

Challenges and Trends of Digital Innovation in the Tourism Sector: Contemporary Literature Review

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Abstract

The purpose of the paper is the examination and presentation of the various challenges and perspectives of the implementation of Digital Innovation in the Tourism Sector, following the global pandemic crisis of the COVID-19. A contemporary literature review of different research papers published the period 2019-2023 has been made, focusing on the particular topic in the tourism sector worldwide. The paper presents the core current and future trends of the Digital Innovation and provides discussion over the key problems/obstacles of the implementation of Digital Innovation tools in Hotels. In general, the new needs and requirements that have been created for the tourist product, have made it necessary to adopt and implement digital innovations, something that is considered to play a decisive role in further strengthening and development of the tourism sector. The literature review shows that there is a big gap between Large Hotels (above 4* stars) and Small Hotels (below 3* stars) towards the adoption of digital innovation. Factors such as high cost of the investment, seasonality of tourism product, lack of specialized staff, company culture, high taxation and the need for immediate results from businessmen greatly affect the desire to invest on the implementation of Digital Innovation tools/services. Nevertheless, companies operating in the Tourism sector should reconsider their strategy as the adoption of Digital Innovation can significantly improve their competitiveness, strengthen their corporate brand, provide now competitive offerings, attract more customers as well as foreign investment.

Keywords

Digital Innovation, Tourism Sector, Literature Review

1. Introduction

In recent years, digital transformation has strongly affected the majority of global industries, tourism being one of them. Digitization has affected literally every aspect of the travel business ecosystem, while the tourism industry is considered a pioneer in the adoption and implementation of digital innovations as it is inextricably dependent on providing unique and high-quality services to various customers (Zvaigzne et al., 2023). Digital transformation is redefining the concepts of travel and leading to the creation of new travel-related needs (Zvaigzne et al., 2023). This revolution is linked to the creation of new products and services as well as the application of new technologies, methods and processes that create value for the customer and the tourism business through increased profitability and more efficient satisfaction of needs. According to the World Economic Forum's Digital Transformation Initiative (2017) the digitization of the tourism industry could result in the creation of \$1 trillion in value for society and the industry by the end of 2025. Tourism organizations face a new reality where adapting to digital transformation is not voluntary, but a vital requirement for their sustainability (Gutierriz, Ferreira, & Fernandes, 2023). It is important however for the company to have sufficient knowledge and information regarding the changing demands and preferences of consumers in order to remain competitive and sustainable. In order to achieve this, it is necessary to adopt and implement various Digital Innovation tools such as consumer behavior prediction and analysis systems (data analysis systems), which help companies to introduce personalized services and product that better meet the desires and demands of each customer (Aamir, Atsan, & Khan, 2023). Also important is the fact that digital transformation creates the need to transform the culture of the organization into a new digital culture that must be understood and accepted by all employees of the organization (Velyako & Musa, 2023). The global health crisis of COVID-19 brought to the fore new emerging trends and challenges which have affected the tourism industry (Brozovic & Saito, 2022), not only domestically in various countries, but also globally, for the forthcoming years. The adoption and implementation of Digital Innovation systems is expected to have a significant impact not only on regaining the loss of the market share (Kumar et al., 2023), but also in reshaping the way Tourism sector operates and offers products/services.

2. Concept Definition

2.1. Conceptual Definition of Digital Innovation

Digital innovation, according to Nylén and Holmström (2015), is associated with a new logic and therefore requires a micro-level examination of digital technologies to identify specific ways through which the organization can create additional value from the adoption of digital innovation. In order to realize the benefits of digital innovation, organizations need to understand the unique proper-

