

Ljiljana Stanojevic¹

Svetlana Vukotic²

Drago Cvijanovic³

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Digital transformation of business processes in tourism

Abstract

Digital transformation implies a comprehensive approach to business process management. Innovations in the field of information and communication technologies have also affected the tourism sector, bringing new types of competition. The paper analyzes how the introduction of certain web technologies has led to changes in tourism, from electronic, through mobile, to smart tourism. Web 1.0 technologies have contributed to the improvement of reservation systems. Web 2.0 provides tourists with the opportunity to have all the relevant information throughout the trip. Web 3.0 technologies in tourism 4.0 create a smart tourism environment and contribute to the creation of smart tourism services. This adds value to the tourist offerings that tourists rely on when choosing a tourist destination through three types of personalized experience: virtual reality, augmented reality and IoT technologies. The paper can be useful primarily to the expert community, but also to all other interested, scientific or professional circles in the field of tourism, as well as from other activities.

¹ Faculty of Social Science, Novi Beograd, University Business Academy in Novi Sad, ljiljana.stanojevic@fdn.edu.rs

² Faculty of Applied Management, Economics and Finance, Belgrade, University Business Academy in Novi Sad, svetlana.vukotic@mef.edu.rs

³ Faculty of Hotel Management and Tourism, Vrnjačka Banja, University of Kragujevac, drago.cvijanovic@kg.ac.rs

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Introduction

The development of science and technology is happening in parallel with globalization, creating a compression of space and time limits, making the world a “global village”. The application of innovative technologies is increasingly a key factor of competitive advantage, but also a factor that has the potential to change the overall structure of the industry. In this context, the development of the Internet and the Web, i.e. Web 1.0 technology, has influenced the blurring of boundaries between individual industries/activities, enabling the connection of telecommunications with computers and other information technologies.

Innovations in the field of information and communication technologies have also affected the tourism sector. Modern tourists observe the entire chain of tourist offer, from the moment of booking tickets, trips, i.e. travel, accommodation, until returning home. Today, owing to the Internet, digital marketing, electronic reservation systems and all other benefits that the development of information technologies brought, their use has become necessary everywhere in tourism, including the field of rural tourism (Cvijanović et al., 2019a). In addition, technological innovations have a significant impact on value chain management and encourage the development of new tourism business models in the global value chain, especially in the distribution chain. The main players were the main users of technological innovation, while smaller actors, due to the lack of capital, information literacy, technophobia and, above all, lack of clear strategic plans, do not always take the real advantage of technological innovation (Kachniewska, 2013).

Research on tourism innovation highlights collaboration and networks by demonstrating the various comparative advantages associated with collaborative efforts and requiring organizations to have new capabilities to engage in innovative efforts within the network. Innovative efforts in collaboration with clients, which can bring many benefits to tourism organizations, are especially important (Zakić & Vukotić, 2019).

The undoubted importance of information technologies and innovations that find application in tourism were at the same time an incentive to be explored in this paper. In addition to the introduction and conclusion, the paper consists of three sections. The introduction of technologies from Web 1.0 to Web 3.0 will be presented chronologically through three subheadings. In

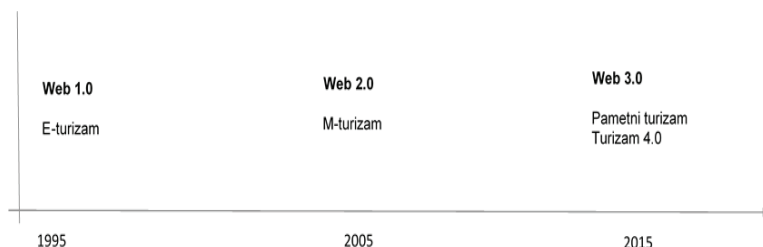
accordance with that, the gradual digitalization of certain business processes and the emergence of new business models in tourism will be elaborated: from electronic, mobile to smart tourism.

