

## DIGITAL TRANSFORMATION IN TOURISM: OPPORTUNITIES AND CHALLENGES

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**Abstract.** Digital transformation and the concept of industry 4.0 has revolutionized the tourism industry in recent decades and has become an important aspect for tourism enterprise competitiveness, growth and sustainability. Digitalisation and technological development are changing people's lives, habits, work, behaviour, perceptions and decision making, and have opened new opportunities for travel enterprises to be competitive in the global market. This article provides an analysis of the most recent literature focused on digital transformation in tourism, concept of tourism 4.0 and digital technologies such as artificial intelligence, virtual reality, augmented reality, big data, the Internet of Things, blockchain, mobile technologies, cloud computing, robotics and social media in tourism. The article discusses the main opportunities that affect the digital transformation in tourism. Digitalisation adds value to tourism products and experiences, provides many new opportunities for businesses and helps achieve long-term competitive advantage and customer satisfaction. Innovation and the creation of new technological solutions are highly recommended for tourism enterprises that want to compete, grow and increase productivity and management. The current study also identifies the challenges of digital transformation in tourism and proposes areas for future research.

**Keywords:** digital transformation, tourism 4.0, tourism digitalisation, digital tourism, opportunities.

**JEL code:** O14

### Introduction

The development of Internet usage when traveling and participating in tourism activities has expanded the innovations in the tourism industry. New and increasingly innovative entrepreneurship models have emerged that aim to add value to users on their travels (Palos-Sancheza P. et al., 2021). Technological innovation has a major impact on the tourism industry, as it provides to create more inclusive experience for travellers and improve their overall satisfaction (Wei W., Qi R. & Zhang L., 2019). Information and communication technologies have become a global phenomenon and a constant driver of tourism and new technologies and platforms (OECD, 2020). Tourism can be considered as one of the first industries what started digitizing business processes globally through online flight and accommodation booking facilities (WTO, 2021).

The World Economic Forum has estimated that digitalisation alone will add up to USD 305 billion in value to the tourism industry to 2025, and around USD 100 billion will be transferred to innovative digital entrepreneurship models what create value. The digital transformation is expected to bring USD 700 billion in benefits to customers and the general public and it will be done thanks to environmental impact reduction, security improvement, and travellers cost and time saving (OECD, 2020). Destinations, enterprises and the wider tourism industry will need to make full use of these new technologies to remain competitive and realize their potential for innovation, productivity and value creation (OECD, 2020).

Digitalisation and technological development have improved people's lives in different ways as well as in the travelling process as it is possible to work from any place, to find and compare information easier and to explore the places you are not physically. For tourism enterprises it can be challenging to meet the tourists needs and provide innovative and creative services; however, digitalisation and technological development provide significant opportunities to be competitive in the global market as well as to be able to reach markets it was not possible before (Akhtar N. et al., 2021; Fraccastoro S., Gabrielsson M. & Pullins E. B., 2021). According to Organisation for Economic Co-operation and Development (OECD) (2020), enterprises unfortunately lack the understanding about these opportunities

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and possibilities to reap the benefits, and as digitalization is a process of change (Kumar S. & Shekhar, 2020), an understanding of what the digital transformation potential for innovation is crucial.

The aim of this article is to provide the most recent literature analysis on digital transformation in tourism via summarizing and outlining the main directions and trends. In order to achieve the set goal, the following tasks are realized in the work.

- 1) The progress of digital transformation in the tourism industry is shown, outlining the most important directions, trends and perspectives of technological development.
- 2) The elements of the digital transformation that are characteristic of the technological development stage of tourism 4.0 are summarized and described, emphasizing the most characteristic and effective tools in the tourism sector by providing examples.
- 3) Development directions are outlined, describing the opportunities and benefits, as well as the barriers and challenges related to the implementation of digital transformation in the tourism sector and enterprises.

In general, the analysis of the latest literature (2016-2022) is performed focused on digital transformation in tourism, tourism 4.0, tourism digitalisation, digital tourism and opportunities and challenges in is presented in this research article.

In this article, scientific articles from several principle databases - Web of Science, Scopus, ScienceDirect, EBSCO, SpringerLink, IntechOpen - are analysed, as well as information from OECD and World Tourism Organisation. This is literature review and provides groundwork for future research.

