek et al., 2023) suggests that AI may have the greatest potential to support reservation handling, routine guest questions, data processing and routine queries, as they are concentrated in the front-desk, reservation and support roles currently and those most susceptible to AI via chatbots, booking engines and translation tools. Within the literature reviewed, it appears that whole-jobs are unlikely to be displaced and many more jobs will see redistribution of their tasks, but for each late 2010s task that AI begins to take on, the need for better human interpersonal and language skills will increase. The latter finding is in line with Huang and Rust's (2018) mathematical argument: as AI replaces routine and logical thinking, subjective and human skills take on greater value in workplaces. For Uzbekistan's tourism sector this highlights the importance of digital and AI literacy, and a need for an increase in staff' interpersonal and language skills. Evidence of the existing level of training within the country's tourism sector suggests a weak relationship between tourism employers' hiring requirements and the skills tourism workers possess. Foreign experience of hospitality courses highlights a discrepancy between students' self-believed familiarity with AI and the formal courses they receive (HSMAI Foundation, 2026). Uzbekistan's educators are likely to face a comparable, if not greater, mismatch (OCA Magazine, n.d.). The 2026-30 tourism development strategy calls for a doubling of annual visitors (Euronews, 2026). Neither the national AI strategy nor the strategy for digital

transformation in Uzbekistan, 'Digital Uzbekistan-2030', specifically address employment in Uzbekistan's tourism sector (HKTDC, n.d.; Ministry of Digital Technologies, 2024). No information was found on how AI is currently being used in Uzbekistan's tourism industry.

5. Discussion

How are the front-desk, reservation and service jobs where AI is most likely to be used in the future changing? These are areas of the workforce that are seeing the fastest growth in employment. This means that the arrival of AI in the workplace is coinciding with a rapidly expanding workforce, with different policy implications. It changes the question from 'how can we avoid losing workers?' to 'how can we manage growing employment?'. Second, it means the efficiency benefits that AI supported firms can reap are not necessarily a short term reduction in headcount, but maybe an ability to meet rising demand through more workers. This is an extrapolation of the evidence base, not an empirically supported finding. Third, the road passenger sector illustrates not everyone in the industries with the fastest growth is experiencing growth. Fourth, in hospitality the focus on human interaction makes AI a likely adjunct rather than a substitute. Reservations, translation and basic information tasks would be moved to bots, leaving highly trained human staff to deal with the stuff only humans can do: counter complaints and special requests, interpret between cultures, and create the experience. There are risks to this analysis. The literature on productivity argues that improvements with AI are likely to be predominantly complementary (Huang & Rust, 2018) and complementarity is a goal to strive for, not an inevitable outcome. Uzbekistan is a very fast growing tourism market with a strategic focus on digital and AI development and an extensive service workforce. It is a combination for opportunity. AI tools such as translation and booking support could be an asset to managing rising tourism numbers and rising arrivals from new markets

- Policy coverage is patchy - neither policy responds to tourism employment issues. - Few Uzbekistan tourism firms have been studied in terms of their AI use. - Additional staff shortages are likely as the increased demand would be expected from the plan to double visitors, numbers. - In particular small guesthouses and travel agents, where most of the growth in the sector has been, are unlikely to take up AI technologies as rapidly as larger hotels, exacerbating differences in quality and workers' prospects. Samarkand, Bukhara and Khiva, where visitors' pressure is highest, will be among the first places in which AI-powered services are likely to be piloted. The following suggestions are based on the themes outlined above. They are proposals for discussion, not tested actions.

Educational institutions

- Incorporate digital and AI literacy as part of the core programmes for tourism and hospitality education, combined with languages, communication and service skills, because these human skills will become more significant as the routine tasks are taken over by AI systems (Huang & Rust, 2018).

- Involve employers in curriculum design and professional standards, building on earlier efforts to link vocational education with the tourism industry (Embassy of Uzbekistan in India, 2018). - Give students supervised practice with AI tools in realistic hotel and travel-agency settings, to narrow the gap between confidence and preparation seen hospitality education abroad (HSMAI Foundation, 2026).

Tourism businesses

- Use AI for simple activities like booking and answering common questions, and ensure staff stay in roles that require customer interaction, empathy and good judgement.

- Reskill employees whose jobs are affected, and bring them into the adoption early, as employee resistance is a known obstacle (Ivanov et al., 2022).

- Share experience between big hotels, guesthouses and agencies, to prevent the small firms from missing out.

Policymakers

- Include tourism in the national AI action plan based on the objectives of the AI strategy (Ministry of Digital Technologies, 2024).

- Monitor the impact of AI deployment on tourism employment through official data by jobs quality and gender implications, which are specifically highlighted as a concern by the ILO (Gmyrek et al., 2023; Gmyrek et al., 2025).

- Fund pilot projects in Khiva and pilot in Bukhara and Samarkand and assess them.

6. Conclusion

The literature review showed us that, if any, AI is more likely to transform than to abolish tourism work: following the automation of repetitive tasks, skills are evolving toward digital and interpersonal skills, and the consequences are related to training, technological diffusion, and policies. As for Uzbekistan, where the number of international tourists reached 11.7 million in 2025 with a goal of 20 million in 2030, AI is a tool to maintain a high level of service quality in the main destinations (Samarkand, Bukhara, Khiva, etc.), on the condition that the tourism labor force is ready for it. To sum up, the paper suggests that AI makes a better teammate than a replacement to human hospitality, as both educators, tour operators and other providers, and the authorities have a role in preparing hospitality staff: updating curricula, retraining employees and taking stock of AI's effects. It has obvious limits: it is a narrative review, it has no primary data, and it has to draw on international sources, and official employment data are limited to formal employment. Next studies should conduct surveys and interviews with hotel managers, travel-agency bosses and employees about the use of AI, the tasks affected and the need for training, and should validate the assumptions developed here.

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