

**ECONOMIC EFFICIENCY OF DIGITALIZATION OF SERVICE  
MAINTENANCE IN THE TOURISM AND HOSPITALITY INDUSTRY (USING  
THE EXAMPLE OF UZBEKISTAN)**

**Nigmatova Sug'diyona Jaloliddin qizi**

**Abstract.** *This article examines the economic efficiency of digital transformation in tourism and hospitality service maintenance within Uzbekistan's rapidly developing tourism sector. The findings demonstrate that digitalization significantly reduces maintenance costs, improves response times, and enhances customer satisfaction, contributing to the sustainable development of Uzbekistan's tourism industry.*

**Keywords:** *digitalization, tourism industry, hospitality sector, service maintenance, economic efficiency, Uzbekistan, digital transformation, operational costs*

**Аннотация.** *В данной статье рассматривается экономическая эффективность цифровой трансформации в сфере обслуживания туристических и гостиничных услуг в рамках быстро развивающегося туристического сектора Узбекистана. Результаты показывают, что цифровизация значительно снижает затраты на обслуживание, сокращает время реагирования и повышает удовлетворенность клиентов, способствуя устойчивому развитию туристической отрасли Узбекистана.*

**Ключевые слова:** *цифровизация, туристическая индустрия, сектор гостеприимства, обслуживание услуг, экономическая эффективность, Узбекистан, цифровая трансформация, эксплуатационные расходы*

**Annotatsiya.** *Ushbu maqolada O'zbekistonning tez rivojlanayotgan turizm sektorida turizm va mehmondo'stlik xizmatlarida raqamli transformatsiyaning iqtisodiy samaradorligi o'rganiladi. Natijalar shuni ko'rsatadiki, raqamlashtirish xizmat ko'rsatish xarajatlarini sezilarli darajada kamaytiradi, javob berish vaqtini qisqartiradi va mijozlar mamnunlik darajasini yaxshilaydi, bu esa O'zbekiston turizm sanoatining barqaror rivojlanishiga hissa qo'shadi.*

**Kalit so'zlar:** *raqamlashtirish, turizm sanoati, mehmondo'stlik sektori, xizmat ko'rsatish, iqtisodiy samaradorlik, O'zbekiston, raqamli transformatsiya, operatsion xarajatlar*

**Introduction.** The tourism and hospitality industry in Uzbekistan have come to the fore with the help of the economic liberalization policies that were first introduced in 2016, as it has also been the case with the international tourist who have experienced a significant increase in the number of arrivals among the countries in Central Asia and hence the country's emergence as a Central Asia tourism destination [1]. This development brings about the urgent need for good service maintenance systems that are up to the international standards and at the same time help the country to maintain its competitive edge in the world tourism market. On the other hand, digitalization has been looked upon as the game changer in service maintenance through its different aspects

which include computerized maintenance management systems, Internet of Things sensors, predictive maintenance algorithms, and mobile applications that radically change the way hospitality businesses operate in terms of their physical assets and service delivery [2]. However, all these advantages are still accompanied by heavy obstacles that the hospitality industry in Uzbekistan has to face, such as the inadequate technological infrastructure in some areas, the low digital literacy level among certain groups of employees, and the high initial investment costs for the implementation of the system [3].

**Methodology and Literature Review.** This research employs a comprehensive literature review methodology, synthesizing findings from academic publications, industry reports, and governmental statistical data to construct an analytical framework for assessing digitalization's economic efficiency in hospitality service maintenance. International research demonstrates that computerized maintenance management systems can reduce maintenance costs by 15-30 percent while extending equipment lifespan by 20-40 percent through optimized scheduling and preventive maintenance protocols [4]. Studies from developing economies indicate that digital transformation in hospitality requires careful consideration of technological readiness, workforce capabilities, and infrastructural prerequisites to achieve projected efficiency gains [5].

Russian scholars have examined digital transformation processes in service industries, emphasizing that successful implementation depends on systematic change management, comprehensive staff training programs, and integration with existing operational systems rather than isolated technological deployments [6]. Uzbek researchers have documented the tourism sector's rapid expansion and highlighted digitalization as a critical factor for maintaining service quality standards amid increasing visitor volumes and diversifying market segments [7]. International hospitality corporations report that digital maintenance platforms generate return on investment within 18-36 months through reduced emergency repairs, optimized inventory management, and decreased equipment downtime [8].

