

Digital Tools for the Development of the Hospitality and Tourism Industry in the Context of a Digitized Economy

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ABSTRACT

Digital technologies are an important part of the hotel and tourism industry, which are driving its rapid development. The aim of this article is to investigate the main trends in the use of digital tools in the development of the hotel and tourism digital industry. The results demonstrate several key trends in the use of digital tools for the development of the hospitality and tourism digital industry. A key trend of the hospitality industry is self-booking and travel arrangements made by tourists, in particular through online agencies. Thus the needs of consumers in the hospitality and travel industry have contributed to the development of new technological solutions. This has led to increased digitalisation of the travel and hospitality industry as a component of the digital economy. The next important trend is the growth of the online travel market (e-commerce sites and sightseeing sites). Among the key areas of digital tools for the hospitality and travel industry are: digital marketing in the travel industry; digital presence of companies through travel websites; digital presence of consumers through online travel search, online booking and travel planning technologies; social media. Cloud computing and big data, blockchain and travel apps are among the most used technologies in the hospitality and travel industry. It is these digital tools that allow users to book travel services themselves (hotel reservations, travel bookings, ticket purchases, short-term rentals, etc.).

HIGHLIGHTS

- ① Digital technologies are an important part of the hotel and tourism industry, which are driving its rapid development.
- ② Among the key areas of digital tools for the hospitality and travel industry are: digital marketing in the travel industry; digital presence of companies through travel websites; digital presence of consumers through online travel search, online booking and travel planning technologies; social media.

Keywords: Digitalisation of the tourism industry, digitalisation of the hotel industry, digital tourism, technological solutions in hospitality, digital economy

One of the trends in the global hospitality industry is the integration of Internet technology to improve products, services and business processes. The digitalisation of tourism and hospitality as a component of the economy aims to ensure flexibility, meeting users' needs by simplifying service delivery

processes in response to customer requests. The

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digitalisation of the hospitality industry is a new competitive advantage and a way to ensure revenue growth (Kayumovich, 2020).

Users of tourism services are actively pursuing digital technologies. This raises the need to investigate the main trends in the use of digital tools for the development of the hospitality and tourism digital industry. Technological tools and solutions are not passive objects as they shape new opportunities for users, determining tourist behavior, the set and offer of tourist services, options of provision and sales (Munar & Gyimóthy, 2013).

The aim of the article is to investigate the main trends in the use of digital tools in the development of the hospitality and tourism digital industry.

Literature Review

The concept of digital tourism as digital support for the tourism experience is increasingly mentioned in the literature (Munar & Gyimóthy, 2013; Benyon *et al.* 2014; Happ & Ivancsó-Horváth, 2018; Watkins *et al.* 2018; Adeola & Evans, 2019). "Digital tourism means the use of an information and communication tool, an IT solution that can help to meet the needs of tourists and improves the competitiveness of organizations and businesses in tourism" (Happ & Ivancsó-Horváth, 2018). In general, digital tourism is related to the use of digital technologies to improve the tourism experience and optimize tourism products, services, and processes. Mixed reality technologies have been around for more than 15 years, but it is only owing to the proliferation of smartphones and tablets that the interaction of mixed and augmented reality is becoming mainstream (Benyon *et al.* 2014).

Over the past two decades, digitalisation has increasingly been seen in most industries around the world. The travel and tourism industry is no exception with the emergence of the online travel marketplace and increasing consumer demand for digital travel services. The online travel market includes companies such as online travel agencies (OTAs), which allow travelers to book travel services online, and travel review websites. Meanwhile, consumers are also looking for more digital experiences when travelling. These may include options such as virtual tours to a desired destination or accommodation, as well as mobile integration

solutions, such as using an app to discover new tourist attractions or check into a hotel room. Statista Digital Market Outlook estimates that global mobile app revenue in the travel segment in 2021 grew by 38 per cent year-on-year to US\$296 million (Statista, 2021). The coronavirus pandemic (COVID-19) could also play a key role in accelerating the digitalisation of this sector, as social distance and hygiene issues encourage consumers to willingly use digital services rather than face-to-face ones. In this regard, a study in September 2021 found that around four in ten travelers surveyed globally cited contactless mobile payments among the key travel confidence-boosting technologies (Statista, 2021).

