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DIGITALIZATION OF TOURISM: PROBLEMS OF IMPLEMENTING MODERN TECHNOLOGIES

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Abstract

The paper examines the digitalization of the tourism sector of Uzbekistan and the problems that slow the adoption of modern technologies. Based on official statistics for 2021–2025, it shows that foreign arrivals grew 6.2 times, while tourism export earnings per visitor remained close to USD 410. The main barriers are grouped by the information, exchange and processing layers of a smart tourism system. Measures are proposed to integrate information systems, payments, digital skills and data protection.

Keywords: Digital tourism, digitalization, smart tourism, e-tourism, digital transformation, tourism information systems, online booking, cashless payments, destination management, Uzbekistan.



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Introduction

Digital technologies have become a decisive factor in the competitiveness of tourism destinations. Information and communication technologies have changed the way travellers search for information, compare offers, book services and share their experience, and they have reshaped the business models of hotels, tour operators and destination management organisations [1]. The next stage of this evolution is smart tourism, in which a destination collects, exchanges and processes data in real time in order to personalise services and manage tourist flows [2].

For Uzbekistan this agenda is especially relevant. Tourism has become one of the fastest-growing sectors of the national economy: in 2025 the country received 11.68 million foreign visitors, 47% more than in 2024, and exports of tourism services reached USD 4.8 billion. Growth continued in 2026: in January–September 10.3 million foreign tourists arrived, 20.4% more than a year earlier, and tourism exports rose by 51.2% to USD 5.3 billion. The state explicitly links further growth to digital solutions: the “Digital Uzbekistan – 2030” strategy and recent decisions on a National Tourism Platform, proactive digital services, cashless payments and analytics of tourist flows form the current policy framework.

However, the rapid increase in visitor numbers has outpaced the digital readiness of many tourism businesses and of the destination management system as a whole. Domestic researchers emphasise that digital technologies raise the competitiveness of tourism services only when they are introduced systematically rather than as isolated projects [3].

The aim of this paper is to identify the main problems of digitalization in the tourism sector of Uzbekistan and to substantiate practical measures for overcoming them. The study applies comparative, statistical and structural

analysis to official data of the National Statistics Committee and the Tourism Committee of the Republic of Uzbekistan for 2021–2026.

Main Part

Theoretical basis. In the scientific literature, the digitalization of tourism is treated as a gradual transition from separate information systems to integrated digital ecosystems. Buhalis and Law showed that the Internet turned travellers into active co-producers of tourism products and made interoperability between suppliers, intermediaries and destinations a key condition of competitiveness [1]. Gretzel et al. describe smart tourism through three layers: an information layer that collects data, an exchange layer that connects systems and actors, and a processing layer that analyses data and turns it into services [2]. Khalimov stresses that digital transformation changes not only sales channels but the very mechanisms of service delivery, consumer interaction, marketing and management in tourism [4]. This three-layer view is used below as the framework for analysing the problems of Uzbekistan.

Current State

In recent years Uzbekistan has built the basic elements of a digital tourism infrastructure. Citizens of 94 countries can enter the country visa-free, an electronic visa system operates for many other countries, foreign guests are registered online through the E-mehmon system, and the national portal uzbekistan.travel promotes destinations in several languages. Access to the Internet is no longer a major constraint: according to the National Statistics Committee, 94.3% of urban and 93.9% of rural residents used the Internet in January–August 2025 (Table 1). In January 2026 the Government set the task of launching a National Tourism Platform that integrates public and private

information systems, provides proactive digital services, expands cashless payments and improves the analytics of tourist flows.

Table 1. Inbound tourism and digital access indicators of Uzbekistan, 2021–2025

Indicator	2021	2022	2023	2024	2025
Foreign visitor arrivals, million	1.88	5.23	6.63	7.96	11.68
Exports of tourism services, USD billion	0.42	1.60	2.14	3.50	4.80
Tourism exports per foreign visitor, USD	225	306	323	440	411
Internet users among urban residents, %	79.4	86.1	90.4	94.0	94.3*
Internet users among rural residents, %	72.3	81.8	87.6	92.6	93.9*

Note: * January–August 2025; the third row is calculated by the author as exports divided by arrivals. Source: compiled by the author based on data of the National Statistics Committee and the Tourism Committee of the Republic of Uzbekistan: arrivals, exports for 2021–2022, 2023, 2024 and 2025, Internet use.

The data in Table 1 reveal a structural imbalance. Between 2021 and 2025 the number of foreign visitors increased 6.2 times and tourism exports 11.4 times, yet earnings per visitor peaked at USD 440 in 2024 and fell to USD 411 in 2025, when arrivals grew faster than revenues. The main reason is the structure of demand: in 2025 visits to relatives accounted for 67.3% of all trips, while leisure tourism made up only 16.5%. At the same time, the gap in Internet use between urban and rural residents narrowed from 7.1 to 0.4 percentage points. Consequently, the main constraint is no longer access to the network, but the ability of businesses and public bodies to turn digital tools into higher-value services, especially for distant high-income markets.

Preliminary data for 2026 point to a gradual change in this pattern. In January–September 2026 arrivals grew by 20.4%, while tourism exports rose by 51.2% to USD 5.3 billion, which corresponds to about USD 515 per visitor. The fastest growth came from distant markets: arrivals from China increased 2.1 times, from

Malaysia 1.9 times, from Japan 1.5 times and from the United States 1.4 times. Sustaining this shift requires digital channels that reach travellers in these markets in their own languages and on the platforms they already use.

Main Problems

The analysis allows the main problems of introducing modern technologies in the tourism sector to be grouped as follows.

