Digital Transformation in Tourism: The Role of E-Booking Systems

Olivera Vlahović
University of Montenegro, Montenegro, Faculty of Tourism and Hotel Management, Kotor
Žarko Rađenović
University of Niš, Republic of Serbia, Serbia
Djurdjica Perović
University of Montenegro, Montenegro, Faculty of Tourism and Hotel Management, Kotor
Vesna Vujačić
University of Montenegro, Montenegro, Faculty of Tourism and Hotel Management, Kotor
Kristina Davidović
University of Montenegro, Montenegro, Faculty of Tourism and Hotel Management, Kotor

Abstract

The tourism industry has undergone significant transformation with the rise of digital technologies, particularly online booking systems. E-booking platforms have revolutionised how customers plan and book their travel, offering convenience, cost-efficiency, and the ability to access real-time information through smartphones and other digital devices. These systems not only streamline administrative and operational tasks for businesses but also provide valuable insights by analysing customer data to tailor services and predict trends. This study explores the critical role of e-booking in the digital era of tourism, employing cluster analysis to group countries by their adoption and performance of e-booking services. The findings highlight the growing global reliance on e-booking platforms and their potential to enhance the customer experience and optimise business operations.

Keywords: digital transformation; e-booking; tourism; online booking systems; data analytics; hospitality industry

Paper type: Preliminary research

Received: Apr 20, 2024
Accepted: Jun30, 2024

DOI: 10.2478/crdj-2024-0012

Acknowledgements: The research study has been supported by the Republic of Serbia's Ministry of Education, Science and Technology No.451-03-68/2020-14/200371.

Introduction

The Digital Revolution marks the shift from mechanical and analogue electronic technology to digital electronics, which began between the late 1950s and late 1970s. The adoption and proliferation of digital computers and digital record-keeping continue to the present day. (Schoenherr, 2004). Academics agree that digital transformation is a means to improve business operations through the use of technology (Tomicic et al., 2020). It has caused big disruptions in businesses that had operated in the same way for many years and has also resulted in many companies failing due to their inability to adapt. We can see this impact very clearly when we look at the digital transformation that has taken place in the rental businesses for Video/DVDs and record stores, with much of their business moving almost completely online. Many companies have gone out of business because they were too slow to adapt to the new digital era (Mazzone, 2014). Over the past few decades, the Digital revolution has made many significant changes to the world around us and reshaped almost every aspect of our lives. Just imagine trying to function on a daily basis without the use of a smartphone or access to the internet. It seems impossible. With every new technological breakthrough and innovation, there are endless possibilities on how to apply them to make improvements. Tourism is only one of many of the industrial sectors which have been heavily impacted (both good and bad) by the digital era. One thing is clear - online booking platforms (e.g., Expedia, OpenTable) have radically changed the way travellers make their decisions and the way tourism and hospitality companies market their businesses (Lu et al., 2015). Consumers decide their accommodation bookings based on website quality and content, making purchase decisions long before they experience the actual service (Baeket al., 2017).

The Internet has become one of the most important external sources of information for travel and booking. Hotel customers use many online services to find information for booking accommodation, like search engines or websites that offer comparisons, as well as specialised supplier websites and online travel agents (Murphy et al., 2016). The Hotel industry relies on the booking information generated to make forecasts and predictions of final demand. (Lee, 2018) It is also interesting to note that nowadays, many tourists have a limited amount of time available each year to make a trip and therefore want to plan it in order to avoid a bad experience. For that, they need information in advance. The new generation of customers are digital natives, and they think fast and act faster because they have access to all the information available to make their decisions, which greatly reduces costs for companies (Sezgin, 2016). The hospitality industry had to adapt to the increasing expectations and demands of their customers in order to stay relevant, and this resulted in many companies switching to online booking services. Airline tickets represent the largest share of online bookings, followed by hotel accommodation. So having an effective online booking platform is very important to respond to customer needs. Hoteliers must have an online presence and keep up to date with new technologies and advances to be able to keep their position in the industry (Janiak et al., 2018). In Mexico, for example, there was a gradual implementation of online bookings despite initial scepticism from customers around

the security and reliability of online payments. However, 30 % of online purchases in Mexico are now related to travel, according to Cázares-Garrido (2016). These online services also open up opportunities for instant communication by sharing comments and submitting quick comparisons and reviews. A big jump in online bookings was noted in Hong Kong from 2000 till 2009. Initially, only 6.5 % of travel website users were identified as buyers. By the end of the period, this had risen to 17.6%. This clearly shows the rise in the popularity of online booking. In addition, the researchers identified the most important factors for customers to visit and make a purchase. These were the rapid availability of relevant information, a user-friendly interface, secure payment methods, and different price ranges. The least important factor was actually making the booking itself (Cheung & Law, 2007).