1. Web 1.0 technologies and e-tourism

Web 1.0 technologies have introduced innovations in business processes in the tourism sector, enabling the emergence of new tourism business systems, but also new business processes within existing tourism organizations, related to the supply and distribution of tourism services. With the appearance of Web 1.0 technologies, the Internet becomes the dominant channel for communicating with consumers and distributing information to them, using various services, such as e-mail or the web. Although the first web pages were static, they enabled users of tourist services to find the necessary information about tourist destinations, as well as travel conditions, in a faster and easier way. By making data available on the Internet and on websites, tourism organizations have expanded their markets and gained the opportunity to better promote their offer (Stanojević et al., 2021, 89).

The possibility of direct communication with service users, as well as the direct sale of services, has reduced the need for various tourist intermediaries, which has reduced business costs. Tourists are now much more independent and can organize trips themselves, find accommodation and plan how they will spend it, which is true even for very remote destinations. Technologies have reshaped not only the way the tourism industry operates, but also the tourism experience itself, which is no longer limited to on-site services, but has expanded and has been dynamically created in both physical and virtual space (Neuhofer, & Buhalis, 2014).

Adoption of web 1.0 technologies and gradual digitalization of certain business processes, especially the process of booking various tourist offers, have contributed to the emergence of electronic tourism or e-tourism, which not only increased efficiency and quality of services, but also contributed to the development of new tourism products and services. The impact of information and communication technologies on the emergence of new business models in tourism is shown in Figure 1.

Figure 1 *Influence of ICTs on business models in tourism*

Source: Creation of a research author, 2021

The role of promotion in tourism is especially obvious in the phase when potential consumers make decisions on the purchase of a specific tourist product. The decision to purchase a tourist product, i.e. to participate in tourist trips, is not primarily influenced by the specific qualities of a particular tourist destination, but, above all, by matching the basic attributes/characteristics of the destination with psychological and other needs of tourists (Pope-scu, 1996).

Owing to the development of the Internet, travel agencies have been able to access the resources of global distribution systems to book and sell services, giving them the opportunity to expand their travel services and the ability to respond to the diverse demands of end users. However, the development of the web, as an internet service, has created the conditions for smaller business systems to enter the market of tourist services and online reservations. One such example is the Internet Travel Network (ITA), which in 1995 was the first to offer online booking services to its customers through its website, relying on existing global distribution systems. Shortly afterwards, ITA developed its own booking system based on Web 1.0 technologies, which significantly reduced travel agency costs thus jeopardizing the market position of hitherto dominant global distribution systems such as Sabre and Apollo. Due to lower costs, ITA soon became an alternative global distribution system relied on by many other online booking websites (Waksberg, 1997). Namely, successful business models based on Web 1.0 technologies have encouraged other tourism organizations to innovate their business processes by relying on these technologies.

During the period, both the intranet and the extranet appeared, as computer networks that use Internet technology to develop an internal computer network within an organization (intranet) or to connect its IT resources, with

suppliers, customers or other organizations with which they share common goals (extranet). The development of extranet and the development of applications based on web services, organizations have developed new business processes for performing commercial transactions. In this way, any travel organization that provides online booking services could access the ITA platform via the extranet and thus bypass the use of global distribution systems. With Web 1.0, decentralization in the online reservation market began, which was reflected in other segments of tourist offers. A key role in this decentralization was also played by end users, who quickly embraced Web 1.0 technologies, striving for greater flexibility in the organization of their travel and lower prices.

2. Web 2.0 technologies and M-tourism

With the further development of ICT and the emergence of Web 2.0 technologies (the emergence of social networks and two-way communication), there have been further changes in the supply and demand of tourism services, but also the emergence of other tourism intermediaries. In order to position themselves strategically, reduce risk and business costs, organizations are increasingly investing in information technology (Dragičević Radičević, & Stanojević, 2017).

Many studies conducted in this domain indicate that investments in information technology contribute to a far greater increase in revenue than to reduction of operating costs, and the reasons given are increased competitiveness of companies, better analysis of business and market trends, modern and faster information systems (Dragicevic Radicevic , & Stanojević, 2017; Kohli, & Melville, 2009).

