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New frontiers in tourism: destinations, resources, and managerial perspectives

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Guest editorial

New frontiers in tourism: destinations, resources, and managerial perspectives

Introduction

The recent changes in data availability, new research methods, and fresh conceptual developments based on emotions challenge research in many fields including tourism (Bigné, 2016). We aim to stimulate new research on tourism as reflections of the three guest editors. Considering its challenges and opportunities, tourism research is a highly dynamic activity featured by its multidisciplinary view. Research in tourism is benefited from this cross-disciplinary view, which elicits more vibrant discussion and integrative frameworks. Researchers in each field of specialization in tourism must adopt integrative views in order to capture the real domain of tourism. This holistic view is not incompatible with specialization, but fosters a much richer progress in the discipline. Conferences on tourism typically reflect this multidisciplinary view, where the specializations meet each other. Such interdisciplinary conferences enhance the quality of the discussion and promote readability of future papers across the sub-disciplines of tourism. *EJM & BE* wants to contribute to this multidisciplinary view by attracting papers from the different sub-domains and specializations in tourism.

For instance, to emphasize the interdisciplinary nature of tourism research, the literature suggests that an area should have the following characteristics to be considered as a tourist destination: a variety of natural, social and cultural resources and services, other economic activities, host community, a local council, an active private or public sector (Davidson and Maitland, 1997). As stated earlier, a destination's performance is mainly related to the performance of these elements. When something is wrong with any of these elements, the outcome would be negative which will be reflected back to these elements. In such a case, tourists do not want to come back. The local community's quality of life would be negatively affected due to poor service standards. They would also earn less from the tourism industry. Employees would fear losing their jobs resulting in lower satisfaction with their jobs. Suppliers would earn less. Most importantly, all the cultural, economic, and physical resources would be negatively affected if potential consumers withdrew, as there would be less capital for reinvestment.

In recent years, destinations have faced some crucial questions with respect to maintaining sustainability on the supply side. Destinations must be cleaner, greener, and safer in order to safeguard the life quality of not only holidaymakers but also of the local residents (Kozak, 2004). This is also important to attract investments and promote the development of tourism that will lead to gaining economic benefits and staying tuned to rival destinations. Therefore, the most important issue to be taken into consideration is environmentally sustainable tourism applications (Ratcliffe and Flanagan, 2004). The rapid increase in the number of tourists, the number of buses allocated for tourists, and the crowds and the chaos created by tourism-related traffic, all exert pressure on the cultural, natural and economic resources of tourism (Davidson and Maitland, 1997). All these challenges need

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the establishment of strong and efficient managerial approaches to maintain the stability and sustainability of cultural and natural resources.

However, to be successful destination marketing and management requires a strong focus on different stakeholders, among them consumer markets. The exponential growth of data generated by the use of fast paced technology advancements demands critical analysis of Big Data (Amado *et al.*, 2018). This is mandatory if organizations want to assess customer experience, namely, via user-generated content disseminated throughout social media platforms in order to be able to take better decisions (Nave *et al.*, 2018) in managing destination tourism resources and achieve loyalty from tourists.

Contributions

The first contribution presents an analysis of some relationships between a smart destination and the improvement of the tourism experience. In this study, Liberato, Alen and Liberato analyze the tourism experience based on the use of mobile technology in different moments during a trip. The study uses data from a well know tourism destination, Porto, which has advanced technologies such as virtual reality, QR Code, interactive tourists stands and App. The results reveal that internet, smartphones or other mobile devices and applications are critical for the tourism experience.

In the following contribution, Jimenez-Barreto and Campo-Martínez propose and evaluate a model with the destination website quality as a determinant factor to predict users' attitudes toward the web and their willingness to participate in co-creation experiences. First, a content analysis was performed regarding the presence or absence of characteristic elements of the perceived website quality for the official websites of both competitor travel destinations: the Balearic Islands and the Canary Islands, Spain. Second, the study applies a partial least square structural equation. The authors conclude that there is a direct and significant relation between website quality, attitudes toward the web and willingness to participate in online co-creation experiences.

In the third contribution, Fuentes-Medina, Hernádez-Estárico and Morini-Marrero investigate the critical success factors and the value chain of emblematic hotels. The authors applied content analysis, text mining and sentiment analysis to 10,362 opinions from all of the hotels of Spanish Tourist Paradores. The study provides word clouds and correspondence analysis by Parador. Their findings show the relevance of location, facilities and personnel as critical success variables for emblematic hotels. They provide useful findings for both, hotel managers and academics in measuring user-generated content.

Next, Parra-López, Martínez-González and Chinea-Martin determine the drivers of the formation of e-loyalty in a tourist destination, providing a model composed of variables that are under the control of the firm along with others that are not fully controllable by professionals. Their findings indicate how e-loyalty can be managed in tourist destinations, as well as the relevance of an important segment for future tourism development. Their model is tested through PLS multi-group analysis.

In the subsequent contribution, Currás-Perez, Stojanovic and Andreu present the effect of the intensive use of social media on brand equity. The study investigates the effects of brand awareness on image, quality, customer value and intention to make WOM. The relationships proposed in the theoretical model were estimated using partial least squares. The results show that intensity of social media use significantly influences brand awareness. In turn, awareness has a positive relationship with cognitive and affective image of the brand, brand quality, customer value and the intention to make eWOM. As for the relationship between the two dimensions of the image, the results show that the affective image derives from the cognitive image.

The last contribution is about cruise tourism from a hedonic pricing approach. In this study, Espinet-Rius, Fluvià-Font, Rigall-Torrent and Oliveras-Corominas use a database

that includes more than 36,000 prices paid by cruise passengers, as well as the different features of cruise ships. They use regression in a semi-logarithmic specification. The results indicate that the main attributes affecting prices are the number of nights of the itinerary, the departure date, the number of days before departure the booking is made, the accommodation type and some facilities, such as casinos, cinemas and swimming pools.

The six scientific articles published in this special issue of *EJM&BE* demonstrate clearly the umbrella challenges faced by organizations responsible for managing tourism resources and destinations. Their contributions link very well with recent studies giving attention to a number of critical research priorities. Indeed, user-generated content in social media is an important asset that needs to be explored on a continuous fashion, namely through the use of data and text mining (Moro *et al.*, 2017). This allows decision makers to assess sentiment analysis from tourists since it is based on information related with tourist experience (Calheiros *et al.*, 2017). In addition, managers can choose a proactive stance as it is then possible to predict tourist behavior as well as to make decisions about the management of tourist brands and pricing (Moro *et al.*, 2018). Last but not least, the evolution of mobile technology and its role in consumers' daily life is fostering new opportunities for destinations and businesses, not only in terms of their use within a multitude of tourist services (Rita *et al.*, 2018) but also with regard to the use of augmented (Paulo *et al.*, 2018) and virtual reality.

