

Milestone of Croatian tourism : Covid-19 pandemic as cause of accelerated digitalization and tourism growth

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University of Zagreb
Faculty of Economics & Business
Managerial Informatics

**MILESTONE OF CROATIAN TOURISM: COVID-19
PANDEMIC AS CAUSE OF ACCELERATED DIGITALIZATION
AND TOURISM GROWTH**

Master thesis

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Zagreb, April 2024

University of Zagreb

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Master thesis

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Zagreb, June 2024

Abstract and key words

The Covid-19 pandemic, a global health crisis, disrupted and transformed various sectors, with tourism experiencing profound impacts. The thesis explores how the pandemic accelerated the process of digital transformation, which led to the growth of tourism in Croatia. Furthermore, it explores challenges and changes that occurred due to the crisis, and solutions, including new business models and methods, along with many policies and measures implemented, after the pandemic.

The pandemic caused various changes in the tourism industry, with an emphasis on digital transformation. Adoption of new and innovative solutions, such as digital marketing, virtual tourism, etc., has ensured safety, enhanced the customer experience, and maintained competitiveness on the market. The thesis compares pre- and post-pandemic situation regarding digitization.

Findings reveal that accelerated digitalization happened after the pandemic and led to significant growth in the tourism industry, a higher number of overnight stays, and a rise in the country's overall GDP. At the end, a few challenges and recommendations have been given.

Key words: Croatian tourism, Covid-19 pandemic, digitalization, tourism growth, sustainability

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1 Introduction

The purpose of the thesis is to analyze Croatian tourism growth caused by digital transformation, which blossomed during the Covid-19 pandemic. The global impact of the pandemic was profound, affecting nearly every corner of the world, including Croatia. The thesis provides an overview of the significant role tourism plays in Croatia's economy, as well as explanation of the significance of digitalization as a response to the challenges as disruptive effects of the pandemic. As digitalization has been evolving all around the world, it was inevitable for Croatia to be influenced by it, especially after the pandemic, which brought many significant disruptions but also various new solutions. Since digital transformation has become a regular and integral part of every industry and people's daily lives and routines, the goal of the thesis is to explain how the pandemic accelerated digitalization and growth of one of the key industries in the country. Furthermore, one of the goals is to present types of digital business models that have arisen and how Croatia has handled the changes regarding digitalization in the tourism industry, what have been the main challenges, and which improvements might be done in the future.

1.1 Problem statement and research objectives

The tourism sector in Croatia has been greatly impacted by the disruptions caused by the Covid-19 pandemic, leading to a sharp decline in tourist arrivals and an overall economic crisis due to the country's overreliance on tourism revenues. While the pandemic has highlighted the need for adaptability in the tourism sector, it has also accelerated digitalization, presenting both opportunities and challenges for the whole country and people themselves. Understanding the influence of digitalization on Croatian tourism amidst the pandemic is crucial for the new strategies that arose in order to navigate the crisis and foster long-term sustainability.

Therefore, the research objectives of the thesis are to present Croatian tourism and explain its importance for the country's overall economy, to stress out the extent of the disruption resulting from the Covid-19 pandemic, and to introduce digitalization as a solution for challenges caused by the pandemic. Furthermore, one of the research objectives is also to identify the key milestones and initiatives in digital transformation within Croatian tourism while analyzing the country's tourism growth caused by it. Finally, one of the objectives is to propose recommendations and best

practices for leveraging digitalization to increase the level of competition and sustainability of the Croatian tourism sector in the post-pandemic era.

1.2 Methodology and sources

In order to fulfill the previously stated objectives, various methods and sources were used while writing the theses.

A literature review was used as a method to analyze academic literature and case studies regarding the topic. This provides a theoretical framework and background information for the thesis. Furthermore, secondary data is collected and analyzed (from the beginning of the 2000s to the most recent available data), such as online databases or government reports. Finally, there is comparative analysis as a way of showing the difference between the pre- and post-pandemic situation in Croatian tourism regarding digitalization caused by the Covid-19 pandemic that influenced Croatian tourism, resulting in overall growth of the industry, which will be supported with relevant data on macroeconomic and microeconomic indicators.

All the literature was available online, and data was collected from multiple academic sources.

Data is collected based on publicly published reports and databases of relevant institutions, such as Eurostat, CBS, the Ministry of Tourism and Sport, and other institutions that publish data in the field of tourism.

1.3 Thesis structure

Before reaching the main goal of the thesis – analysis of tourism growth caused by digital transformation after the Covid-19 pandemic, there is an introduction to the history and importance of Croatian tourism in the country's economy, which are its main characteristics and challenges, while emphasizing the increasing role of sustainability supported by adopted development strategies. Then, the effects of the pandemic's impact on Croatian tourism in the context of digital transformation will be presented through changes in tourist behavior and booking methods. Also, the most frequently used digital models that are used for creating digital solutions will be explained. After that, there is a chapter that includes comparative analysis and explains the post-pandemic growth of Croatian tourism caused by digitalization. Finally, there are conclusion and recommendations for future digitalization initiatives to increase the Croatian economy's efficiency and competitiveness.

2 Croatian tourism industry

Tourism is a global industry, forecast to exceed 1.8 billion arrivals by 2030, according to the information provided by the United Nations World Tourism Organization (UNWTO, 2019). It involves the relocation of an individual or group away from their usual place of residence, typically involving some level of expenditure, though this is not always necessary (Holloway et al., 2022). There are three main categories of tourism based on crossing borders: domestic tourism (where residents travel domestically within their own country), inbound tourism (where individuals who are not permanent residents visit different parts of the country), and outbound tourism (where residents travel abroad), (Ghanem, 2017). This thesis considers domestic and inbound tourism.

In Croatia, tourism is considered to be the crucial economic driver, shaping both economic and social processes. Based on data from the Croatian Bureau of Statistics, Croatia's total GDP was made up from an average of approximately 17% of the country's tourism sector from 2012 to 2020, when the whole world, including Croatia, was impacted by the Covid-19 pandemic, which lowered the tourism share, that is to say, the percentage of tourism share within the total GDP (Croatian Bureau of Statistics, n.d.).

Furthermore, more GDP is contributed by Croatia's travel and tourism sectors than by any other European Union (EU) member state, as illustrated in the following table, which displays comparisons between Croatia and a few EU member states for the years 2019 and 2022.

Table 1 Share of tourism sector's total contribution to GDP in few EU member countries in 2019 and 2022

Country	2019 (in %)	2022 (in %)
Croatia	19,5	19,5
Greece	20,7	18,5
Portugal	17,3	15,8
Spain	14,1	13,6
Malta	15	12,6
Cyprus	13,7	12,2
Italy	10,6	10,2
Austria	10,8	9,5
United Kingdom	9,9	9,5
Netherlands	10,8	9,4
Slovenia	10,8	9,2
Germany	9,8	8,8
Estonia	12,3	8,7
Luxembourg	9,8	8,5
France	8,4	8,2

Source: Author's own work

Croatia is a popular tourist destination, which can be proved by the research based on the Customer-based brand equity for a tourism destination (CBBETD) concept introduced by Ruzzier in 2010. It is a brand equity model that consists of four subdimensions adopted to fit the characteristics of the destination: awareness, image, loyalty, and quality. The focused group research involved twenty-five respondents (over eighteen years) who needed to identify suitable attributes specific for Croatia using structured questionnaires and method of online interviewing. After the data was collected and analyzed, further results (ranging means are from zero to five), that are shown in the tables below, occurred:

- Respondents rated Awareness and its attributes/variables (Popular Tourist Destination (TD), Attractive and Known TD, Imagining of TD) very well.

Table 2 Research results regarding Awareness

Variables	Mean	Factor Loading
Popular TD	4.40	0.869
Attractive and known TD	4.34	0.867
Imagining of TD	4.35	0.810
% Variance extracted		72.18

Source: Cervova, L., & Vavrova, J. (2021). Customer-Based Brand Equity for a Tourism Destination: The Case of Croatia. *Economies*, 9 (4), 178. *Tourism Economics*, 87.

- Regarding Image, Croatia is characterized mostly as a summer, relaxing destination with many opportunities for recreation at the seaside, such as a variety of beaches. The overall rating for this subdimension is very well.

Table 3 Research results regarding Image

Variables	Mean	Factor Loading		
		Attractions	Amenities	Ambiance
Lovely towns and villages	4.04	0.705	0.339	0.239
Beautiful nature	4.16	0.692	0.392	0.157
Interesting cultural attractions	3.75	0.687	0.197	0.437
Beautiful beaches	4.00	0.684	0.339	0.113
Beautiful mountains	3.91	0.678	0.180	0.163
Interesting historical attractions	3.78	0.658	0.144	0.462
Good opportunities for water recreation	4.27	0.152	0.742	0.254
Good opportunities for recreation activities	4.34	0.278	0.738	0.155
Pleasant weather	4.22	0.317	0.717	0.076
Wide range of gastronomy facilities, local food	4.00	0.171	0.702	0.391
Summer destination	4.63	0.122	0.672	-0.133
Wide range of accommodation facilities	4.11	0.207	0.670	0.316
Friendly and hospitable people	4.07	0.267	0.660	0.206
Transportation accessibility	4.10	0.235	0.646	0.125
Relaxing atmosphere	4.18	0.438	0.614	0.117
Good opportunities for adventure	3.92	0.197	0.545	0.534
Modern wellness resorts	2.98	0.189	-0.017	0.788
Good shopping facilities	3.30	0.139	0.143	0.758
Exciting atmosphere	3.45	0.290	0.222	0.682
Good nightlife and entertainment	3.84	0.297	0.348	0.526
% Variance extracted			60.32	

Source: Cervova, L., & Vavrova, J. (2021). Customer-Based Brand Equity for a Tourism Destination: The Case of Croatia. *Economies*, 9 (4), 178. *Tourism Economics*, 87.

- Quality was also rated very well, with Personal safety and Good value for money as the highest rated variables, while the lowest rated attribute was the Level of cleanliness.

Table 4 Research results regarding Quality

Variables	Mean	Factor Loading
High quality of gastronomy	3.54	0.839
High quality of services	3.56	0.821
High level of cleanliness	3.30	0.774
Unpolluted environment	3.63	0.746
High quality of accommodation	3.61	0.728
High quality of infrastructure	3.37	0.722
Good value for money	3.82	0.645
High level of personal safety	3.85	0.641
% Variance extracted		55.11

Source: Cervova, L., & Vavrova, J. (2021). Customer-Based Brand Equity for a Tourism Destination: The Case of Croatia. *Economies*, 9 (4), 178. *Tourism Economics*, 87.

- Loyalty, as the last subdimension that includes Recommendation of TD, Visit of TD in the future, and Visit of TD even if costs increase, was rated very well, too (Cervova et al., 2021).

Table 5 Research results regarding Loyalty

Variables	Mean	Factor Loading
Recommend TD	3.90	0.929
Visit TD in future	3.86	0.924
Visit TD even if costs increase	3.24	0.845
% Variance extracted		81.03

Source: Cervova, L., & Vavrova, J. (2021). Customer-Based Brand Equity for a Tourism Destination: The Case of Croatia. *Economies*, 9 (4), 178. *Tourism Economics*, 87.

What makes Croatia so special and attractive is its gastro-cultural heritage. It is an interdisciplinary approach to the study of eating phenomena as a component of an intangible cultural heritage. It deals with historical, cultural, fait, and religious dimensions, and addresses issues related to

nutrition, agriculture, catering, etc. The tourism valorization of heritage that is traditional and authentic within gastronomic and cultural aspects influences the perceptions of tourist consumers, from which, Croatia has benefited. That is why it is crucial to highlight the significance of Croatian authentic dishes, sweets, drinks, and beverages as part of its tourism offer. In 2020, twelve traditional dishes were added to the List of Protected Cultural Items by the Ministry of Culture (Bunja et al., 2020). Furthermore, available researches show that approximately 63% of tourists consume local food products, especially the Mediterranean cuisine, due to the phenomenon of seasonality (Drpić et al., 2020). Croatia is creating brand identity and achieving competitive advantage due to the usage of existing natural and cultural features to tell a story by communicating unique values and providing a specific tourist experience (Bekic et al., 2020).

Another important characteristic of Croatian tourism is the presence of family businesses that embrace family traditions. It is the most common type of business present in Croatian tourism (Bujan, 2020).

2.1 Historical aspect of tourism development in Croatia

Croatia has always been a tourism-oriented country. The tourism industry of Croatia is more than 150 years old and dates back to the time when the country was part of the Austro-Hungarian Empire. This period is considered as the birth of Croatian tourism, with wealthy aristocrats visiting the Croatian coast and Mediterranean Sea. The first object for tourism purposes was the Villa Angiolina in Opatija, built in 1844. Rich in natural beauties and cultural heritage, Croatia was one of the most prosperous areas in Yugoslavia, too (Krstinić Nižić et al., 2013). Due to the unpredictability of the breakup of Yugoslavia during 1991-1994 war among three countries: Croatia, Serbia, and Bosnia-Herzegovina, tourism of Croatia was on hold because it was not a safe place to visit. After the war, Croatian tourism has been steadily increasing (Wohlgamuth, 2017).

The following graph shows the timeline of GDP development in Croatia since 1992.

