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# DIGITALIZATION IN THE TOURISM SECTOR: HOW THE ECONOMY OF TOURISM SERVICES IS CHANGING

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ЦИФРОВІЗАЦІЯ У СФЕРІ ТУРИЗМУ: ЯК ЗМІНЮЄТЬСЯ ЕКОНОМІКА ТУРИСТИЧНИХ ПОСЛУГ

*Over the past decade, digitalization and the widespread adoption of digital technologies have revolutionized the delivery of tourism services. Therefore, this article aims to examine the impact of digitalization on the transformation of the tourism services economy, with a focus on the automation of operational activities as a key factor in enhancing the efficiency, flexibility, and competitiveness of tourism market participants. The results of the study indicate that the combined transformation of business processes and interactions with end consumers influences economic entities, as it shapes a new model of functioning. In this model, the provision of tourism services is based on technological efficiency, speed, flexibility, and personalization. It has been proven that technological efficiency in providing tourism services lies in the ability of economic entities to automate repetitive production tasks, reduce manual labor, and minimize costs.*

*Furthermore, through the implementation of digital systems, economic entities achieve greater operational efficiency with fewer resources. It has been proven that the speed of providing tourism services reflects the ability of economic entities to promptly respond to customer requests, changes in demand, or market conditions. For example, through automated booking systems or chatbots, customer service occurs instantly, which reduces decision-making time and enhances competitiveness. It has been proven that the flexibility in providing tourism services reflects the ability to adapt them to changes in the environment or consumer demands. Thanks to digital platforms, tour operators can quickly modify service packages, add new options, or respond to external challenges. It has also been proven that personalizing tourism services reflects an individualized approach to each client, based on the analysis of their data, travel history, requests, and preferences. Modern digital tools enable the creation of offers that are highly relevant to user expectations, which increases satisfaction, loyalty, and, consequently, the profits of economic entities. Thus, it is noted that digitalization not only modernizes individual elements of the tourism sector, but also changes the very economic logic of its participants' activities, shaping a new competitive dynamic where digital adaptability is the key value.*

*Упродовж останнього десятиліття цифровізація та масове впровадження цифрових технологій суттєво змінили логіку надання туристичних послуг. Відтак метою статті є дослідження впливу цифровізації на трансформацію економіки туристичних послуг, з акцентом на автоматизацію операційної діяльності як ключовий чинник підвищення ефективності, гнучкості та конкурентоспроможності суб'єктів туристичного ринку. За результатами дослідження встановлено, що поєднані зміни бізнес-процесів та форматів взаємодії з кінцевими споживачами суттєво впливають на суб'єктів економіки, формуючи нову модель її функціонування. У цій моделі*

надання туристичних послуг ґрунтується на технологічній ефективності, високій швидкості, гнучкості та персоналізації. Доведено, що технологічна ефективність надання туристичних послуг полягає у здатності суб'єктів економіки автоматизувати повторювані виробничі завдання, скоротити обсяг ручної праці та мінімізувати витрати. Завдяки впровадженню цифрових систем суб'єкти економіки досягають вищої продуктивності при менших ресурсних затратах. Також встановлено, що швидкість надання туристичних послуг відбиває здатність оперативно реагувати на клієнтські запити, зміни попиту та ринкові коливання. Доведено, що гнучкість надання туристичних послуг відбиває здатність суб'єктів туристичного ринку адаптувати їх до змін у зовнішньому середовищі та індивідуальних запитів споживачів. Завдяки використанню цифрових платформ туроператори можуть оперативно змінювати склад пакета послуг, додавати нові опції або швидко реагувати на зовнішні виклики. Також доведено, що персоналізація туристичних послуг реалізується через індивідуальний підхід до кожного клієнта на основі аналізу його персональних даних, історії подорожей, запитів та уподобань. Сучасні цифрові інструменти дають змогу формувати пропозиції, максимально релевантні очікуванням користувачів, що сприяє зростанню їхньої задоволеності, лояльності та, відповідно, прибутковості суб'єктів туристичної економіки. Таким чином, відзначено, що цифровізація не лише модернізує окремі складники туристичної сфери, а й трансформує саму економічну логіку діяльності її учасників, створюючи нову конкурентну динаміку, в якій ключовою цінністю стає цифрова адаптивність.