ties and implementation processes of digital innovation (Nylén & Holmström, 2015), a process that is a major challenge for many organizations. Digital innovation, like innovation in general, has been conceptualized by scholars in various ways over the years. According to Kohli and Melville (2018) there are three main conceptual approaches to digital innovation, the first of which identifies digital innovation with “IT Innovation” which focuses on the adoption and dissemination of Technological Media which have as result of new organizational processes. According to the second approach, digital innovation results in the creation of new products and services by combining physical elements that the organization has and technological elements that it adopts as a result of examining the external environment, composing the “digital diffusion—Diffusion of Innovation” (Kohli & Melville, 2018). Finally, according to the third view, digital innovation is called “Informational Structure Innovation” which consists of the application of IT technologies within organizations that leads to significant changes, including new products, services, business models or processes. In this case digital innovation may be characterized by the restructuring of human and other resources, with a constant evolution of roles, identities, relationships and practices within organizations. As it can be seen the existence of technology is central to the concept of digital innovation. Also key aspects of digital innovation are the design, development and implementation of new methods, processes, products and services, in light of internal and external factors (Bogers et al., 2022) that positively or negatively affect the adoption and shaping of innovation.

2.2. Dimensions and Nature of Digital Innovation

Innovation is a dynamic, integrated and networked process that helps to bring about changes at the organizational and operational level by exploiting strong internal competitive advantages as well as existing opportunities in the organization’s external environment (Hodapp & Hanelt, 2022). According to the literature, digital innovation is a type of innovation that refers to an inherent integration between physical and digital elements. Digital innovation is an emergent structure resulting from various forces of disconnection and integration that make it complex and multidimensional (Papadonikolaki, Krystallis, & Morgan, 2022). There are six key dimensions of digital innovation, convergence, digital materiality, heterogeneity, productivity, distributed locus of innovation and accelerated pace (Yoo et al., 2010). From this list, the dimensions that most influence the implementation processes and the development of the innovation, according to Yoo et al. (2010), are heterogeneity, productivity, distributed locus of innovation and accelerated pace. The combination of these dimensions “leads to the emergence of dynamic, non-linear patterns of digital innovation” and levels of innovation that offer different productive properties than other types of innovation (Henfridsson, Mathiassen, & Svahn, 2014). Digital innovation, like other forms of innovation, is based on information and how it is selected, collected and used by the organization, so it is necessary to select the right people

who will be responsible for this process. The effective management of information requires resources and skills that are often lacking in businesses, but are necessary for the transition of the business of digital transformation.

3. Analysis

Literature from databases such as Sage, Emerald, ResearchGate, MDPI, Springer and other databases has been exploited. The particular databases were used as the researcher is highly familiar with them and use them on almost daily basis for his research. More particularly, topics such as “Digital Innovation*” or “Tourism Digital Transformation*” or “Digital Technologies for Tourism*” or “Electronic Tourism” or “Digital Sustainability in Tourism” had been used as key searches for published articles the period 01.01.2019 to 30.08.2023. The amount of papers retrieved from the databased was up to 10,000, however 4.900 litterateurs such as book reviews, conference papers, review articles and other types besides research journal were removed. Following that process, the number of entries after the removal amounted to 5.100, however 4.350 records that did not completely and clearly match the research filed and key-words were excluded. After that, a number of 750 entries were entitled for review and summary, with 726 records that were a. not accessible to eligibility, b. had no sufficient or accessible data and c. were studies with only access to abstract and not to full text were excluded. At the end a total number of 24 research articles had been used for the presentation and examination of key findings focusing only in the Tourism business market research (see **Figure 1**. Data Flowchart process).

3.1. Current and Future Trends

To ensure sustainability and optimize business performance, tourism businesses have realized that they need to become familiar with the most important digital transformation trends and adopt them as soon as possible (Kalia, Mladenović, & Acevedo-Duque, 2022). Big hotel units feel the need to implement digital business intelligence systems along with the right strategy (So et al., 2023). This combination determines whether they can manage each distribution channel to interact with consumers more effectively. Digital Innovation seems to be regarded as a suitable solution that can help the organization achieve higher profit from sales (Gutierriz, Ferreira, & Fernandes, 2023), reduce customer acquisition costs and improve conversion rates of potential customers into final customers (Jingen Liang & Elliot, 2021). In addition, building and maintaining a high reputation tends to be an important strategic goal for tourism businesses (Troisi, Visvizi, & Grimaldi, 2023), as a result of which they invest considerable amounts to enhance corporate brand awareness and credibility, something that can also be enhanced by the implementation of Digital tools. COVID-19 has greatly impacted the need for better communication with existing and potential customers (Plzáková & Smeral, 2022), through the use of digital tools that inform, educate and communicate special offers according to the personalized needs of customers.