Digital tourism is defined as the digital support of the tourism experience before, during and after tourism activities. This could be a recommendation system for finding accommodation, renting a car, finding attractions to plan a trip (Happ Ivancsó-Horváth, 2018), a mobile guide app on a smartphone during a stay (Watkins *et al.* 2018) or the ability to easily view holiday photos (Adeola & Evans, 2019). The concept of digital tourism is not new and pervades various types of online travel activities: travel planning through Expedia and TripAdvisor, travel management through websites for airlines and Tripit, mobile guide apps on smartphones and photo management including Facebook, Flickr, iPhoto or Picasa. However, the concept of digital tourism as the use of technology to improve the customer experience is new (Kayumovich, 2020). In addition to simplifying booking and travel management processes, replacing printed travel guides with multimedia ones, etc., new technologies significantly improve the travel experience. In particular, digital tourism offers the opportunity to discover new tourist destinations. This includes giving people the opportunity to immerse themselves in an experience beyond mere multimedia (Leite & Azevedo, 2017). In practice, digital tourism research looks at digital tools of the hospitality and tourism industry such as new interfaces, contextual data collection, management and processing, middleware required for dynamic device and service interaction, navigation, search, recommendations, mobile interaction, augmented reality and other human-computer interaction technologies (Munar & Gyimóthy, 2013). Research examines the tourist's motivation in using various

digital tools, behaviors and purposes. Researchers note that the problem of research on digital tools addresses challenges such as the distribution of activities when planning and managing travel among many programs, services and systems by different users (Benyon *et al.* 2014). Digital support during tourism activities is a fragmented space, including printed or digital travel guides, maps, social media, audio/video devices, mobile software and hospitality industry software. It is evident that there is a lack of standardization rules and a clear understanding of expectations for the use of digital tools. For many tourists digital or physical support distracts from visiting a specific tourist destination and reduces the sense of presence (Benyon *et al.* 2014). Thus, there are many problems with the integration of digital technologies, among which are cost and maintenance for the operator and the visitor. The costs are often recouped and justified, as a large tourism market has significant economic opportunities. However, costs must be evaluated on the basis of potential profits.

Digital technology in tourism can be perceived differently depending on the subject of perception. Thus, 3 aspects can be distinguished:

1. From a tourism perspective, digital tourism is the process of consuming digital tourism products and using digital tourism services.
2. From the perspective of industry tourism operators, digital tourism is the digital transformation of the tourism industry, the digitisation of tourism information, the digitisation of business processes, the production of digital tourism products and the provision of digital services.
3. From a social development perspective, digital tourism is a product of integrated digital and tourism development.

A study of the academic literature on digital technology in tourism identified the characteristics of digital tourism as: the integration of digital technology and tourism and the digitization of tourism information; Internet travel, digital marketing, digital management and extensive data analysis; digital innovation, the provision of digital tourism products and digital services.

Considering the above and considering the nature of digital technology in tourism, 3 types of tourism

in which technology is widely applied can be distinguished: traditional tourism, digital tourism and smart tourism.

Traditional tourism. After the commercialisation of the tourism industry until the advent of modern information technology, it can only rely on letters, telephones and telegraphs and cannot rely on the help of electronic information technology to carry out tourism activities.

Digital tourism: is an important area of tourism informatisation, concerning the digitisation and networking of the whole process of tourism activities.

Smart tourism is the use of cloud computing, Internet of Things and other new technologies via Internet / mobile Internet using portable Internet terminal devices to actively perceive information about tourism resources, tourism economy, tourism activities, tourists, etc. It is also crucial to make it public timely so that people can understand this information, organize and adjust work and travel plans in time to achieve the effect of smart perception and convenient use of all kinds of travel information.

Methodology

The research methodology was based on qualitative design and included methods such as content analysis of hospitality and tourism industry company websites (Expedia, Opodo, TUI, Booking.com, Hotels.com, Airbnb, Lufthansa, WindingTree, Indonesia Travel Exchange (ITX) , Hopper), statistical analysis of digitalization indicators of hospitality and tourism sector based on Statista (2021).