*Key words: key value; digital adaptability; provision of tourism services; travel history; customer requests and preferences; tourist.*

*Ключові слова: ключова цінність; цифрова адаптивність; надання туристичних послуг; історії подорожей; запити та уподобання клієнтів; турист.*

## PROBLEM STATEMENT

Over the past decade, digitalization has become one of the significant key factors in the transformation of the tourism services economy. In particular, the widespread adoption of digital technologies has not only changed the ways of organizing travel but has also fundamentally affected the internal processes of tourism economic entities and their interactions with clients [5]. Specifically, it has been proven that the automation of repetitive and routine operations not only ensures increased efficiency and cost reduction but also contributes to greater flexibility in shaping the customer experience.

Modern digital solutions, such as CRM systems, chatbots, online booking systems, automated content management, and analytical platforms, enable tourism companies to significantly reduce the time required to perform standard tasks — from processing customer inquiries to compiling services provided to tourists within a single trip or tour.

For example, with an automated booking platform such as Amadeus or Sabre, a tour operator can assemble a personalized package in real time: book airline tickets, select a hotel within the client's budget, add insurance and excursions — all without manually searching for each component.

Additionally, integration with a CRM system allows for the automatic consideration of the tourist's preferences saved from previous trips, while a chatbot in Messenger can instantly send a ready-made offer or payment invoice. It enables the staff to focus on more strategically important functions, such as personalizing offers, developing new products, and improving service quality.

## ANALYSIS OF RESEARCH AND PUBLICATIONS

The issues of digitalization in the tourism sector have been studied by M. M. Shevelyuk [6], O. I. Artemenko, V. V. Pasichnyk, V. V. Yehorova [1], N. Valinkevich, and A. Shestakova [2]. In most of these works, key digital technologies transforming business models in tourism are analyzed, and the economic effects associated with the implementation of automated systems are also assessed.

At the same time, the specific mechanisms of transformation in the tourism services economy remain insufficiently studied in the scientific literature. This is because the topic of digitalization in tourism lies at the interdisciplinary intersection of economics, information technology, and service management, which often leads to fragmented analysis and a dispersed research focus.

## FORMULATION OF THE ARTICLE'S OBJECTIVES

The article aims to examine the impact of digitalization on the transformation of the tourism services economy, with a focus on the automation of operational activities as a key factor in enhancing the efficiency, flexibility, and competitiveness of tourism market participants.

## THE PAPER MAIN BODY

Digitalization in the tourism sector began back in the 1980s and 1990s, when leading airlines started using global distribution systems (GDS), such as Amadeus, Sabre, and Galileo, for automated airline ticket booking.

**Table 1. List of companies gradually integrated into global distribution systems and contributing to the development of tourism digitalization**

Field of activity	Companies integrated into GDS and contributing to digitalization	Specific contribution to the development of digitalization in tourism
Hotel chains	Marriott International, Hilton Hotels & Resorts, InterContinental Hotels Group (IHG), AccorHotels, Hyatt Hotels Corporation	Hotel chains connected to GDS in the 1990s–2000s to offer their rooms for real-time booking through travel agents. This enabled the standardization of offers and simplified the booking process for both B2B and B2C clients.
Railway companies	Deutsche Bahn (Germany), Eurostar (United Kingdom – France – Belgium), SNCF (France), Amtrak (USA)	Although railway integration into GDS was not as widespread as in the airline or hotel segments, major operators gradually began using digital channels for ticket distribution, which simplified the planning of multimodal travel.
Car rental	Hertz, Avis, Budget, Enterprise, Sixt	This segment was one of the first to integrate into GDS. As early as the 1990s, customers could book cars directly through the same systems used for flight reservations. This created a convenient ecosystem for assembling a complete package of tourism services through a single platform.
Airlines	Lufthansa, British Airways, Air France, Delta Air Lines, United Airlines, American Airlines	Air carriers were the first users of GDS back in the 1980s. The digitalization of tourism services began with them, introducing real-time ticket booking, automatic schedule updates, and dynamic pricing.