Evaluating the success of online promotion is the latest challenge marketers (marketing managers) face. The beginning of these attempts was based on visits to certain sites, but it soon turned out that it was not rational. More precisely, it is not important to count how many times the site has been visited, but how many people have actually bought something. An important assumption that should certainly not be ignored is that consumers mostly choose advertisements they want to watch on the Internet, and not as in traditional media that are broadcast or printed, where consumers are automatically exposed to advertisements (Cvijanović et al., 2019b, 208-209).

By investing in information technologies, modernizing their infrastructure and digitalizing business processes, tourism organizations have been given the chance to adapt their value proposition to new requirements of con-

sumers who, in addition to lower prices, seek to create their own travel plan, but also social networks, whose web pages are clear and easy to search. Web 2.0 technologies have made it possible to raise the quality of web pages and enrich their content with audio and video materials, interactive digital maps - GIS (to show objects on digital maps or find the best route, etc.), as well as sections for comments and collecting the opinions of users, all with the aim of faster understanding the end users needs.

On the other hand, the emergence of smartphones and applications, social networks and better and more intensive interaction and content sharing via smartphones, has enabled consumers to share information about tourist destinations, quality of services, ambience and environment and increasing placement of tourist offers via social networks. The growing reliance of tourists on smartphones, both in the phase of searching for a suitable destination and in the phase of booking accommodation and finding attractions in chosen destinations, is marked in the literature as the beginning of M-tourism (mobile tourism). Unlike e-tourism, which has given tourists the opportunity to have all the information before and after the trip, m-tourism allows tourists to have all the relevant information throughout the duration of the trip (Georgeta-Irina, 2013).

Web 2.0 technologies have redefined the role of travel agents and enabled the emergence of new business models. Online travel organizations, created owing to Web 1.0 technologies, now have the opportunity adapt their offers to demand requirements in a faster way and improve their business models through better interaction via the Internet and the web with end users, but also business entities.

In parallel with online travel organizations, so-called aggregators or “meta-search-engines” are emerging - internet organizations that allow consumers to search for hotel offers in one place, i.e. on their website, based on criteria they set themselves. Examples of aggregators or Internet organizations created on Web 2.0 technologies are TripAdvisor.com, Booking.com, etc. The emergence of aggregators has given end users the opportunity to publicly express their views on the quality of hotel or tourist services as a whole, which has led to online comments and user reviews becoming the second most important factor in choosing a tourist offer (Fong, 2010). This was further reflected in raising the quality of hotel and tourist services, in order to avoid negative comments.

The best example of a new type of intermediary and disruptive business model based on Web 2.0 technologies is the AirBnB business model. AirBnB's business model, known as a multi-faceted web platform, has enabled the creation of a new online market for the supply and demand of tourist con-

tent. AirBnB's business model has connected private accommodation owners with consumers looking for a different type of service, more tailored to their needs and habits, in comparison with what travel organizations can offer. The proposed value, AirBnB based on the ability to personalize the search when searching for accommodation, as well as the guarantees it offers for each accommodation available on their web platform. Work transparency, as well as the trust of end users is provided through ranking accommodation by guests, but also ranking of the guests by the owner of the accommodation. AirBnB's revenue is based on a fee paid by both service providers and consumers who book accommodation through AirBnB, with the price of accommodation determined by the accommodation owner, not AirBnB (Bashir, & Verma, 2016).

The impact of this disruptive business model on the hotel sector has been great. A study conducted by Dogru, Mody and Suess (2018) showed that with the growth of the AirBnB offer, there was a decrease in hotel revenue per room. More precisely, the authors showed that an increase in supply of only 1% per year leads to a decrease in revenue per room by 0.02% and that this negative impact was felt by hotels in all categories, including luxury hotels. The real impact of declining revenue per free room is far greater given that the increase in AirBnB supply from year to year was even greater than 100% (Dogru et al., 2018).

A research carried out by Mody and Gomez (2018) shows that due to the increase in Airbnb's offer in 2016, hotels in Boston recorded a drop in revenue per room of 2.5 or 5.8 million dollars. A similar negative trend of hotel business, due to the entry of Airbnb on the market, was noticed in other big cities, as popular tourist destinations.