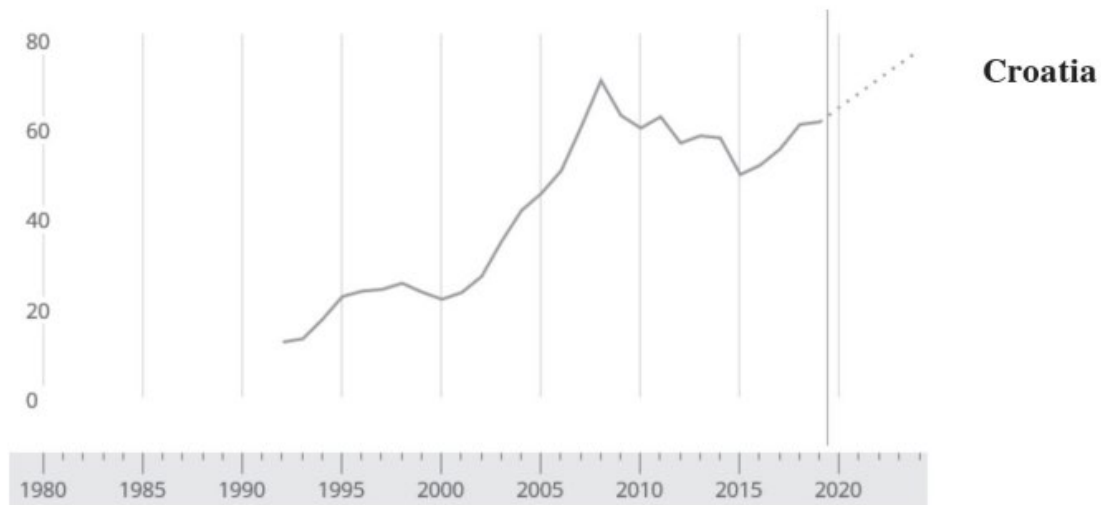


Figure 1 Graphical timeline for development of GDP in Croatia, from 1992 to 2024 (in billion USD)

Source: International Monetary Fund, 2019

The stagnation can be seen for years from 1992 until 1994, after which tourism evolved and GDP started increasing. Export growth was stimulated by the return of tourists to the Adriatic. As a result, the number of overnight stays realized in 1998 was almost 2.5 times higher than in 1995. In 1999, there was a slight GDP fall due to the high unemployment rate. In the period from 2000 until 2008, Croatian GDP was sharply increasing, with an average growth rate of 4.2%. The period from 2000 to 2008 was very prosperous for the country when, in 2008, Croatia experienced a fall in economic activity, employment, purchasing power among the people, and interrupted the dynamic increase in the number of tourists visiting and staying overnight (Zemla et al., 2019). The crisis lasted for a few years and caused a six-year GDP fall, high unemployment rate, a decline in industrial production, a negative influence on labor market, a decrease in the purchasing power of the population, and low personal consumption (Hrvatska gospodarska komora, 2017).

The following part will explain in detail the next period of Croatian history regarding its entrance into the European Union, as Croatia being the youngest member state.

2.1.1 Croatian tourism in context of EU integration

Croatia joined the European Union as its twenty-eighth member state on the 1st of July 2013., assuming all of the rights and obligations that come with membership (Ministry of Foreign and European Affairs of the Republic of Croatia, 2020, “Croatia and the European Union EU”).

The journey was over twelve years long. It begun in 2001 by signing the Stabilization and Association Agreement, the country further pursued membership by applying in 2003. Candidate status was granted in 2004, with negotiations commencing in 2005 and concluding in December 2011 upon the signing of the Treaty of Accession. A second state referendum took place in January 2012 – the first one was the independence referendum held in 1991. Therefore, 66% of citizens voted “yes” to Croatia becoming the member of the European Union. Finally, after twenty-seven member states approved the Croatian treaty in their parliaments on July 1, 2013, Croatia officially joined as a full member. (Ministry of Foreign and European Affairs of the Republic of Croatia, 2020, “Croatia in the EU”).

The path was, though, not very easy. Croatian joining the EU was delayed for a long period of time as the nation was still dealing with issues stemming from the tumultuous dissolution of the former Yugoslav union. For a certain period, even the EU froze its relationship with Croatia. That is why Croatia needed to make a radical change in its policy – from skepticism and hostility towards the modern concept of Europe. Finally, Croatia joined the European Union with a level of readiness unmatched by any other country before. It was the first nation to establish a dedicated branch known as the judiciary. By doing this, Croatia has established criteria and goals for future countries, as well as a foundation for evaluating the judicial systems of fellow member states, making a significant impact on the EU's operations. (Ibid.).

On the other hand, the EU has changed and influenced Croatia in many ways while, in one hand, determining the country’s future. First of all, by joining the EU, Croatian politics underwent significant transformation in three key areas: it resulted in the downfall of isolationist nationalism; Croatia no longer sees itself as a standalone "regional power" but as a vital part of a wider European initiative; and a shift in foreign policy focus, now embracing regional collaboration. (Jović, 2006).

After joining the EU, Croatia has been relatively slow in making use of the opportunities offered by the EU. Nevertheless, becoming the member country has sped up the growth of institutional capacity and improved utilization of European Structural and Investment Funds (ESIF).

Furthermore, the unrestricted circulation of individuals, products, money, and businesses, leading to the advantages of the open European Union marketplace, strengthened the Croatian economy by increasing exports of goods and GDP, decreasing public debt, and it helped Croatia to leave the economic recession earlier. It also had a few downsides, such as reduced economic expansion caused by underlying issues or accelerated emigration of the younger and highly educated population, which caused a chronic labor-force deficit. After some time, the true benefits of a full membership started becoming visible (Maldini, 2019). For example, the unemployment rate was 11.62% in 2010, in 2013 it was 17.25%, and in 2019 the unemployment rate was 7.77%. Regarding the GDP, after a year of stagnation, it started increasing slowly in 2014, while in 2015, annual GDP growth was 3.4%, or in 2019, it was 4%. The dramatic decrease happened in 2019 when annual GDP growth was -8.2% due to the Covid-19 pandemic. In 2021, Croatian GDP recovered, and its annual GDP growth was 18.7%, after which it started falling again and reached 7% in 2022, as it can be seen on the graph below.

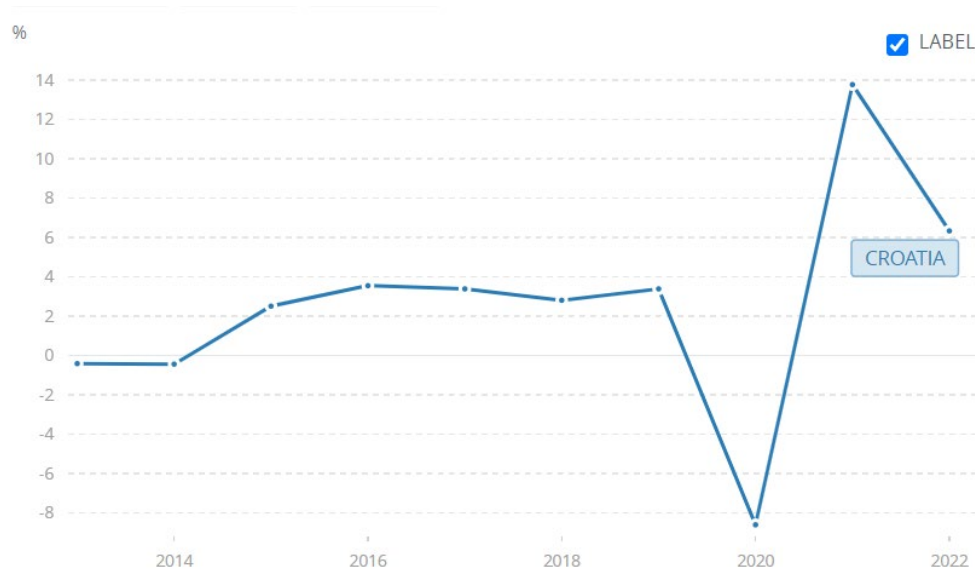


Figure 2 GDP growth (annual %) – Croatia

Source: The World Bank Group. “GDP growth (annual %) – Croatia”. Available at: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=HR&start=2014>.

[14.4.2024.]

After entering the EU, Croatia has still been quite dependent on tourism, especially after joining the Schengen area and the Eurozone in 2023, which increased the amount of tourist visiting or spending nights, as it can be seen in the figure below.

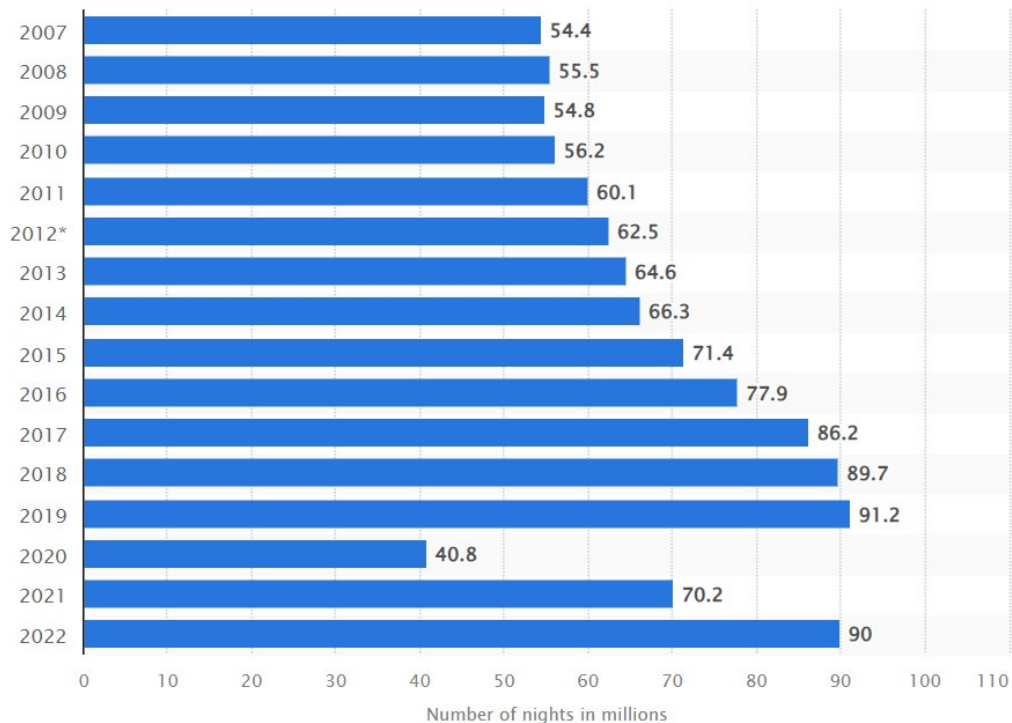


Figure 3 Number of overnight stays in Croatia from 2007 to 2022 (in millions)

Source: Statista. “Number of overnight stays in travel accommodation in Croatia from 2007 to 2022 (in millions). Available at: <https://www.statista.com/statistics/413143/number-of-nights-spent-in-short-stay-accommodation-in-croatia/>. [14.4.2024.]

EU accession has brought numerous benefits to Croatian tourism. Membership in the EU serves as a form of free promotion for new member states, significantly enhancing Croatia's global image. This, in turn, boosts demand, increases visitor interest, and raises international tourism revenues. Additionally, being part of the EU permits the opening of national air corridors to numerous budget airlines, making travel more accessible, convenient, and affordable. Moreover, it leads to new investments in public infrastructure, such as roads, ports, and airports, and ensures the adoption of

stricter operational standards, particularly in protection for consumers, management of waste, and the quality and standards of food and construction materials (Kunst, 2007).

2.1.2 Covid-19 pandemic in tourism and as cause of accelerated digitalization

In the end of 2019 and the beginning of 2020, the world began to be impacted by the Covid-19 outbreak. The pandemic has disrupted the whole world and all existing economies. Given that tourism accounts for roughly one-fifth of Croatia's GDP, the Covid-19 pandemic posed a notable risk to the entire Croatian economy, including its tourism sector. As the pandemic caused a reduction of activities related to transport, trade, catering, and tourism, with various restrictions, it created an unprecedented crisis. As reported by the Oxford COVID-19 Government Response Tracker, at the beginning of the pandemic, Croatia introduced strict restrictions and measures to control the virus spread. The strict lockdown imposed by the government lasted until May 2020, when public transport, hospitality, and religious venues were permitted to resume operations. Due to its significant dependence on tourism for economic stability, Croatia was among the first EU member countries to completely resume with tourist activities in the summer of 2020. (Braje et al., 2023).

The year 2020 was a critical year for Croatia and its tourism. What dominated the world was insecurity as a fear for one's own health and the health of loved ones, which left huge consequences. The GDP saw a significant decline, but it began to recover after the pandemic, largely thanks to financial support in the form of credit and liquidity, along with tax reliefs and low-interest rates aimed at boosting investments in tourism (Mikulić et al., 2023).

The following figure shows the comparison of tourist arrivals in 2019 and 2020 for a better understanding of the 2020 tourism crisis. According to e-Visitor, in the first half of 2020, the number of foreign and domestic tourist arrivals was about 76.2% lower than in the same period last year. The dramatic fall in the tourist season from 70% to 90% roughly influenced the Croatian economy. The blue columns represent foreign arrivals, while the red columns represent domestic arrivals through the period from January 2019 to July 2020 (Benko et al., 2022).

