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International Experience in Implementing Digital Ecosystems in Tourism and Uzbekistan's Integration into The Global Digital Space

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Abstract: This paper examines international experience in implementing digital ecosystems in tourism and assesses the level of integration of Uzbekistan's tourism sector into the global digital space. A digital ecosystem is interpreted as an integrated infrastructure that enables real-time data exchange among tourists, service providers, distributors, public authorities, and data analysts across the tourism value chain. Drawing on the experience of Spain, Singapore, and the United Arab Emirates, the study identifies strategic gaps relevant to Uzbekistan and substantiates the economic importance of integration into international digital ecosystems for increasing national tourism revenues.

Keywords: Digital Ecosystem, Tourism, Platform Economy, Smart Tourism Destinations, SEGITTUR, Data-Driven Management, Open Data, Real-Time Monitoring, Tourism in Uzbekistan

Introduction

The modern tourism value chain increasingly relies on global digital ecosystems that enable continuous data exchange. In such an environment, enterprises operating outside these ecosystems become disconnected from market signals and may fail to identify emerging opportunities and potential risks in a timely manner. Therefore, the integration of Uzbekistan's tourism sector into the global digital space should be regarded not merely as a technical issue, but as a key condition for sustainable economic growth.[1]

The concept of a digital ecosystem is widely discussed in the economic literature within the framework of platform economy theory. In tourism, a digital ecosystem can be understood as an integrated digital infrastructure and a set of rules that enable real-time data exchange among tourists, service providers, distributors, public authorities, and data analysts, while creating value for all participants through network effects [2].

Methodology

Figure 1. In the author's view, the integration of Uzbekistan's tourism sector into the global digital space should be established as a unified strategic priority for public policy, private-sector initiatives, and international cooperation. Such integration may become an important driver of substantial growth in national tourism revenues by 2030.[3]

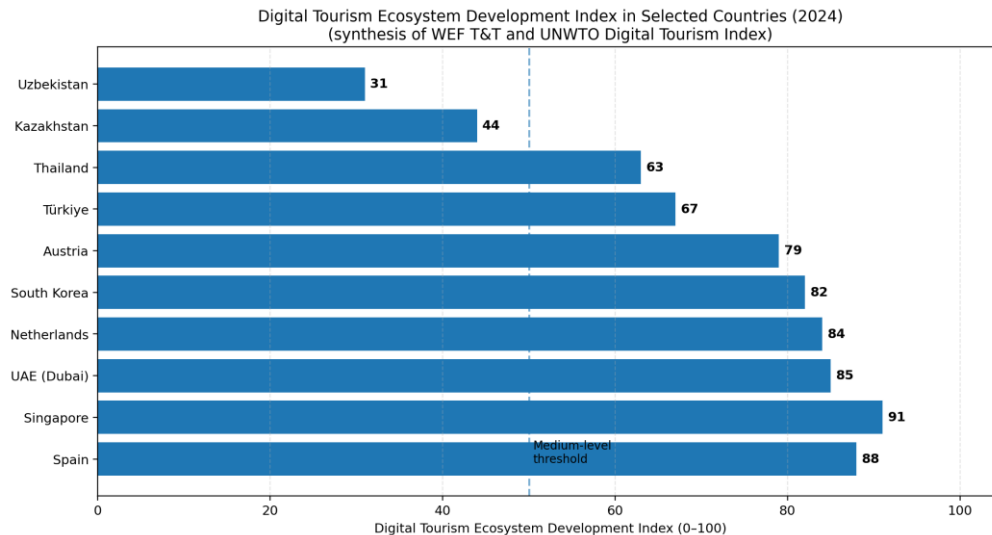


Figure 1. Digital Tourism Ecosystem Development Index in Selected Countries (based on a synthesis of the WEF T&T and UNWTO Digital Tourism Index)

The international index presented in Figure 1 indicates that Singapore, Spain, and the UAE are among the leaders in digital tourism ecosystem development. Uzbekistan scores 31 points and therefore remains considerably behind this group. However, this gap should not be viewed as irreversible; rather, it represents a strategic development gap that can be narrowed through a clearly defined roadmap.[4]

Spain is widely regarded as one of the leading examples of transforming tourism into a digital ecosystem. SEGITTUR, established in 2013, focuses on building a systematic infrastructure for data exchange among government, the private sector, and academia. Spain's national tourism data platform integrates more than 400 data sources in real time, including hotel PMS systems, transport operators, airport and port data, weather information, and social-media sentiment indicators.[5]