Another technology that has expanded owing to Web 2.0 technologies and which has contributed to the digital transformation of certain business processes in tourism are geographic information systems - GIS. Although they were created much earlier (60s of the last century and were initially used exclusively by state and military institutions), only with Web 2.0 technologies (service-oriented architecture, mash-up technologies - AJAX, PHP, MySQL), GIS becomes available on the web, and thus to the Internet users (Stanojević, 2017, 22).

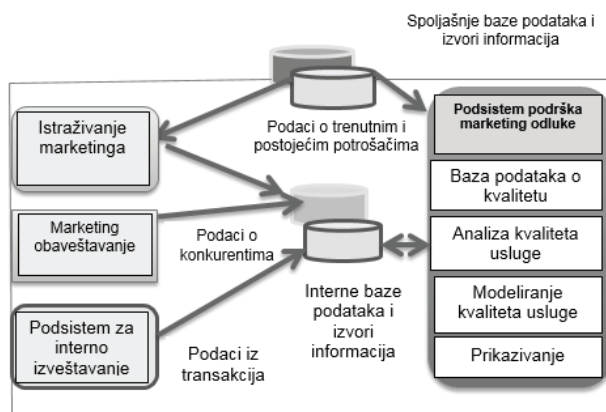
As spatial information systems capable of displaying on interactive digital maps the precise geographical locations of objects on earth, but also their features (addresses, photographs, contact telephones, etc.), geographic information systems have become indispensable content of most websites, but also a tool on which consumers rely for decision making and navigation in space (Gerasimović et al., 2010). This is especially true of the websites of tourism organizations, which have begun to use GIS to complement the content of

tourism offerings, with the ultimate goal of motivating consumers to travel to offered tourist destinations. The ability to view geographical location and accompanying content using only a web browser has transformed the travel planning process. Internet companies such as TripAdvisor.com, Booking.com have integrated interactive digital maps (such as GoogleMaps) within their web browsers to allow end users, guided by their personal needs and desires, to personalize their travels, or to compare, select and reserve adequate accommodation based on its location, appearance (available photos related to the location posted by other users or service providers), proximity to attractions, cultural and entertainment events organized nearby, airports, etc.

Web 2.0 technologies have involved Internet users in creating content and given them the opportunity to further share and comment on available content. All this has contributed to the process of selecting an adequate tourist offer growing into a collaborative decision-making process based on opinions and comments available on social networks and websites of tourist organizations and Internet intermediaries. Contents available on social networks have become an integral part of the value offer of tourism organizations that strive to provide a competitive advantage in the market, and influencers and other existing users have become co-creators of tourism services (Sigala, & Marinidis, 2009). All this has had a positive effect on the business processes of tourism organizations, because the content created by end users (comments, reviews, etc.) began to be used to eliminate the shortcomings of inefficient business processes, as well as for their further improvement.

Web 2.0 technologies have made it possible to connect organizations' information systems with websites. The basic activities of information systems support relate to: which tourist services to offer, what price to quote for the offered services, where to place services and through which channels, and how to advertise the tourist service. In tourism, the most complex, most interesting, but also the most demanding component is the one related to promotion, which is used in advertising and selling tourist services. Marketing information system in tourism is presented in Figure 2.

Figure 2 Marketing informational system in tourism



Source: Vojnović et al, 2012.

In the tourism market, competition occurs among “equals.” All consumers/tourists have similar demand preferences for comparable products. The advantages of online promotion in tourism, and beyond, are (Ubavić, 2015):

- the possibility of generating direct sales,
- providing comprehensive information to consumers,
- gathering information for market research,
- creating the image of the product/service/destination,
- encouraging consumers to try the product/service,
- support for other forms of promotion, etc.

The main disadvantages of online promotion are the lack of universal criteria for measuring the effectiveness of this form of promotion, as well as the different degree of development of information technology in some parts of the world (Ubavić, 2015).

3. Web 3.0 Technologies and Tourism 4.0 – Smart tourism

The development of Cloud technologies, intelligent devices, wireless data transfer protocols from these devices, large data storage technologies, mobile technologies, as well as artificial intelligence led to a new technological discontinuity and marked the beginning of the fourth industrial revolution.