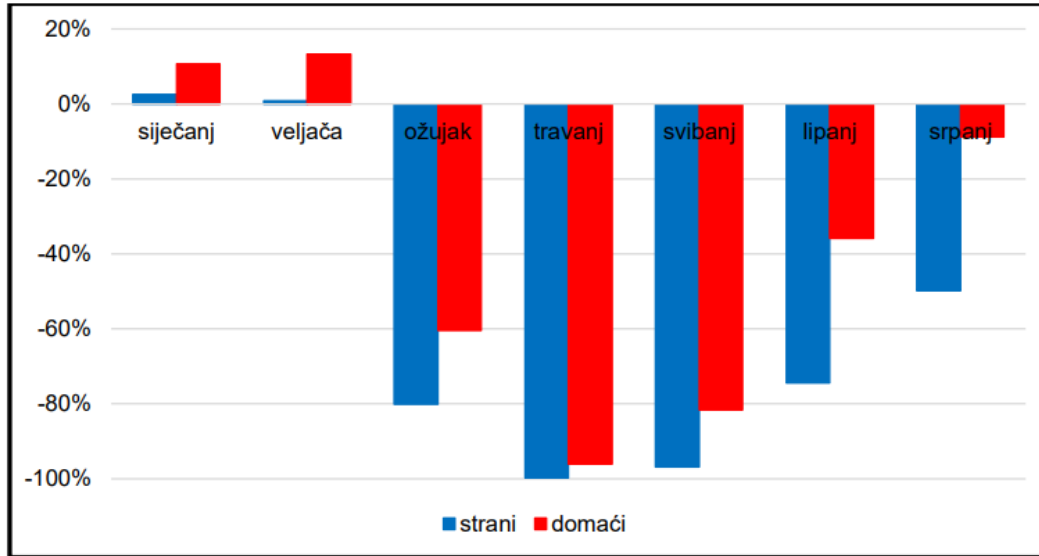


Figure 4 Tourist arrivals - percentage monthly fluctuations; comparison of 2019 and 2020 – Croatia

Source: Benko, L., Krstanović, K., & Sovulj, L. (2022). Procjena učinaka pandemije koronavirusa na turističke dolaske i noćenja u Republici Hrvatskoj te na vrijednost CROBEXturist indeksa Zagrebačke burze. *EFZG working paper series*, 2022(01), 1-33.

In the end, the Croatian tourism sector managed to prepare for and respond to the crisis with relative success, considering its seasonality and the fact that it didn't have special effective plans, procedures, or well-organized crisis management teams (Mikac et al., 2021). Therefore, summer season 2021 reached 2019 levels, which means an 80% recovery, according to the Ministry of tourism.

The Covid-19 pandemic has dramatically changed the tourism industry and the way tourists approach it. It didn't just affect tourist behavior but also the way of communication, approach, etc. It accelerated the process of digitalization.

Digitalization is, “in the broadest sense, converting an analog signal into digital form. In the narrower sense, the conversation of text, image, sound, moving images (films and videos), or the three-dimensional form of an object into a digital form, usually a binary code written as a computer file”, (Hrvatska enciklopedija, n.d.). The term is also defined as “the integration of digital

technologies into everyday life” (IGI Global, n.d.), or “the adoption of digital technologies to adapt the business model. The aim of this is to create value by using new, advanced technologies by exploiting digital network dynamics and a large digital flow of information” (Ibid.). Some would even call it “a game-changer” as the synonym for the digital economy we live in, as well as for the business environment. Companies with high level of digitalization and brand new, “never seen before” business models, are able to quickly change their business strategy, innovate their business model and reshape the whole industry in which they are competing. Today, digitalization or “game changer” is related to disruptive business models which bring major innovation and change the rules of the game (Spremić, 2018). Digitalization includes strategy, organization, culture, technology, consumers, and the workforce as a whole. These are the areas where the digitalization concept is implemented. Artificial intelligence (AI) is being introduced into companies, new software is being developed, digital platforms are being used, and methods of market research and data collection through new software are also being developed to a significant extent. More about this topic is going to be explained in Chapter 3.

Digital transformation involves advancing through levels of digital maturity by integrating digital technologies and organizational practices to foster a digital culture (Ivančić et al., 2019). Although this topic in the industry started long before the Covid-19 pandemic, it reached its peak and started developing with enormous speed during the pandemic, determining a change in the future of tourism. In 2019, before the pandemic occurred, it was already discussed by many experts how companies and management were facing a lack of competences to include digitalization in their strategies, so they could not keep up with technological advances and the new virtual reality. Tourism was leaning on traditional business, which was distrustful of technology and its ability to transform business with positive results. Circumstances made it impossible to survive without digital transformation so, E-business, as a dynamic field that has penetrated traditional tourism, has arisen. It solved a number of shortcomings and problems that tourism was facing. Considering consumers are predicted to increasingly gravitate toward technology-oriented services, it is predicted that by 2030, more than 70% of travel interactions will take place via mobile devices (Radovčić, 2022).

No business sector or organization, regardless of size or level, is exempt from the impact of digitalization, making adaptation essential for survival and success. Consequently, a study was

conducted to examine the link among the level of advancement of a digital business model and the achievement of long-term business sustainability amid environmental turbulence. The research utilized a structured survey questionnaire, sampling 162 companies from the nautical tourism sector—a field heavily impacted by the pandemic. Additionally, a triangulation of supplementary analysis methods, including reviews of company websites and social media profiles, was employed to provide a broader perspective and enhance the quality of the findings. To investigate the relationships between maturity of a digital business model and various business performance metrics, a 5-point Likert scale was applied for measurement, and two hypotheses were set: *H1* “Digital business model maturity has a positive impact on company’s business performance” and *H2* “Digital business model maturity has a positive impact on company’s performance sustainability”. After the testing of the posed hypothesis, further results occurred. Regarding the *H1*, it can be concluded that there is a positive correlation between digital business model maturity and current business performance, indicating that companies with higher digital maturity tend to achieve better current performance scores. Regarding *H2*, the results also show a positive relationship between digital business model maturity and anticipated future performance. This means that higher digital maturity is associated with higher expected future performance scores. Therefore, both *H1* and *H2* are supported by the empirical evidence from this research (Savastano et al., 2022).

2.2 Positioning of Croatian tourism within development strategies

Croatian tourism has been strategically positioned within the country’s broader development strategies to leverage its natural beauty, cultural heritage, and economic potential. By integrating tourism into broader development strategy plans and implementing initiatives focused on sustainability, diversification, and collaboration, Croatia seeks to establish itself as a top-tier tourism destination while maximizing the socio-economic benefits for its citizens and preserving its natural and cultural heritage while remaining competitive on the market.

The following subchapters will explain certain development strategies in more detail.

2.2.1 Implementation of sustainability in Croatian tourism

As the Tourism Development Strategy of the Republic of Croatia until 2020 ended, the Ministry of Tourism and Sport created new Sustainable Tourism Development Strategies until 2030 and the National Sustainable Tourism Development Plan from 2021 to 2027. The preparation of the new

Strategy and National Plan was preceded by the preparation of the National Development Strategy of the Republic of Croatia until 2030, which represents the programmatic starting point for the continued advancement of tourism, prioritizing the growth of sustainable, resilient, and innovative tourism. The established development directions and strategic goals should contribute to Croatia making better use of its potential, eliminating the social and economic damage resulted from the global crisis, and stimulating Croatia's recovery as quickly as possible.

In one hand, the Strategy Plan prescribes the vision of development of tourism industry, considering the tenets of sustainable growth, the development potential of tourism, and its needs, as well as prescribing strategic goals and key performance indicators. The Strategy also includes the public policies of other sectors that are in close interaction and interdependence with tourism.

In the other hand, the National Plan defines in more detail the execution of strategic objectives and key focus areas of public policies for the tourism industry, and is prescribing a medium-term vision for tourism development. Furthermore, a timetable for the implementation of projects of strategic importance is being determined, and an indicative financial plan is created with a presentation of financial assumptions for the implementation of special goals and projects of importance for the field of tourism.

As part of the Strategy and National Plan, the Ministry of Tourism and Sports, plans to carry out a strategic assessment of the impact on the environment, in line with the Law on Environmental Protection and the Law on Nature Protection. Thereby, the goals set within the European Green Plan and the European Territorial Program 2030 were taken into account.

In 2030, the Republic of Croatia is predicted to be a nation that is original, dynamic, secure, and has a unique identity and culture, while also protecting its resources, maintaining high living standards, and providing equal opportunities for everyone. Until 2020, the Tourism Development Strategy of the Republic of Croatia outlined five primary objectives: enhancing national competitiveness, upgrading the structure and quality of accommodation, creating new job opportunities, initiating a new investment cycle, and boosting tourist spending. The new Tourism Development Strategy until 2030 is focused on the following development directions:

1) Sustainable economy and society

Croatia is planning to base its economic growth and development on increasing productivity in the public and private sectors, creating and encouraging investment, innovation and new technologies in order to achieve a technologically dynamic and export-oriented economy. Effective public administration and the judiciary will also perform an essential function in the advancement of the economy while increasing the quality of public services in order to fulfill citizens' expectations. The strategic goals for this development direction are to produce a competitive and innovative economy, to educate people and increase employment, to establish a competent and efficient judiciary, enhance public administration and state asset management, and ultimately achieve global recognition while reinforcing Croatia's international standing and influence.

2) Strengthening resistance to crisis

Croatian citizens will live in a stable and safe country with a clearly defined position in the international environment. Although the global crisis has put health and social care systems to the test, along with the whole society and economy, country will focus on strengthening resistance to the crisis while increasing the quality of life for its citizens. There are three strategic goals for fulfillment of this development direction: a healthy, vibrant, and high-quality lifestyle; demographic renewal and improved family support; and security for consistent development.

3) Green and digital transition

Croatia aims to become a European leader in transforming climate and environmental challenges into opportunities through a fair and inclusive transition to climate neutrality. This green and digital shift will involve adopting clean energy sources, promoting green and blue investments, decarbonizing buildings, advancing the bioeconomy while protecting and restoring ecosystems and biodiversity, fostering a circular economy, and enhancing food production self-sufficiency. The country will also promote cleaner, more affordable, and healthier transportation options by supporting a safe and sustainable transport policy. Furthermore, investments will focus on enhancing digital infrastructure, and the adoption of digital solutions will be promoted while building the digital future of Europe. Strategic goals of the Green and digital transition direction are as follows: ecological and energy shift

towards climate neutrality, food self-sufficiency and bioeconomy development, sustainable transportation, and the digital transformation of society and the economy.

4) Balanced regional development

Balanced regional development is an indispensable component of sustainable and permanent growth, demographic recovery and reduction of social differences, especially in less developed areas. Supporting territorial strategies, conducted at the regional level, will enable even higher regional development and contribute to a better standard and quality of life in all parts of Croatia. There are two main goals within this development direction and those are advancement of supported regions and those with unique developmental peculiarities, along with enhancing regional competitiveness (Salitrežić, 2021).

Tourism's significant role is clearly highlighted in the key global development document, "Transforming Our World: The 2030 Agenda for Sustainable Development", published by the United Nations (UN). While it consists of Seventeen Sustainable Development Goals for fostering conditions that enable sustainable, inclusive, and continuous growth, Croatia still faces a lot of difficulties faced in ensuring the sustainable use of cultural tourism. Some of the key issues include a lack of understanding and knowledge within the local community and tourism coordinators in the area of cultural management, as well as organizational challenges during the planning and execution of projects. Currently, Croatia operates under a so-called hybrid or transitional model (Kordej-De Villa et al., 2021).

Without a doubt, tourism is one of the most vulnerable and exposed industries to crises, but the one crisis we need to point out is the climate crisis that is occurring due to climate change. In order to deal with climate change related threats, crisis management in tourism should involve assessing risks, being prepared with well-developed scenarios for potential "what if" situations, and provide concrete solutions. Given these threats, it is essential to enhance and reinforce the capacity of tourism systems to adapt to both current and future challenges. In Croatian tourism, the sectors most vulnerable to climate change are winter and coastal tourism, particularly those involving ports and marinas. Some of the threats or impacts of climate change on islands and coastal regions include storms and rising sea levels. Also, some problems are caused by rapid development that increases the tourist capacity and therefore, problems with waste and wastewater collection. Thereby, The Blue Economy concept was developed to promote and support the sustainable

development of marine and coastal tourism by focusing on effective climate change mitigation. It aims to maintain resource sustainability, ecosystem balance, and environmental health, while also encouraging the efficient use and management of resources. Additionally, this concept can be applied to the principles of ecotourism (Misevic et al., 2023).

Finally, the last concept we need to mention is ESG, which stands for “Environmental, Social and Governance” and denotes three key factors that should be considered when measuring sustainability, ethics and social responsibility. Environmental factors are related to the direct or indirect impact of business on the natural environment, i.e., climate change, environmental pollution, energy efficiency, waste disposal, etc. Social factors are related to the direct or indirect impact of business on interest groups in terms of universal values such as working conditions, relations with the community, human rights, or diversity. Finally, management factors refer to processes, regulations, institutions that influence the management, administration and control of companies. Examples of management factors that represent “Governance” are salary, remuneration policies and practices, or independence of election of board members. This regulation came into force in the financial year 2024 as an obligatory directive just for large companies with more than five hundred employees, which are already subject to the Non-Financial Reporting Directive, while from 2025 it will also apply to large companies that are currently exempt from the Non-Financial Reporting Directive. From 2026 on, the regulation will apply to all small and medium-sized enterprises, as well as small and non-complex credit institutions and closed insurance companies (Hrvatska Gospodarska Komora, 2023).