Source: compiled based on [1; 5; 7].

These systems became the first digital tools that allowed agencies and operators to instantly access information about flight availability, prices, and seat availability. Gradually, hotels, railway companies, car rental services, and other tourism service providers joined them, as illustrated by the data in Table 1.

Thanks to the gradual integration of these companies into global distribution systems, by the late 1990s a travel agent could already assemble a complete travel package — from airline tickets to hotel accommodations, car rentals, and additional services — through a single digital platform. This significantly increased the efficiency of the industry [5].

The deepening of digitalization in the tourism sector took place in the early 2000s, as the development of the internet and e-commerce gave rise to the first online travel agencies (such as Expedia, Booking.com, and TripAdvisor [5]). This triggered a major restructuring of the market: tourists gained the ability to independently plan their trips, compare prices, and book services without intermediaries [2]. At this stage, digitalization in the tourism sector:

- Minimized transaction costs due to the automation of booking, payment, and order processing.
- Stimulated competition and price transparency as tourists gained access to a wide range of offers from different travel operators.
- Transformed business models by shifting the focus from traditional offline agencies to digital platforms that operate with minimal physical overhead.

- Increased labor productivity by allowing staff to focus on strategic tasks and service personalization.

In the 2010s, digitalization gained new momentum with the development of mobile applications, artificial intelligence, big data, and cloud services, which opened up new horizons in managing the tourism experience. In particular, economic entities in the tourism services sector — including tour operators, travel agencies, online travel platforms (OTAs), hotel chains, transport companies, booking services, and travel tech startups — began actively using analytics to forecast demand, implement dynamic pricing systems, and introduce automated tour package generation mechanisms. At this stage, digitalization in the tourism sector [1–2]:

- Enabled tour operators to automatically assemble travel packages in real time based on the customer's budget, preferences, and behavior.
- Allowed travel agencies to better analyze client data to offer relevant services.
- Empowered hotels and transport providers to implement dynamic pricing systems that take into account seasonality, demand, and the competitive environment.
- Enabled specialized online platforms to apply algorithms for personalized recommendations and user behavior prediction.

Thus, in the process of digitalization, the tourism services economy is undergoing profound structural changes affecting both internal business processes and interactions with end consumers.

**Table 2. Characteristics of internal business processes changing as a result of tourism sector digitalization**

Internal business process	Internal business process	Impact on the tourism services economy
Booking and order processing	The process of registering and confirming services (hotels, airline tickets, transfers) ordered by the client.	Enables reduction of request processing time, decreases the need for manual labor, lowers operational costs, and increases the speed of service and customer satisfaction.
Customer relationship management (CRM)	CRM systems store data about clients, travel history, preferences, and requests.	Enables customer segmentation and targeted marketing campaigns, increases repeat sales and average transaction value, and reduces acquisition costs by retaining existing customers.
Tourism product development	The process of assembling tours (flights, accommodation, excursions, transfers) into complete packages.	Allows for rapid response to changes in supplier prices, faster market introduction of new products, and minimizes logistics, planning costs, and human error.
Financial accounting and analytics	Conducting accounting, analyzing income and expenses, and forecasting financial results.	Helps make well-informed management decisions, reduces risks of losses due to inaccuracies or fraud, and optimizes the company's cost structure.
Communication and document management	Information exchange between departments, clients, and partners (contracts, invoices, confirmations).	Shortens the time required for deal approvals, lowers document storage costs, speeds up contract and confirmation processes, and accelerates cash flow.

Source: compiled based on [1; 6–7].

In particular, the internal business processes being transformed include booking and order processing, customer relationship management (CRM), tourism product development, financial accounting and analytics, communication, and document management (see Table 2).