## **Research results and discussion**

### **1. Digital transformation in tourism as innovation potential**

Digitalisation and digital transformation is affecting the whole economy and society. Digitalisation has forced the entrepreneurship ecosystem to change the way enterprises compete in the market and the way tourism services are perceived, consumed and accessed (Chamboko-Mpotaringa M. & Tichaawa T.M., 2021). As well as in this digital age customers prefer everything online due to time constraints and work requirements (Raga J., 2020). In particular, the travel industry will continue to be influenced by the digital generations, especially the generation Z and the Millennial generation, known as the digital natives who have grown up with fast and direct access to the information provided by digital technologies, thereby enterprises need to take into account the expectations of these generations and their ability to use them (OECD, 2020; Hysa B., Karasek A. & Zdonek I., 2021).

According to OECD (2020), digitalisation is defined as a process in which technology and data-driven governance make the difference in economic systems and people's lives. New activities, as well as changes and improvements to existing activities are created thanks to the use of digital technologies, the use of data, as well as interoperability (OECD, 2020). These technologies affect and make the difference in entrepreneurship models by creating more efficient and profitable processes and creating opportunities that provide added value (Hadjielias E. et al., 2022).


Digitalisation has increased through the last years, especially during COVID-19 as the pandemic has affected the whole industry (Carbone F., 2020; Akhtar N. et al., 2021; Borges-Tiago T. et al. 2021). As physical distancing was necessary, people looked for another way to maintain their communication with families, friends and also colleagues and to continue to work, study and live. Tourism was one of the most affected industries by COVID-19, so tourism enterprises more and more needed to look for digitalisation possibilities to keep customers informed about them and their services letting them to wish to visit the

destination, as well as to create technological solutions what allows physical distancing, and look for innovative solutions.

It can be said that innovation potential in tourism sector can be unlocked by digital transformation paradigm - Tourism 4.0 (Peceny U.S. et al., 2019). It includes digital transformation elements, which are equivalent in Industry 4.0 (Gokkaya S., 2020) what has been considered as a technology-driven transformation (Xu X. et al., 2021). Industry 4.0 has emerged with the introduction of new digital generation technologies, what are considered as technological mix of information, computing, communication, and connectivity and involve such as technologies as social, mobile, analytics, cloud computing, internet of things, artificial intelligence, and blockchain (Busulwa R., 2022). These technological innovations can be implemented as technologies for managing entrepreneurship, for the creation of innovative travel products, services and experiences and for travel market understanding and connectivity (OECD, 2020).

Whereas, if we talk about digitalisation and digital transformation technologies, we consider different technological solutions what are evolved over time starting from increase of Internet. Dredge D. et al. (2018) classifies low digitalisation technologies and medium digitalisation technologies. As low digitalisation technologies can be considered basic office software, specialist financial software, staff intranet, e-mail, online data storage, video conferencing, collaborative working online, internet banking, social media, website, etc. As medium digitalisation technologies can be considered analytical tools as Google Analytics, customer relationship management system, mobile apps, online professional networks etc. (Dredge D. et al., 2018).

Although the COVID-19 pandemic has increased the use of technology in tourism and more enterprises have become more digitalised, it must be acknowledged that technologies and their implementation in tourism is not new (Borges-Tiago T. et al., 2021) (Figure 1).



<b>Advent of Internet Tourism 0.0</b>	<b>Web 1.0 Tourism 1.0</b>	<b>Web 2.0 Tourism 2.0</b>	<b>Web 3.0 Tourism 3.0</b>	<b>Web 4.0 Tourism 4.0</b>
Processes enabling technology (reservation and distribution systems) Almost inexistence consumer-enterprise technology-based interaction Phone and fax were main distance communication tools	Millions of global users Homepages Focused on enterprises Owning contents Html, portals Web portals Page views, clickstream Advertising Taxonomy	Billions of users Blogs, SNS Focused on communities Sharing contents XML, RSS Web applications Cost per click, ad click rate Word of mouth Folksonomy	Multiple forms Lifestream Consolidation dynamic content Semantic web Widgets, drags and drop markups User engagement Advertisement Me-onomy	Artificial intelligence Big data Internet of Things Blockchain Cloud computing Virtual and augmented reality High performance computing Lifestream

**Source: Borges-Tiago T. et al., 2021**

**Fig. 1. Digital transformation empowerment in tourism**

The Figure 1 shows technological evolution and empowerment in tourism, and as can be seen, the main technologies for the tourism 4.0 are artificial intelligence, big data analytics, Internet of Things, blockchain, cloud computing, virtual and augmented reality (Borges-Tiago T. et al. 2021; Fernindez-Rovira C. et al., 2021), but it also includes technologies what have evolved over time.

