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THE ROLE OF DIGITALIZATION IN THE DEVELOPMENT OF THE GLOBAL TOURISM INDUSTRY[1]

The article examines the role of digitalization in the development of the global tourism industry, which has undergone significant changes over the past decades. Technological progress and digital innovations have impacted all aspects of tourism – from the planning process to organizing trips and interacting with tourism services. The main focus is on how digitalization has enhanced the efficiency, personalization, and accessibility of services, allowing travelers to easily find and book tours, transportation, accommodation, and activities, as well as receive real-time travel information. The article specifically examines how online booking platforms have influenced the tourism industry. These platforms have transformed the interaction between travelers and various service providers, including travel agencies, transportation companies, and hotels. By streamlining the trip planning process, online booking has facilitated the expansion of international tourism and boosted tourist numbers. Additionally, mobile solutions empower travelers to plan and adjust their itineraries on the go, providing real-time updates on flights, accommodations, and services. This enhances travel convenience, making it more flexible and tailored to individual preferences. Digitalization also supports regions that were previously less popular. Digital platforms enable tourists to choose eco-friendly routes, helping to preserve the environment. Moreover, through social media and experience-sharing platforms, tourists can discover new travel destinations, which supports the development of regional economies and intercultural exchange. The article emphasizes that digital technologies have not only transformed the travel process but also stimulated both economic development and socio-economic development, created new jobs, and fostered global interaction. International tourism, enhanced by digital solutions, has become a key factor in global integration, ensuring a broader and more equitable distribution of economic benefits across different regions of the world.

Keywords: international tourism, tourism industry, economic development, socio-economic development, digitalization, tourism, booking, innovations.

Statement of the problem. International tourism, and the tourism industry as a whole, has seen significant transformation driven by technological advancements, market shifts, and changing consumer behavior. These changes have reshaped how people plan, book, and experience travel, leading to increased efficiency, personalization, and accessibility. Technologies, particularly online booking platforms like Booking.com and Airbnb, have revolutionized how travelers book accommodations, flights, and activities. These platforms also provide tools for price comparisons and user reviews, making cross-border travel more convenient.

The widespread use of smartphones has spurred the development of mobile apps like Google Maps and TripAdvisor, which support travel planning, booking, and real-time updates. These innovations have contributed to both, economic development and socio-economic development. Emerging technologies like virtual and augmented reality (VR/AR) further enhance travel experiences, allowing virtual tours and interactive guides that enrich cultural and historical understanding.

The entry of tech-savvy startups like Airbnb and Uber has disrupted traditional travel services, offering flexible and customer-centric solutions. This has boosted market competition and expanded choices for travelers. Additionally, mergers and strategic partnerships in the industry have enabled companies to streamline operations and increase competitiveness.

The Covid-19 pandemic accelerated digital adoption, as contactless services, virtual events, and digital health solutions became necessary. Travel patterns shifted toward domestic and regional tourism, contributing to local economic development. The rise of remote work also encouraged longer stays and "workcations", blurring the lines between business and leisure travel.

As travelers demand more personalized and sustainable experiences, the tourism industry must continue adapting to new technologies. The ongoing digital transformation promises a more efficient, customer-centric, and resilient travel ecosystem that fosters both economic development and socio-economic development globally.

Analysis of recent research and publications. The integration of digitalization into the tourism industry, especially international tourism, can be examined through several theoretical frameworks that explain the impact of technological advancements on service industries. Key theories that provide insight into this transformation include the Diffusion of Innovations theory (DIT), the Technology Acceptance Model (TAM), and Service-Dominant Logic (SDL) [1−3].

DIT (R. Turner) explains how new ideas and technologies spread, starting with innovators and early adopters, followed by the majority and laggards. In tourism, tools like online booking systems and mobile apps initially attracted tech-savvy travelers but are now mainstream due to their convenience and efficiency [1].

TAM (F. Davis) identifies two key factors for technology adoption: perceived usefulness (how it improves performance) and perceived ease of use (how effortless it is). In tourism, mobile apps succeed

because they offer personalized recommendations and simple booking processes [2].

SDL (Vargo, S.L., & Lusch, R.F.) argues that service, not goods, is central to value creation. Digital tools in tourism enable travelers to customize experiences and engage with providers, with AI and data analytics enhancing customer satisfaction through tailored interactions [3].

The tourism industry is experiencing a profound shift driven by digital transformation, reshaping travel experiences and operational efficiency. Recent studies explore the impacts, trends, and future prospects of digital technologies in this sector.

Barykin S. et al. emphasize that digital transformation in tourism integrates advanced tools like artificial intelligence (AI), big data analytics, and virtual reality (VR) to optimize service delivery and enhance customer experiences. These technologies streamline operations, increase personalization, and improve resource management, leading to greater efficiency in travel and hospitality services [4].