RESULTS

The needs of consumers in the hospitality and tourism industry for greater levels of speed, security and service quality have contributed to the development of the latest technological solutions. Over the last decade, digital solutions have further reflected the growth of digital tourism and hospitality through the use of new IT services, leading to the increasing digitisation of the tourism industry as part of the digital economy.

The hospitality and travel industry provides for package tours, hotel room rentals, private holiday

rentals and cruises. Notable providers of travel services include online travel agencies (OTAs) such as Expedia, Opodo, and tour operators such as TUI. Specialized providers of hotels and private accommodation rentals that enable online-booking are e.g. Booking.com, Hotels.com, Airbnb. Booking volumes include all travel booked by users within a particular region, regardless of departure and arrival.

Some of the key areas of digital tools for the hospitality and travel industry include: digital marketing in the travel industry; digital presence of companies through travel websites; digital presence of consumers through online travel search, online booking and travel planning technologies; and social media. According to Statista, the global online travel market size in 2021 is \$433.2 billion. In the US, for example, digital travel advertising spending was \$3.54 billion (Statista, 2021a). Booking.com is the most visited travel and tourism website.

Technology in tourism was first introduced in the 1960s and used in online travel when the first Global Distribution System (GDS) was developed (Statista, 2021f). The GDS is an online network linking hospitality industry suppliers (hotels, airlines, cruise companies) with travel service providers, primarily travel or online agencies. The access of the suppliers implied getting information about the number of available seats, hotel rooms, tickets, etc. Hence, GDSs have allowed hospitality and travel industry providers to access such information and book travel services for customers. In 2021, the global market size for global distribution systems was about \$6 billion (Statista, 2021f). In 2021, the business segment of one of the largest GDS companies Amadeus generated around \$1 billion in revenue (Statista, 2021f).

Cloud computing and big data are some of the most used technologies in the hospitality and travel industry. These technologies are used to store, manage and access data on the Internet. According to a Statista study in 2021, more than half of travel operators and travel agencies in Europe have purchased cloud computing services and used them via the Internet. Comparatively, in 2016, 29% of agencies and operators were using the service (Statista, 2021f), clearly demonstrating the growth of digital tourism and hospitality. According to another Statista study in January

2022 on the hotel industry, during the coronavirus pandemic, 25% of global hoteliers implemented the self-service concept through the use of technology (Statista, 2021f). As of March 2021, approximately one thousand accommodation establishments were offering cryptocurrency payments to customers. There were 114 tour operators and agencies among the travel businesses that have implemented this option (Statista, 2021f).

Another progressive and universal form of technology in tourism processes is blockchain technology. The specifics of this technology consists of finding data about purchases of travel services in a single digital space, which can help everyone involved in the process to provide services for the sale of a travel product, to focus on real objects about consumers and to provide for their needs, personalizing promotional offers. This is illustrated by the airline Lufthansa, which has already started a partnership with blockchain start-up WindingTree to implement and evaluate the effectiveness of decentralized self-driving travel apps. In 2018, Sri Lanka organized a major digital promotion of the country as an attractive tourist destination, which attracted 2.5 million tourists. Indonesia has responded to Airbobob's international expansion by launching its own penthouse and villa booking network through the Indonesia Travel Exchange (ITX) with over 2,000 different lodgings. There are dozens of technology start-ups in the tourism industry seeking to bring their original ideas to the field (Vengerska *et al.* 2021).

Among the digital tools used by the hospitality and travel industry are travel apps that allow users to independently book travel services (hotel reservations, ride booking, ticket purchases, short-term rentals, etc.). According to Statista Digital Market Outlook, travel apps generated \$0.3 billion in global revenue in 2021 (Statista, 2021f). China and the US are the top two countries in the travel app market, with combined revenues of \$164 million in 2021 (Statista, 2021f). Booking.com, Airbnb and Hopper are among the world's most downloaded apps (Statista, 2021f). In the US, Hopper was the most downloaded of all travel booking apps in the second quarter of 2021 (Statista, 2021f). Using the Internet to find new destinations and book, plan or review travel has become part of the online travel marketplace. According to a Statista study