Further, authors analyse the key technologies what enterprises are encouraged to explore in this digital age to increase productivity and create value.

**Artificial intelligence (AI)** is technology that personalise and customise services on-request and that makes travelling easier and more comfortable (OECD, 2020). As AI and robotics technologies grow, more and more robots are created in tourism and hospitality enterprises what provide different technical capabilities and also repetitive, dirty, and dangerous tasks. If we take into account the COVID-19 circumstances, robots are useful tool also for physical distancing between hosts and guests (Seyitoglu F. & Ivanov S., 2021). AI in the combination with another technologies is defined as intelligent automation what supports the concept of smart tourism (Tussyadiah I., 2020).

**Big data analytics.** As one of the most important challenges in recent years in terms of technological innovation and digitalisation is the use of big data (Fernandez-Rovira C. et al., 2021). In this digital era, consumers and enterprises generate large amounts of data (OECD, 2020) and the usage of these data is considered as a tool for building customer loyalty and satisfaction, because this data is generated by the customers themselves, and that's how it is possible to predict demand, consumers' behavior, purchasing preferences, and it provides opportunity for personalization. Thereby, this undoubtedly is a serious aspect in marketing (Fernandez-Rovira C. et al., 2021; Fraccastoro S., Gabrielsson M. & Pullins E.B., 2021). Information from big data analyses appropriately used can provide enterprises opportunity to develop new entrepreneurship models and increase productivity (OECD, 2020).

**Internet of Things (IoT)** means the interoperability of sensors, data and automation what offers real-time data and information. It is used for tourism marketing and management, as this can improve the visitors experience. IoT allows for greater urban efficiency through a data-rich tourism industry and support for smart tourism, as it increases operational and resource efficiency while reducing environmental impact (OECD, 2020). IoT is mainly used with other technologies.

**Blockchain (BCT)** is based on a complicated digital algorithm that aggregates and organizes data into blocks, and afterwards assemble these blocks together using cryptography (Filimonau V. & Naumova E., 2020), and these blocks are related to each other. BCT for travel enterprises can provide possibility managing sales, management, finance and administration transactions, while being able to communicate with external stakeholders. It has the potential to promote sustainable tourism, and can be achieved with the cooperation of all stakeholders (Tyan I., Yague M.I. & Guevara-Plaza A., 2021). BCT can inspire entrepreneurship and innovation, and new innovative entrepreneurship opportunities can be discovered. It means also improvement of existing peer to peer entrepreneurships by optimization of shared economy applications. Future benefits will mean applications that will be created appropriate to user needs and will be adapted for widespread use in tourism enterprises to improve user transparency (OECD, 2020). Examples include digital currencies, optimized product distribution and refined trading models, digital/cryptocurrencies - global digital payments (Filimonau V. & Naumova E., 2020).

**Mobile technology/cloud computing.** Thanks to cloud computing, wi-fi and international mobile plans more common become using mobile devices what are used for travel goals, including access to real-time destination information, online booking, and mobile payments. In turn, cloud technology enables enterprises to run their entrepreneurship from anywhere in the world. All you need is an internet connection (OECD, 2020). The mobile phones with their technologies play the role of travel agencies, tour guides, tour operators, travel maps, best restaurant locator, etc. According to TripAdvisor, 45% of users use their smartphone in their travelling process (Raga J., 2020) and mobile applications for travellers are defined as a niche with growing potential. Today, mobile devices with a wide variety of applications have become an important tool in people's daily lives, saving time, being more flexible, and communicating with enterprises and peers through social media (Labanauskaite D. et al., 2020). Notifications in apps also allow businesses

to communicate with travellers in real-time, even when not using the app to remind or suggest something. Mobile technologies in tourism are certainly essential for sustainability (Dongwook K. & Sungbum K., 2017).