2.2.2 Digitalization as a main aspect of development strategies

Digitalization has emerged as a central pillar of development strategies worldwide. It stands out as a transformative force driving progress across various sectors and regions. Integrating digitalization into a nation’s development strategies has become not just advantageous but imperative.

Therefore, Croatia adopted the Strategy of digital Croatia for the period until 2032, with the goal of transforming Croatia into a country with technologically advanced and economically strong businesses, as well as digitalized government services offering tailored public offerings. The Strategy defines the vision of digitalization in society (“Croatia improved by digital transformation”), the public administration and financial system of the Republic of Croatia,

including the associated strategic goals and main performance indicators, as well as the recommended priority areas for public action. It also involves adopting advanced technologies like 5G/6G, AI, machine learning, cloud computing, big data, and blockchain in both the public and private sectors, while remaining receptive to emerging disruptive technologies that may arise in the future. The Strategy also represents a tool for developing sustainable, innovative and resilient tourism while strengthening its competitiveness and promoting the green and digital transformation of the tourism sector. It is setting up tourism application solutions in order to administratively relieve entrepreneurs and transform the tourism model towards sustainability (Republic of Croatia, 2022).

As previously stated, the National Development Strategy of the Republic of Croatia until 2030 is the hierarchically highest and most comprehensive process of strategic planning and guides the sustained growth of society and the economy in all important issues for Croatia. It defines four development directions, focusing on digital infrastructure and the implementation of digital technologies for the benefit of citizens and the economy. The topic is described separately in Direction 3: “Green and digital transition” with emphasis on the following strategic goal: “Digital transition of society and economy”. Within this strategic goal, four priority areas of public policy implementation on which the Digital Croatia Strategy should be based, were selected and those are: (1) Digital transition economy, (2) Digitization of public sector and judiciary, (3) Expansion of high-speed electronic communication systems, and (4) Enhancement of digital skills and digital work environments. Indicator by which the success of the implementation will be measured is called the Digital Economy and Society Index (DESI). It will be used to follow the progress of the EU member states’ competitiveness in the digital sphere through the four main areas of “Digital Compass: European approach for the digital decade” adopted in 2021 by the European Commission. The four areas are: (1) Workforce skills, (2) High-speed internet access, (3) Adoption of digital technologies, and (4) Digital government services (Ibid.).

The following table represents Development Direction 3 while we will focus on the objective of the Digital transition of society and economy. It is an example of how, as previously mentioned, DESI Index is going to be used. In 2020, Croatia was in the 20th place regarding digital transition with an initial value of 47,60%, while its goal is to reach the EU average in 2030, which was 52,57% in 2020 (Ćučić et al., 2023).

Table 6 Development direction 3: Green and digital transformation

STRATEGIC GOAL OF NDS - 2030	PERFORMANCE INDICATORS	INITIAL VALUE	TARGET VALUE 2030	EU AVERAGE
SG 8. Ecological and energy transition for climate neutrality	Greenhouse gas emissions (base year 1990)	75,23% (2018)	65%	79,26% (2018)
	Municipal waste recycling rate	25,30% (2018)	55%	47,40% (2018)
	Share of renewable energy sources in gross total energy consumption	28,02% (2018)	36,40%	18,88% (2018)
SG 9. Self-sufficiency in agriculture and the development of the bio-economy	Labor productivity in agriculture	6.107 euro/GJR (2019)	10.000,00 euro/GJR*	20.120 euro/GJR (2019)
SG 10. Sustainable mobility	Global Competitiveness Index (GCI), Infrastructure component	32nd position	< 28th position	-
SC 11. Digital transition of society and economy	DESI index of economic and social digitization	47,60 (20th position in EU) (2020)	Reach the EU average	52,57% (2020)

Source: Ćucić, D., Pancić, M., & Serdarušić, H. (2023). The Financial and Social Impacts of the Approved Projects in the Area of Digital and Green Transition on the Croatian SMES. *EU and comparative law issues and challenges series (ECLIC)*, 7, 613-642.

Croatia can be considered a digitally conscious country, with a constant development of digital technology. The country started integrating the new, improved model of technology in every sector of its economy, not only to follow the trend set by the EU, but for its own well-being. The figure below shows the movement of digital integration in Croatia as well as in the EU for the timeframe from 2016 to 2021.

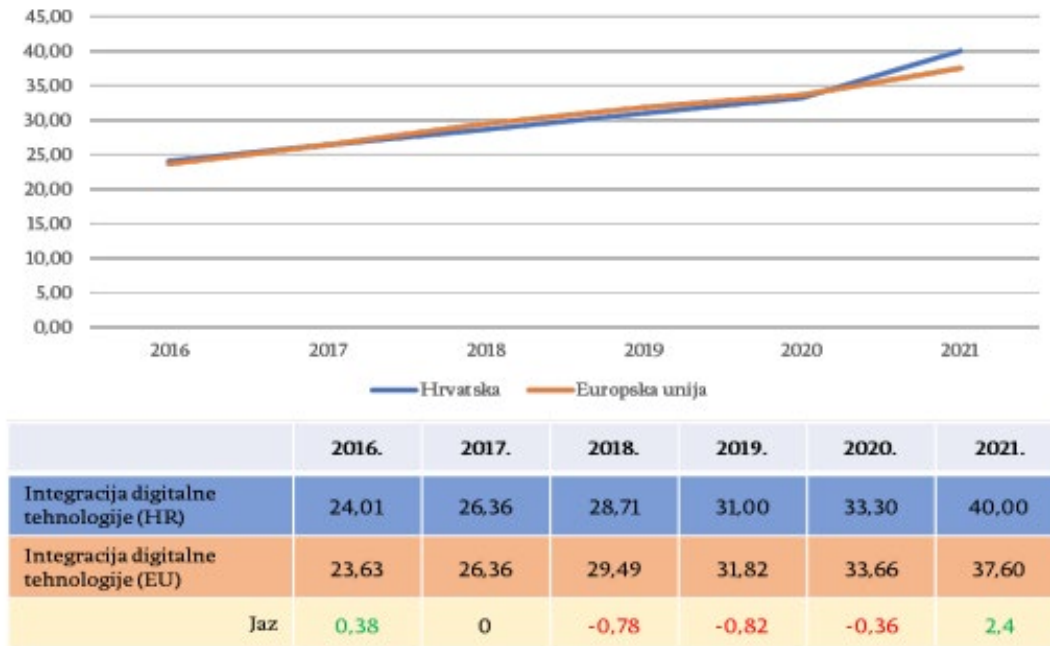


Figure 5 Integration of digital technology - Croatia and the EU

Source: Republic of Croatia: Central State Office for the Development of the Digital Society (2022): *Digital Croatia Strategy for the period until 2032: Introduction to the Digital Croatia Strategy for the period until 2032*. [online]. Available at:

https://rdd.gov.hr/UserDocsImages/SDURDD-dokumenti/Strategija_Digitalne_Hrvatske_final_v1_EN.pdf [16.4.2024.]

The figure clearly shows how, within the observed period, Croatia has matured in the integration of digital technologies. It also shows that the trend of the Republic of Croatia, in the last few years, has followed and surpassed the average result of other EU member states.

According to Eurostat (2022), Croatia has the largest proportion of individuals among EU member states, between the ages of 16 and 24, with basic overall digital skills. Despite its relatively poor digital performance, Croatia is part of a group of countries that is advancing rapidly (Håkansson et al., 2023).

3 Effects of Covid-19 pandemic on Croatian tourism in context of digitalization

The Covid-19 has greatly impacted Croatian tourism, disrupted established travel patterns, and posed significant challenges to the industry while introducing the concept of digitalization. The integration of digitalization has played a pivotal role in enabling businesses to adapt to changing circumstances, engaging with travelers, and reimagining the future of tourism in Croatia.

3.1 Changes in tourist behavior and booking methods

Tourist behavior refers to actions, choices and preferences coming from individuals or groups while engaged in travel and tourism activities, and as a predictor of their future actions, and it can also reflect the behavior of others. It comprises several stages, with each stage involving the activities of planning, decision-making, and purchasing (Grcić, 2020).

Since the Covid-19 pandemic happened, tourists' behavior has dramatically changed, along with the choices they make and methods they use. Post pandemic travel behavior was gravitating towards a feeling of safety. Risk has been a significant factor affecting tourist attitudes and behaviors, encompassing health risks, performance risks, financial risks, social risks, and perceptions of travel risks in the post-pandemic period. In 2020, tourists exhibited heightened concerns and paid closer attention to preventive measures, such as social distancing, hand sanitization, and wearing face masks, while in 2021, they were more relaxed and less scared. A large number of tourists preferred not to discuss the pandemic or be reminded of it. People just wanted to get away from that traumatic period of their lives. Furthermore, some people refrained from traveling for two years, so they now want to fully enjoy and make the most of their holidays (Šerić et al., 2023).

Digital technologies are transforming economic, technological, and social norms. Recent trends in tourism are shifting towards a more genuine interaction between tourists and locals, driven by responses to specific market demands. It targets tourists seeking an immersive and genuine experience, emphasizing participatory learning in fields such as arts, heritage, or unique local characteristics, thereby fostering a connection between visitors and residents. This approach necessitates engaging tourists in creating distinctive cultural tourism experiences and emphasizes emotional, social, and participatory interactions. It actively encourages tourists to integrate into the

visited destination. Ultimately, tourists have become active participants in shaping their tourism activities throughout the entire experience.

Today, travelers utilize and independently manage information and digital technologies, such as web-based services and smartphone apps, whereas previously, everything was handled through more traditional methods. A broad range of smartphone apps is now available to travelers, enabling them to access a wide array of services, including transport planning, accommodation booking, travel arrangements, tour guides, and more (Ammirato et al., 2022).

A crucial factor influencing tourist consumption behavior is understanding the reasons behind their visit. The sources of information tourists use to learn about a destination before their trip play a significant role in planning, booking, and preparing their journey. Nowadays, the Internet is the most commonly used information source, with over 50% of tourists in Croatia relying on it, which is twice as much as other information sources. Traditional forms of information, like brochures and printed materials, are used the least (Jelušić et al., 2021).

All those changes in tourist behavior have influenced tourist methods of activity, especially methods of booking accommodations. In accordance with that, the virtual tourism market has experienced substantial growth. The advent of online booking platforms like Booking.com, Airbnb, Expedia, and similar services has transformed and challenged traditional reservation practices. On online travel agencies, tourists can read reviews from previous guests, allowing them to get an insight into the specific accommodation. It also offers one important improvement, and that is flexibility. Nowadays, Consumers often prefer to make last-minute reservations and seek flexible cancellation policies. The share of online bookings is still continuously growing (Dadić et al., 2022).

In order to show an increase of digital popularity, a systematic literature review for specific research made by Spremić et al. (2021), about classification of digital business models in the tourism industry, which will be mentioned further in the thesis, was made. The literature review was carried out using a standardized search method through the Discovery System Summon, focusing on scientific journal articles and conference papers released between 2000 and 2019, covering nearly 20 years. This targeted review utilized a set of 27 relevant keywords related to digital business models in tourism and hospitality industry. The table below provides a summary

of these key terms and the quantity of articles released in academic publications and convention. Additionally, the outcomes are categorized into four 5-year periods (Zentner et al., 2021).

Table 7 Literature research: Number of publications for relevant keywords

Keywords	Number of Results 2000-2004	Number of Results 2005-2009	Number of Results 2010-2014	Number of Results 2015-2019
I - PAPERS CONTAINING RELEVANT KEYWORDS IN THE TITLE				
Tourism Business Models	2	5	19	65
Hospitality Business Models	1	3	2	10
Tourism Digital Business Models	0	0	0	1
Hospitality Digital Business Models	0	0	0	0
Digital Platforms Tourism	0	0	2	3
Digital Platforms Hospitality	0	0	0	0
Digital Platforms Accommodation	0	0	0	0
Online Booking Tourism	0	3	1	1
Online Booking Hospitality	0	0	1	0
Accommodation Online Booking	0	0	1	10
Booking Platforms Tourism	0	0	0	1
Booking Platforms Hospitality	0	0	0	0
Booking Platforms Accommodation	0	0	0	1
Online Travel Agencies	12	13	30	65
Online Travel Agency Business Model	0	0	0	1
Review Platforms Tourism	0	0	2	1
Review Platforms Hospitality	0	0	0	2
Review Platforms Accommodation	0	0	0	0
Sharing Economy in Tourism	0	0	0	42
Sharing Economy in Hospitality	0	0	0	18
Peer-to-peer Tourism	0	0	2	8
Peer-to-peer Hospitality	0	0	0	3
Peer-to-peer Accommodation	0	0	1	52
II - PAPERS CONTAINING NAMES OF COMPANIES IN THE TITLE				
Airbnb	0	0	26	512
Booking.com	0	1	21	99
Tripadvisor	1	8	204	267
Expedia	59	60	165	158

Source: Zentner, H., & Spremić, M. (2021). Typology of digital business models in tourism. *International Journal of E-Services and Mobile Applications (IJESMA)*, 13(2), 5-6.