This paper will highlight the importance of e-booking in the digital age of tourism, especially in terms of monitoring the most common destinations and customer preferences and performing predictive analytics on big data. The methodology used in this research relates primarily to the implementation of cluster analysis in statistical software, which aims to group selected countries by e-booking performance. The country selection was based on the adoption percentage of online travel booking services, with the analysed countries currently being the world leaders. The forecasts show an expected growth in global e-booking revenue of 7.1% between 2018 and 2023. In the US, revenue from e-booking is expected to grow from 217,1 billion to 266,6 billion (4.2%). In Europe, revenue is expected to grow from 200.5 billion to 265.9 billion (5.8%), whereas China is expected to have the largest increase in revenue from 159.6 billion to 260.9 (10.7%). The United Kingdom is Europe's single biggest market for online booking, with a revenue of 18.3 billion. This is expected to grow to 22.7 billion (4.4%) by 2023. Some other European countries have also predicted significant growth, such as Germany (from 17.2 to 20.2 billion (3.3%)), France (from 11 to 13 billion (3.6%)) and Spain (6.4 to 7.9 billion (4.4%)) according to Nöldeke (2018). Younger customers are more likely to use online channels for their bookings, while older generations are still visiting agents to make their bookings because they are less tech-savvy (Jasrota et al. (2019)). This would explain why online bookings are rising year over year, with the newer generations being born into a digital age. Many stakeholders in the travel industry have also recognised the benefits of direct selling to their customers online without a third party and have increased their profits by doing so. As a result, many companies work hard to develop websites and interactive divisions (Hudson et al., 2002).

Unlike other studies, this study compared and collected many countries into clusters based on their similar characteristics rather than focusing on one specific country. The countries analysed had different performances in online booking and belong to different clusters. Countries that have the highest percentage of online e-bookings do not belong to the same group based on destination selection and, therefore, gravitate to different clusters. The beginning of the paper is based on the theoretical framework of online booking and examines some prominent countries and the influence of digitalisation on the industry. In the first part of the study, we noted that digitalisation has had a big influence in transforming the industry, and many companies have had to

adapt. We also briefly described the trends in online booking using websites and mobile applications. In addition, we gave examples of successful locations that have shown growth in online booking. The second part of the paper presents an overview of previous research. It points out the importance of digitalisation and online booking in tourism companies and the specificity of the tourism economy. The empirical part of the paper describes the sample, the methods used in the research, and the interpretation of the results obtained. Finally, the conclusion is given with practical implications of the results, limitations of the work, and a proposal for future research.

Literature Review

We are well aware of the growth of the travel and tourism industry in the last few years and the effects it has on the global economy. In 2016, it contributed directly US$2.3 trillion and 109 million jobs worldwide, taking into account its wider indirect and induced impacts: it contributed US$7.6 trillion to the global economy and supported 292 million jobs (World Travel & Tourism Council, 2017). One of the biggest, if not the biggest, challenges of the tourism industry lies in adopting technology, precisely the lack of accurate education on the type of technology suitable for their business (Sakulsureeyadej, 2011). Moreover, tourists now travel longer distances and explore alternative places while engaging in a broad spectrum of activities (Jansson, 2018). During the past few years, there has been a breakthrough in one particular aspect of tourism: platforms and applications for online booking. Planned and trained tickets, restaurant tables, hotel rooms, short excursions, or complete tour packages - now everything can be booked in advance, with just a few clicks on your computer or smartphone (Lu et al., 2015). The booking application of your choice will provide you with various choices and all of the information that you need, accompanied by pictures, videos and a few recommendations for something you might also like based on your current and previous inquiries.

Everything is made simple in order to be accessible to the vast majority of consumers, regardless of their technical background, age, social status, etc. The usage of these new applications is so fast-growing that almost a decade ago, researchers suggested that 80% of travellers find information about hotel rooms from web pages, and 67% of them book accommodation online (Toh et al., 2011). Simplicity and usefulness are the main reasons why the popularity of these platforms and applications has skyrocketed in the past few years and why they are expected to grow even more in the future. It is interesting to note that most users in the United States use mobile booking to make last-minute bookings. These applications allow users much flexibility, meaning they can make a last-minute booking while also being able to cancel the booking easily in the same way (Jang et al., 2019). However, it is important to note that it depends on the quality of the platform or website and how much trust the client will put in each company (Li et al., 2017). Mobile booking has drastically changed the distribution channels for hotels and online travel agents, and there is a clear expectation that in the future, it will be a prevailing channel (Ozturk et al., 2016). Moreover, the trends show that in recent years, more people have booked via mobile devices and that people who

use them prefer to make bookings by using applications rather than searching websites (Wu & Law, 2018).