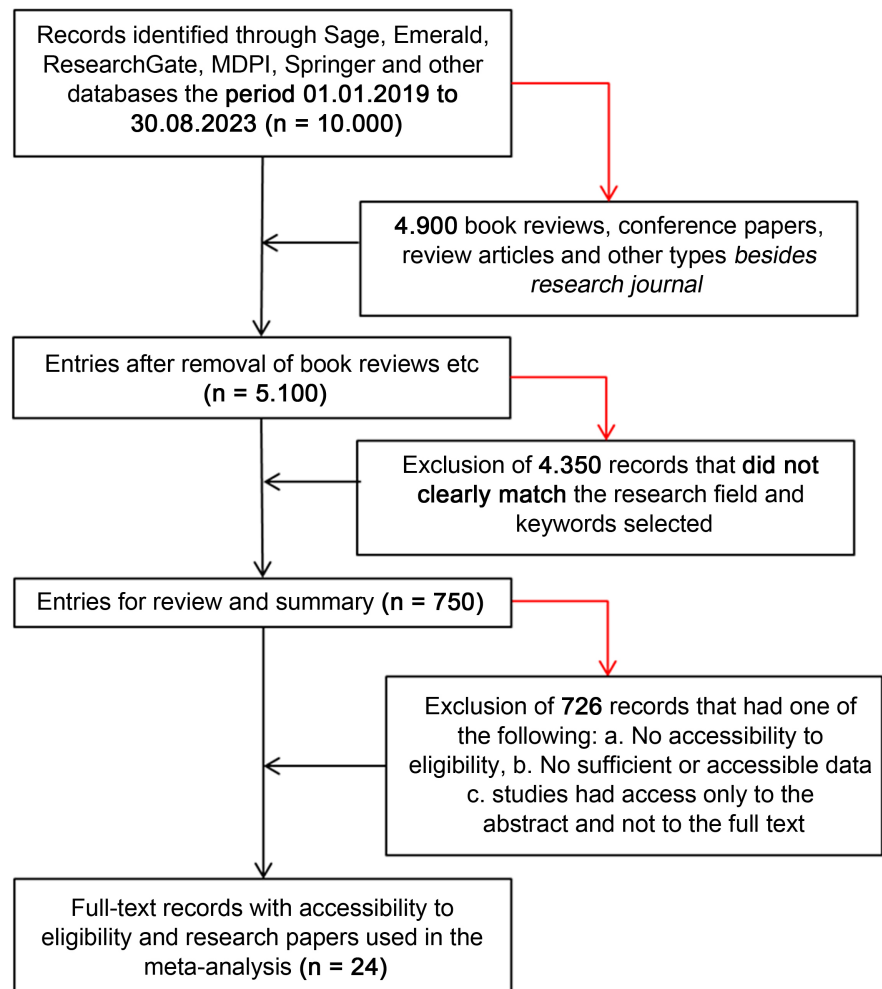


Figure 1. Data flowchart process, own interpretation.

Moreover, a key element that has significantly transformed the travel experience is the provision of personalized services (Torres-Pruñonosa et al., 2023). In order to create the various personalized proposals, companies should have systems in place to collect and store the huge amounts of data regarding each customer. This process is a trend that is gaining momentum every year (Gomes, Lopes, & Ferreira, 2023), while businesses have the ability to combine information coming from internal data (e.g. past occupancy rates, room revenue and current bookings) together with information derived from external data (e.g. local event dates, flights, national and school holidays) so that they have more accurate demand forecasts and create more efficient supply stimulation strategies. The possibility of using more advanced technologies have greatly emerged, as these technologies can upgrade the services and products of the tourism industry, with innovations such as mixed reality technologies such as virtual reality (Virtual Reality) and augmented reality (Augmented Reality) (Hanaa & Abdul, 2023). Through virtual reality applications users can feel physically present in a digitally developed environment, for example experiencing in advance the type of rooms a hotel has,