Tandafatu N. et al. explore how mobile apps, online booking systems, and augmented reality (AR) enhance convenience and personalization in travel, empowering travelers to manage itineraries and receive real-time updates, leading to higher satisfaction. Tech-savvy tourists are driving these innovations, setting new industry standards [5].

Verhun N. et al. emphasize the role of digital tools like cloud systems and CRM platforms in helping businesses understand consumer preferences and co-create value, allowing tourists to personalize experiences and share feedback [6].

Akhtar N. et al. examine the post-COVID shift to digital tourism, where technologies like virtual tourism and contactless services grew. They suggest that while digital tourism won't replace physical travel, it will coexist, meeting demands for safety and convenience [7].

These theoretical frameworks provide a comprehensive understanding of how digital technologies are transforming the tourism industry. In summary, digital transformation is reshaping tourism by improving personalization, efficiency, and traveler-provider interaction. However, challenges remain, such as ensuring widespread tech adoption and balancing virtual and physical experiences.

Objectives of the article. The purpose of this article is to explore how digitalization is reshaping the international tourism industry by enhancing operational efficiency, improving customer experiences, and enabling new business models. It aims to analyze the key digital tools and technologies driving this transformation, assess their impact on various aspects of tourism, and highlight the challenges and opportunities for stakeholders in adopting these innovations in a rapidly evolving global landscape.

Summary of the main material. Digitalization play a key role in the changing travel industry, increasing efficiency, personalization and user experience. Online platforms and mobile apps simplify the planning and leveling process by providing availability, pricing and reviews in no time. Virtual and augmented reality allows travelers to preview destinations and easily navigate unfamiliar places. Big data and artificial intelligence make it possible to personalize recommendations and provide 24/7 support through chatbots, increasing customer satisfaction. Secure online payment systems and electronic technologies ensure secure transactions. In this way, software and web engineering are driving the digital transformation of tourism, making travel more accessible, efficient and enjoyable. Below we look at the main areas where digitalization underpin international tourism and the travel industry as a whole.

The advent of online tier platforms such as Booking.com, TripAdvisor, Expedia and Airbnb have revolutionized the planning process and participation levels. This platform provides up-to-date, real-time availability and pricing information on antique door cabinets. Personalized recommendations based on users' preferences and past behavior help them find options that best suit their needs. This level of service and personalization made planning more efficient and convenient.

VR and AR technologies have transformed tourism by offering virtual tours that allow travelers to explore destinations from home, helping them make informed decisions. On-site, AR guides and maps enhance experiences by overlaying information on real-world landmarks, providing historical facts and navigation through smartphones.

CRM systems (customer relationship management) are crucial for creating personalized marketing strategies. With data analytics, travel companies better understand customer behavior. AI-powered chatbots within CRM systems provide 24/7 support, handling bookings and recommendations to improve satisfaction and efficiency.

Mobile apps like TripAdvisor and Google Maps simplify travel planning, allowing users to book flights, accommodations, and receive real-time updates. They also offer GPS navigation, local info, and service integration, enhancing the travel experience.

The digitalization of payments in the travel industry demands strong security measures. Secure online payment gateways ensure that travelers can make transactions safely, while fraud detection and prevention mechanisms guard against unauthorized activities. Blockchain technology is increasingly being adopted for its transparent and tamper-proof transactions, adding an extra layer of security and trust. This technology is especially useful for managing loyalty programs and cross-border payments [8].

The travel industry is increasingly focusing on sustainability to reduce its environmental impact while supporting both economic development and socio-economic development. Green technologies, such as energy-efficient travel management systems and eco-friendly accommodations, are becoming more prevalent, helping minimize the carbon footprint of travel operations [9]. Additionally, advanced software solutions optimize travel routes and resource usage, contributing to more efficient travel planning. By promoting eco-friendly travel options, such as public transportation, biking tours, and sustainable accommodations, the industry aligns with the growing demand for responsible tourism.

These key areas of influence show how digitalization is not only improving the operational aspects of the travel industry, but also significantly improving the overall traveler experience. Thanks to these technologies, the tourism sector will be able to continue to evolve and meet the changing needs of modern travelers.

The introduction of technology into tourism has led to successful innovations that have changed the industry. For example, online travel agencies (OTAs) such as Expedia and Booking.com have revolutionized travel booking by offering an easy-to-use platform for comparing prices, reading reviews, and booking.

This has significantly improved customer service, increased satisfaction and increased orders.

Below we look at the case studies from leading travel companies:

1. Airbnb leverages technology to expand options beyond hotels and uses data analytics for personalized recommendations, enhancing user engagement. Its review system builds trust and transparency.

2. TripAdvisor optimizes travel planning through user-generated content (reviews, photos, ratings) and machine learning for personalization, simplifying the planning process.