Studies have shown that the use of computer reservation systems (CRS) can be a big benefit to the field of tourism. On the one hand, it improves the travel industry's efficiency and productivity, provides much information aside from reservations, improves customer satisfaction, lessens operating expenses, reduces human errors in quotation pricing and ticketing of net fares information, develops and nurtures the best skills in the travel agency industry, makes the workload easier, connects guests to all forms of travel, etc. (Felicen, & Ylagan, 2016). Koide and Ishii (2005) It would be possible to create a model for an optimal room allocation with early discounts for bookings and with regard to cancellations and overbooking. Sierag et al. (2015) propose that it is purposeful to consider what an optimal offer and alternative would be in case of early booking cancellations. In order to understand how firms compete, we must consider whether competitors will follow or ignore the pricing method, according to Karakaya and Yannopoulos (2011), as well as the customers' response. The latter determines the customer segmentation; some of the customers are less patient and more inclined to pay higher fares, as discussed, among others, by Dana (1998), Su (2007) and Abrate et al. (2012), while on the other hand, leisure travellers are often willing to be patient and wait for last-minute deals.

The management of customers' perceptions is a crucial topic in the literature about Relation Management. For example, Haws and Bearden (2006), Sahut et al. (2016) and Choi and Mattila (2017) all find that loyal customers perceive Price as a main strategic variable in the short run (Guizzardi et al., 2019). The success of a company depends a lot on the understanding of consumer behaviour, and today's environment is changing fast; therefore, companies need to adapt fast (Xiang et al., 2015). Timing is very important in the service industry because of the nature of the product being offered, which is why if the service is not consumed at a given time, the revenue is forever lost (Zangh et al., 2018). As for applications of data on online hotel booking websites to hotel management and marketing, Ali et al. (2016) propose a classification feature for review's identification and inquiry of opinions about the hotels and all of their features. Some of the many researchers on this subject include Kardaras et al. (2013), who investigate the content and media presentations and adaptation of tourism websites. Korfiatis and Poulos (2013) examine the use of online consumer reviews as a source for demographic profiling. Shuai and Wu (2011) analyse the impact of Internet marketing on the hotel's general performance. Xu et al. (2017) examine customer reviews and research satisfaction and dissatisfaction with hotel products and services. Raguseo et al. (2017)explore how hotels can increase value when they manage their visibility on infomediary platforms well. Systems that calculate overbooking based on customers' discreet choices can greatly reduce the expenses for hotels and increase revenue (Saito et al., 2019); we can see a number of other reasons why e-booking is a preferred choice for the majority of customers. Professional line of work, education path or private life struggles put a toll on many, so it is no wonder that people need every little bit of help in making every day easier.

Technology is a logical choice here since any process that can be automated is a huge relief on otherwise busy days. When using an application to book a vacation, for example, as soon as the customer makes a choice, everything next step is automated. Preserved customer information, important document data, payment method of their choosing - everything is one click away, and at the very end, confirmation will be sent to their email address (Schoenherr, 2004). Payment method choice is an important part of the customer experience, and it has been made simple by a lot of new applications. Users can choose to pay upfront or at the premises, use credit cards or cash, or pay more in order to have an option for a refund. There is little to no fear in terms of the safety of customers' data and assets since all of the leading platforms have top-level security in place. The final stage of the e-booking process is an e-mail confirmation that a customer receives after completing the reservation. In that e-mail, customers have all of the important info regarding their reservation and usually a few useful links for a quick reaction if anything is wrong or has to be changed. In addition to all of the data being in one place, it will always be available to customers anywhere and anytime. Hence, the need to bring and take care of any additional notes/papers/itineraries, etc., becomes deprecated (Lu et al., 2015). The most important advantages of e-booking are gathering data and getting valuable insight into the business itself. Online booking systems provide owners with priceless analytics, helping them to determine the most popular time slots, the customer group that the business is most likely to attract, the best employees that bring revenue, etc. (Toh et al., 2011). Careful study of this data can indicate what additional packages of services can be offered to customers, what activities are becoming increasingly popular, or how to expand working hours most efficiently in order to grow the business.

Methodology

The methodology used in this research relates primarily to the implementation of cluster analysis in statistical software, which aims to group selected countries by e-booking performance. The country selection was made based on the adoption percentage of online travel booking services, with the analysed countries currently being the world leaders. For example, Sweden (Figure 1) has the highest percentage of adoption of e-booking mobile services in relation to the number of realised tourist arrangements for 2018 (Sweden, United Kingdom, USA, France, Germany, Spain, Italy and China).

Therefore, the starting hypothesis of the cluster above analysis was formed:

- H1: The analysed countries differ in performance of online booking and accordingly belong to different clusters.
- H2: Countries that have the highest percentage of use of online e-booking services do not have the same structure in terms of destination selection and, therefore, gravitate to different clusters.