All these technologies, which are also called Web 3.0 technologies, have been applied in the tourism sector, leading to the emergence of the term smart tourism or Tourism 4.0.

Compared to e-tourism and m-tourism, smart tourism or tourism 4.0 is a broader aspect and refers to creating a personalized traveler experience using Web 3.0 technologies.

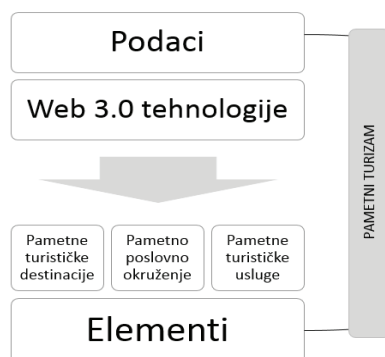
The elements of smart tourism are as follows (Gretzel et al., 2015):

- Smart tourist destinations – a term related to the development of infrastructure within tourist destinations based on Web 3.0 technologies.
- Smart business environment – that is, further transformation in the field of business processes and business models of tourism organizations, along with the application of Web 3.0 technologies, aimed at providing smart tourism services, due to the increasing use of smart technologies by tourists.
- Smart travel services – that is, services that are interactive and far more personalized due to Web 3.0 technologies, thus contributing to improving the quality of end-user experience and creating additional value for them.

As a result of a large amount of available data (Big Data), their analysis, visualization and integration into smart tourism services, modern Web 3.0 technologies have encouraged the development of smart tourism (Tourism 4.0), as well as the creation of innovative tourism offers and services. Therefore, Web 3.0 data and technologies are another important element of the smart tourism concept (Figure 3).

The concept of smart tourist destinations and smart tourism in general, comes from the concept of smart cities (Lee et al., 2020). In the last few decades, large cities around the world have faced a constant population increase, which has significantly endangered the functioning of the existing urban infrastructure. On the other hand, these cities are also tourist destinations that attract a large number of tourists every year. According to the United Nations World Tourism Organization, the number of tourists is expected to increase by about 2 billion a year by 2030, which puts additional pressure on cities and their infrastructure (Tourism Towards 2030 / Global Overview, 2011).

Figure 3 Elements of smart tourism



Source: Creation of a research author, 2021

The concept of smart cities implies the development of urban infrastructure based on Web 3.0 technologies, in order to improve living conditions, modernize urban infrastructure and ensure better functioning of city institutions, providing citizens and tourists with access to necessary information in real time.

This idea led to the creation of smart tourist destinations, whose innovative infrastructure is supposed to offer additional value to tourists. Understanding the needs of end users is regarded as an important prerequisite for creating added value. Nowadays, mobile technologies and applications, as well as various intelligent devices that exchange data without intervention or knowledge of users, and which users rely on in their daily activities, enable travel organizations to access crucial business information about their consumers. In other words, by collecting data from intelligent devices owned by end users (Big Data), and their further analysis with the use of artificial intelligence, it is possible to carry out the following (Tsaih, & Hsu, 2018):

- Predict the needs of end users based on various factors (their movements, shopping habits, activities on social networks, messages left in conversations with chat-bots, etc.) and propose different services in accordance with the results of analyses, that is, needs and interests end users.
- Improve the quality of the tourist experience by including interactive, automated and intelligent services in tourist places.

A key change in the tourism sector was influenced by Web 3.0 technologies – it is the ability to obtain and analyze real-time tourist data. Unlike the data collected using various surveys, these data are reliable, representative

and detailed, because they enable the analysis of the behavior and habits of a much larger number of tourists, thus contributing to better segmentation of services (Korze, 2019).

Smart tourism plays the key role in the development of smart cities. Every tourist destination aims to increase the number of tourists, without endangering its normal functioning. Building a modern infrastructure of tourist destinations based on modern Web 3.0 technologies such as IoT solutions, fast WiFi networks, 5G networks, virtual reality, augmented reality, GIS applications, etc. has multiple benefits for tourist destinations, because:

- such solutions create additional values and improve the quality of tourist services,
- contribute to the development of smart tourist destinations and smart tourism, as well as the development of sustainable tourism in general.