Result and Discussion

The economic effects attributed to SEGITTUR are reflected in the figures presented in the study: since implementation, average annual RevPAR growth for Spanish hotels has reached 18%, while additional annual tourism revenue has exceeded EUR 2.3 billion. Between 2013 and 2024, the Smart Tourism Destinations programme brought more than 50 cities into the smart-tourism framework. An important economic principle is that data are not only collected but are also made available to SMEs, start-ups, and researchers through open APIs. This open-innovation ecosystem is reported to have contributed to the creation of nearly 12,000 jobs in the digital start-up sector.[6] The experience of the Singapore Tourism Board through the Smart Nation and Data Innovation Programme demonstrates the importance of institutional mechanisms for data exchange in digital tourism management. STB has established formal data-sharing arrangements with private-sector platforms such as Airbnb, Booking.com, Agoda, and Grab, thereby creating a mutually beneficial ecosystem. The SafeEntry real-time visitor-movement tracking system, initially introduced for

capacity management during the COVID-19 pandemic, subsequently evolved into a tool for tourism optimisation.[7]

The Singapore model demonstrates that the role of government is not necessarily to collect and manage all data directly, but rather to encourage private-sector data sharing and aggregate such data through an open platform. According to the STB 2025 report cited in the study, this approach was associated with average spending by international visitors reaching USD 1,780. Compared with the USD 408 figure used for Uzbekistan in this study, the difference illustrates the gap in digital ecosystem maturity.

Figure 2. Dubai represents a deliberately designed model of data-driven destination management. Dubai Tourism’s data-management architecture integrates hotels, restaurants, entertainment facilities, and transport services within a unified Digital Twin platform. A real-time dashboard simultaneously displays hotel occupancy, estimated tourist flows, price competition on Booking.com and Airbnb, and social-media trends. The study reports that in 2024 tourism revenue reached USD 31.6 billion, hotel occupancy stood at 82%, and the average daily rate was USD 215.[8]

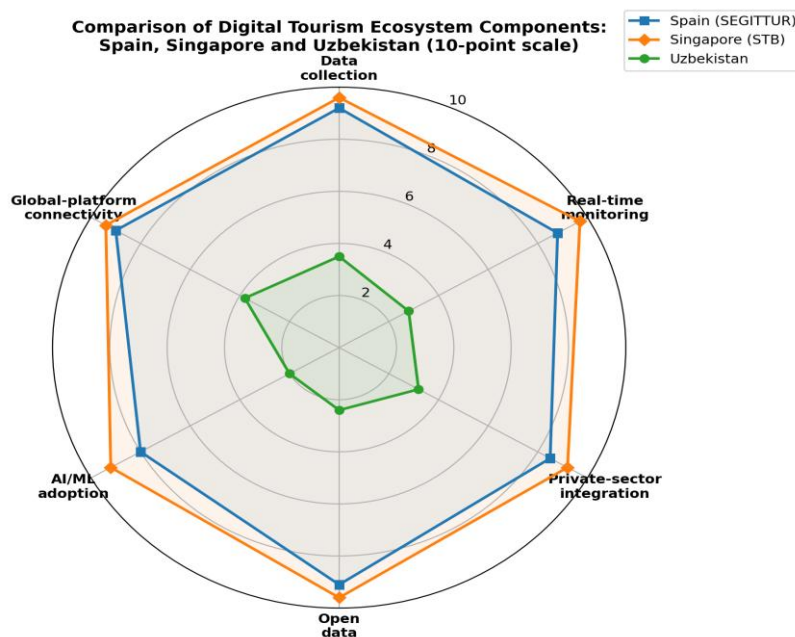


Figure 2. Comparison of Digital Tourism Ecosystem Components: Spain, Singapore and Uzbekistan (10-point scale)[9]

Figure 2 shows that, compared with Spain and Singapore, Uzbekistan has its largest gaps in the areas of open data and real-time monitoring. These components form the foundation of the ecosystem architecture; without them, the development of other elements is likely to deliver only limited effectiveness. Uzbekistan’s score for global-platform connectivity is 3.8 points. Although this is relatively stronger than some other components, the study interprets it primarily as the result of individual enterprises’ efforts rather than a system-wide policy outcome.[10]

Conclusion

International experience demonstrates that a digital tourism ecosystem is not simply a collection of separate technological platforms; it is an integrated economic management environment that enables real-time data exchange among government, businesses, and users. In Spain, smart destinations have been developed through

SEGITTUR and open APIs;

in Singapore, data exchange with the private sector has been institutionalised;

in Dubai, destination management is supported by Digital Twin technologies and real-time dashboards.

The key implication for Uzbekistan is that integration into the global digital space should not be limited to connecting existing tourism enterprises to international platforms. Priority should be given to developing open data infrastructure, real time monitoring systems, mechanisms for private-sector data exchange, and a unified destination data platform. These measures would create the institutional and technological basis for gradually narrowing the current digital-tourism ecosystem gap and strengthening the economic contribution of the national tourism sector.

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