Figure 1

Percentage Adoption of Booking: Leading Countries

Source: Author's illustration

Cluster analysis is the name for a set of multivariate techniques whose primary purpose is to group objects based on the common characteristics they possess. Multivariate is a feature of cluster analysis that is used to analyse multiple variables simultaneously and together that are part of a single whole. Unlike other multivariate statistical techniques, cluster analysis does not evaluate variables empirically; rather, these variables are set by the researcher himself. The choice of variables represents the most important step and depends on the goals to be achieved. Therefore, the choice of variables involves the researcher's conceptual and practical considerations. This is because variables must be defined as objects of cluster analysis and must be relevant, taking into account the aim of the research. The cluster analysis methodology has six steps:

- Determining objects for cluster analysis,
- Determining the research scheme
- Determining assumptions
- Formation and estimation of the number of clusters
- Cluster interpretation
- Evaluation of clusters and their profiling.

Cluster analysis determines equal measures for all paired objects, which makes it possible to compare the analysed objects together. Furthermore, cluster analysis arranges related objects into clusters or groups. After selecting a sample and defining the variables with all the necessary assumptions as the formation of a matching matrix, the next step in cluster analysis is to form a cluster.

The agglomerative hierarchical analysis method is based on the assumption that each object can be an absolutely homogeneous cluster and that at the beginning of the

analysis, there are as many clusters as there are objects (n). In the next step, the most similar pair of objects are grouped into a cluster using a matching matrix. The cluster is accordingly created on the basis of the most similar objects, meaning that the total number of clusters at that point decreases by one. This process is repeated until all objects belong to a particular cluster.

Within the agglomerative method, the variance method used is Ward's method, which is a typical representative of this group of variance methods. In the Ward procedure, the average value for each variable (centre of the cluster) is calculated for each cluster. Then, the square of Euclidean distance from the centre of the cluster is calculated for each object, and the distance for the objects is summed. In this procedure, two objects are joined at each step, which ultimately has the largest total distance from the cluster centre.

In general, this method is based on minimising the loss of information resulting from the grouping of objects into clusters, which is measured by the total sum of the standard deviation squares of each object from the middle of the cluster to where the object is located in the cluster. The mentioned total sum of squares is known as the sum of squares of error. Regardless of whether hierarchical or non-hierarchical methods are used in the analysis, the question of the finite number of clusters that is appropriate for the research and implementation of the cluster analysis raises itself. Thus, there is no clear rule in the literature to address this problem, but there are so-called “stopping rules”.

According to these “rules,” the author applied statistical software for conducting cluster analysis and, based on experiential and theoretical solutions, applied the “rule” in a restrictive form to a maximum of three clusters. Also, in determining the number of clusters, the value of the distance between objects in the cluster was used. This information is in the agglomeration scheme or can be seen from the dendrograms, which will be shown below.

Results and discussion

The agglomerative approach used in cluster analysis is, in fact, an accumulative approach that starts the bottom-up analysis and systematically combines objects and groups until each of the objects is in a group or cluster. The biggest change in the pattern of agglomeration (Table 1 - red rectangle) occurs in the last three steps, where there is the progressive growth of coefficient values, which implies the number of clusters. In the agglomeration, as mentioned above scheme in Table No 1, important information for country clustering is related to the first column of this table, which is the Stage column, which shows the number of successive iterations (steps) taken in the grouping process.

Table 1

Hierarchical Clustering Results for Perceived Responsibility in Human Resource Development

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	4	5	.000	0	0	4
2	2	3	.000	0	0	4
3	6	7	.000	0	0	5
4	2	4	.001	2	1	6
5	6	8	.004	3	0	7
6	1	2	.012	0	4	7
7	1	6	.029	6	5	0