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Smart tourism destination triggers consumer experience: the case of Porto

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Abstract

Purpose – The purpose of this paper is to emphasize the increasing importance of information and communication technologies (ICTs) in smart tourism destinations, in their integration in the activity of the tourism companies, and in their interaction with visitors/tourists. In summary, it is intended to evaluate in the city of Porto how the use of technology before, during and after the visit influences the tourist experience.
Design/methodology/approach – The authors empirically investigate the importance of using ICTs during tourism experience, assess the access/availability of ICT at the destination and its importance in tourist's decisions. It is analyzed if the applications and/or information available on the internet are important and positively influence the tourism experience in Porto, that is, the degree of tourist satisfaction. The empirical evidence is based on a quantitative analysis, using a data set involving 423 tourists in the city of Porto.
Findings – The importance of the internet access at the destination, especially in places like airports and hotels, since most tourists are primarily using their mobile devices and computers during the trip, and the existing information technologies available in the destination (internet, smartphones or other mobile devices and applications) are considered very important in explaining tourists' experience.
Originality/value – This study identifies the strengths and weaknesses of the technological strategies, providing useful information for destination management, discussing innovation in tourism, and proposing a framework that empirically evaluates how technological components used in smart tourism destinations can improve tourists' experiences.

Keywords Tourist behaviour, Tourism experience, Information and communications technologies, Smart destination

Paper type Research paper

Introduction

We usually say that we live in a world that is in permanent change and is dominated by the evolution of information and communication technologies (ICTs). Technological advances have influenced how we live in society (Dieck and Jung, 2018). Technology comprises knowledge about the means, the actions on it, and modifications in it. These changes are felt in a specific way in cities that are home to an increasing number of people seeking not only a job, but also a quality life. There is a concern to improve, not only these elements, but also

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make the services provided by these cities more efficient (Vicini *et al.*, 2012). Thus, cities have become complex, very competitive, requiring the coordination of activities and services that use ICTs.

ICTs can help make cities more accessible and attractive, both for residents and visitors, as they contribute to the development of interactive services that interconnect local organizations, enabling users to quickly access services and data. We can highlight tourism as one of the important and essential services for the population, considered as one of the economic sectors that can benefit from the use of technologies (Buonincontri and Micera, 2016). In this context, a new type of destination emerged, characterized by being a smart destination. This concept is applicable to a destination in which technology influences the tourism experience, increases the competitiveness of the destination, and promotes tourism development projects (Boes *et al.*, 2015; Presenza *et al.*, 2014).

For this reason, technology plays an increasingly important role in promoting tourist destinations, distributing and marketing tourism, and supporting tourists before and during their stay in the destination. The important thing is to provide the tourist with an unforgettable visit, but for this to happen it is essential to innovate the destination, to make it attractive and capable of generating emotions. The tourist does not choose a destination only because of the monuments, the beautiful landscapes, the culture or the gastronomy that it has. All this is important, but today's tourist wants to be surprised by the unknown of the destination and wants information about what to do, what to visit and how to get to a place by using technologies. In this sense, technology integrates the global experience into the destination (Wethner *et al.*, 2015). The tourist destination should become a destination of emotions and experiences and a smart destination. Based on this approach, tourists actively engage with service providers and collaborate in co-creating their own experiences, which on numerous occasions directly contributes to provide innovation (Buhalis and Amaranggana, 2014). The literature on tourism experiences shows that the competitiveness of a destination increases when there is an interaction between the tourist and what it offers through technology (Neuhofer *et al.*, 2012).

In view of these distinctions, and given the fact that we have in mind that there are profound changes in the preferences of tourist consumers and the tourists' own characteristics, it is considered interesting and relevant to see if destinations have been able to adapt to the changes and demands that the change itself involves. On the other hand, and despite recognizing the influence of technology on the tourism experience, only a few studies have addressed the influence of the strategy of a smart destination on the tourism experience (Buonincontri and Micera, 2016). To date, these studies have shown a basically qualitative nature, using information from websites, public documentation, or in-depth interviews with destination managers. However, in order for us to progress in research, it is necessary to know in-depth the opinion and behavior of tourists (Wethner *et al.*, 2015). For this reason, this paper aims to contribute to the recent debate on innovation in tourism, proposing a framework that evaluates how the technological components used in a smart tourism destination can improve the tourism experience. In summary, the aim is to evaluate how the use of technology before, during, and after the visit influences the tourism experience.

The results of this study will explain some relationships between the approach of a smart destination and the improvement of the tourism experience. We will also obtain useful information for destination managers, once the weaknesses and strengths of the strategy implemented in the destination can be identified by analyzing their impact on the tourism experience. The paper is divided into three parts. The literary review emphasizes the importance of the use of technology in tourist destinations classified as smart, justified by the need to confirm them as competitive destinations, by evaluating the tourism experience based on the use of mobile technology, in different moments and situations resulting from the trip, concluding with defining the hypotheses based on the studies presented. In the

research methodology, the choice of Porto as a destination and the methodology of data collection are justified, and the results of the research are presented and discussed. The conclusion discusses the innovative perspective introduced in the analysis of the subject investigated and the results obtained, regarding the evaluation of the tourism experience and the management of the destination. The limitations of the study are also presented, proposing new lines of research.

Literature review: technology for tourism

Technology emerges as a driving and fundamental force for tourist destinations (Kuflik *et al.*, 2015). For this reason, the tourism sector is subject to technological transformations that enable easier and faster ways of doing business, promoting competition and globalization. In Akehurst's (2009) perspective, the development of the tourism sector is related to the use of information technologies and opportunities related with other organizations promoted by the use of the internet. Costa (2002) also indicates tourism as one of the drivers of today's economies and a leading user of ICTs, and especially of the internet (Sheldon *et al.*, 2001). It is noted, for example, that purchasing holidays and other tourist products is extremely popular online. In this sense, it is essential to understand how tourists have adapted to technological changes, because they not only facilitate the access and use of information, but also constitute elements that are explained by tourists' needs and desires (Xian *et al.*, 2015).