Some of the smart technologies that create a smart tourist environment, contribute to the creation of smart tourist services that increase the value of attractive and reliable tourist offers are: virtual reality, augmented reality, IoT technologies.

Virtual reality - is a set of technologies used for computer 3D simulation of the environment to create a 360 degree view of the environment (360 VR video) using audio and video formats. 360 VR video uses specialized software that creates virtual reality based on real-world videos, rather than a computer-generated environment, which is why it has been widely used in the field of tourism. Using their photos or videos, tourists are able to get a 360 degree view of the location. 360 VR video has the potential to enrich the services and content available to tourists and provide tourists with the opportunity to interact with the real environment (Yung, & Khoo-Lattimore, 2019).

One of the biggest advantages of applying virtual reality - 360 VR video in tourism is the ability of this technology to enable tourists to experience their stay in the chosen destination as if they were there. While digital photos and videos themselves can well illustrate a tourist destination offer, they cannot evoke the emotional response that 360 VR video can produce. In order to promote tourism and tourist destinations, applications available on smartphones, tablets or computers based on 360 VR videos (i.e. which use so-called monoscopic VR records) are increasingly used to attract potential tourists, but also give them the opportunity to explore place of residence before booking. In addition to videos, VR applications available on smartphones, tablets or computers can also be based on photos of given tourist destinations or hotels, taken with special cameras. Today, these two VR technologies are a very common type of promotion of tourist destinations on social networks.

On the other hand, stereoscopic 360 VR videos are used to create a virtual reality that allows tourists to feel the local atmosphere as if they were physically, currently there. These tracks can only be played using the VR viewfinder. In other words, due to this technology, potential tourists have the opportunity to see and experience the environment they are observing. The application of virtual reality in the business processes of tourism organizations opens the possibility of their digital transformation and achieving competitive advantage. Instead of brochures, travel agencies can now present tourist destinations in a new and innovative way. This is of crucial importance nowadays, considering rather difficult working conditions that travel agencies have been dealing with since the beginning of the Covid 19 pandemic, because the application of virtual reality has the potential to accelerate sales and strengthen the brand of a given travel organization, especially now, when widespread awareness of the negative impact of the coronavirus pandemic is obvious and it is of strategic importance to all decision makers to deal with the pandemic and help restore the level of tourism development and further development, as well as to develop strategies that will be useful in the event of new crises at the global or local level. The goal of the global economy is to ensure sustainable inclusive tourism and to return the number of international arrivals to the pre-pandemic period (Mirčetić et al., 2021). Also, virtual reality can help protect important archeological sites and endangered nature reserves, reducing the number of tourists in given locations, but at the same time providing a large number of tourists with the opportunity to virtually enjoy them.

Augmented reality - is the use of technology in order to enhance or enrich the display of what the user is currently seeing, through accompanying text, images, or sound. This technology involves the use of applications for smartphones or tablets. When these devices are directed toward a specific subject, the app adds sounds, images, or text to the existing view to further clarify, enrich or expand the view. In this way, museum visitors are no longer just passive observers, but are actively involved in the augmented reality they observe (Ding, 2017). Today, these applications are used in the tourist offers of museums around the world, such as the National Museum in Singapore, the Ontario Art Gallery in Toronto, the Smithsonian Institution in Washington and many others. For example, in 2017, the Smithsonian Institution in Washington presented augmented reality technology called Skin and Bone, which allowed museum visitors to see existing animal skeletons as they actually looked like, in reality. Smartphone applications that provide tourists with complete information on all tourist attractions within a given city, information on the best time to visit a particular tourist attraction, easier navigation,

information on public transport services, accommodation, etc. To provide real-time services through these applications, their integration into IoT solutions is necessary.

