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# DIGITAL TECHNOLOGIES IN TOURISM AND THEIR IMPORTANCE

**Hazratkulov Lochinbek**
1st year student, Department of Tourism and Hospitality
Denov Institute of Entrepreneurship and Pedagogy
hazratqulovlochin@gmail.com
**Turdaliyeva Shahnoza Uktamovna**
The teacher of the chair of foreign languages and literature
for lower courses
Denau Institute of Entrepreneurship and Pedagogy
E-mail: turdalievashakhnoza84@gmail.com
https://orcid.org/0009-0007-6172-0529

**Abstract:** The development of the tourism sector is inseparably linked with modern technologies. Digital technology plays a major role in automating tourism services, creating convenience for tourists, and optimizing business processes. This article discusses in detail the current state of digital technologies in tourism, their impact, and future development trends. Technologies such as artificial intelligence (AI), virtual reality (VR), blockchain, and the Internet of Things (IoT) are analyzed, along with new trends like the metaverse, biometric security systems, and eco-sustainable tourism. The study also addresses the advantages and disadvantages of these technologies.

**Key words:** Tourism, Digital Technology, Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), Blockchain, Internet of Things (IoT), Metaverse, Biometric Security

**Introduction:** The tourism industry is undergoing rapid transformation due to the integration of digital technologies. Various innovations have revolutionized the way travelers plan, book, and experience tourism. This article aims to explore the impact of these technological advancements and assess their implications for the future.

1. Digital Technologies in Tourism

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1.1. Online Booking Systems

Digitalization has significantly simplified travel planning. Online platforms like Booking.com, Expedia, and Airbnb allow users to compare prices and book accommodation effortlessly. In 2022, Booking.com recorded over 1 billion reservations. The global online booking market reached $800 billion in 2023.

1.2. Mobile Applications

Mobile technology plays a crucial role in travel. Apps such as Google Maps, TripAdvisor, Uber, and Skyscanner enhance convenience by offering navigation, accommodation searches, and transportation booking. In 2023, tourism-related mobile app usage increased by 60%.

1.3. Artificial Intelligence and Chatbots

AI-powered chatbots provide instant customer service and personalized recommendations. The Hilton hotel chain utilizes virtual concierges to enhance guest experiences. Research predicts that by 2025, 80% of customer interactions will be AI-driven.

1.4. Virtual and Augmented Reality (VR & AR)

VR and AR technologies enable virtual exploration of destinations. Google Earth VR offers immersive experiences, while museums like The Louvre present digital exhibits. The number of virtual tourists reached 25 million in 2023.

1.5. Blockchain and Secure Transactions

Blockchain ensures secure payments and transparent record-keeping in tourism. Platforms like Travala and Bitcoin.travel enable cryptocurrency transactions. 40% of travel companies plan to implement blockchain by 2024.

1.6. Smart Hotels and IoT

IoT innovations allow travelers to control hotel room settings via smartphones. Marriott and Hilton are implementing smart room systems. By 2025, 75% of hotels are expected to adopt IoT technology.

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## 2. Future Trends in Tourism Technology

### 2.1. The Metaverse and Virtual Tourism

The metaverse is reshaping tourism by offering digital travel experiences. By 2030, 30% of the tourism industry may operate in the metaverse. Platforms like Decentraland host virtual tourism experiences.

### 2.2. Biometric Security Systems

Biometric verification is streamlining airport processes. Dubai and Singapore airports use facial recognition for passport control. By 2025, 70% of airports will implement biometric security.

### 2.3. Eco-Sustainable Tourism

Green initiatives are crucial for the future of tourism. Tesla's electric vehicles and eco-friendly hotels promote sustainability. The eco-tourism market is projected to reach $1 trillion by 2030.

### 2.4. Robotics in Hospitality

Automated services are emerging in hotels and restaurants. Japan's Henn-na Hotel is entirely managed by robots. By 2025, 50% of hotels will incorporate robotic services.

## 3. Challenges of Digitalization in Tourism

### 3.1. Cybersecurity Risks

Data breaches pose major threats. British Airways lost 380,000 customer records in a 2018 cyberattack, while Marriott suffered a breach affecting 5.2 million customers in 2021.

### 3.2. Digital Divide

Limited access to the internet hinders digital tourism adoption. Less than 30% of Africa has internet access, and over 60% of rural India lacks stable connections.

### 3.3. Job Displacement

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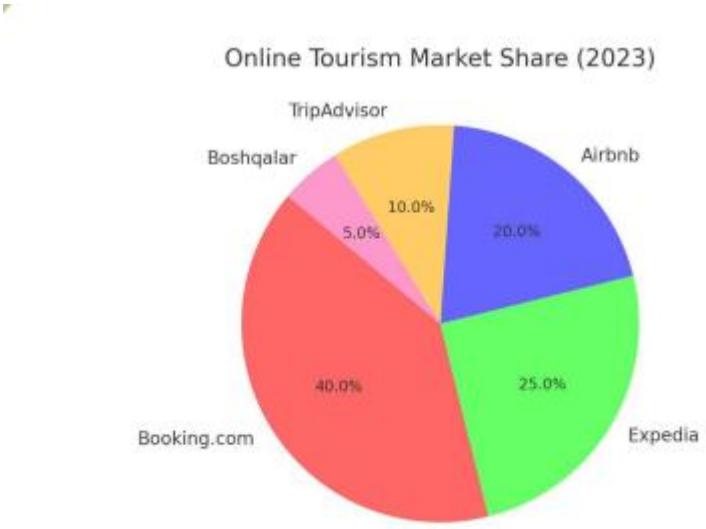
Automation may reduce human employment. Airline self-check-in systems and robotic hotel services replace traditional workers.

3.4. Technology Dependency

Over-reliance on technology can impact creativity and human interaction. Tourists heavily dependent on apps risk losing independent decision-making skills.

3.5. Environmental Impact

Data centers and IoT devices consume significant energy. Global data centers account for 2% of worldwide electricity usage.




**Conclusion:** Digital technologies are revolutionizing the tourism industry, offering convenience, security, and enhanced experiences. AI, VR, blockchain, and biometric innovations will continue shaping the sector. However, cybersecurity concerns, job losses, and environmental challenges must be addressed. A balanced approach that integrates technology while preserving human interaction and sustainability is essential for the future of tourism.

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