1. **Fragmented information systems.** The e-visa service, the E-mehmon registration system, hotel property management systems, transport ticketing and museum services were developed separately and exchange data poorly. A tourist therefore passes through several unconnected services, and the state does not see a complete picture of the trip, although interoperability is a basic condition of an efficient eTourism system [1].
2. **Incomplete data on tourist flows.** Official statistics rely mainly on border crossings and the declared purpose of the trip. They say little about length of stay, spending structure or movement between regions, which limits evidence-based destination management.
3. **Weak digital presence of small businesses.** Many family guesthouses, small hotels and local tour operators are absent from global booking platforms or are presented there with incomplete, monolingual content. This reduces their visibility in the distant markets that bring the highest spending per visitor.
4. **Gaps in the payment ecosystem.** Many small merchants are still poorly adapted to the international bank cards and mobile wallets used by foreign tourists. Dependence on cash raises transaction costs and sustains the shadow economy in accommodation and guiding services.

5. **Shortage of digital competences.** Staff of hotels, travel agencies and museums often lack skills in digital marketing, revenue management and data analysis, so even available technologies are used only partially.

6. **Uneven quality of regional infrastructure.** High Internet penetration does not guarantee stable mobile coverage and speed at remote heritage sites, mountain resorts and transit routes, where navigation, translation and payment applications are needed most.

7. **Cybersecurity and personal data risks.** Tourism information systems process a growing volume of passport, payment and location data, which increases the risk of leaks and fraud, while many small operators do not apply basic information security standards.

Figure 1 places these problems in the three-layer model of smart tourism [2]: problems 2 and 3 belong to the information layer, problems 1, 4 and 6 to the exchange layer, and problems 5 and 7, together with the limited use of big data, to the processing layer.

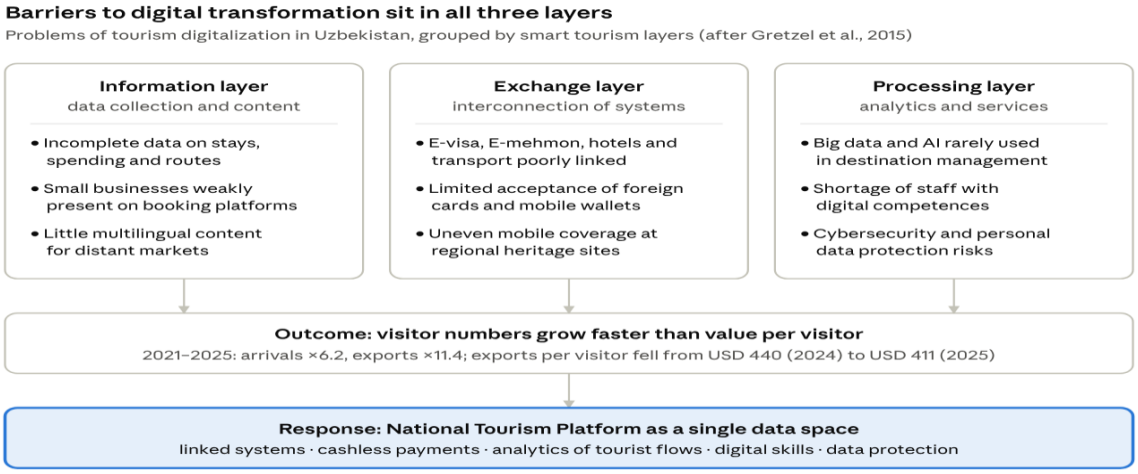


Figure 1. Main problems of introducing digital technologies in the tourism sector of Uzbekistan by layers of the smart tourism system

Source: developed by the author based on [2] and Table 1.

The model shows that the problems are interdependent rather than isolated. Without integration at the exchange layer, the data needed by the information and processing layers cannot be collected; without analytical capacity and skills, even complete data do not turn into personalised services and better management decisions. Digitalization measures should therefore be implemented as a single programme covering all three layers, with the National Tourism Platform as its core.

Conclusions and Recommendations

The study shows that Uzbekistan has passed the stage of basic digitalization of tourism: entry formalities, registration of guests and access to the Internet are already largely digital. The current problems lie deeper, in the weak integration of information systems, incomplete data, the limited digital presence of small businesses, gaps in payments and skills, and growing cyber risks. These problems explain why the rapid growth of arrivals in 2021–2025 was not matched by a comparable increase in earnings per visitor. As domestic studies note, the benefits of digital technologies appear only when they change the mechanisms of service delivery and management as a whole [3; 4].

To overcome these problems, the following measures are proposed:

1. Build the National Tourism Platform as a single data space with open interfaces (API) linking the e-visa service, E-mehmon, hotel systems, transport ticketing and museums under the “once-only” principle for tourists.
2. Require tourism facilities to accept international bank cards and QR payments, and compensate part of the acquiring fees for small businesses during a transition period.

3. Launch a state-supported programme to bring guesthouses and small hotels onto global booking platforms, with multilingual content and digital marketing aimed at priority distant markets.
4. Extend tourism statistics with anonymised mobile operator and card transaction data, separating leisure trips from visits to relatives, and use them for real-time analytics of tourist flows and spending.
5. Include digital marketing, revenue management and data analysis in the curricula of tourism universities and in short courses for guides, hotel and museum staff.
6. Ensure stable 4G/5G coverage and public Wi-Fi at key heritage sites and routes, and run smart destination pilot projects in Samarkand, Bukhara and Khiva.
7. Adopt information security and personal data protection standards for tourism information systems, with simplified compliance tools for small operators.

The implementation of these measures would help convert high visitor numbers into higher value per visitor and strengthen the competitiveness of Uzbekistan as an international tourism destination.

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