In fact, according to the reports Future Traveller Tribes 2030, Understanding Tomorrow Traveller (2015), travel trends in the coming years will be determined mainly by the intensive use of technologies. This is how the availability of information emerges as one of the main competitiveness factors of tourism organizations (Buhalis, 2003). Specifically, tourism information systems (SIT), through the use of appropriate tools, have provided a technological basis, increased the competitiveness of organizations and their survival (Ramos, 2010), thus ensuring a better relationship with activities integrated in tourism. The use of SIT facilitates the relationship between the tourist organization, the destination and the customer, contributing to the promotion and specialization of the tourist product (Bénédicte *et al.*, 2011; Buhalis and Law, 2008).

In this context, the destination is understood as a diversity of individual products and opportunities of interrelated experiences that give substance to the total experience of the area visited (Murphy *et al.*, 2000). More specifically, a smart tourism destination is considered a destination built on a technological infrastructure that ensures sustainable development of tourist areas, accessibility to the whole world, and also facilitates interaction with the visitor, increasing the quality of the experience in the destination and improving the residents' quality of life (Lopez de Avila, 2015). A smart tourism destination should be able to include technological development, develop innovation activities, incorporating capacities, digital spaces, information processing and tools to these activities, which enable the transfer of technology and knowledge sharing. ICT infrastructures such as Cloud Computing and the Internet of Things can provide the infrastructure required for the development of a smart tourism destination.

Boes *et al.* (2015) show that the smart tourism destination should, on the one hand, exploit competitive advantages to provide value creation and experiences for tourists/visitors by using the infrastructures of ICT and technological applications and, on the other hand, provide competitiveness and benefits for the destination. They consider that the smart tourism destination should set out four fundamental concepts: human capital (meeting the needs of the population residing in the development strategy, involving educational strategies, creating new business opportunities, of public participation and innovation); leadership, which should aim at bringing intelligence to regions (with the creation of sectoral offices related with city governance in environmental, energy, and

innovation areas); social capital (with the collaboration and cooperation between different actors of society-citizens, public and private agents); and innovation (greatly influenced by the capacity of ICTs, where for example, it can be used for the collaboration of citizens, researchers, entrepreneurs in the development of innovative projects, tourism, attracting companies to urban central areas).

Thus, special attention should be given to the changes that take place in market needs, triggered by technological innovations (Buhalis and Law, 2008) and, especially to a new market resource, the mobility and ubiquity allowed by the dissemination of smartphones and by the emergence of QR codes that contextualize mobile applications and services, and emphasize the importance of the destination strategy. In this sense, technology has not only become an integral part of tourism, but it has also revolutionized the way traveling is planned (Buhalis, 2003), business and destinations are managed (Buhalis and Licata, 2002), and how tourist services are created and consumed (Stamboulis and Skayannis, 2003). These changes constitute opportunities and challenges that must be addressed (Gretzel *et al.*, 2006). In this sense, we hypothesize the following:

H1. Internet access at the destination is important for its choice.

The separation of the tourism experience and ICT is increasingly complex. ICT has become an integral part of the experience because tourists use different devices as primary tools to plan their trip, enjoy the destination experience, and share it on their return (Wang *et al.*, 2013, 2014). Likewise, destinations should make greater use of technology to provide tourists with the necessary services at each stage of the tourism experience, as well as manage efficient coordination among all the actors participating in it. In addition, new types of tourist activities are emerging through new technologies that can transform conventional experiences and result in the emergence of new types of experiences (Darmer and Sundbo, 2008; Gretzel and Jamal, 2009). It will therefore be necessary to take into account current changes (Huang and Hsu, 2010), in which not only the technological development itself is considered, but rather the integration of technology in the experiences as the most interesting aspect (Darmer and Sundbo, 2008).

In these experiences, technology can work as a mediator or as the core of the experience itself (McCarthy and Wright, 2004). The development of mass media and technology enrich the sense of mediation in the tourism context (Gretzel *et al.*, 2011). Some studies have begun to examine the extent to which internet-based systems mediate or moderate the tourism experience (Cheverst *et al.*, 2000; Wang *et al.*, 2012; Gretzel *et al.*, 2006; Tussyadiah and Fesenmaier, 2008). On the other hand, by using mobile technology (especially applications on smartphones and tablets), tourists can access all the information wherever and whenever they want. They can personalize their experiences and share them with others while they are still at the destination (Neuhofer *et al.*, 2012). In addition, Kramer *et al.* (2007) have shown that tourist activities can be easily modified or aimed at using smartphones. Saari *et al.* (2008), Tussyadiah and Fesenmaier (2009), and Wang *et al.* (2010) concluded that mobile devices can mediate the behavioral and psychological dimensions of the tourism experience by facilitating the search for information, its processing and sharing, allowing the tourist to learn about new travel opportunities and getting to know a destination better. Tourists build the tourism experience by learning about the existing culture, understanding and feeling the places they visit (Jennings and Weiler, 2006). Based on the review carried out, the following hypotheses were formulated:

H2. The applications and/or information available on the internet positively influence the tourism experience.

H3. The use of the applications and/or information available on the internet is important during the tourism experience.

For many tourists, technology represents an opportunity to actively participate in the destination activities and to take part personally in the construction of their own experience (Prebensen *et al.*, 2013). Likewise, they place special emphasis on sharing their experience with other tourists and residents, and are therefore willing to activate conversation processes through social media within the destination using electronic devices (Buonincontri and Micera, 2016), with their family, friends or anonymous users (Neuhofer *et al.*, 2012; Brejla and Gilbert, 2014). In this sense, it has been shown that the most valued experiences are those co-created with tourists and supported by high levels of technology (Tussyadiah and Fesenmaier, 2009). As argued by Neuhofer *et al.* (2012), ICTs are extremely useful because they facilitate encounters between tourists and the destination, and improve the experiential process in time and space. The destinations must consider that all the aspects related to the e-service are important for the customer experience (Küster *et al.*, 2016).Therefore, it can be considered that:

H4. The technological resources of the destination influence the satisfaction level.

Although the literature reviewed confirms the impact of ICTs on tourism, most studies hardly emphasize the impact or role of technologies, and empirical research is even more scarce. It should be added that the limited empirical studies have focused only on the role of some particular technology in the tourism experience, such as social networks (Gretzel *et al.*, 2011), guides in mobile phones (Tussyadiah and Fesenmaier, 2007), videos (Tussyadiah and Fesenmaier, 2009), or smartphones (Wang *et al.*, 2012). Only a few studies have aimed at discussing tourism experiences and the impact of technology on a more comprehensive perspective (Neuhofer *et al.*, 2014). There is a need to better understand the relationships between information needs, information tools (internet, smartphones and their applications), and the tourism experience in the destination (Wang *et al.*, 2012).