**Augmented reality/virtual reality (AR/VR)** is digital environments that involve interactive experiences, but if we compare both, VR creates a more immersive interaction. AR systems display virtual objects in the real world, and AR refers to the addition of digital information to the real environment, thus providing travellers to see the world in front of them not being actually there, to explore historical informative and adventurous experience (Peceny U.S. et al., 2019) or absolutely new and imaginary reality. It can include text and images that can even increase their experience (Chamboko-Mpotaringa M. & TichaawaTM, 2021). VR allows travellers practically virtually immerse, orient and interact with different senses (Wei W., Qi R. & Zhang L., 2019; Chamboko-Mpotaringa M. & Tichaawa T.M., 2021). This digital environment allows travellers to look for new and specific places and destinations. The actual feeling that you are there encourages the desire to travel (Tussyadiah I.P. et al., 2018; Akhtar N., 2021), influences the choice and decision of the desired destination (Peceny U.S. et al., 2019) and the purchase decision, and even increases the willingness of travellers to pay more (He Z., Wu L. & Li X., 2018). AR and VR are necessary for enterprises marketing strategies and income development. These also make it possible to achieve goals of sustainable tourism and as well as for preservation of the environment and cultural heritage (Akhtar N. et al., 2021).

**Social media (SM)** has an important role as information and engagement tool and is used for creating the brand awareness for regions, enterprises, destinations and attractions and also for building relationships with travellers before, during, and after travel (Hysa B., Karasek A. & Zdonek I., 2021). Assessing the technological development cycle, it is emphasized that the biggest changes have taken place right after Web 2.0, as the ability to share content during these decades has led to a paradigm shift in communication, when people often choosing their destination influenced by the information they have seen on SM. Nowadays, for people it is crucial to be socially connected (Chamboko-Mpotaringa M. & Tichaawa T.M., 2021). It means that there is a need for them to communicate, to inspire and share their travel experiences what means that in reality they are the ones who create the content on SM. Therefore, it has created a paradigm that if enterprises want to be visible, they need to be in SM as well as work with influencers and have to be socially connected to people. As the influence of SM grows, more and more important marketing strategies have been developed for specific target groups, offering relevant content as target audience can be accessed better. Information flows on social networks very quickly and can reach huge scales (Borges-Tiago T. et al., 2021).

The technologies described above are the most current when it comes to the technological development phase of tourism 4.0, and enterprises should definitely take this into account when thinking about their entrepreneurship perspective. Enterprises can choose and decide which of these technologies they need to and wish to apply. Each of them plays a key role in creating specific solution or new experience.

There is no doubt that there is a great demand for digital transformation in tourism. Process, functionality, performance and experience solutions can be realized thanks to digital technologies and devices and interfaces for tourists, respectively (Table 1).

Table 1

**The need for digital transformation in tourism**

<b>Digital technology</b>	<b>Tourist-facing devices and interfaces</b>	<b>Solutions to processes, functionalities, activities, and experiences</b>
<b>Artificial intelligence (also with Internet of Things, big data)/robotics</b> (Tussyadiah I., 2020; Seyitoglu F. & Ivanov S., 2021)	Personalised, customised, on-demand services, service robots with different technological options for ensuring the information, cleaning, disinfection, room service, etc. These can be digital guide, host, personal assistant, check-in, porter, cooking staff, and robot receptionist, housekeeping attendant, waiter, etc., room server, chatbot and voice user interfaces, autonomous vehicles, etc.	Omni-channel marketing automation, booking facilitation, identity verification, travel facilitation, security, customer service, novelty, operational efficiency, navigation and wayfinding, touristic and supporting experience, information search and evaluation, inspiration, and effective physical distancing between hosts and guests, etc.
<b>Mobile technology/cloud computing</b> (Raga J., 2020; Chamboko-Mpotaringa M. & Tichaawa T.M., 2021; Palos-Sancheza P. et al., 2021)	Mobile tourism and travel applications with notification and messaging functionality. These can be travel route generator, geo-tracking, weather/climate forecasting, language translator, currency converter, online booking, mobile payment, reservation, ticket system, location-based services, etc.	Convenient access to destination information via mobile phone in real-time, possibility for real-time communication. Novel and innovative experiences what can be managed by consumer or tourism-related enterprises so tourism services have become more user-friendly and more reliable to customers, allowing travellers to be more spontaneous.
<b>Augmented reality / virtual reality</b> (Wei W., Qi R. & Zhang L., 2019; Akhtar N. et al., 2021; Nguyen T., 2021)	Virtual and augmented marketing and advertising materials, advertisements, 3D environment, 360 degree visibility programs, virtual tours, digital historical and cultural tours and events, exploration of natural landscapes, augmented traveller experience at destination, travel assistant that help traveller in real-time, virtual and augmented games, etc.	Visitors can experience and immerse in virtual and augmented reality, completely new and unique experience, creating feeling like real tourist spots, replacing paper-based marketing and advertising materials, etc.
<b>Big data</b> (Cuomo M.T. et al. 2021; Fernandez-Rovira C. et al., 2021)	Large data compilation, collection and analysis, large-scale data visualization, information security, privacy, big data platform, etc.	Personalization of the supply and use in content creation, which results in greater consumer loyalty, etc.
<b>Social media</b> (Hysa B., Karasek A. & Zdonek I., 2021; Hadjielias E., 2022)	Social networks and virtual worlds: blogs, social networks (Facebook, Instagram, etc.), professional social networking sites (LinkedIn, etc.), Internet forums (Fly4Free, LonelyPlanet travel forums, etc.), content communities (YouTube, Pinterest, etc.), rating services and portals (TripAdvisor, Booking, etc.), etc.	Source of information, personalised communication, engagement, content creation, interaction, comfortable, flexibility in travel, information exchange is quick and easy, easy comparisons, less time to make travel decisions, inspiration, etc.