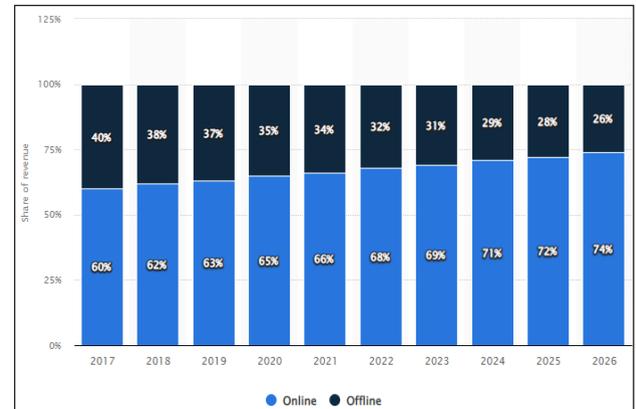
conducted in the fourth quarter of 2021, about 27% of surveyed Canadian consumers aged 30-44 have browsed websites to find travel and holiday destinations. In Italy, the figure was 27% among users over 45. Among Americans, the figure was only 6% for those aged 18-29 (Statista, 2021g). Among German respondents, 15% of users aged 30-44 use websites for this purpose (Statista, 2021d). Hotels were the most popular type of travel service booked by online consumers, airline tickets and car rentals ranked second and third respectively.

The most popular tool for travelers is the computer as a way to plan, book and manage a trip. Overall, more than half of consumers of all ages use a personal computer to plan a trip around the world. The next most popular way to make travel arrangements is a personal conversation with a travel agent: 2 out of 10 respondents mentioned this way as a preferred one (Statista, 2021g).

By and large, the online travel industry consists of e-commerce sites and sites for viewing places to visit. Websites of e-commerce businesses in tourism focus on the sale of tourism products (accommodation, airfare, car rental). Travel companies offer direct sales of products through a website or through an online travel agency (OTA). Destination review websites, such as Tripadvisor, allow travelers to view and publish online reviews of hotels, restaurants and other types of businesses in the tourism and hospitality industry. On such websites, companies place advertisements and earn revenue from the advertisements.

A major trend in the hospitality industry is independent booking and travel organization by tourists, in particular through online agencies. Online companies offer the convenience of booking via computer and often offer good value-for-money package deals to consumers through a discount system from service providers. As a result, many travelers are abandoning traditional travel agencies in favor of online travel booking apps and platforms. In 2021, around 60% of global travel and tourism market revenue was generated by online sales channels (Fig. 1). In 2020, the global online travel market was approximately USD 433 billion and by 2026, according to Statista, it is projected to be around USD 691 billion (Statista, 2021d). Revenues in the tourism industry are expected to grow at a higher rate in 2022-2023, with online sales

dominating the distribution of sales. In 2021, 66% of global travel and tourism industry sales were made online and 34% were made offline. Statista Mobility Market Outlook estimates that online sales will increase to 74% by 2026 (Fig. 1).



Source: Statista (2021b).

Fig. 1: Share of revenue from different sales channels in the global travel and tourism market from 2017 to 2026

The leading companies in the online travel agency market are Booking Holdings and Expedia in terms of revenues in 2021, which amounted to \$11 billion (Statista, 2021d). In 2021, revenues increased significantly, however, they did not reach the level of 2019. The online travel company Airbnb has also grown significantly in terms of revenues. The company focuses on the online holiday rental market and predominantly offers accommodation with a family. In 2021, Airbnb's total global bookings peaked at \$47 billion, rising significantly after falling due to the pandemic (Statista, 2021d).

It is worth considering also the features of Digital Advertising, which uses the Internet to promote marketing messages of different formats to the users of tourism services. Marketing messages include search engine advertising, banner ads, video ads, and advertisements. The digital advertising market is segmented by desktop and mobile revenues, by mode of delivery, e.g. desktop computers (including laptops) or mobile devices (smartphones and tablets). Social media advertising revenue includes advertising revenue generated by business networks or social media (Facebook, Twitter, LinkedIn). Ads on social media may appear alongside the news feed or as sponsored posts. For example, Greece spent the largest share of total digital ad spend on travel

advertising in 2021, with Austria and Portugal in second and third place. More than 11% of digital ad spending in Greece is aimed at the travel industry. Comparatively, the figure in Germany was 2.2% (Statista, 2021c).