wander around the facilities or digitally visit the various attractions of the destination (Hanaa & Abdul, 2023). In addition to the above applications, an important trend in the travel industry is the application of Artificial Intelligence, through which customers and businesses have access to a huge amount of data at any time and from different devices (Goel et al., 2022). An example of the application of Artificial Intelligence is chatbots, which have the ability to classify information accurately in order to have more efficient and effective customer satisfaction. They help to better manage customer questions and requests, while at the same time assist in the reduction of the operating costs of the business (Goel et al., 2022). Another emerging trend in the tourism industry is identification technologies (Bayram, 2020) that include identification of elements such as fingerprints, facial recognition, retinal scanning and other biometric identification methods, aiming to better ensure security and identify people. Also, such technologies help significantly in collecting data to determine the personality of the tourist, in order to create personalized services or offers to the customer (Melović, Baynazoğlu, & Šerić, 2023). The next digital trend in the tourism industry is the Internet of Things (IoT), a technology that exploits the use of the Internet's capabilities to interface and communicate with the various digital devices with the ultimate goal of more efficient data sending and receiving (Elkhwesky & Elkhwesky, 2023). In addition, robotic technology is a near-future trend in the tourism sector (Samala et al., 2022), technology that can be applied for issues such as better data management to more efficient customer services (Jabeen, Al Zaidi, & Al Dhaheri, 2022). The tourism industry realized the need to introduce robotic technologies because travelers' behaviors are changing and the demand for self-service capabilities is ever-increasing (Ivanov et al., 2019) (for example, in the hotel industry robots have the ability to meet guests, complete check-in and check-out procedures, bring luggage to rooms or provide concierge services). Finally, blockchain technology has greatly emerged, with the basic idea of which is the storage of digital data and its immediate diffusion through specific clusters of digital grids which are more protected, transparent, secure and immediate (Dadkhah, Rahimnia, & Filimonau, 2022). This particular technology is expected to completely modify the way the tourism industry works in the next years, transforming processes such as reservations and customer service into fully online services with the ultimate goal of enhancing the organization's competitiveness and customer satisfaction. Nevertheless, it should of course be emphasized that the inclusion and adoption of digital innovation applications in the tourism industry is not an easy process and contains many challenges.

3.2. Main Challenges for the Integration of Digital Innovations in Tourism Businesses

A number of factors influence the adoption of digital technologies by businesses operating in the tourism industry, and come from elements that are connected at

local, national and global level. These factors include the social and demographic characteristics of tourists, the political and legal framework prevailing at any given time period, as well as the economic conditions that shape consumption. At the same time, factors such as competition and technological progress lead to the need for businesses to adopt digital technologies if they want to maintain their future viability (Gomes, Lopes, & Ferreira, 2023). The main challenge for the adoption of digital innovations by tourism SMEs is related to the need to train existing and new staff that will be responsible for managing digital applications (Gutierriz, Ferreira, & Fernandes, 2023). Tourism SMEs often lack both the human resources and skills required for digitization, as well as the resources (Van Nuenen & Scarles, 2021) (e.g. time, initial and ongoing capital investment, ongoing technical support) required to educate and train staff in continuous level. It should be noted that the tourism industry is mainly based on staff that are temporary and the degree of loyalty to the company is small (Melović, Baynazoğlu, & Šerić, 2023), as a result of which companies and jobs are constantly changing. Another important challenge is linked to the high cost and uncertainty of the investment, as a result of which a large number of tourism businesses, especially family ones, avoid spending to integrate digital innovations into their organization (Cheng et al., 2023). It is also important that the lack of sufficient knowledge on the part of management on the subject, dynamics and prospects of digitization increase the level of concern and mistrust of business executives regarding the practicality and the need to implement the various digital technologies (Zhang, 2023). Another barrier is related to the availability and reliability of the internet in the location of the tourism business (Levchenko, Dianova, & Sharifullina, 2022), with the result that businesses located in rural, island or remote areas experience problems of poor internet connections (due to lack of infrastructure from the state and telecommunications companies), as a result of which they are not able to include some kind of digital services, even if they want to. It is also important that companies should create new corporate cultures, oriented towards a “digital culture” as well as strategies through which the new goals can be achieved (Konstantinova, 2019). However, this is quite complicated and difficult as changes are needed at the organizational, administrative and functional level in order for the new culture to work effectively. An important challenge is also the introduction of effective and secure information management and distribution procedures (data management systems), which will operate under the light of modern legal and political requirements, ensuring the maintenance of customer trust and loyalty at a high level. This specific factor works as a deterrent for many tourism industries (especially small ones) which prefer to invest in more customer-centric customer service systems, rather than in digitalized technological services. Finally, it should be noted that the ever-increasing and constantly changing demands of customers create an uncertain climate regarding the type of investments and the sectors they should target (Mariani, Bresciani, & Dagnino, 2021) (see **Table 1**—Summary