Booking.com is the largest online accommodation platform, offering a wide range of options and a mobile app for convenient booking management, along with 24/7 customer support.

Figure 1 reveals that Booking.com leads as the most-visited website worldwide, attracting a remarkable 556.1 million visits. This popularity underscores Booking.com's dominance in the online accommodation market, likely due to its broad range of lodging options, ease of use, and established brand presence.

In second place, Tripadvisor.com garnered 175.6 million visits, highlighting its position as a key resource for travelers seeking reviews and recommendations.

Airbnb.com ranked third, with 101 million visits, reflecting its strong appeal among travelers looking for unique, non-traditional lodging options.

The chart illustrates a steady increase in revenue over the years, marked by substantial growth particularly after 2017. The revenue growth, though slightly disrupted in 2020 by the pandemic with a drop to 6.8 billion USD, quickly rebounded, demonstrating a robust recovery in 2021 and beyond. By 2023, the revenue surged to an all-time high of 21.37 billion USD, more than tripling since 2017. This strong growth trend, despite a temporary setback, indicates effective strategies in place, allowing for swift adaptation to market challenges and positioning for sustained success. The resilience displayed highlights the industry's capability to overcome disruptions and continue on a growth path [10].

Bellow we will look at how the share of OTAs booking changed according to Web Direct bookings in 2019–2023.

As shown in Table 1, European hotels boosted their direct booking revenue by 12 percentage points in 2023 compared to 2019, reaching 34 % of total online booking revenue. Although the share of direct
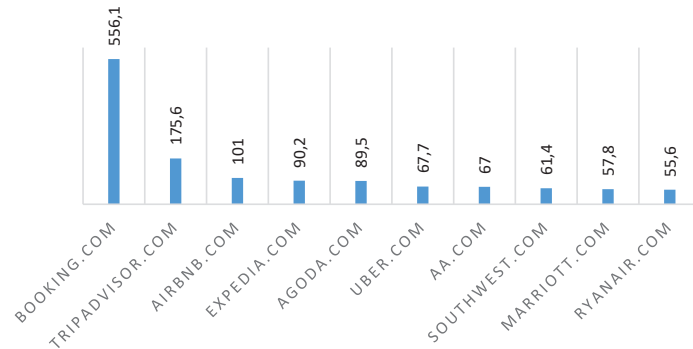

Figure 1. Most visited T&T websites worldwide on April 2024 (mln visits)
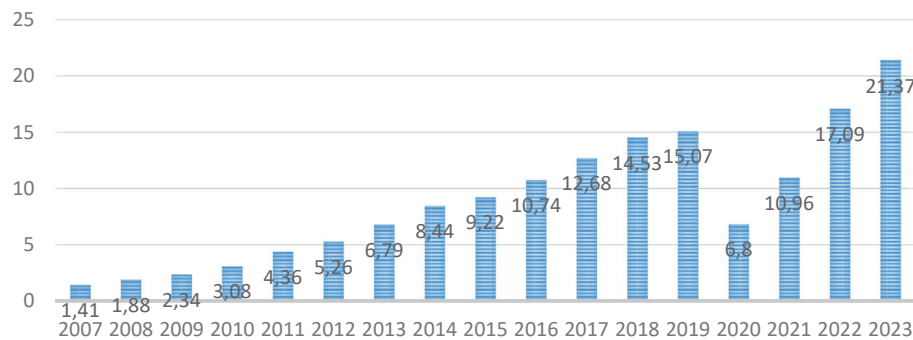
Source: created by author based on [10]

Figure 2. Revenue of Booking Holdings worldwide from 2007 to 2023 (in billion U.S. dollars)

Source: created by author based on [10; 11]

Table 1

OTAs vs. Web Direct Market Share in Gross Booking Value (%) in 2019–2023

Year	Europe		Asia	
	OTAs	Web direct	OTAs	Web direct
2019	69	23	70	25
2020	60	34	55	43
2021	59	34	50	49
2022	63	28	53	44
2023	64	29	54	45

*OTA: Bookings made through online travel agencies

Source: [11; 12]

bookings dipped slightly in 2023, it remained 6 points higher than in 2019.

In Asia, hotels increased their direct booking revenue by 18 points from 2019 to 2020, followed by an additional 6-point rise in 2021, coming close to matching the share of OTAs. By 2023, the direct market share had declined slightly to 45 %, but it was still 20 points higher than in 2019 [11].

There is a noticeable trend of decreasing OTA sales in both Europe and Asia, with Asia experiencing a more significant decline.

Conversely, there is a trend of increasing direct web sales in both regions, with Asia showing a more substantial increase.

The trends suggest a shift towards more direct bookings through web platforms, particularly in Asia, while Europe shows a more moderate shift.