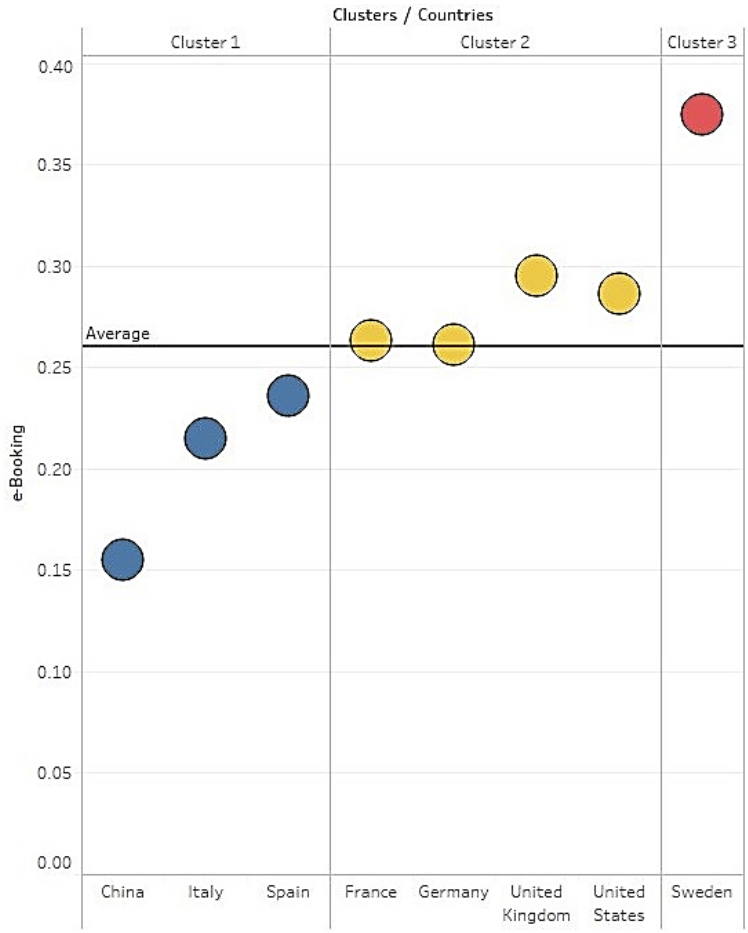
Source: Author's calculation

The second and third columns (Table 1) within the Cluster Combined section show the number of countries (objects) that have entered the clustering process into a new, unique cluster. In this case it is France (4) and Germany (5). As for the next Coefficients column, it shows the value of the calculated square of the Euclidean distance between the given countries. The following Stage Cluster First Appears column shows the iteration in which the cluster was first formed. The last shows in the first place in which iteration merging one country with another into the mentioned cluster occurred. In this specific case, we have code 4, which means that in step four, the country under number 4 (France) merged with the country under number 5 (Germany) and formed a cluster. Following the analysis, clusters were formed in an appropriate number of countries. As can be seen in Figure 2, the first cluster (blue circles) contains China, Italy and Spain, while the second cluster consists of France, Germany, the UK and the USA. The third cluster is Sweden. Countries are grouped in clusters according to the most similar e-booking performance. The average value of these performances, represented by the Average line in Figure 2, shows that the adoption percentage of e-booking will predominantly gravitate towards the values of the second cluster countries.

The dendrogram is the result of a cluster analysis in the form of a tree that shows the objects grouped. The vertical axis of the dendrogram gives the ordinal number of the state. The horizontal axis of the dendrogram shows the distance where the states or states are grouped. For practical reasons, the distance was calculated. The vertical lines show the countries that are grouped (number of clusters). Objects that are more similar to each other are grouped at a lower height, while objects that deviate more from each other are at a higher level of the dendrogram.

Figure 2

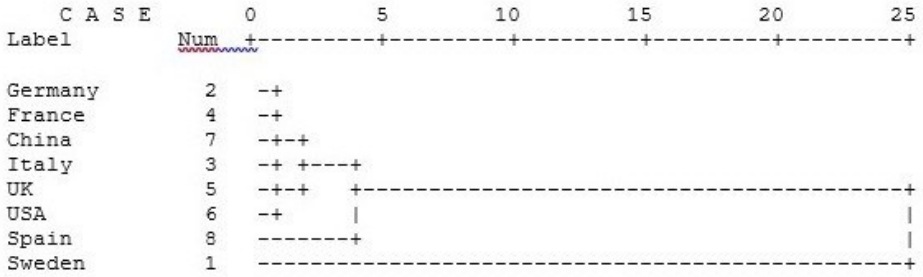
Cluster of E-Booking



Source: Author's calculation

Figure 3

Dendogram of E-Booking



Source: Author's calculation

Different statistical techniques can be applied to further cluster analysis interpretation and to confirm its validity and correctness. Here, the ANOVA procedure for checking

the statistical significance of differences in the average values of variables between clusters is particularly emphasised, with the application of the variance homogeneity test or the so-called Levene test. Suppose one takes a closer look at the descriptive statistics (Table 2-Mean column). In that case, it can be seen that the average percentage values of online travel booking services for the first cluster are 0.375 (37.5%), for the second cluster 0.2763 (27.63%) and for the third cluster 0.2020 (20.20%), respectively. Accordingly, it is concluded that the countries in the second cluster, compared to the first cluster, are in the worst position in terms of online travel booking services.