From the table above, it is clear that publications are most numerous for keywords related to specific companies, particularly Airbnb. Overall, the frequency of these keywords has increased in recent years, reflecting the growing interest in these research topics. Among the keywords that do not refer to specific companies, the most frequently researched subjects are "Business Models in Tourism" and "Online Travel Agencies," each yielding 65 results in the past 5 years, marking a significant rise in contrast to the preceding 5-year span (Ibid.).

3.2 Creating digital solutions focused on interests of tourists

Digitalization is viewed as a fundamental driver of innovation in numerous tourism business processes, affecting both the demand and supply sides. For tourists, Information and Communications Technology (ICT) solutions aid in decision-making, enhance the journey of tourism and cultural experiences, and assist in activities related to travel. Additionally, digital technologies offer various functionalities to address specific challenges, and recent advancements in mobile technologies and the Internet of Things (IoT) have further promoted innovative solutions.

From the supply side, the vast amount of information generated by visitors and collected through sensors, devices, and cameras at tourist destinations, allows tourism companies to tailor their products and services. Consequently, digitalization facilitates the creation and simultaneous use of cultural offerings, introducing new methods of delivering value to tourists and offering services that better meet their expectations and needs. This shift significantly impacts the emergence of more interactive and participatory cultural tourism experiences, profoundly influencing the customer journey.

As tourists become increasingly "digitally enabled," the success of tourism products and services hinges on digital technology's ability to seamlessly integrate and deliver comprehensive travel information anywhere and anytime, in order to meet travelers' needs.

The rise of social networking platforms has transformed how tourists engage with one another, fostering new forms of interaction, collaboration, and social experiences. This shift has led to the widespread use of electronic word-of-mouth communication, influencing opinions about destinations, services, and tourism operators.

In the past few years, there has been an increasing use of mobile app-based services, enabling consumers to access detailed, real-time, location-specific, and contextually relevant information. These apps play a crucial role in delivering personalized, high-quality, and context-aware information that meets the needs of cultural tourism. Mobile apps offer five primary functions: (1) information delivery, (2) two-way communication, (3) context awareness, (4) integration with the Internet of Things (IoT), and (5) tagging (Ammirato et al., 2022).

The rise of social media is attributed to the second stage of the Internet, known as Web 2.0., commonly known as the interactive or collaborative web, which marked a shift from static

webpages to dynamic, user-generated content (UGC). It changed how information is shared, enabling users to become leaders online and increasing the effectiveness of endorsements by celebrities, influencer marketing, and digital influencers who share product or service information and opinions with their followers. Today, traditional marketing strategies are becoming more expensive, and their effectiveness is decreasing. Additionally, customers are becoming more knowledgeable, selective, and unresponsive to traditional advertising approaches. In response to these challenges, influencer marketing has emerged as a new solution. It involves a marketing approach focused on identifying and establishing relationships with influencers, who can sway their followers. This strategy helps businesses enhance the returns on their marketing investments. In industries like tourism, influencers play a crucial role in shaping new trends, including popular destinations and attractions. Over the past few years, Instagram has become a prominent platform for promoting tourism and food, with its visual content significantly influencing potential customers' behavior. Consequently, the imagery of destinations has become a key area of interest for researchers in tourism marketing, as it is regarded as a crucial factor in shaping travel intentions (Ingrassia et al., 2022).

One solution to meet tourists' needs is the use of augmented reality (AR) and virtual reality (VR) to enrich their experiences before, during, and after their trips. These technologies are creating a new model of tourism known as virtual tourism (VT), which offers three-dimensional virtual or online environments based on actual travel destinations. The biggest advantages of the VT are smaller “limitations” and an enhanced and personalized experience. It also supports sustainability, given that it can reach a larger audience while minimizing the carbon footprint and preventing overcrowding, thereby aiding in the preservation of sites. It can also recreate the original appearance of historical sites, help preserve cultural heritage, and serve as a valuable tool for environmental advocacy. VR blossomed during and after the pandemic because it could offer many solutions, tourism activities and experiences while keeping and respecting physical distance. It can be utilized by hotels, attractions, and destinations to provide virtual tours on their business websites. Then, it can be used for enhancing learning, i.e., museums can leverage VR technology to enable people to explore their collections from any location around the world. Natural sites, such as national parks, famous attractions, and city destinations can use it, too. For example, by using VR, we can reconstruct sites that have been lost or no longer exist (de Lurdes Calisto et al., 2024).

A great example of incorporating augmented reality and examining user perception and acceptance of new technologies is research that explores the extent to which AR apps are embraced as innovations in retail. This research is guided by two key questions: RQ1 “What factors and behavioral parameters have motivated the respondents’ opinion on AR apps in super and hypermarkets?” and RQ2 “What factors stimulate individuals the most to adopt AR apps?”. To address these questions, the study used the extended Unified Theory of Acceptance and Use of Technology (UTAUT) framework. It incorporates examination of four factors: expectations for performance and effort, facilitating conditions, and social impact. Furthermore, the study relied on a set of student participants, focusing solely on gender and education as factors influencing user behavior. Behavioral intention refers to an individual's personal likelihood or probability of adopting new technologies. This is significant because consumers' shopping habits in supermarkets and hypermarkets will shift if they choose to embrace new shopping methods using an AR app. An AR app for online shopping differs from the one used in physical stores, even though both utilize the same platform technology. With the AR app, reality is you or your surroundings, while in contrast, within the store, the environment consists of the physical products. It is anticipated that respondents will use the AR app if they find it beneficial. The process from input to output is crucial for users to embrace new technology. Also, simplicity of use and enjoyment are a must for the AR app to be accepted. Loyal customers are dedicated to the product or company, making them less sensitive to price changes and less inclined to try other brands. In order for customers to accept AR app, companies would need to offer some rewards to their customers. Being innovative is also important, although the adoption of the innovation is influenced and depends on the individual. The more innovative a user is, the greater the likelihood they will recognize the benefits offered by the new technology. Finally, there is the element of trust. If customers are familiar with the company over time, they will build a social relationship with it. Based on the stated facts, following hypothesis arose: *H1* “Performance expectancy is related to behavioral intention”, *H2* “Effort expectancy is related to behavioral intention”, *H3* “Social influence is related to behavioral intention”, *H4* “Brand loyalty is related to behavioral intention”, *H5* “Enjoyment is related to behavioral intention”, *H6* “Innovativeness is related to behavioral intention”, and *H7* “Trust is related to behavioral intention”. To test the mentioned hypothesis, a survey was conducted, followed by empirical research. Therefore, the questionnaire was distributed online from June to July 2021 among the target group of a younger population that accepts new technologies faster,

that is to say, among 65 students of the University of Zagreb whose answers were approved for empirical analysis to investigate their attitudes regarding the use of AR apps in supermarkets or hypermarkets. The results indicate that the majority of respondents, meaning, 73% of them, never had an experience with the AR app. On the other hand, there is a minority of respondents, that is to say, 21.5% of them, who had some experience, though mainly for less than a year. The remaining experience was spread across 1-2 years (3.1%) and 3-5 years (1.5%). Additionally, three out of seven hypotheses were supported (H1, H2, and H5). Enjoyment and Performance expectancy demonstrated positive and strong correlations, whereas Effort expectancy had a negative relationship with behavioral intention (Jajić et al., 2022).

Some other trends within the travel and tourism sector, that emerged due to the usage of AI, and are important for travelers to feel seen, heard and served better are:

Travel chatbots, AI-driven chatbots that support travelers and tourists by offering essential information before, during, and after their trip, thereby enhancing the convenience and enjoyment of their journey.

Voice-based assistants, being used by many hospitality industries. Guests utilize the technology to easily and rapidly make requests at the reception desk, control room functions, make hands-free calls, adjust the temperature, lighting, and more using speech recognition and voice commands.

Facial recognition, used for safety and to comply with legal regulations, it assists individuals in saving time at airports, hotels, and similar locations (Nabila, 2023).

Considering the other side and not only the tourist point of view, businesses found their solution in blockchain technology. It pertains to a dataset of chronological records and transaction data that are monitored and tracked, which can be leveraged to minimize both direct and indirect costs associated with transactions in the tourism industry. Because of this technology, businesses can reduce the amount of irrelevant information, correct information asymmetries while curbing opportunistic behaviors, reducing the need for intermediaries, and decreasing direct monetary expenses. In the tourism industry, blockchain is mostly used for booking, reservation and payment systems, and brings many advantages: it will enhance the traveler experience through platform support, facilitate fast and seamless cross-border payments, protect the currency and bolster the banking system, and help reduce overall operating costs (Erceg et al., 2020).

The key players in the tourism industry include governments, tour operators, hotels, airlines, other transportation providers, and tourists or customers. Each needed to adjust to the rapid digitalization and shifting consumer behavior. They had to incorporate information and communication technology into their processes to work together in enhancing the efficiency of e-tourism. So, here are a few new solutions that emerged due to digitalization (Anandkumar, 2021):

E-Airlines

Due to the complexity of airline operations, Information Technology (IT) has made them more efficient, faster, cost-effective, and accurate in managing inventory. Initially, bookings and reservations were handled using physical display boards listing travelers, but today, everything is managed online. Additionally, communication technology plays a crucial role in supporting the online distribution of airline seats, as distribution is a crucial aspect of an airline's strategy and competitiveness, directly impacting both cost and capacity. Its costs were increasing dramatically and airlines found it difficult to control them, so IT came to them as a gift. With the introduction of digitalization, they concentrated on enhancing customer relationships, accessibility, e-bookings, online ticketing, e-auctions for last-minute available seats, and restructuring agency fee structures. This approach not only helped airlines, but also travelers, making everything easier, faster, and more accessible.

E-Hospitality

E-Hospitality offers support and services beyond just distribution and servicing. The growth of the Internet has brought numerous advantages to the industry, as it lowers the capital and operational expenses needed for the marketing and advertising of a hotel or other establishments. Today, Hotel websites have become an essential component for a growing number of communication and business tactics. They provide a great amount of information, it is easy to navigate them, they are user friendly, and effective. One of the most significant advancements in the hospitality industry is the emergence of "application service providers (ASPs)", which are particularly beneficial for hotels, especially those that are small to mid-sized.

E-Tour Operators

Tourists typically purchase package deals that include charter flights and accommodation, organized by tour operators. These products are often pre-booked and promoted in collaboration

with travel agencies. Once the whole process of organizing, promoting, distributing and coordinating was influenced by communication technology, in order to minimize handling costs and expedite the transfer of information, all major tour operators have either created or obtained databases and set up digital links and connections with travel agencies. This advancement enhanced their productivity and capacity management while also improving the quality of services provided to both agencies and consumers. A great example is the usage of Computer Reservation System (CRS) to adapt supply to fluctuations in demand, as well as to oversee the booking process and the efficiency of travel agencies.

E-Travel Agencies

Travel agencies support the intermediation between consumers and principals. Information and communication technology has become an essential tool for delivering information and managing reservation systems, allowing for availability checks and bookings of tourism products. It provides necessary information for financial and operational management, as well as for market research, aiding in the evaluating of market trends and improving of tactical choices.

E-Destinations

Destination is a key component of tourism products, facilities, and services, and although it seems strange, it has also been influenced by digitalization. New digital models and methods are employed to enhance the tourist experience prior to, during, and following their trip, while also ensuring seamless coordination among all parties responsible for producing and delivering tourism offerings. For example, there are e-destination webpages that display information, such as tourism attractions or travel information, for travelers across the world (Ibid.).

3.3 Most frequently used digital models within tourism of Croatia

The emergence of social media platforms, big data analytics, the Internet of Things (IoT), and the smartphone revolution has significantly influenced the creation of new business models. Business model “describes an architecture for how a firm creates and delivers value to customer and the mechanisms employed to capture a share of that value” (Teece, 2018). Generally, a business model is viewed as a conceptual framework that enables the identification of a business’s key elements (such as revenue, costs, suppliers, etc.) and their interconnections, forming a cohesive and comprehensive structure. There are two main approaches to business modeling: static and dynamic

frameworks. Static frameworks outline the present state of a business, whereas dynamic frameworks analyze the evolution and changes in a business model over time. Furthermore, among the nine elements, there are three central characteristics of business model dimensions or business model canvas (BMC) and those are:

- Value creation: Focuses on the technologies and systems that empower businesses to deliver value to their clients.
- Value proposition: The commitment a business makes to its clients to provide a specific set of benefits or values.
- Value capture: Refers to how companies convert the value they provide into revenue and profits (Ammirato et al., 2022).

The Internet and information technology have become essential innovations in the tourism industry. The advent of the Internet and advancements in information and communication technologies have made electronic media a fundamental aspect of tourism. Evidence for that is the fact that more travel is now purchased online than any other consumer product.

Therefore, E-tourism is created, as the use of information and communication technology across various sectors of the tourism industry. It involves the digital transformation of all processes and value chains within the tourism, travel, hospitality, and catering industries, aimed at maximizing business efficiency and effectiveness.