Internet of Things Technologies (IoT) - enables data collection from the sensors of various intelligent devices, their transmission and storage on the Cloud platform, analysis and use in order to improve the process of work, management and decision-making. Internet of technology refers to the interconnection of physical objects, which are seamlessly integrated into the information network and are active participants in business processes (Milošević et al., 2021, 69). As such, they represent an important technology for raising the quality of tourists' stay. For example, Samsung has developed an integrated solution based on the given IoT technologies which is intended for digitalization of business processes of catering facilities (<https://www.samsung.com/rs/business/display-solutions/lynk-hms/>) This solution, intended for both employees and guests, provides the opportunity to create a smart business environment. With the help of sensors located in the rooms, it is possible to monitor the movements of guests. This data is used by a smartphone application intended for maintenance and cleaning staff, as well as management. Based on this information, they can monitor whether the guest has left the room, and whether it can be cleaned. Also, based on these data and when the guest is in the room, the temperature can be adjusted (only in those rooms) in accordance with the weather conditions, as well as the position of the room itself.

Relying on Web 3.0 technologies, leading hotel chains such as Hilton, Marriott (Marriott), and others have created a smart business environment, offering their guests a range of smart in-room services and a greater personalization of their needs as well as higher quality experiences. Through the concept of smart rooms, guests are enabled to use smart device applications (phones or tablets) to regulate the lighting or temperature in their rooms or to unlock or lock doors (Imbardelli, 2019). The automation of certain business activities related to the transfer of luggage to the rooms, using robots, was realized in the Hennana Hotel, Japan. Also, this is the first hotel in the world to start using humanoid robots at the hotel reception (Naumov, 2019).

Table 1 shows various examples of the use of innovative technologies in the hotel industry that contribute to the digitalization of business processes, in order to achieve a more efficient use of resources and reduce business costs.

Table 1 Innovative technologies in hotel industry

Hotel name	Type of service	Use
<i>CitizenM Paris, Hilton, Le Bristol, Village Hotels,</i>	Smart rooms	Lighting and temperature regulation in hotel rooms, using smart phone or tablets applications, or using digital voice assistants - voice activated artificial intelligence assistants (<i>Alexa, Siri</i>).
<i>Aloft, Cosmopolitan, Henna,</i>	Robots	Use of robots at the hotel reception, entrance, as well as for luggage transfer to rooms.
<i>Starwood Hotels, Eccleston Square</i>	Smart mirrors	Mirrors with built-in TV screens
<i>Marriot Hotels in China</i>	Facial recognition system	Using artificial intelligence as facial recognition systems, during check-in or guest identification
<i>Premier Inn Hotel in U.K.</i>	Augmented reality	Augmented reality is also used to create an interactive map that allows users to get more information when they point their smartphone at it.

Source: Stanojević, 2021

Web 3.0 technologies are the technologies that drive the digital transformation of tourism organizations and contribute to the development of smart and sustainable tourism (Lee et al., 2020).

Conclusion

Tourism is a very dynamic process characterized by frequent and rapid changes and new development trends that take place in several iterations. As pointed out, the use of the Internet for the tourism industry has multiple advantages. The Internet is a new communication medium that significantly contributes to the improvement of all types of business communication, through efficient and effective search, information exchange as well as connectivity and interactivity improvements. The benefits for the tourism industry are reflected in lowering costs, increasing the market (worldwide) and the possibility of constant communication with potential tourists.

Rapid changes in the field of information technology are diffusely spreading to all spheres of life and work, affecting the digitalization of business processes and digital transformation of business systems. Innovations in the field of information and communication technologies have brought some improvements. The main characteristics imposed by the digital transformation

of business processes are changes in business systems, their business models and business improvement of all activities. This paper especially emphasizes the aspects and ways of using modern technologies in the global tourism market.

The use of web 1.0 technology has decreased the need for various travel agents, leading to lower business costs and lower customers' expenses. Thus, web 1.0 technology has led to e-tourism or e-tourism, which has not only increased work efficiency and service quality but has also contributed to the development of new tourism products and services. Web 2.0 technologies have improved the promotion and influenced the emergence of mobile tourism, where available content on social networks has become an integral part of the value offer of tourism organizations that strive to provide a competitive advantage in the market. This type of communication with the end user provides feedback information on service quality and other important performance. Finally, a key change in the tourism sector influenced by Web 3.0 technologies is the ability to obtain and analyze real-time tourist data, which in addition to smart is also called Tourism 4.0. The ultimate goal of creating a smart business environment and its personalization is more efficient use of resources and reduction of business costs.

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