Research methodology

Choice of the smart tourism destination: Porto

The city of Porto is one of the oldest cities on the European continent. It is the second city of the country in terms of economic and social importance, and has been growing steadily as a tourist destination. "Turismo do Porto e Norte de Portugal, E.R." is the body responsible for the management and promotion of tourism in the Northern Regional Tourism area. As a way of promoting the region, in tourist terms, it currently has 57 interactive tourist stands, some of which are located in urban tourism centers. The most visited interactive tourist stand is located in Francisco Sá Carneiro International Airport, in the city of Porto. According to Porto e Norte and the Tourism Department of the Porto City Council, tourists visiting the Porto region have an above average cultural level, being demanding when evaluating the experience. They are also characterized by having a medium/high and higher educational level; they are sensitive to local cultures and seek authentic experiences; they have a medium/high purchasing power; they are concerned about preserving the environment; they evaluate tourist products in advance; they are users of new ICTs; they travel with their family; and they prefer flexible itineraries and rationalize their consumption. Based on the information provided by the National Statistical Institute and the Department of Tourism of the Porto City Council, the priority and strategic markets for the city of Porto are Spain, France, Brazil, Germany, UK, Italy, the Netherlands, USA, Belgium, and the Nordic countries (Sweden, Norway, Finland, and Denmark). The number of overnight stays exceeded three million in 2013 for Greater Porto, corresponding more than two million to the city of Porto.

The Tourism Department of the Porto City Council has been monitoring a set of indicators annually, registering an increase in values, namely the movement of passengers at the Francisco Sá Carneiro International Airport, the accommodation units promoted, the

overnight stays in Porto (City), passengers in the Port of Leixões, access to the Official Tourism Portal (potential search), visitors of Municipal Museums (more accessible data), visitors of Tourist Offices, with monthly updating (with response to inquiries). In the research used with tourists applied by this department, the conclusions reveal that the most traditional means of knowledge about Porto are through the recommendation of family and friends, despite an increase in the use of the internet, which has gained a more significant role in knowledge about the destination in recent years, reinforced by the internationalization strategy of events held in the city. This aspect is even more significant when we consider that about 80 percent of the tourists who visit Porto do so for the first time. The challenges that arise for Porto as a destination are the knowledge of the features of the tourist who plans his own trip, and who seeks information and opinion in the most diversified sources.

Cities that aspire to leadership must manage their strategies through ICTs (Agüero, 2009). In this sense, Big Data and Open Data technologies are already being used in Porto together with other technologies that are described below:

- Availability of free internet, free Wi-Fi access points: the city of Porto has good free Wi-Fi coverage, with 15 hotspots, through PortoDigital, mapped on the tourist map of the city. After one hour of use, registration is requested, keeping the free of charge internet access.
- STCP Project: The STCP Free Wi-Fi project, implemented in 2014 in Oporto, aimed at the implementation of a traffic network, connecting more than 400 city buses, allowing access to the Wi-Fi network to about 60,000 users per month, free of charge. The service was experimental for six months, and is based on an innovative technology that aims to create "internet of movement" (internet of moving things). It uses connectivity between vehicles, mobile objects, and end-users to extend the Wi-Fi network coverage. These Wi-Fi hotspots on the move enable users to access the internet without resorting to mobile networks, as well as facilitating the collection of data about vehicles and the city. It is the result of an association between several institutions such as STCP, Porto Digital, Veniam'Works, NOS (Telecommunications Group), University of Porto and University of Aveiro, and is developed under the Future Cities project. Future Cities is a European project led by the University of Porto (Competence Center for Cities of the Future), which aims to transform the city into a live, at urban-scale laboratory, making it one of the most innovative cities in Europe, funded by QREN (through the I-CITY, Future Mobility and Future Health project), covering a multidisciplinary concept that interconnects several areas such as ICT, psychology, urban planning, civil engineering, among others.
- Interactive tourist stands: there are 57 interactive tourist stands that depend on the Regional Tourism Authority of Porto and the North of Portugal. The interactive stand of the Sá Carneiro Airport (Porto), in the Porto metropolitan area, is the stand with the highest demand (among all), with around half a million visits. It operates for 24 hours and has a set of equipment such as interactive tables, thematic projection screens, three-dimensional environments, and interactive tools to support the products, as well as cultural events in Northern Portugal. According to this entity, at the interactive stand of the Airport of Porto, monthly sales of approximately €74,000 in accommodation are registered in the region.
- The official tourism website of the Porto City Council – Visit Porto: The tourism portal was created with the aim of being present throughout the tourist travel cycle (Figure 1), and considered a crucial tool for the destination. It is divided into channels.

There is a permanent customer care service operator (Customer Care Service) available for any clarification or question. There is also a personal area in the tourism portal, aimed at the

tourist, in which he can design his own tourist plan. The user registers in the portal and all the areas and contents through which he passes are registered. When registering, the user answers three questions, which will enable to place him in a certain profile. With frequency of use, the algorithm itself fine tunes the user's profile. One of the objectives after two or three years will be to be able to identify the user's profile of the tourism portal of the City Council of Porto. Online assistance is available in the tourism portal. In the chat, the user can give his feedback regarding the satisfaction related to the friendliness of the city. In addition there is the user support, in which all the information provided on request of the customer generates, in the end, an e-mail for him to evaluate the satisfaction with the information given.

Official Apps of porto. The Official Apps, whose communication is sponsored by the Department of Tourism of the Porto City Council, are grouped into Transport (three), Culture, Art and Events (six) and Maps and Guides (five).

Quick Response 2D Code (QR Code). The use of QR Codes is mass-recorded in various documentation provided by the Tourism Department of the Porto City Council, and aims to provide the user, tourist or visitor with access to information about the tourist destination, providing an interface between online and offline (Figure 2).

Beacons project. The City Council of Porto, through its tourism department, is developing an innovative project of Beacons, in partnership with the company Sonae, in the Via Catarina shopping mall, which will use the database of tourism resources, giving the stores the ability to launch promotions, and other alerts for the customers to go there. It is an experimental project whose objective is long term.