DISCUSSION

The development of digital tools of the national and global tourism industry is the development of Internet economy, e-economy, Internet tourism based on digital technologies related to the management processes of digital information and computer technologies, representing a set of digital methods and programs. Technology in the hospitality, catering and green industries has been given the opportunity to expand the target audience through improved service and its quality, using European experience. Booking.com - the travel aggregator provided an opportunity for potential customers to see small hotels around the world. Airbnb - formed a new market for apartment rentals. Uber, Gett - taxi aggregators, whose participants have attracted to small businesses many people who use their own car and making this service cheaper. Many travel companies are running their business processes in a real-time system, which leads to better analysis of «big data» and a lack of duplication on a single platform. This has enabled more than 30 million documents to be digitized per month with a 7-fold increase in automated reporting (Saura *et al.* 2020). Among the major trends in the development of the hospitality and tourism industry, scientists also mention:

1. The system of information technologies used in tourism by tour operators and tourism product providers: computer reservation systems, teleconferencing systems, multimedia systems, automated management systems, airline information systems, electronic payment systems, Internet, notification tools, etc. (Almeida-Santana, David-Negre & Moreno-Gil, 2020).
2. Automated management systems in the hospitality and tourism industry, serving as a tool to create an efficient tourism structure to ensure a comfortable working environment for the staff of the enterprise (Zsarnoczky, 2018).

3. The Internet, which allows tourism businesses to open up new forms of customer outreach, enables constant interaction with their business partners, and provides access to a range of information sources.
4. The activities of global metasearch engines in collaboration with powerful digital consumer platforms, both self-owned and affiliated.
5. The use of Global Distribution Systems to quickly and conveniently book transport tickets, hotel reservations, car rentals, currency exchange, sports and cultural events.
6. Concentration of tour operators' interests on the B2C segment with the offer of direct online booking of their services on the corporate website. Many tour operators, especially in the domestic tourism segment, are now actively promoting direct online distribution (Wu, 2020).
7. Development of internet booking systems, national tour operators' websites and their own websites for selling and searching tourism products (Akhtar *et al.* 2021).
8. The possibility of using mobile devices, as most searches are done with them (Akhtar *et al.* 2021).
9. Global satellite navigation and geo-information systems. The most popular satellite navigation system active in the world is GPS (Global Positioning System) (Caraivan, 2017).
10. Innovative technological trends in tourism and hospitality include: BigData, blockchain, VR&AR (virtual and augmented reality), IoT (Internet of Things), robotization, artificial intelligence, mobile applications (Kononova, Prokudin & Tupikina, 2020).

CONCLUSION

Information technology is an important part of the hospitality and tourism industry, driving its rapid development. Advertising campaigns of travel companies are often posted on the Internet on various websites, thus attracting increasing attention from the audience. The effective operation of travel agencies is a basic component of any

travel agency. Website activities cannot be carried out without advertising. The personal computer and the Internet, being publicly available modern technologies, are a specific factor resulting in a growing number of new information technologies being introduced in all areas of tourism. Tourist enterprises use the available potential of the Internet information resource to further modernize the reservation system, which leads to the development of tourism within the framework of modern communication technologies. It should be noted that the current limitation to active tourism during the COVID-19 pandemic fosters other forms of meeting tourism needs, leading to the rapid introduction of modern information technologies into tourism (virtual tourism, artificial intelligence, digitalization, etc.). At the current stage, we can note the trends of digitalization in tourism, which is promising with the consolidation of business, the application of new technological solutions, the use of dynamic real-time bundling systems, new booking services, online services for direct sales of individual services and tour packages with the possibility of independent tour design, hotel management systems, solutions based on BigData for demand forecasting and pricing management. In the travel market, those companies that offer the most customized interaction process with the tourist will be at an advantage. This will preserve customer loyalty and business profits, multiply conversion rates and increase security level.

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