Considering everything stated, here are the most frequently used digital models within Croatian tourism:

Business-to-Business (B2B) Business Model

While B2B stands for a business selling its products or services to another business, Digital communication channels are crucial in influencing the decision-making process for selecting tourist destinations. The B2B sector in tourism has been relatively slow to adopt digital communication channels. To address this, tourism businesses need to fully embrace and utilize these digital communication tools. By tailoring content to specific business sectors, enhancing interactivity, utilizing video and storytelling more effectively, making content shareable, and adapting it to emerging markets and various cultures, digital B2B platforms can significantly enhance the overall B2B strategy within the tourism industry. To enhance their competitive edge

and simplify online operations while boosting the attractiveness of a tourist destination, businesses are adopting robust and innovative digital B2B marketing and communication strategies. An example of a B2B business model in tourism is E-procurement, which involves purchasing goods and services via the Internet. Its objective is to transition the entire process of procurement to an online platform, facilitating an automated purchasing cycle. E-procurement presents a significant opportunity to cut costs and enhance the effectiveness of the tourism.

Business-to-Consumer (B2C) Business Model

Within the B2C Business Model, which describes the act of a business selling goods or services directly to customers, allowing travelers to research potential destinations and quickly and easily book travel, accommodation, restaurants, and entertainment. An example of an advanced B2C business model influenced by digitalization is a hotel that is trying to sell its rooms. For that, it built a new, more engaging booking experience, including the opportunity for guests to explore galleries through 360-degree tours, along with photos and videos of rooms and the hotel itself.

Consumer-to-Consumer (C2C) Business Model

The C2C (Customer-to-Customer) business model stands for a market setup where one consumer sells goods or services directly to another consumer, with the transaction facilitated by a third-party business or digital platform. It's an emerging model because the web provides an ideal marketplace and meeting place for exchanging all types of information. By establishing a C2C online community, the tourism and travel industries can leverage the power of experience sharing. Travel experiences can be shared through storytelling or by distributing various media like photos and videos. Nowadays, there are many C2C tourism websites that facilitate this. An example of the C2C Business Model is travel agencies, which act as intermediaries by providing consumers with information and decision-making support to assist in their purchasing choices.

Consumer-to-Business (C2B) Business Model

The C2B Business Model involves consumers supplying products or services to businesses. In this model, end users create offerings that businesses and organizations consume, which contrasts sharply with the more common B2C Business Model. Examples of a C2B Business Model in tourism can be Airbnb or Booking.com, where consumers choose to list their propriety with the platform instead of buying properties from other businesses (Anandkumar, 2021).

Based on the literature review and a few scientific methods employed, research on analyzing digital business models of specific companies was conducted using methods such as synthesis and analysis, induction and deduction, as well as comparison and classification. The companies selected for the research are Booking.com, Airbnb and Tripadvisor, as the leading online booking platforms. Here, we are going to focus on the Booking.com business model. It is one of the biggest digital travel companies globally and a leader in online accommodation bookings, with over a million room-nights reserved daily. As such, it must appeal to two key client groups: those seeking to purchase accommodation services and those offering them. This model creates a two-sided platform, where attracting one group enhances the value for the other group. In other words, as more tourists use Booking.com, it becomes more appealing to property owners, and conversely, an increase in available properties makes the platform more attractive to tourists. The primary benefit for travelers is the convenience of searching, comparing, and booking accommodations from a wide selection. For accommodation providers, the key value proposition is the extensive market reach and the potential for increased sales. Another key aspect of Booking.com's value proposition is the opportunity for guests to leave both qualitative feedback and quantitative ratings on the properties they have stayed at. Another noteworthy feature is that Booking.com charges only the accommodation providers, while its services remain free for tourists. This model is common in two-sided platforms, where one group effectively subsidizes the other. The following figure represents Booking.com's business model, presenting its key partners, essential activities and resources, value proposition, customer segments, customer relationships, and distribution channels (Zentner et al., 2021).

KP – KEY PARTNERS <i>Metasearch platforms. Affiliates & Service Providers.</i>	KA - KEY ACTIVITIES <i>Platform management & development. Platform promotion.</i>	VP – VALUE PROPOSITION <i>For Group 1: Conveniently search, compare and book accommodation. Largest choice of accommodation with credible reviews.</i> <i>For Group 2: Largest market reach. Sales increase.</i>	CR – CUSTOMER RELATIONSHIPS <i>Self-service.</i>	CS – CUSTOMER SEGMENTS <i>Group 1: Travelers (mass market).</i> <i>Group 2: Accommodation providers (hotels, apartment owners etc.).</i>
	KR - KEY RESOURCES <i>Platform.</i>		CH – CHANNELS <i>Online: esp. website & mobile app.</i>	
C – COSTS STRUCTURE <i>Platform management/development. Platform promotion.</i>		R – REVENUE SOURCES <i>Booking commissions from accommodation providers.</i>		

Figure 6 Booking.com business model

Source: Zentner, H., & Spremić, M. (2021). Typology of digital business models in tourism. *International Journal of E-Services and Mobile Applications (IJESMA)*, 13(2), 8-10.

However, in the digital transformation process, there is no one unique model or solution that fits every situation. It is a journey defined by foresight, dedicated effort, and a readiness to embrace change by taking risks. As situations evolve, particularly in unpredictable and turbulent circumstances like the emergence of the Covid-19 pandemic, an interconnection between business models, dynamic capabilities (DCs) and strategy, that are aligned with the firm’s business models, provides an instrument for maintaining overall coherence. The capacity to adapt operational management models and success criteria in response to changing environmental conditions is a key factor in achieving sustainable business excellence (Savastano et al., 2022).

As it can be concluded from everything stated, some important characteristics of digital business models (DBM) are enhanced resource efficiency, reduced reliance on physical items and locations, increased ability to customize and be flexible, along with minimal additional costs, and the chance for network effects to grow exponentially that can contribute to a "winner-takes-all" market scenario.

DBM maturity is another concept that needs to be stressed out. It describes the stage of progress achieved by a particular DBM, typically in comparison to a desired or optimal benchmark.

Apart from BMC – the most commonly used framework for representing business models, already mentioned above, there is another widely recognized framework specifically tailored for DBMs, and it is shown in the figure below. It includes the MIT framework, which identifies platform, content, and experience as crucial elements for DBMs. The MIT framework consists of three questions: “What is consumed?”, “How is it packaged?”, and “How is it delivered?”, while each of the components has specific “characteristic(s)”: Content consists of Information and Digital products; Experience consists of Customer experience; and Platform may be Internal or External.

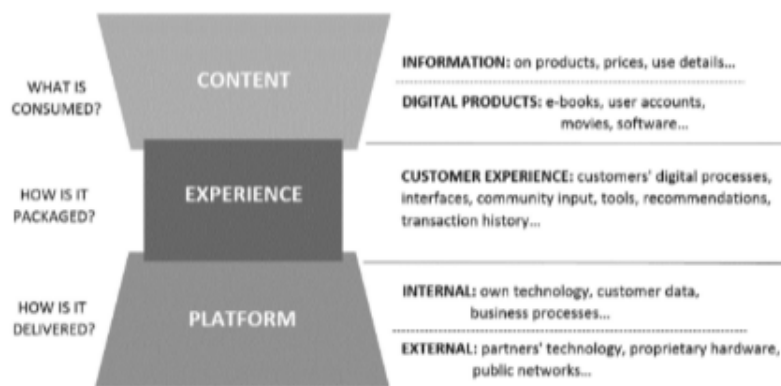


Figure 7 MIT framework for DBM

Source: Spremić, M., Zentner, H., Zentner, R. (2022): Measuring Digital Business Models Maturity: Theory, Framework and Empirical Validation, IEEE Technology Engineering Management, DOI: 10.1109/TEM.2022.3226864

The model can be effectively measured due to the inclusion of a series of targeted questions designed to evaluate the strength of each individual component. That is why this model has been used in research made by Spremić et al. (2022), about measuring DBM maturity. A general MIT framework served as the foundation, with specific modifications applied. The variables used in this research were as follows: Digital Business Model Maturity (MAT), showcasing the growth stage of a specific digital business model; Content (CON), encompassing information accessible to users in digital format, including digital products; Experience (EXP), covering digital processes for clients, digital instruments, record of past transactions, and similar elements; and Platform (PLA),

referring to the comprehensive technology infrastructure that enables business operations and connections. enhances value propositions, and facilitates the delivery of products and services. Furthermore, specific methods for measuring variables were used. The research was carried out using a well-organized survey questionnaire, administered to an international sample of SMEs within the same sector. The questionnaire, written in English, was distributed online between February and April 2020, with a total of 932 companies participating. In the end, 162 relevant and fully completed questionnaires were collected and analyzed. The descriptive Likert-scale responses were transformed into numerical ratings, which varied from 1 (strongly disagree) to 5 (strongly agree). The following table represents the research results and areas for improvement.

Table 8 Research results and areas for improvements

Component	Component avg. score	Identified improvement area	Average score
Content (CON)	3,42	USER GENERATED CONTENT: Active clients' participation in content generation by experience sharing, ratings etc.	2,57 (C5)
Experience (EXP)	3,48	TRACKING EXPERIENCE: Established processes to continually track customer experience and opinions	3,07 (E3)
Platform (PLA)	3,42	INTEGRATION: Ease of integration of own platform with partners' systems & technologies	3,28 (P2)

Source: Spremić, M., Zentner, H., Zentner, R. (2022): Measuring Digital Business Models Maturity: Theory, Framework and Empirical Validation, IEEE Technology Engineering Management, DOI: 10.1109/TEM.2022.3226864

As it can be concluded, the most significant discrepancy is found in the content element, as users are actively involved in generating content through sharing experiences, ratings, and other relevant contributions. This ties into the concept of User Generated Content (UGC), which is crucial for digital business models across nearly all industries, particularly in tourism. The result indicates that the current aspect is likely underdeveloped and could be a focus for future growth in the tourism

industry. Regarding the experience segment, empirical results show that a significant number of the observed companies lack proper procedures for consistently monitoring customer feedback. Lastly, there is a significant lack of integration with external systems in the platform sector (Spremić et al., 2022).

4 Analysis of Croatian tourism growth caused by digitalization after the Covid-19 pandemic

As already stated, the Covid-19 pandemic has reshaped global tourism dynamics, while introducing many new challenges and opportunities. Croatia, a nation with breathtaking natural landscapes, ancient landmarks, and a diverse cultural legacy, has experienced a major change in its tourism industry. mainly due to the rise of digitalization. This chapter analyzes and proves that digitalization has fueled the growth of Croatian tourism post-pandemic and explores which challenges Croatia needs to face.

4.1 Comparative analysis: Growth of Croatian tourism after the Covid-19 pandemic, caused by digitalization

In order to prove the hypothesis that “Croatian tourism has grown after the pandemic due to the accelerated rise of digitalization”, it is crucial to determine the variables that are going to be examined. The first variable is “Number of tourist overnight stays” which represents part of the examined hypothesis about tourism growth in Croatia post-pandemic. Another variable about the tourism growth is Croatian GDP because most of Croatian GDP comes from the tourism sector. The third variable is expressed through “DESI”, as a measurement of digitalization.

Based on information about tourist overnight stays in Croatia, taken from “Tourism in figures” made by the Ministry of Tourism of Republic of Croatia, and published by the Croatian National Tourist Board, the following table represents number of tourist overnight stays in Croatia from 2012 to 2023, expressed in millions (Ministry of tourism of Republic of Croatia, 2013-2023). As tourism of every other country, Croatian can be divided into domestic and foreign tourism so Table 9 presents domestic, foreign, and finally, the overall number of overnight stays in Croatia for the given period.

Table 9 Number of tourist overnight stays in Croatia (in millions)

Year	Number of tourist overnight stays (in millions)		
	Domestic	Foreign	Total
2012	5,2	57,5	62,7
2013	5,1	59,7	64,8
2014	5,2	61,3	66,5
2015	5,7	65,9	71,6
2016	5,9	72,2	78,1
2017	6	80,2	86,2
2018	6,5	83,2	89,7
2019	7,1	84,1	91,2
2020	5,4	35,4	40,8
2021	7,4	62,8	70,2
2022	7,8	82,3	90,1
2023	8,1	84,3	92,4

Source: Author's own work

When analyzing the data within the table, it can be inferred that Croatia has a significantly higher number of foreign than domestic stays. The important part of the analysis is to conclude that the overall number of overnight stays over the years is increasing. The crucial year was 2020, when a drastic fall in the number of overnight stays was noted, and that was due to the Covid-19 pandemic. It can also be noticed that, after the pandemic, number of stays started increasing rapidly.

The second set of observed variables are Croatian GDP and tourism share within it. The following table represents the stated variables for the period from 2012 to 2023. All the data was taken from the Croatian Bureau of Statistics.

Table 10 Croatian GDP and Tourism share in GDP (2012-2023)

Year	GDP (in mill. EUR)	Tourism share in GDP
2012	43.959	15.5%
2013	43.516	16.5%
2014	43.002	17.2%
2015	45.211	18.1%
2016	45.659	18.9%
2017	48.462	19.6%
2018	51.527	19.6%
2019	53.983	19.5%
2020	49.070	8.9%
2021	57.232	15.9%
2022	67.390	19.5%
2023	75.855	19.6%

Source: Author's own work

As it is visible from Table 10, Croatian GDP is constantly rising, along with the tourism share within it, especially after the Covid-19 pandemic (after 2020). The tourism share within Croatian GDP is very high, almost 20%, which is among the highest in the EU.