Augmented and virtual reality applications. It is currently possible to observe several virtual reality applications regarding the Porto destination, according to the information provided in Table I. It is also possible to refer to the use of this technology on interactive

Figure 1.
Tourist travel cycle

Source: Porto City Council (2015)

Figure 2.
Examples of use of the QR code

Source: "Bem-Vindo ao Porto" Document – available at www.visitporto.travel (accessed December 2014)

Almeida Garrett Municipal Library	Quinta Macieirinha Romantic Museum
Municipal Library of Porto	Wine Museum of Porto
Casa do Infante	Palacete dos Viscondes de Balsemão
Guerra Junqueiro House Museum	Municipal Theater-Campo Alegre
Ortigão Sampaio House Museum	Municipal Theater- Rivoli
António Carneiro House Office	

Table I.
Equipment with Virtual Tour

Source: Available at: http://visitasvirtuais.cm-porto.pt/ci.php (accessed February 22, 2015)

tables available in interactive tourist stands. These tables allow for the recognition of objects and products through a code provided to the user, which when placing the device on the table recognizes the object and automatically provides additional information and also allows to offer information brochures in digital format.

Research structure

This research aims to evaluate the importance of the use of ICTs in the satisfaction and experience of the tourist in the tourist destination. To prove the objective and hypotheses formulated, a quantitative analysis was chosen. First, Porto was chosen as a smart tourism destination based on the information collected in the previous section. The reason for using a case study was based on its suitability as an ideal methodology in tourism (Gray and Campbell, 2007) and in information systems when technology is a changing dynamics and was recently implemented (Pare, 2001).

The questionnaire survey was used as the method of data collection. It was based on studies by Brakus (2001), Brown and Chalmers (2003), Clawson and Knetsch (1966), Jennings and Weiler (2006), Killion (1992), Laws (1995), Meng (2006), Schmitt (1999), Tsaur *et al.* (2006), Tussyadiah (2014), Vitterso *et al.* (2000), and Wang *et al.* (2012, 2014). The structure of the questionnaire allowed for the collection of the variables under study and presented in the hypotheses. The questionnaires were applied in five different places: Francisco Sá Carneiro Airport (Porto); Cais da Ribeira; Casa de Música; Intersection Avenida dos Aliados/Clérigos; Campanhã train station, which represent the areas with the highest concentration of tourists in the city. They were completed in April 2015, in two different weeks, and in each one, on two separate days: Friday and Sunday. A directed or non-probability sampling method was used, in which the selection of sample elements is based on some criterion. In this case, the area with the highest concentration of tourists in the city was chosen, and the sample represents the characteristics of the population, namely the fact that they are tourists. The probability of an element of the universe being selected for the sample is unknown. The results obtained from the sample cannot be generalized to the whole population, but it is a suitable method when it is not easily usable in a particular type of random sampling. Within the methods of directed or non-probabilistic sampling, the convenience sampling method was used, in which the sample is selected according to the availability and accessibility of the elements of the target population. For a sample of 423 elements, considering a population of over one million tourists, the maximum error is $B = 4.8$ percent.

Data analysis and research results

In relation to the socio-demographic profile of the respondents, the data collected in Table II show that the age group with the largest representation in the sample is 45-54 years old, mostly of international origin (91 percent), highlighting Spain (25.3 percent), France (12.8 percent), and Germany (6.6 percent). The level of gross monthly income is medium/high, given that 46 percent have a value between €1,500 and €3,000 per month, and 29 percent said they earn a higher income than this. Regarding their level of education, 67 percent said they had a university or equivalent degree, which indicates a high educational level in relation to the tourist demand in the region.

In the analysis of the variables related to the trip (Table III), it is highlighted that the majority of visitors/tourists travel accompanied (87 percent), visit the city for the first time (74 percent), and the main reason for the visit is related to holidays (47 percent), followed by visits to family/relatives (38 percent).

H1. Internet access at the destination is important for its choice.

Regarding the importance of internet access/availability in Porto, 88 percent of tourists surveyed consider it important and only 12 percent do not consider it important.

Socio-demographic variables		%
Age (years)	Up to 24	8
	25-34	17
	35-44	23
	45-54	34
	55-64	8
	+65	10
Gender	Male	51
	Female	49
Gross monthly income	Less than €1,500	25
	Between €1,500 and €3,000	46
	Between €3,001 and €5,000	21
	More than €5000	8
Qualifications	High school	7
	Middle course	26
	Higher education or equivalent	67
Country of origin	Portugal	9
	International	91

Source: Compiled by the authors

Table II.
Socio-demographic profile

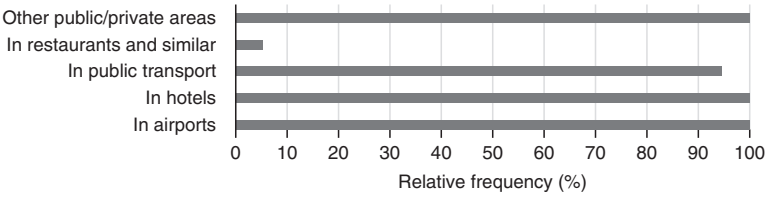
Trip variables		%
Group	Alone	13
	Accompanied	87
First visit to Porto	Yes	74
	No	26
Main reason for trip	Holidays	47
	VFR	38
	Business	14
	Other	1

Source: Compiled by the authors

Table III.
Variables related to the trip

According to Figure 3, almost all the respondents who considered internet access/availability in the Porto destination important (374), 100 percent indicated internet availability in airports, hotels or other public/private areas, 95 percent indicated internet availability in public transport, and 5 percent indicated internet availability in restaurants and similar.

Continuing with the previous questions, 88 percent of users access the internet from mobile/computer devices. We can also conclude that 84 percent of respondents use internet applications and/or information related to their tourism experience in Porto before the visit and 88 percent use the applications and/or information available on the internet during the visit.



Source: Compiled by the authors

Figure 3.
Frequency graph: "If yes, in what places?"

According to the frequency Table IV, regarding the evaluation of the impact of some applications and/or information available on the internet during the tourism experience in Porto, it is necessary to highlight the high scores obtained – very important, with a frecuency of 374, by the typologies: tourist support/tourist guides and Wi-Fi access (free, paid), followed by the items cultural agenda (museums, exhibitions, cinemas, concerts, shows, prices, ticket reservation), and weather forecast.

On average, the importance is higher for "Tourist support/tourist guides," "Wi-Fi access," "cultural agenda" and "weather forecast," followed by "accommodation, catering and similar," "transport management," and "car rental," all with an average value higher than the midpoint of the measurement scale. Regarding the questions: "Is the information available on the internet about the Porto destination a decisive factor to come?" and "Is the information available on the internet about the Porto destination a decisive factor to return?" 84 percent of the tourists surveyed answered yes, while 16 percent reported that there is no influence on the visit and intention to return. This distribution of the evaluation of the applications and/or information available on the internet may indicate, for example, an increase in the level of independence both in the process of organizing the trip and in the course of the experience in the destination, which makes the Porto Management body in the area of tourism responsible, and challenges it to update interactive digital platforms and instruments, providing an integral system of information organization and destination management, establishing permanent relationships of interactivity among all the role-players in the sector in the perspective of tourism supply and demand.