**Source: author's compilation from several published literature**

As it is possible to see in Table 1 each digital technology with their tourist-facing devices and interfaces provide useful solutions to processes, functionalities, operations and experience.

The tourism industry is one of the first what started digitizing its services and is constantly creating new products and services that make travel more convenient, cheaper and more interesting, as well as possible for those who can't travel, thanks to virtual and augmented reality. Digital technology is becoming

increasingly necessary for tourism businesses as they create solutions to processes, functionalities, activities, and experiences through tourist-facing devices and interfaces.

## **2. Opportunities and challenges affecting digital transformation**

In order to outline the main developments for the digital transformation in tourism, it is necessary to understand how tourism industry, enterprises and travellers can be helped and what are the opportunities and what benefits can be gained from these digital transformation technological solutions. The digital transformation has the potential to increase innovation, tourism growth, sustainable development and create job opportunities (Dredge D. et al., 2018; Bozhuk S. et al., 2020; Gökkaya S., 2020; OECD, 2020; Raga J., 2020; Fernandez-Rovira C. et al., 2021; WTO, 2021). Technological developments and digitalisation open up new opportunities for tourism enterprises not only to maintain but also to achieve long term competitive advantage, gaining innovations and customer satisfaction (Dredge et al., 2018; Kumar S. & Shekhar, 2020; Labanauskaite D., Fioreb M. & Stasysa R., 2020; OECD, 2020; Raga J., 2020; Fraccastoro S., Gabriellsson M. & Pullins E.B., 2021; Hadjielias E. et al., 2022). However, it can be found that there are more and more recent researches about digital free tourism (Egger I., Lei S.I., & Wassler P., 2020; Lia J., Pearceb P.L. & Oktadiana H., 2020) as well as researches what discuss barriers, challenges and risks why enterprises don't and haven't applied these digital technologies what could bring so many benefits and tries to find the reasons and solutions to reduce these barriers and challenges (Dredge et al., 2018; Kumar S. & Shekhar, 2020; Nguyen V.K., Natoli R. & Divisekera S. 2021; Pacheco, A.A. et al. 2021). Opportunities/benefits and barriers/challenges for the digital transformation of tourism enterprises are presented in Table 2.

Table 2

**Opportunities/benefits and barriers/challenges for the digital transformation of tourism enterprises**

Opportunities/benefits	Barriers/challenges
<ul style="list-style-type: none"> <li>• Can help increase efficiency, save time and resources, what provides opportunity focusing on strategic entrepreneurship goals, increases capacity to develop new entrepreneurship models,</li> <li>• Increases reach, expands international reach, can help enter new markets and internationalise operations,</li> <li>• Diversifies entrepreneurship, leads to creativity and innovation, improves service quality, provides more personalised services to customers,</li> <li>• Quick and easy information exchange with stakeholders,</li> <li>• Improves online brand visibility, attracts customers, increases sales,</li> <li>• Strengthens business reputation, increases customer loyalty,</li> <li>• Maintains the competitiveness, achieves a long-term competitive advantage, provides strategic agility practices to respond to changes in the market.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of understanding of the opportunities and reap the benefits,</li> <li>• Lack of or insufficient technical knowledge, ICT and digital skills and training on new digital technology,</li> <li>• Lack of funds as digitization has high costs, uncertain return on benefits,</li> <li>• Lack of appropriate existing products within budget, long and complex process,</li> <li>• Limited ICT and digital infrastructure, especially in rural regions.</li> </ul>