As there was no publication "Tourism in figures" for 2023, the data for 2023 was taken from the Croatian Bureau of Statistics (Croatian Bureau of Statistics, 2023). It presents the domestic, foreign, and total number of overnight stays in Croatia on a monthly basis, as follows:

Table 11 Number of overnight stays in Croatia in 2023 (in millions)

Months	Domestic	Foreign	Total
January	253	349	602
February	262	390	652
March	300	682	982
April	494	2547	3041
May	568	5003	5571
June	905	12280	13185
July	1618	23425	25043
August	2022	24876	26899
September	650	10925	11574
October	440	2725	3165
November	298	525	823
December	303	536	839
Total	8113	84263	92376

Source: Author's own work

Considering digitalization, Digital Economy and Society Index (DESI) was used. The following table represents Croatian and EU scores of the Index, from 2014 to 2022. All the information was taken from the European Commission site and their publications.

Table 12 DESI - Croatia and EU score

Year	Croatia - score	EU - score
2014	32.0	39.0
2015	35.0	42.0
2016	37.0	50.0
2017	43.0	52.0
2018	46.7	54.0
2019	47.4	52.5
2020	47.6	52.6
2021	46.0	50.7
2022	47.5	52.3

Source: Author's own work

As it can be concluded from the table, Croatia is constantly improving and increasing its DESI score. Although it never managed to reach the EU (as a whole) score, it is developing and getting closer and closer every year. The lowest DESI was scored in 2014, the year when DESI started being measured. Further on, one year that took a special place is 2021, as the year in which the Covid-19 pandemic left huge consequences for which the country needed to find a solution. In that year, Croatia was ranked 19th, with the score being lower than in the previous few years. The pandemic has caused a “chaos” and EU countries, including Croatia, were not ready for it. The year 2022 is evidence that Croatia improved digitalization and managed to adapt and find an exit from that unpredictable situation caused by the pandemic. In 2022, DESI score increased while Croatia was ranked as the 21th EU member state.

In order to prove the stated hypothesis, two variables were compared: Number of overnight stays and DESI score, for the period from 2012 to 2023. As DESI did not exist before 2014, there are no scores for the years before that.

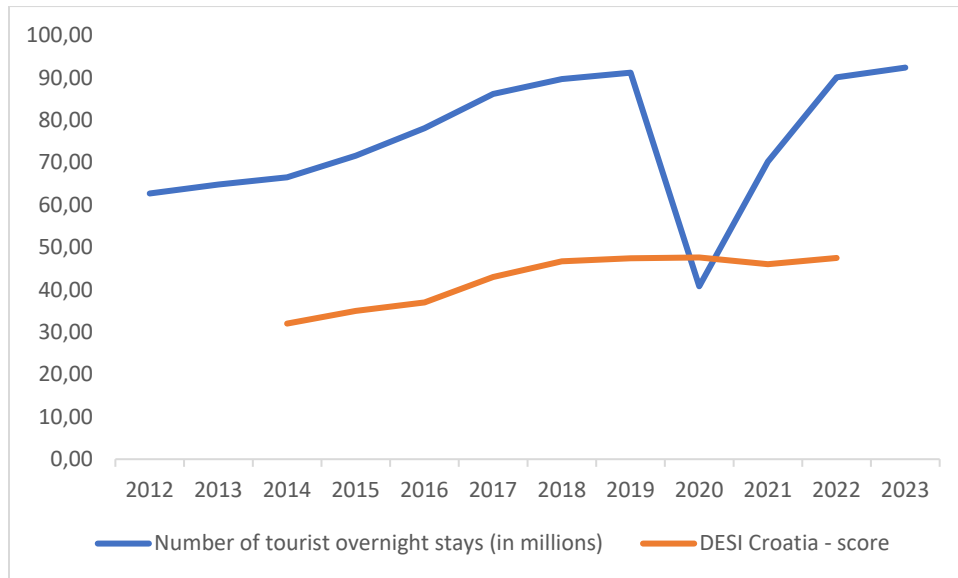


Figure 8 Comparison: Number of overnight stays and DESI score – Croatia

Source: Author's own work

From Figure 8, it is visible that the Number of tourist overnight stays was increasing until the year 2020, when the Covid-19 pandemic severely affected Croatian tourism and due to many restrictions and fear of travelling, number of stays decreased dramatically. Already next year, the whole situation about the pandemic was put under control and tourism started “working” again, as it can be seen from the accelerated rise in the number of overnight stays, which is still increasing. On the other hand, there is DESI as a measure of digitalization. It can be seen that the country was improving digitalization over the years but was not completely ready for what was coming (the pandemic), so in 2021, the Croatian score fell. This year is crucial to understand how, after the pandemic, digitalization started increasing tremendously due to accelerated digital transformation in all areas of the economy, especially in tourism. Finally, it can be concluded that the pandemic represents a milestone for Croatian tourism. It accelerated digitalization, which enabled tourists to travel safely and easier than ever before. The end result was an increase in tourist overnight stays and, ultimately, rise in overall Croatian GDP.

The following figure represents the connection between Croatian GDP and tourism share within it, in order to show how the increase in tourism, caused by the improvement and development of

digitalization, influenced the whole Croatian economy due to the fact that tourism has a high share in country's GDP.

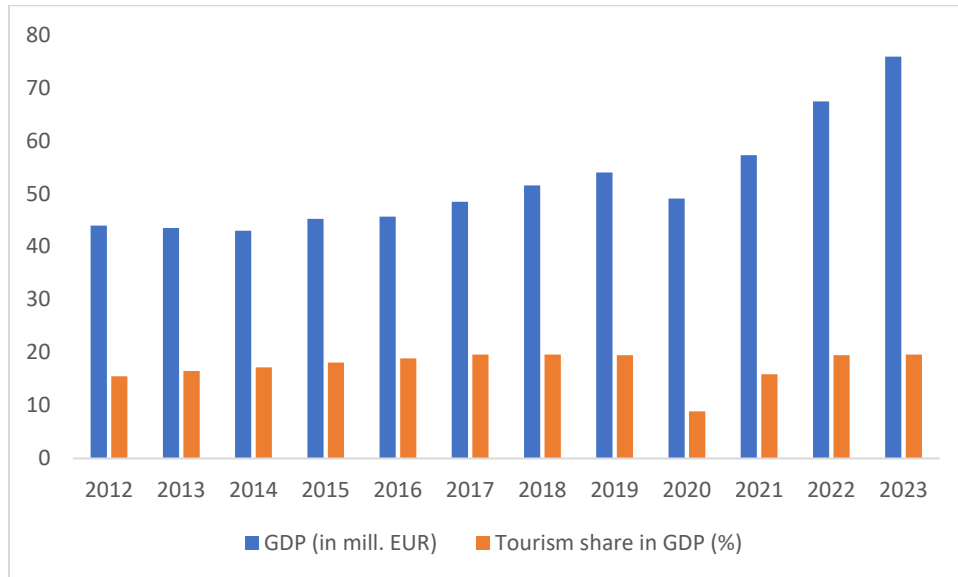


Figure 9 Tourism share in GDP – Croatia

Source: Author's own work

4.2 Challenges and limitations of digitalization in tourism

Leveraging technology as a crucial resource to drive innovation in business models within the tourism industry is very beneficial, but also very challenging. IT trends are compelling businesses to become more agile and update and modernize their processes. All those innovations come with many obstacles that must be understood and adapted in accordance with the business strategy and market demands (Saseanu et al., 2020).

The biggest challenge is the cost of implementation of new technologies while the return is uncertain. On top of that, the country lacks human resources, that is to say digital specialists, as personnel tasked with overseeing digital applications.

Another limitation pertains to the availability and reliability of internet connectivity at the tourism business's location. Businesses situated in rural, island, or remote areas may face challenges with

weak internet connections due to insufficient digital infrastructure. Consequently, these businesses might be unable to offer certain digital services, even if they wish to (Thomas, 2024).

Then, it is crucial to stay updated with the fast advancements in digital technologies. Younger people can adapt to digital changes more rapidly and effectively, while this can be a huge obstacle for adults and older people who are in the tourism business. Considering the fact that family businesses make a significant contribution to Croatian tourism and the economy, this challenge may cause great limitations in the Croatian tourism industry. For example, innovation in small family-run hotels remains limited, minimally associated with technology (Bujan, 2020).

Another challenge that needs to be pointed out is time. Being online and quickly handling customer or tourist inquiries is a full-time responsibility, so it can be concluded that time management and availability are important difficulties.

The greatest obstacle is the belief that current levels of technology are already sufficient. People are scared of something new and unknown. Digitalization should not be a goal; better business is the goal (Dredge et al., 2019).

With the increased use of digital platforms in tourism, i.e., booking accommodation, tours, activities, making payments, etc., there is a high concern about data security and privacy. Ensuring the protection of tourists' personal information is crucial in maintaining trust in the digital tourism ecosystem. Due to possible digital breaches, it is crucial to highlight the significance of cyber security. It safeguards both, the data and data processing, as well as systems, networks and programs, against digital attacks. Social security and financial information are top priorities (Ma, 2021).

Not all challenges and limitations are regarding tourists. Due to high dependence on online platforms, businesses can be in a difficult position, too. Although online platforms have made everything easier for tourists, there is a problem of dependency on a few dominant platforms. This can lead to issues such as high commission fees for business and it can limit their activity and impact because they cannot influence scenario in which certain platforms gain monopolistic power.

4.3 Recommendations for future digital transformation initiatives in tourism of Croatia

Today, technology runs the world, and as the global tourism landscape continues to evolve, Croatia needs to follow the trends. The tourism sector is a vital component of the Croatian economy, and over time, it has been developed and advanced in terms of digital technology, but there is always room for improvement. Digital transformation aims to enhance visitor experience, and promote sustainable tourism practices. At the same time, by adopting new innovations, the country will remain competitive and attractive destination for tourists worldwide. There are many ways to improve tourism of Croatia in the future, and some of the recommendations are stated below.

First of all, the country needs to enhance its digital infrastructure, which means high-speed Internet access and 5G network availability. This is specifically important for islands and rural areas, although it may be applied to bigger cities as well. The city of Zadar is a great example of a popular tourist destination in which there is no signal in some parts of the old town, including places like shops or apartments.

Furthermore, there is a rise of smart city concept which has become a necessity in the world. Using information and communication technologies in an urban tourism setting to enhance the management of current resources and plan the creation of new processes and services. As it brings many innovative and digital components, the smart city concept respects the community's historical, social, artistic, and cultural legacy. It is a long-term process that brings many benefits in the end (Krstinić Nižić et al., 2020).

Then, according to the research made by Jurčević et al. (2020), the Croatian Digital Index shows that companies in Croatia lack sufficient understanding of what digital transformation entails. Furthermore, it isn't a top priority for many companies, and only a small number have implemented a digital transformation strategy. To sum up, the country needs to increase the overall knowledge of digital transformation in general so that it can be applied to the tourism sector (Jurčević et al., 2020). A systematic approach to digital transformation is essential, meaning monitoring all aspects that could change. This involves integrating supportive and unified digital tools, performing assessments of operational practices and organizational frameworks, and enhancing the digital abilities and proficiencies of staff members. (Kralj et al., 2022).

Finally, the digitalization of administration is necessary. E-government is a concept that continues to evolve with advancements in technology and shifts in the environment impacting the digitalization of public administration. Effective electronic public services enhance the transparency of public administration, improving sectors such as justice, public procurement, and healthcare. Therefore, the government should implement policies and additional measures to support e-government and the IT sector. This will provide new technologies and the essential skills needed to develop user-friendly digital solutions, encouraging citizens and businesses to engage more actively with e-government services (Andabaka, 2021).

By focusing on these recommendations, Croatia can significantly enhance its tourism sector, making it more digitally oriented, resilient, sustainable and competitive in the global market.

5 Conclusion

To sum up, Croatia is a tourism-oriented country with great potential that needs to be used and taken advantage of. As the whole world is affected by digital transformation and high-speed digitization in every area of a country's economy and people's everyday lives, Croatia needs to follow the trends to stay ahead in the market. It is taking the right steps forward by implementing and adopting many policies and measures in order to enhance its tourism and sustainability, which are two main aspects of development. The Covid-19 pandemic was an unpredicted shock that represents a milestone for Croatian tourism as it caused accelerated digitalization and tourism growth. Since the pandemic, tourist behavior, expectations and wants, booking methods, etc. have changed dramatically, which has caused a need for creating new digital solutions and models focused on the interests of tourists.