Successful implementations of technology in international tourism demonstrate the transformative potential of digital solutions in enhancing customer experiences, operational efficiency, and fostering both economic development and socio-economic development. Case studies from leading travel companies illustrate how technology can be harnessed to meet evolving traveler needs, while testimonials provide real-world evidence of its impact [13]. These advancements not only drive revenue growth and competitiveness but also support local economies by creating jobs, promoting inclusive growth, and enhancing community well-being. Through innovations and sustainable practices, digitalization helps align tourism development with broader socio-economic objectives, ensuring long-term benefits for both travelers and host destinations.

Conclusions from the study. The rise of digitalization in international tourism has significantly transformed the industry, improving efficiency, customization, and overall satisfaction for travelers. As technology continues to advance, its influence on tourism deepens, reshaping how people plan, book, and experience their trips.

Beyond enhancing travel experiences, digital technologies have also made a strong impact on economic development and socio-economic development. By streamlining processes and expanding access to global markets, digital tools have fueled the growth of tourism, driving job creation, new business ventures, and boosting local economies. Small and medium-sized enterprises (SMEs) can now reach larger audiences through digital platforms, further supporting regional economic expansion. Moreover, the socio-economic benefits of digitalization include higher living standards and enriched cultural exchanges, as tourism strengthens connections between different communities.

The ongoing transformation of tourism demonstrates the critical role of innovation and technology in reshaping established industries. As travelers seek more personalized, eco-friendly, and engaging experiences, the tourism sector must continue to adapt and embrace emerging technologies to remain competitive. This digital evolution promises to build a more efficient, customer-focused, and resilient tourism ecosystem in the future.

Progress in payment security and fraud prevention, such as secure gateways and blockchain, has enhanced the safety of online transactions, increasing travelers' trust in digital services. Additionally, the integration of green technologies and sustainable practices is becoming more important in travel management, as digital solutions help optimize travel routes and offer eco-conscious options that align with the growing awareness of environmental sustainability.

Despite these advances, challenges like data privacy concerns, the digital divide, and the rapid pace of technological change persist. The tourism industry will need to address these issues while continuing to implement innovations that prioritize personalization, sustainability, and immersive experiences.

In conclusion, digitalization has reshaped international tourism, making it more efficient, secure, and tailored to individual needs. As technological advancements continue, they will play an increasingly vital role in the future development of the industry, ensuring that it remains dynamic and innovative.

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РОЛЬ ЦИФРОВІЗАЦІЇ В РОЗВИТКУ ГЛОБАЛЬНОЇ ІНДУСТРІЇ ТУРИЗМУ

Анотація
У статті розглядається роль цифровізації у розвитку глобальної туристичної індустрії, яка зазнала значних змін протягом останніх десятиліть. Технологічний прогрес і цифрові інновації вплинули на всі аспекти туризму – від процесу планування до організації подорожей та взаємодії з туристичними послугами. Основна увага приділяється тому, як цифровізація підвищила ефективність, персоналізацію та доступність послуг, що дало можливість мандрівникам легко знаходити і бронювати тури, транспорт, житло й активності, а також отримувати інформацію про подорожі в режимі реального часу. Стаття аналізує, як онлайн-платформи для бронювання вплинули на туристичну індустрію. Ці платформи трансформували взаємодію між мандрівниками та різними постачальниками послуг, такими як туристичні агентства, транспортні компанії та готелі. Спрощуючи процес планування поїздок, онлайн-бронювання сприяло розширенню міжнародного туризму та збільшенню кількості туристів. Крім того, мобільні рішення надають можливість мандрівникам планувати та коригувати свої маршрути в будь-який момент, отримуючи актуальну інформацію про рейси, проживання та послуги. Це підвищує зручність подорожей, роблячи їх більш гнучкими та адаптованими до індивідуальних уподобань. Цифровізація також сприяє підтримці регіонів, які раніше не користувалися популярністю. Цифрові платформи дозволяють туристам обирати екологічні маршрути, що допомагає зберегти навколишнє середовище. Крім того, завдяки соціальним мережам і платформам для обміну досвідом туристи мають можливість відкрити нові туристичні напрямки, що підтримує розвиток регіональної економіки й міжкультурний обмін. У статті підкреслюється, що цифрові технології не лише змінили процес подорожей, але й стимулювали як економічний розвиток, так і соціально-економічний розвиток, створили нові робочі місця, а також сприяли глобальній взаємодії. Міжнародний туризм, підсилений цифровими рішеннями, став важливим чинником глобальної інтеграції, забезпечуючи ширший і рівномірніший розподіл економічних вигод серед різних регіонів світу.
Ключові слова: міжнародний туризм, індустрія туризму, економічний розвиток, соціально-економічний розвиток, цифровізація, туризм, інновації.