Table 2

Descriptive Statistics

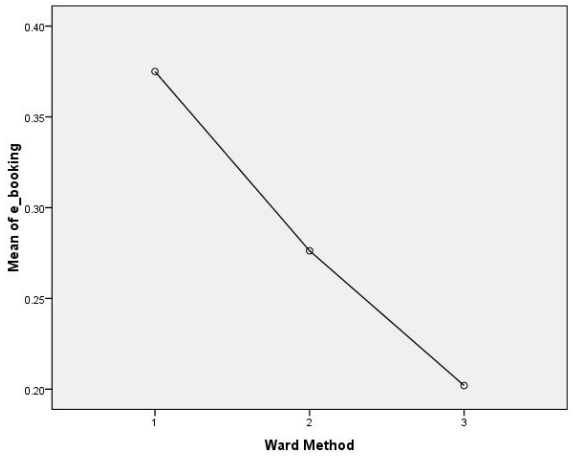
Clusters	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
1	1	.3750	.	.	.	.	.38	.38
2	4	.2763	.01688	.00844	.2494	.3031	.26	.30
3	3	.2020	.04204	.02427	.0976	.3064	.16	.24
Total	8	.2608	.06410	.02266	.2072	.3143	.16	.38

Source: Author's calculation

The following figure shows the ratio of the average values of the variable of all three clusters.

Figure 4

Mean of E-Booking



Source: Author's illustration

The test of statistical significance of differences between group means for individual variables is carried out by the test of homogeneity of variance, or so-called

homoskedasticity. The best test for this is the so-called Levene test, which starts from the null hypothesis that the variance is the same in all samples if p <0.05. If p> 0.05, the null hypothesis is rejected, and the alternative is accepted, which means that the variance is not equal for at least one pair of samples. The following figure shows the ratio of the average values of the variable of all three clusters. Formally, expressed by the formula, it looks like this:

$$H_0 : \sigma_1^2 = \sigma_2^2 = \ldots = \sigma_k^2,\ p > 0.05$$
$$H_1 : \sigma_1^2 \neq \sigma_2^2 \neq \ldots \neq \sigma_k^2,\ p < 0.05$$

After the test, Table 3 concludes that there are no statistically significant differences between the variations of the given samples; they are the same, as observed in the column Sig., where it can be seen that for the given sample and the variable p> 0.05 (Sig. = 0.103). This further implies that the null hypothesis is accepted, that is, variance is homogeneous for a given variable across groups.

Table 3

Levene Statistic

Levene Statistic	df1	df2	Sig.
3.963[a]	1	5	**.103**

a. Groups with only one case are ignored when computing the test of homogeneity of variance for e_booking.

Source: Author's calculation

The results of the ANOVA procedure (Table 4) show that there are statistically significant differences in the average values for the variable online travel services by groups, as seen in the Sig column. Where p (0.009) <0.05 (Table 4).

Table 4

ANOVA analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.024	2	.012	13.881	**.009**
Within Groups	.004	5	.001		
Total	.029	7			

Source: Author's calculation

Conclusion

The concept of e-booking, from a consumer point of view, not only saves time and money but is also simple and useful. From a business standpoint, it is more complicated, but it could be a great asset if managed properly. Ultimately, the Digital

era is here to stay; its impacts on all businesses, including the service industry, are quite inevitable. Both consumers and businesses are relying on digital services more and more, which makes them one of the greatest aspects of modern-day tourism. Tourists feel safer about a destination if they can see relevant information about it, especially if images are included (Feng et al., 2002). The online booking industry is in the middle of a huge surge in growth, and trends show that most future users will mostly use mobile apps to make bookings (Ozturk et al., 2016). Many of these apps use economies of scale and networking features, which means that the cost of updating the platform is slower than the rate of new users and the revenues connected to it (Moristet, 2020). It is believed that companies will depend even more on e-booking as their main channel for distribution, both using their app and through third-party apps and systems. Some of the studies that were conducted focused on analysing different aspects of the concept of e-booking and its connection with tourists and tourist destinations, such as analysing different booking channels and comparing them. For example, the study of Cueng et al. (2007) looked at a particular destination (Jasrotia et al., 2019) and the companies operating there, as well as examining factors that influence customers' e-booking decisions. However, this paper focused on connecting countries into clusters based on their shared characteristics.

This study could help countries understand the new trends of online booking and develop strategies for their destinations. However, the study is limited by the number of countries involved and the time frame in which it was conducted. Moreover, all future revenue estimates will have to be revised because future revenue growth will be impacted by the SARS-COV-2 pandemic, which has impacted the whole world.

References

Abrate, G., Fraquelli, G., & Viglia, G. (2012). Dynamic pricing strategies: Evidence from European hotels. *International Journal of Hospitality Management, 31*(1), 160–168.

Ali, F., Kwak, K. S., & Kim, Y. G. (2016). Opinion mining based on fuzzy domain ontology and Support Vector Machine: A proposal to automate online review classification. *Applied Soft Computing, 47*, 235–250.

Baek, J., & Michael, C. (2017). The power of design: How does design affect consumers' online hotel booking? *International Journal of Hospitality Management, 65*, 1–10.