Each of the aforementioned business processes plays a key role in the tourism services economy, as they enhance the efficiency and adaptability of its participants to market changes.

Among the changes in interaction with end consumers are the shift to online booking and self-service, chatbots and instant support, personalized offers, real-time ratings and reviews, and the integration of mobile technologies (see Table 3).

Each change in customer interactions significantly impacts the transformation of the tourism services economy by enhancing communication efficiency, lowering service costs, and boosting customer loyalty.

The combined changes in business processes and interactions with end consumers impact economic entities by shaping a new model of their operation. Specifically, simultaneous transformations in the organization of internal processes (such as booking, analytics, document management, etc. [3]) and in ways of interacting with clients (online services, mobile applications, personalized offers [4]) alter the behavior and strategies of tourism service economic agents — namely tour

**Table 3. Characteristics of interactions with end consumers shaped by tourism sector digitalization**

Interactions with end consumers	Characteristics of interaction with end consumers	Impact on the economy of tourism services
Online booking and self-service	The ability for clients to independently select, book, and pay for services through a website or app without the involvement of a manager.	Reduces the need for manual labor and lowers personnel costs, accelerates the service cycle, improves user experience, and increases the likelihood of repeat orders.
Chatbots and instant support	Automated digital assistants that provide answers to customer inquiries 24/7 through websites, mobile apps, or messengers.	Eases the load on contact centers, ensures constant availability of support, raises customer satisfaction levels, and reduces losses from unmet assistance.
Personalization of offers	Creation of travel products tailored to the client's preferences, travel history, previous orders, and website behavior.	Increases sales conversion rates and average transaction value, fosters customer loyalty growth, and lowers costs of attracting new audiences.
Real-Time ratings and reviews	The ability for clients to leave ratings and comments about tourism services immediately after use or during their trip.	Influences company reputation, encourages improvements in service quality, and serves as a marketing tool that requires no additional expenses.
Integration of mobile technologies	Use of mobile applications for booking, navigation, notifications, ticket storage, and client interaction on the go.	Decreases communication costs, enables real-time service sales, enhances user convenience, and boosts customer loyalty.

Source: compiled based on [1; 3–4].

operators, travel agencies, hotels, carriers, online platforms, and travel startups.

## CONCLUSIONS

The results of the study confirm that the combined transformation of business processes and interactions with end consumers influences economic entities by shaping a new model of operation, in which the provision of tourism services is based on technological efficiency, speed, flexibility, and personalization.

It has been proven that technological efficiency in the provision of tourism services lies in the ability of economic entities to automate repetitive operational tasks, reduce the amount of manual work, and minimize costs. Moreover, through the implementation of digital systems, these entities achieve higher operational efficiency while utilizing fewer resources.

It has been proven that the speed of providing tourism services reflects the ability of economic entities to respond promptly to customer requests, changes in demand, or market conditions. For example, through automated booking systems or chatbots, customer service is delivered instantly, which shortens decision-making time and enhances competitiveness.

It has been proven that flexibility in the provision of tourism services reflects the ability to adapt them to environmental changes or consumer demands. Thanks to digital platforms, tour operators can quickly modify service packages, add new options, or respond to external challenges.

It has also been proven that personalization in the provision of tourism services reflects an individual approach to each client based on the analysis of their data, travel history, requests, and preferences. Modern digital tools make it possible to create offers that are highly relevant to user expectations, which increases customer satisfaction, loyalty, and, consequently, the profits of economic entities.

Thus, digitalization does not merely modernize individual elements of the tourism sector — it transforms the very economic logic of its participants' activities, shaping a new competitive dynamic in which digital adaptability becomes the key value.

Prospects for further research are linked to an in-depth analysis of the economic effectiveness of digital transformations in the tourism sector, an assessment of the impact of digital tools on the competitiveness of market participants, and the development of adaptation models for small and medium-sized enterprises in the context of new digital conditions.

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