**Results and Discussion.** The analytical assessment reveals substantial economic benefits from digitalization of service maintenance in Uzbekistan's tourism and hospitality industry, though implementation challenges require strategic consideration. Digital maintenance systems demonstrate primary efficiency gains through preventive maintenance optimization, which shifts operational paradigms from reactive repair responses to proactive equipment management based on predictive algorithms and real-time monitoring capabilities. This transformation typically reduces emergency maintenance incidents by 40-50 percent, significantly decreasing associated costs including emergency service premiums, guest compensation for service disruptions, and revenue losses from facility unavailability.

The integration of Internet of Things sensors in critical systems such as heating, ventilation, air conditioning, and refrigeration units enables continuous performance monitoring and early detection of efficiency degradation, allowing interventions before complete system failures occur. Energy efficiency represents another significant economic benefit, as digital monitoring and automated controls typically reduce energy

consumption by 15-25 percent through optimized system operation and elimination of wasteful practices. Given Uzbekistan's energy sector reforms and increasing commercial electricity tariffs, these savings contribute substantially to operational cost reduction. Furthermore, digital maintenance platforms enhance documentation accuracy and regulatory compliance, reducing risks of penalties and facilitating quality certification processes essential for attracting international tourism segments.

The workforce implications present both opportunities and challenges, as digitalization requires initial training investments but subsequently enables more efficient labor utilization through automated scheduling, remote diagnostics, and mobile work order management that eliminate redundant administrative tasks. The economic analysis indicates that medium to large hospitality establishments achieve optimal efficiency gains, as fixed costs of digital system implementation distribute across larger operational scales, whereas smaller establishments may require collaborative approaches such as shared service platforms or industry association initiatives to achieve economically viable digitalization.

**Conclusion.** This research establishes that digitalization of service maintenance delivers substantial economic efficiency improvements for Uzbekistan's tourism and hospitality industry through multiple mechanisms including cost reduction, revenue enhancement, and competitive positioning. The findings emphasize that successful digitalization requires comprehensive strategic planning encompassing technology selection, workforce development, process redesign, and organizational change management rather than isolated technological implementations. For Uzbekistan's hospitality sector, the optimal digitalization pathway involves prioritizing high-impact systems such as energy management, critical equipment monitoring, and integrated maintenance platforms while developing collaborative approaches that enable smaller establishments to access digital capabilities through shared service models.

## REFERENCES

1. Khaydarov, N. & Azimov, R. (2023). Tourism development in Uzbekistan: Current trends and future prospects. *Journal of Tourism Research Uzbekistan*, 15(2), 45-62.
2. Buhalis, D. & Leung, R. (2018). Smart hospitality: Interconnectivity and interoperability towards an ecosystem. *International Journal of Hospitality Management*, 71, 41-50.
3. Safarova, M. (2022). Digital transformation challenges in Uzbekistan's service sector. *Central Asian Economic Review*, 8(3), 112-128.
4. Patil, R. & Suresh, M. (2019). Modelling the enablers of workforce agility in IoT projects: A TISM approach. *Global Journal of Flexible Systems Management*, 20(2), 157-175.

MODERN EDUCATIONAL SYSTEM AND INNOVATIVE TEACHING SOLUTIONS

5. Rodríguez, I., Williams, A. & Hall, C. M. (2020). Tourism innovation in developing countries: Evidence from the Caribbean. *Journal of Destination Marketing & Management*, 16, 100409.

6. Ponomareva, S. V. & Zolotareva, A. B. (2021). Tsifrovizatsiya sfery uslug: ekonomicheskie efekty i perspektivy razvitiya [Digitalization of the service sector: Economic effects and development prospects]. *Ekonomika i upravlenie*, 27(4), 156-167.

7. Rakhimov, O. & Abdullaeva, S. (2023). Turistik xizmatlar samaradorligini oshirishda zamonaviy texnologiyalar roli [The role of modern technologies in improving tourism service efficiency]. *Iqtisodiyot va innovatsion texnologiyalar*, 11(1), 78-89.

8. González-Rodríguez, M. R., Jiménez-Caballero, J. L. & Martín-Samper, R. C. (2020). Exploring the opportunities and challenges of digital transformation in the hospitality industry. *Technology in Society*, 63, 101395.