Bianco, A. (2018). *Active Labor Market Policies for Digital Economy: Skills Development and Workforce Preparation* [Working paper No. 0030]. ASTRIL (Associazione Studi e Ricerche Interdisciplinari sul Lavoro).

Cázares-Garrido, I. V. (2016). Complexity in the adoption of technology in tourism services. *Journal of Intercultural Management, 8*, 3.
Cheung, C., & Law, R. (2007). Have the perceptions of the successful factors for travel websites changed over time? The case of consumers in Hong Kong. *Journal of Hospitality & Tourism Research, 33*(3), 438–446.

Choi, C., & Mattila, A. S. (2017). The effects of internal and external reference prices on travelers' price evaluations. *Journal of Travel Research, 57*(8), 1068–1077.

Dana, J. D., Jr. (1998). Advance-purchase discounts and price discrimination in competitive markets. *Journal of Political Economy, 106*(1), 395–422.

Guizzardi, A., Ponsa, F. M. E., & Ranieri, E. (2019). Competition patterns, spatial and advance booking effects in the accommodation market online. *Tourism Management, 71*, 476–489.

Haws, K. L., & Bearden, W. O. (2006). Dynamic pricing and consumer fairness perceptions. *Journal of Consumer Research, 33*(3), 304–311.

Jang, Y., Chen, C., & Miao, L. (2019). Last-minute hotel-booking behavior: The impact of time on decision-making. *Journal of Hospitality and Tourism Management, 38*, 49–57.

Janiak, M., & Kozłowska-Adamczak, M. (2018). Evaluation of the most popular accommodation booking. *Tourism: The Journal of University of Lodz, 28*, 94–100.

Jansson, A. (2018). Rethinking post-tourism in the age of social media. *Annals of Tourism Research, 69*, 101–110.

Jasrotia, S. S., Mishra, H. G., & Koul, S. (2019). Brick or click? Channel choice disruptions in the travel industry. *Asia-Pacific Journal of Management Research and Innovation*, 1–11.

Karakaya, F., & Yannopoulos, P. (2011). Impact of market entrant characteristics on incumbent reactions to market entry. *Journal of Strategic Marketing, 19*(2), 171–185.

Kardaras, D. K., Karakostas, B., & Mamakou, X. J. (2013). Content presentation personalization and media adaptation in tourism websites using Fuzzy Delphi Method and Fuzzy Cognitive Maps. *Expert Systems with Applications, 40*(6), 2331–2342.

Koide, T., & Ishii, H. (2005). The hotel yield management with two types of room prices, overbooking, and cancellations. *International Journal of Production Economics, 93*, 417–428.

Korfiatis, N., & Poulos, M. (2013). Using online consumer reviews as a source for demographic recommendations: A case study using online travel reviews. *Expert Systems with Applications, 40*(14), 5507–5515.

Lee, M. (2018). Modeling and forecasting hotel room demand based on advance booking information. *Tourism Management, 66*, 62–71.

Li, L., Peng, M., Jiang, N., & Law, R. (2017). An empirical study on the influence of economy hotel website quality on online booking intentions. *International Journal of Hospitality Management, 63*, 1–10.

Lu, Q. S., Yang, Y., & Yuksel, U. (2015). The impact of a new online channel: An empirical study. *Annals of Tourism Research, 54*, 136–155.

Mazzone, D. (2014). Digital or death. Sandbox Consulting Inc.

Murphy, H. C., Chen, M., & Cossutta, M. (2016). An investigation of multiple devices and information sources used in the hotel booking process. *Tourism Management, 52*, 44–51.

Ozturk, A. B., Nusair, K., Okumus, K. F., & Hua, N. (2016). The role of utilitarian and hedonic values on users' continued usage intention in a mobile hotel booking environment. *International Journal of Hospitality Management, 57*, 106–115.

Raguseo, E., Neirotti, P., & Paolucci, E. (2017). How small hotels can drive value their way in infomediation: The case of Italian hotels vs. OTAs and TripAdvisor. *Information & Management, 54*(6), 745–756.

Sahut, J.-M., Hikkerova, L., & Pupion, P.-C. (2016). Perceived unfairness of prices resulting from yield management practices in hotels. *Journal of Business Research, 69*(11), 4901–4906.

Saito, T., Takahashi, A., Koide, N., & Ichifuji, Y. (2019). Application of online booking data to hotel revenue management. *International Journal of Information Management, 46*, 37–53.

Sakulsureeyadej, A. (2011). How technology is changing global tourism. In World Tourism Organization (UNWTO) Affiliate Members AM-Reports – Technology in Tourism (Vol. 1). World Tourism Organization.