**Source: author's compilation from several published literature**

Exploring and analysing the opportunities associated with digital transformation and the introduction of innovative technological solutions in enterprises provides an insight into the future direction of enterprises in relation to digitization in enterprises. Clear technological solutions bring significant benefits to enterprises, which should be taken into account in order for enterprises to be competitive in the long run. Nowadays, as more and more people use the Internet and mobile phones to deal with various issues, including travel planning, it is clear that without digitalization, entrepreneurship can be very difficult. In turn, when it comes to innovative solutions, they open up a wide range of opportunities for enterprises, as people love news, creativity and value-added service.

The research authors also looked at the barriers / challenges to implementing these solutions, as this is closely related to how enterprises do not implement them without realizing the wide range of opportunities and benefits. It can be concluded that many enterprises are not at all aware of the real opportunities and benefits that digitalisation could bring them, which is the basis for their full implementation. It should also be borne in mind that the digital transformation process is a complex process that requires finance and, consequently, knowledge.

The essence of the digital transformation is the creation of a new business by improving the processes and the quality of products and services. You need to have the knowledge to do this. And this knowledge factor can be highlighted as one of the most important reasons why the digital transformation in companies is or is not as efficient as it should be. There is a high level of ignorance and underutilization of digital solutions in the tourism sector. And when it comes to the digital transformation, it must be remembered



that it is not just about technological solutions as such, it is very important to take into account the human factor. Because without technological knowledge, digital transformation is not possible.

It means that education and training programs are required to increase the digital knowledge and skills. It is crucial improve general understanding of digitalization and digital transformation and the possibilities, benefits and costs for tourism enterprises of going digital, as well as improvement of digital and e-marketing skills is crucial.

To overcome with these barriers and challenges also policies are required. Government policy has significant impact to manage digitization and society. In addition, it can be suggested to improve increase awareness of digital transformation opportunities and benefits in enterprises.

When it comes to the cost barriers associated with the implementation of digital solutions, it is the support of the state and local governments that is important. The potential of business incubators should also be taken into account if the solution is to be considered more innovative.

Overall it is obvious that the digital transformation is an integral part of business growth. It brings significant benefits to the economy, enterprises and citizens in terms of travel planning and experience. It must not be forgotten that digitization is important for sustainability, which further reinforces the importance of technology and digitization.

### **Conclusions, proposals, recommendations**

- 1) The tourism industry has a huge potential for digital transformation. The development of industry 4.0 and the empowerment of tourism 4.0 mean that enterprises need to use new digital technologies to remain competitive, innovative and achieve long-term entrepreneurship goals. Future innovations in digital transformation technologies may further change the tourism industry. It is very important for enterprises to implement innovative digital solutions as customers become more digital. This means that they plan to receive services digitally.
- 2) The main technologies in tourism 4.0 are artificial intelligence, big data analytics, the Internet of Things, blockchain, cloud computing, virtual and augmented reality, but it also includes technologies that have evolved over time. Nowadays mobile technology and social media play an important role in tourism. Each digital technology, with its own devices and interfaces, provides tourists with useful solutions for processes, functionalities, operations and experiences.
- 3) The digital transformation is seen as an effective facilitator for travellers to wish to travel, to increase the adaptability of the travel experience and increase traveller satisfaction, and plays an important role in better communication.
- 4) The efficient and innovative use of digital technologies can bring benefits to enterprises and enable them to gain a long-term competitive advantage.
- 5) Given the significant opportunities offered by digital transformation technologies in tourism, efforts must be made to alleviate the challenges and barriers. Digital transformation is an object of continuous and rapid change that requires continuous professional development. Policies play an important role in motivating, educating and financially supporting enterprises for the digital transformation. It is essential to improve the general understanding of digitization and digital transformation and the opportunities, benefits and costs for tourism enterprises to switch to digital, as well as to improve digital and e-marketing skills.
- 6) Further research on how these digitalisation technologies are adapted in tourism enterprises, through interviews in enterprises, analysis of digitization and tourism development and strategic plans,

analysis of digitalisation and tourism statistics and the impact of digital technologies on tourism, etc. is highly recommended.

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