There is a noticeable positive influence of the information available on the behavioral intention related to the destination, as highlighted in the studies by Jeng and Fesenmaier (2002), Bieger and Laesser (2004) or Gursoy and McCleary (2004). These studies show how the information available has a significant impact on different aspects of the decision-making process, particularly when deciding which destination to visit. Recent studies suggest that this demand in relation to a specific destination is carried out mostly during the stay and not before the visit, where the search aims mainly to identify potential destinations to visit (Xian *et al.*, 2015) (Table V).

The percentage that considers internet access/availability in the Porto destination important, and that accesses the internet from mobile devices/computers is higher (100 percent) for those who consider that the information available on the internet about the

	1 (%)	2 (%)	3 (%)	4 (%)	$\overline{X}$
Tourist support/tourist guides (POI's, maps, itineraries, circuits, etc.)	11.6			88.4	3.65
Wi-Fi access (free, paid)	11.6			88.4	3.65
Cultural agenda (museums, exhibitions, cinemas, concerts, shows, prices, ticket reservation)	11.6		4.7	83.7	3.61
Weather forecast	11.6	4.7		83.7	3.56
Accommodation, catering and similar (prices, availability, contacts, reservations, etc.)	11.6		83.7	4.7	2.82
Transport management (air, land, schedules, check-in, prices, reservations, etc.)	11.6		83.7	4.7	2.82
Car rental (companies, prices, deals, reservations, etc.)	11.6		83.7	4.7	2.82
Travel agencies (programs, promotions, package tours, etc.)	11.6	83.7	4.7		1.93
Language translators	11.6	83.7	4.7		1.93
Webcams (locations, city points, car traffic, beaches, tourist sites)	11.6	83.7	4.7		1.93

Note: The values shown refer to the measurement scale where 1 – not used; 2 – little importance; 3 – important; 4 – very important

Source: Compiled by the authors

Table IV. Evaluation of the impact of the following types of applications and/or information available on the internet during their tourism experience in Porto

Porto destination was a decisive factor to come, being the observed differences statistically significant, according to the χ^2 test ($\chi^2_{(1)} = 284.3$; $p < 0.001$), based on the information provided in Tables VI and VII.

The percentage that also considers internet access/availability at the Porto destination to be important, and that accesses the internet from mobile devices/computers, is higher (100 percent) for those who consider that the information available on the internet about the Porto destination will be a decisive factor to return, being the differences observed statistically significant, according to the χ^2 test ($\chi^2_{(1)} = 284.3$; $p < 0.001$), based on Tables VII and VIII.

First, the Pearson R correlation coefficient was used to observe the relationship between the variables collected in the global index "Impact of the applications and/or information available on the internet during the tourism experience in Porto," the global index "Overall satisfaction regarding the destination," all the items in "Evaluate the impact of the following

Table V.
Relationship between "Was the information available on the internet about the Porto destination a decisive factor to come?" and "Do you think it is important to have access to the internet at the Porto destination"

Was the information available on the internet about the Porto destination a decisive factor to come?		Do you think it is important to have access to the internet at the Porto destination? No	Yes
No	*n*	49	20
	% of the group	71.0	29.0
Yes	*n*	0	354
	% of the group	0.0	100.0

Source: Compiled by the authors

Table VI.
Relationship between "Was the information available on the internet about the Porto destination a decisive factor to come?" and "Do you access the internet from mobile/computer devices?"

18. Was the information available on the internet about the Porto destination a decisive factor to come?		14. Do you access the internet from mobile/computer devices? No	Yes
No	*n*	49	20
	% of group	71.0	29.0
Yes	*n*	0	354
	% of group	0.0	100.0

Source: Compiled by the authors

Table VII.
Relationship between "Is the information available on the internet about the Porto destination a decisive factor to return?" and "Do you think the access/availability of the internet at the Porto destination is important?"

Is the information available on the internet about the Porto destination a decisive factor to return?		Do you think the access/availability of the internet at the Porto destination is important? No	Yes
No	*n*	49	20
	% of group	71.0	29.0
Yes	*n*	0	354
	% of group	0.0	100.0

Source: Compiled by the authors

types of applications and/or information available on the internet during your Porto tourism experience," and all the items of "Evaluate your overall satisfaction regarding the destination." Thus, it is particularly important to note the very strong correlations between those who intend to visit the destination in the next three years and the applications/information available on "Tourist support/tourist guides," "Wi-Fi access," between those who intend to recommend the destination and who consulted the cultural agenda (Table IX).

Then, to test *H2* and *H4* we used a multiple linear regression models. These models have two or more independent variables, which will be used to estimate the values for the dependent variable (Maroco, 2011, pp. 671-689; Neter *et al.*, 2004). In order to determine the regression parameter estimates, the least squares method is used. In addition, for the inference of each of the parameters, it is necessary to determine if the model is globally significant, through a test of significance of the coefficient of determination (*F*-test). This test, however, does not indicate whether all the variables are significant, or which ones are more important, so it becomes necessary to apply the *t*-test to determine the significance of each

Table VIII. Relationship between "Is the information available on the internet about the Porto destination a decisive factor to return? " and "Do you access the internet from mobile/computer devices?"