Literature

1. Ammirato, S., Felicetti, A. M., Linzalone, R., & Carlucci, D. (2022). Digital business models in cultural tourism. *International Journal of Entrepreneurial Behavior & Research*, 28(8), pg. 1943-1944.
2. Ammirato, S., Felicetti, A. M., Linzalone, R., & Carlucci, D. (2022). Digital business models in cultural tourism. *International Journal of Entrepreneurial Behavior & Research*, 28(8), pg. 1940-1941.
3. Ammirato, S., Felicetti, A. M., Linzalone, R., & Carlucci, D. (2022). Digital business models in cultural tourism. *International Journal of Entrepreneurial Behavior & Research*, 28(8), pg. 1942.-1943.
4. Anandkumar, V. (2021) *E-Tourism*. Puducherry: Pondicherry University, Dept. Of Management Studies. Pg. 9-16.
5. Anandkumar, V. (2021) *E-Tourism*. Puducherry: Pondicherry University, Dept. Of Management Studies. Pg. 115-138.
6. Andabaka, A. (2021, June). E-government in Croatia: state of play and lessons from the Covid-19 crisis. In *Proceedings of FEB Zagreb International Odyssey Conference on Economics and Business* (Vol. 3, No. 1, pp. 794-809). University of Zagreb, Faculty of Economics and Business.
7. Bekic, I., Bozickovic, N., & Mrkonjic, Z. (2020). BRANDING OF CROATIAN ISLANDS ON SELECTED EXAMPLES. *Economic and Social Development: Book of Proceedings*, 864-873.
8. Benko, L., Krstanović, K., & Sovulj, L. (2022). Procjena učinaka pandemije koronavirusa na turističke dolaske i noćenja u Republici Hrvatskoj te na vrijednost CROBEXturist indeksa Zagrebačke burze. *EFZG working paper series*, 2022(01), 1-33.
9. Braje, I. N., Dumančić, K., & Hruška, D. (2023). Building resilience in times of global crisis: the tourism sector in Croatia. *European Political Science*, 22(3), 406-415.
10. Bujan, I. (2020). Family Business in Tourism Characteristics—The Owner's Perspective. *Ekonomski pregled*, 71(1), 3-32.
11. Bunja, Đ., & Klapan, M. (2020). Importance of tourism valorisation of Croatian gastro-cultural heritage.

12. Cervova, L., & Vavrova, J. (2021). Customer-Based Brand Equity for a Tourism Destination: The Case of Croatia. *Economies*, 9 (4), 178. *Tourism Economics*, 87.
13. Croatian Bureau of Statistics. GDP and National Accounts. Available at: <https://podaci.dzs.hr/en/statistics/gdp-and-national-accounts/>. [9.4.2024.]
14. Croatian Bureau of Statistics (2023) Arrivals and tourist overnight stays [online]. Available at: <https://podaci.dzs.hr/hr/podaci/turizam/dolasci-i-nocenja-turista/> [16.4.2024.]
15. Ćucić, D., Pancić, M., & Serdarušić, H. (2023). The Financial and Social Impacts of the Approved Projects in the Area of Digital and Green Transition on the Croatian SMES. *EU and comparative law issues and challenges series (ECLIC)*, 7, 613-642.
16. Dadić, I., Slivar, I., & Floričić, T. (2022). ONLINE RESERVATIONS AND HOTEL DISTRIBUTION CHANNELS IN EUROPEAN TOURISM: A CASE OF CROATIA. *Central European Business Review*, 11(1).
17. de Lurdes Calisto, M., & Sarkar, S. (2024). A systematic review of virtual reality in tourism and hospitality: The known and the paths to follow. *International Journal of Hospitality Management*, 116, 103623.
18. Dredge, D., Phi, G. T. L., Mahadevan, R., Meehan, E., & Popescu, E. (2019). Digitalisation in Tourism: In-depth analysis of challenges and opportunities.
19. Drpić, D., Klimoska, A. M., & Manestar, D. (2020). Contribution of gastronomic tourism for achieving competitiveness of Croatian coastal destinations.
20. Erceg, A., Damoska Sekuloska, J., & Kelić, I. (2020, February). Blockchain in the tourism industry—A review of the situation in Croatia and Macedonia. In *Informatics* (Vol. 7, No. 1, p. 5). MDPI.
21. Ghanem, J. (2017). Conceptualizing “the Tourist”: A critical review of UNWTO definition.
22. Grcić, T. (2020) *Understanding changes in tourists' behavior in the last decade of tourism in Croatia using User-generated content*. Master Thesis. Zurich: University of Zurich.
23. Håkansson, P. G., & Bejaković, P. (2023). Can digital nomads solve the problem of tourist economy? The case of Croatian islands. *Eastern Journal of European Studies*, 14(Special Issue), 116-134.
24. Holloway, J. C., & Humphreys, C. (2022). *The business of tourism*. Sage.
25. Hrvatska enciklopedija [online]. Available at: <https://www.enciklopedija.hr/natuknica.aspx?id=68025> [14.4.2024.]

26. Hrvatska Gospodarska Komora (2023) *Što je ESG?* [online]. Available at: <https://www.hgk.hr/hrvatski-esg-rating> [15.4.2024.]
27. Hrvatska gospodarska komora, Sektor za financijske institucije, poslovne informacije i ekonomske analize, Odjel za makroekonomske analize (2017) *Kretanje BDP-a u Hrvatskoj – izvori rasta i posljedice*. Zagreb: Intergrafika TTŽ.
28. IGI Global: What is digitalization [online]. Available at: <https://www.igi-global.com/dictionary/it-strategy-follows-digitalization/7748> [14.4.2024.]
29. Ingrassia, M., Bellia, C., Giurdanella, C., Columba, P., & Chironi, S. (2022). Digital influencers, food and tourism—A new model of open innovation for businesses in the Ho. Re. Ca. sector. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(1), 50.
30. Ivančić, L., Vukšić, V. Bosilj, & Spremić, M. (2019): Mastering the Digital Transformation Process: Business Practices and Lessons Learned. *Technology Innovation Management Review*, 9(2): 36-50.
31. Jajić, I., Spremić, M., & Miloloža, I. (2022). Behavioural intention determinants of augmented reality technology adoption in supermarkets/hypermarkets. *International Journal of E-Services and Mobile Applications (IJESMA)*, 14(1), 1-22.
32. Jelušić, A., Mikulić, K., & Pavić, N. (2021). The Impact of Digital Technologies on Tourism Consumption—Case of Croatia. *Recent Advances in Information Technology, Tourism, Economics, Management and Agriculture*, 1.
33. Jović, D. (2006). Croatia and the European Union: a long delayed journey. *Journal of Southern Europe and the Balkans*, 8(1), 85-103.
34. Jurčević, M., Lulić, L., & Mostarac, V. (2020). The digital transformation of Croatian economy compared with EU member countries. *Ekonomski Vjesnik/Econviews-Review of Contemporary Business, Entrepreneurship and Economic Issues*, 33(1), 151-164.
35. Kordej-De Villa, Ž., & Šulc, I. (2021). Cultural heritage, tourism and the UN sustainable development goals: The case of Croatia. In *Rethinking sustainability towards a regenerative economy* (pp. 341-358). Cham: Springer International Publishing.
36. Kralj, D., & Mehmetaj, D. (2022). The Impact of The Covid 19 Pandemic on the Dynamics of Digital Transformation-Croatian Perspective. *International Journal of Computer Science and Engineering (iJCSE)*, 11, 1.

37. Krstinić Nižić, M., & Drpić, D. (2013). Model for sustainable tourism development in Croatia. *Tourism in Southern and Eastern Europe*, 159-173.
38. Krstinić Nižić, M., Vodeb, K., & Šverko Grdić, Z. (2020). The smart city concept for sustainable development of a tourist destination. *Pomorski zbornik*, 58(1), 111-123.
39. Kunst, I. (2007). Croatian tourism and EU accession. *Tourism and hospitality management*, 13(2), 437-458.
40. Ma, C. (2021). Smart city and cyber-security; technologies used, leading challenges and future recommendations. *Energy Reports*, 7, 7999-8012.
41. Maldini, P. (2019). Croatia and the European Union. In *Oxford Research Encyclopedia of Politics*.
42. Mikac, R., & Kravaršćan, K. (2021). Croatian tourism sector and crisis management-a case study related to the COVID-19 pandemic. *Tourism: an international interdisciplinary journal*, 69(4), 611-629.
43. Mikulić, D., Keček, D., & Žajdela Hrustek, N. (2023). Effects of COVID-19 on Adriatic and Continental Croatia tourism: a regional input-output perspective. *Economic research-Ekonomska istraživanja*, 36(2).
44. Ministry of Foreign and European Affairs of the Republic of Croatia (2020) *Croatia and the European Union EU* [online]. Available at: <https://mvep.gov.hr/services-for-citizens/access-to-information/croatia-and-the-european-union-245129/245129> [9. 4. 2024.]
45. Ministry of Foreign and European Affairs of the Republic of Croatia (2020) *Croatia in the EU* [online]. Available at: <https://eu2020.hr/Home/Custom?code=CroatiaEU> [9. 4. 2024.]
46. Ministry of tourism of Republic of Croatia (2013-2023) *Tourism in figures* [online]. Zagreb: Croatian National Tourist Board. Available at: <https://www.htz.hr/en-GB/tourism-information/tourism-analysis/tourism-figures> [16.4.2024.]
47. Misevic, P., Karin, P., & Akmacic, M. (2023). THE ROLE OF CRISIS MANAGEMENT IN TOURISM FROM THE ASPECT OF CLIMATE CHANGE. *Economic and Social Development: Book of Proceedings*, 108-121.
48. Nabila, E. M. (2023). Digital transformation and AI in tourism: trends, challenges, and successful experiences. *Economic Studies*, 23(01), 522-545.

49. Radovčić, K. (2022). *KOLIKO JE PANDEMIJA COVID-19 UTJECALA NA DIGITALIZACIJU TURIZMA?* (Doctoral dissertation, University of Split. Faculty of economics Split).
50. Republic of Croatia: Central State Office for the Development of the Digital Society (2022): *Digital Croatia Strategy for the period until 2032: Preface*. [online]. Available at: https://rdd.gov.hr/UserDocsImages/SDURDD-dokumenti/Strategija_Digitalne_Hrvatske_final_v1_EN.pdf [16.4.2024.]
51. Salitrežić, Z. (2021). *Položaj turizma republike Hrvatske prije i nakon pandemije* (Doctoral dissertation, Josip Juraj Strossmayer University of Osijek. Faculty of Economics in Osijek. Chair of Marketing).
52. Saseanu, A. S., Ghita, S. I., Albastroiu, I., & Stoian, C. A. (2020). Aspects of digitalization and related impact on green tourism in european countries. *Information*, 11(11), 507.
53. Savastano, M., Zentner, H., Spremić, M., & Cucari, N. (2022). Assessing the relationship between digital transformation and sustainable business excellence in a turbulent scenario. *Total quality management & business excellence*, 16-17.
54. Savastano, M., Zentner, H., Spremić, M., & Cucari, N. (2022). Assessing the relationship between digital transformation and sustainable business excellence in a turbulent scenario. *Total quality management & business excellence*, 5-15.
55. Spremić, M. (2018): *Enterprise information system in digital economy*, Ekonomski fakultet Zagreb
56. Spremić, M., Zentner, H., Zentner, R. (2022): *Measuring Digital Business Models Maturity: Theory, Framework and Empirical Validation*, IEEE Technology Engineering Management, DOI: 10.1109/TEM.2022.3226864
57. Šerić, M., Mikulić, J., & Ozretić Došen, Đ. (2023). Understanding prevention measures and tourist behavior in Croatia during the COVID-19 pandemic. A mixed-method approach. *Economic research-Ekonomska istraživanja*, 36(2).
58. Teece, D. (2018), "Business models and dynamic capabilities", *Long Range Planning*, Vol. 51, pp. 40-49.

59. Thomas, G. (2024). Challenges and Trends of Digital Innovation in the Tourism Sector: Contemporary Literature Review. *Open Journal of Business and Management*, 12(01), 179-190.
60. UN Tourism (2019) UNWTO *Investment Guidelines: Enabling Frameworks for Tourism Investment Drivers and Challenges shaping Investments in Tourism*. Madrid: UN Tourism.
61. Wohlgamuth, J. N. (2017). The almost great escape: the continuing tourism development of Croatia as a destination. *International ResearchScape Journal*, 4(1), 10.
62. Zemla, S., Zemla, N., & Gelo, F. (2019). Factors influencing tourism growth in Croatia. *Tourism, Innovations and Entrepreneurship TIE*, 5.
63. Zentner, H., & Spremić, M. (2021). Typology of digital business models in tourism. *International Journal of E-Services and Mobile Applications (IJESMA)*, 13(2), 5-6.
64. Zentner, H., & Spremić, M. (2021). Typology of digital business models in tourism. *International Journal of E-Services and Mobile Applications (IJESMA)*, 13(2), 8-10.


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CV




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- Analyzing the market and creating offers
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01/07/2022 - 15/09/2022 Zadar, Croatia
SHOP MANAGER MULTI COLORS D.O.O.

- Dealing with customer complaints
- in control of promotions and sales
- Managing budgets
- Recruiting, training and supervising staff

14/03/2020 - 15/06/2020 Zagreb, Croatia
MARKETING DEPARTMENT EKONOMSKA KLINIKA

- Creating covers, icons and posters
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01/10/2023 - 01/02/2024 Zagreb, Croatia
ASSISTANT IN CONTROLLING AND FINANCE POSLOVNA UČINKOVITOST D.O.O.

- Applying for public projects and managing all the documentation
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LANGUAGE SKILLS

Mother tongue(s): **CROATIAN**

Other languages:

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	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
ITALIAN	B1	B1	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

MS Office

Outlook | Word | PowerPoint | Excel

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Digital skills

Being safe and legal online | Handling information and content | Communicating | Problem solving | Zebra BI

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- Writing a student report for receiving EQUIS accreditation for Faculty of Economics & Business