Table 1. Summary of main challenges for the integration of digital innovations in tourism businesses, own interpretation.

Main challenges for the integration of digital innovations in tourism businesses	Source
Need to train existing and new staff that will be responsible for managing digital applications	(Gutierriz, Ferreira, & Fernandes, 2023)
Lack both the human resources and skills required for digitization, as well as the resources	(Van Nuenen & Scarles, 2021)
Staff that are temporary and the degree of loyalty to the company is small	(Melović, Baynazoğlu, & Šerić, 2023)
High cost and uncertainty of the investment	(Cheng et al., 2023)
Lack of sufficient knowledge on the part of management on the subject	(Zhang, 2023)
Availability and reliability of the internet in the location of the tourism business	(Levchenko, Dianova, & Sharifullina, 2022)
Ever-increasing and constantly changing demands of customer	(Mariani, Bresciani, & Dagnino, 2021)

of Key Challenges). While it is also necessary to create a system for assessing tourist behavior and tourist demand, many companies cannot find the appropriate specialized staff who have the knowledge, skills and abilities to analyze, forecast and evaluate the market so as to create personalized and suitable offers according to the needs and requirements of each customer.

4. Conclusion and Future Research

4.1. Conclusion

The purpose of the paper was the examination and presentation of the various challenges and perspectives of the implementation of Digital Innovation in the Tourism Sector. Digital transformation contributes to the creation of new needs related to travel and helps businesses to create new products and services with the ultimate goal of enhancing their profitability, through the improvement of the value offered and the more effective satisfaction of customer needs. The digital transformation creates the need to create new business strategies, focusing on the creation of a digital culture, which must be understood and accepted by all employees of the organization, especially executives. Companies will therefore have to make significant changes, focusing on their internal environment, creating structures that allow communication, diffusion and exchange of information as well as the development of innovations. It is necessary to develop a culture receptive to risk and experimentation, which will allow the exchange of opinions, knowledge, proposals and ideas at all administrative levels, with the ultimate goal of the continuous development and evolution not only of the organization, but also of itself personnel. The digital innovation of the Tourism

Industry seems to be still at a low level for small and family hotel units, while in large hotel chains and multi-star hotels it seems to be at a better level. In general, the new needs and requirements that have been created for the tourist product as a result of the global pandemic, has made it necessary to adopt and implement digital innovations and the digitization tools to the sector, elements which will play a decisive role in further strengthening and enhance the tourism business sustainability.

4.2. Limitations—Future Research

As the tourism industry is a sector that has significant differences in the level of development from country to country but also from region to region of the same country, the acquisition of data that fully captures the picture in various sectors, such as the sector of the integration of digital innovation, is a very difficult and complicated process. A future research could be made in order to assess and investigate the management style followed by tourism organizations, in order to capture the positive or negative effects of the various management models on the digital transformation of businesses. Culture and organizational structure are equally important areas of future study. The ultimate goal could be to investigate the impact of these two elements in all stages of the digital transformation, from the approval of investment funds, to the final implementation of the new digital systems.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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