Is the information available on the internet about the Porto destination a decisive factor to return?		Do you access the internet from mobile/computer devices? No	Yes
No	*n*	49	20
	% of group	71.0	29.0
Yes	*n*	0	354
	% of group	0.0	100.0

Source: Compiled by the authors

Table IX. Pearson correlation (*R*): relationship between "Evaluate the impact of the following types of applications and/or information available on the internet during your tourism experience in Porto" and "Evaluate your overall satisfaction regarding the destination"

		Overall satisfaction regarding the destination	Build positive opinions regarding the destination	Recommend the destination	Encourage friends and family to visit the destination	Visit the destination in the next 3 years	Consider Porto a cultural destination in the following trips
Impact of applications and/or information during …	*R*	0.901**	0.763**	0.913**	0.913**	0.996**	0.867**
Tourist support/tourist guides	*R*	0.937**	0.820**	0.947**	0.947**	1.000**	0.910**
Travel agencies	*R*	0.609**	0.390**	0.631**	0.631**	0.847**	0.550**
Accommodation, catering and similar	*R*	0.786**	0.605**	0.803**	0.803**	0.952**	0.738**
Language Translators	*R*	0.609**	0.390**	0.631**	0.631**	0.847**	0.550**
Webcams	*R*	0.609**	0.390**	0.631**	0.631**	0.847**	0.550**
Transport management	*R*	0.786**	0.605**	0.803**	0.803**	0.952**	0.738**
Car rental	*R*	0.786**	0.605**	0.803**	0.803**	0.952**	0.738**
Cultural agenda	*R*	0.991**	0.925**	0.994**	0.994**	0.976**	0.978**
Weather forecast	*R*	0.997**	0.984**	0.995**	0.995**	0.910**	1.000**
Wi-Fi access	*R*	0.937**	0.820**	0.947**	0.947**	1.000**	0.910**

Notes: $n = 423$. **Significant at 0.01 level
Source: Compiled by the authors

variable, in particular. The determination coefficient (R^2) appears as a measure of the effect of the explanatory variables on the reduction of the variation of Y_i, that is, on the reduction of the uncertainty associated with the prediction of Y_i. In other words, r^2 measures the percentage or proportion of the total variation of Y_i explained by the model.

The Levene test for the homogeneity of the residual variances, in two randomly constituted groups, allows to conclude that the homogeneity of variances ($\text{Levene}_{1.421} = 2.993$, $p = 0.086$) is verified. The analysis of the assumption that the residues should follow a normal distribution, studied with Kolmogorov-Smirnov with Lilliefors correction, allows to conclude that the residues do not follow a normal distribution ($\text{KS}_{423} = 0.449$, $p < 0.001$). Since there is only one significant independent variable for the model, it is not justified to analyze the assumptions of the lack of self-correlation between independent variables and the absence of multicollinearity.

In this case, the dependent variable is the overall satisfaction regarding the destination, while the independent variable measures the impact of applications and/or information available on the internet during the tourism experience in Porto. The results collected in Table X show that the increase of one unit in the importance scale of "17. Impact of the applications and/or information available on the internet during the tourism experience in Porto" causes a mean increase in the measurement scale of the dependent variable "23. Overall satisfaction regarding the destination" of $b = 0.966$ ($p < 0.001$). The coefficient of determination indicates that 81.2 percent of the variation occurring in the dependent variable "23. Overall satisfaction regarding the destination" is explained by "17. Impact of the applications and/or information available on the internet during the tourism experience in Porto." The F-test ($F_{1.421} = 1813.0$, $p < 0.001$) of the global significance of the model is validated. Therefore, *H2* is verified.

In the case of the fourth hypothesis, the dependent variable is satisfaction level with the attributes of the destination, while the independent variable is constituted by the impact of the applications and/or information available on the internet during the tourism experience in Porto.

In Table XI, it can be seen how the increase of one unit in the importance scale of "17. Impact of the applications and/or information available on the internet during the tourism experience in Porto" causes a mean increase in the measurement scale of the dependent variable "22. Level of satisfaction regarding the attributes of the destination" of $b = 0.823$ ($p < 0.001$).

Table X.
Coefficients of the variables in the model and level of significance

Dependent variable: overall satisfaction regarding the destination	*bi*	*s*(*bi*)	*t*	*p*
(Constant)	0.916	0.067	13.686	0.000**
17. Impact of the applications and/or information available on the internet during the tourism experience in Porto	0.966	0.023	42.580	0.000**

Notes: *bi* and *s*(*bi*) – estimates of the coefficient and its standard deviation for the variable *i*; *t* – Student *t* statistical test; *p* – test value (**$p < 0.01$)

Table XI.
Coefficients of the variables in the model and level of significance

Dependent variable: level of satisfaction regarding the attributes of the destination	*bi*	*s*(*bi*)	*t*	*p*
(Constant)	2.084	0.106	19.677	0.000**
17. Impact of the applications and/or information available on the internet during the tourism experience in Porto	0.823	0.036	22.919	0.000**

Notes: *bi* and *s*(*bi*) – estimates of the coefficient and its standard deviation for the variable *i*; t – Student *t* statistical test; *p* – test value (**$p < 0.01$)

The coefficient of determination indicates that 55.5 percent of the variation that occurs in the dependent variable "22. Level of satisfaction regarding the attributes of the destination" is explained by "17. Impact of the applications and/or information available on the internet during the tourism experience in Porto." The F-test ($F_{1,421} = 525.3$, $p < 0.001$) of the global significance of the model is validated. Therefore, *H4* is verified.

An evaluation of the particular effects between satisfaction and the different attributes of the destination can be observed through Pearson's correlation coefficient analysis. Thus, it was proven that in relation to the "Global Evaluation," the strong correlation with the items "tourist support/tourist guides," "cultural agenda", "weather forecast," and "Wi-Fi access" must be highlighted, which allows us to conclude that the level of satisfaction, both in relation to the tourist destination and the tourism experience, is related to the diversity of the information provided in the destination, on the one hand, and with access to information, updated in real time and provided by the managers, on the other, which should be associated with permanent interactivity with visitors/tourists (Table XII).

H3. The use of the applications and/or information available on the internet is important during the tourism experience in Porto.

The importance is greater for: tourism support/tourist guides, cultural agenda, weather forecast, and Wi-Fi access, followed by accommodation, catering and similar, transport management, and car rental, all with a greater importance than the midpoint of the measurement scale, the importance being lower for travel agencies, language translators and webcams, with the importance below the midpoint of the measurement scale. The importance of the global index can also be considered to be higher than the midpoint of the measurement scale (Figure 4).

Conclusion

In an increasingly competitive tourism industry, destinations must continuously adapt, develop, and manage their offer to ensure a quality experience for their visitors. On the other hand, technology is changing the tourism experience substantially. The idea of using technology to enhance the experience is not new. Innovation lies here, in an attempt to understand its mechanisms from an empirical perspective. For this reason, the objective of this paper is to better understand the relationship between the need for information, the information tools, and the tourism experience in the destination. From a theoretical perspective, the main contribution is to deepen the knowledge of the effects of the use of technology on tourists' behavior and experiences, in addition to the planning stages of the trip and the search for information in the context of a smart tourism destination.