Schoenherr, S. E. (2004). The Digital Revolution. Retrieved from https://web.archive.org/web/20081007132355/http://history.sandiego.edu/gen/recording/digital.html. Accessed date: 2 April 2020.

Sezgin, E. (2016). e-Consumers in the Era of New Tourism. Springer Singapore.

Shuai, J. J., & Wu, W. W. (2011). Evaluating the influence of E-marketing on hotel performance by DEA and grey entropy. *Expert Systems with Applications, 38*(7), 8763–8769.

Sierag, D. D., Koole, G. M., van der Mei, R. D., van der Rest, J. I., & Zwart, B. (2015). Revenue management under customer choice behavior with cancellations and overbooking. *European Journal of Operational Research, 246*(1), 170–185.

Su, X. (2007). Intertemporal pricing with strategic customer behavior. *Management Science, 53*(5), 726–741.

Toh, R. S., DeKay, C. F., & Raven, P. (2011). Travel planning: Searching for and booking hotels on the internet. *Cornell Hospitality Quarterly, 52*(4), 388–398.

Tomičić, M. F., Tomičić-Pupek, K., & Pihir, I. (2020). Understanding digital transformation initiatives: Case studies analysis. *Business Systems Research, 11*(1), 126.

World Travel & Tourism Council. (2017). Travel & Tourism Global Economic Impact & Issues, 2017. Retrieved from https://www.wttc.org/-/media/files/reports/economic-impact-research/2017-documents/global-economic-impact-and-issues-2017.pdf. Accessed date: 20 April 2020.

Wu, J., & Law, R. (2018). Analyzing behavioral differences between e- and m-bookers in hotel booking. *International Journal of Hospitality Management, 83*, 247–256.

Xiang, Z., Magnini, V. P., & Fesenmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the internet. *Journal of Retailing and Consumer Services, 22*, 244–249.

Xu, X., Wang, X., Li, Y., & Haghighi, M. (2017). Business intelligence in online customer textual reviews: Understanding consumer perceptions and influential factors. *International Journal of Information Management, 37*(6), 673–683.

Zhang, Z., Liang, S., Li, H., & Zhang, Z. (2018). Booking now or later: Do online peer reviews matter? *International Journal of Hospitality Management, 77*, 147–158.

About the authors

Olivera Simovic is a teaching assistant at the Faculty of Tourism and Hospitality Management in Kotor. She holds a master's degree in tourism science from the Faculty of Tourism and Hospitality Management. Currently a PhD student at the Faculty of Economy in Belgrade. My research interests are in the areas of organisational culture and management and leadership in organisational changes. Olivera Simovic published several scientific papers in international and national journals and participated in many scientific international conferences. The author can be contacted at **oliveras@ucg.ac.me**

Žarko Rađenović works as a Research Associate at the Innovation Center University of Niš, Republic of Serbia. Žarko Rađenović graduated from the Faculty of Economics, University of Niš, in October 2012 in Finance, Banking and Insurance department. He became Master of Science in the same Faculty in October 2013, and in the same year, he applied PhD studies. He also became a Master of Science in the Faculty of Engineering in 2015. He successfully defended his PhD thesis in June 2018 and, after that, a PhD in Economics. He also applied for the second PhD studies in the Faculty of Engineering, University of Kragujevac, in the Industrial Engineering Department. Key areas of his interest are information systems in economics, industrial engineering, electronic business and multi-criteria decision-making. The author can be contacted at **zarkoradjenovic2@gmail.com**

Djurdjica Perovic, Ph.D., is an Assistant Professor at the Faculty of Tourism and Hospitality Management in Kotor. She received PhD at the Faculty of Mathematical Sciences, University of Novi Sad, with a dissertation thesis: „Current Situation and Development Directions of Montenegrin Seaside in the Function of Successful Market Appearance ". She participated in Projects – Heric, IPA, and Erasmus+. Her main research interests are Tourism, Tourist Regions, Cultural Tourism, and Selective forms of tourism. She has published more than 30 research papers and participated in more than 20 scientific conferences. She is the author and co-author of two monographs. The author can be contacted at **duda@ucg.ac.me**

Vesna Vujacic completed her basic studies in Plant and Food Protection at The Faculty of Agriculture, University of Belgrade. She enrolled in post-graduate studies at the same University, which she completed with an average grade of 9.7, and got the title of Master of Biotechnical Sciences. Doctoral dissertation "Genotypic and phenotypic variability of production characteristics of introduced species from the genus Amaranthus L." defended at the mentioned University. The doctoral dissertation is the result of three years of research on a new nutritional and important plant species from the genus Amaranthus L and was the result of cooperation between the University of Belgrade and the VIR-Russian Scientific Institute, the Russian Academy, St. Petersburg, Russia. The author can be contacted at **vuvesna@ucg.ac.me**