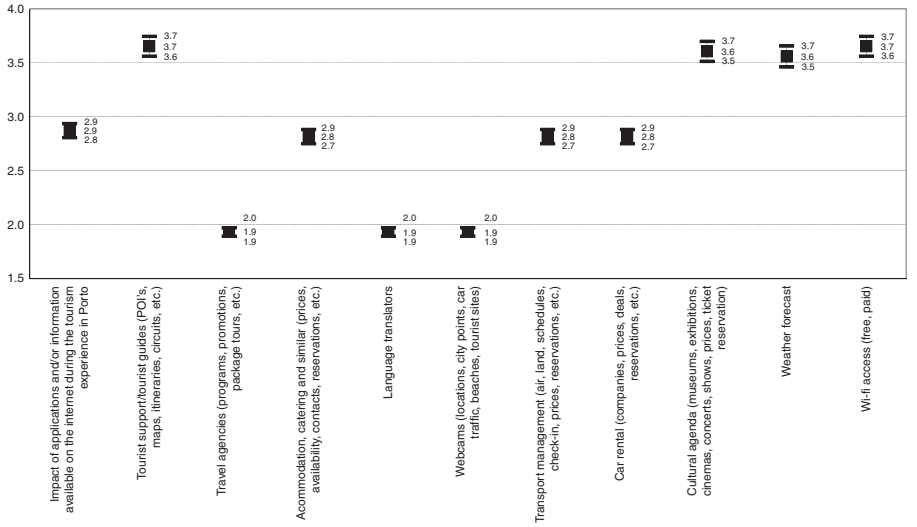
In this sense, the results achieved highlight the importance of internet access in the destination, especially in places such as airports and hotels, since tourists primarily use mobile devices and computers while traveling. In studies such as those by MacKay and Vogt (2012), this relationship was not significant for the destination, although a relationship was established between internet access and the reason for the trip. In our case, the greatest influence was identified when planning the trip as a choice criterion and during the stay in the destination, as a determinant of satisfaction. In both cases, a relationship was found between internet access and the intention to return, according to the results by Jeng and Fesenmaier (2002) or Gursoy and McCleary (2004).

On the other hand, current information technologies in the destination (internet, smartphones or other mobile devices and applications) were very important for explaining the tourism experience. These results are in line with the hypotheses proposed by Buonincontri and Micera (2016), where they argue that such importance lies in the need felt by current tourists to participate in the creation of their own experience. Other authors base this importance on the potential of mobile devices and their applications when

Table XII.
Pearson's correlation (*R*): "Evaluation of the impact of the following types of applications and/or information available on the internet during your Porto tourism experience" and "Evaluate your satisfaction level with the following destination attributes"

		Satisfaction level regarding the attributes of the destination	Climate features	Reception hospitality	Gastronomy and wines	Cultural heritage	Entertainment	Safety	Infrastructure and transport	Cost of living	Global evaluation
Impact of applications and/or information during …	*R*	0.745**	0.763**	0.763**	0.763**	0.763**	0.763**	0.480**	0.763**	0.763**	0.763**
Tourist support/tour guides	*R*	0.804**	0.820**	0.820**	0.820**	0.820**	0.820**	0.560**	0.820**	0.820**	0.820**
Travel agencies	*R*	0.365**	0.390**	0.390**	0.390**	0.390**	0.390**	0.034	0.390**	0.390**	0.390**
Accommodation, catering and similar	*R*	0.583**	0.605**	0.605**	0.605**	0.605**	0.605**	0.279**	0.605**	0.605**	0.605**
Language translators	*R*	0.365**	0.390**	0.390**	0.390**	0.390**	0.390**	0.034	0.390**	0.390**	0.390**
Webcams	*R*	0.365**	0.390**	0.390**	0.390**	0.390**	0.390**	0.034	0.390**	0.390**	0.390**
Transportation management	*R*	0.583**	0.605**	0.605**	0.605**	0.605**	0.605**	0.279**	0.605**	0.605**	0.605**
Car Rental	*R*	0.583**	0.605**	0.605**	0.605**	0.605**	0.605**	0.279**	0.605**	0.605**	0.605**
Cultural agenda	*R*	0.915**	0.925**	0.925**	0.925**	0.925**	0.925**	0.728**	0.925**	0.925**	0.925**
Weather forecast	*R*	0.978**	0.984**	0.984**	0.984**	0.984**	0.984**	0.854**	0.984**	0.984**	0.984**
Wi-Fi access	*R*	0.804**	0.820**	0.820**	0.820**	0.820**	0.820**	0.560**	0.820**	0.820**	0.820**

Notes: $n = 423$. ***Significant at 0.01 levels
Source: Compiled by the authors



Source: Compiled by the authors

Figure 4.
Evaluation of the impact of the types of applications and/or information available on the internet during the tourism experience in Porto

accessing information, allowing access to it anywhere and at any time (Rasinger *et al.*, 2007). Its impact on satisfaction was lower for the tourists surveyed. This implies that regarding the destination we are not transforming all the positive aspects of the experience into satisfaction elements.

From a management perspective, the results obtained result in a set of implications that can be useful for smart destinations. The destination should have functionality and performance, in order to increase the satisfaction of the tourism experience (Goeldner and Ritchie, 2003), which involves, among other aspects, the existence of personalized online tourist services (Barta *et al.*, 2009). Those responsible for tourism management are responsible for increasing the development of smart destinations, developing destinations that are based on innovation, technology, accessibility, and sustainability. Knowledge and the efficient use of resources should form the basis of the definition of a destination strategy based on different pillars, such as competition (comparative, competitive advantage and positioning), the business model (sustainability and orientation), the consumer (satisfaction, improvement and trends), technology (provision and distribution), and supply (innovation, differentiation, qualification, and certification).

The permanent and attentive relationship between the destination, the tourists/visitors and the agents of the sector constitutes a determining factor for the evaluation of the experience, for a greater level of satisfaction with the destination, that is, the adoption of behavioral attitudes, which favor it. The information flows resulting from the tourist activity should be used for the management of the destination in order to improve the efficiency of the offer, particularly by personalizing it for the user. In this sense, and considering the form of organization of the visitor/tourist's trip in Porto, its evaluation regarding the use of the applications available and their crucial role in the access to information and movement in the destination, Porto has considered the analysis and development of technology integration in tourism experiences: a strategic vision for providing interactive information updated in real time in the areas of greater demand and circulation of tourists/visitors, which ensures information, but above all interaction with the offer in the destination. This evaluation leads to the results obtained in our research.

At the same time, this paper shows some limitations that must be considered. On the one hand, those related to the sampling technique used and those that condition the generalization of the results to the entire population. On the other hand, the questionnaire was applied in a single smart destination, which could lead to effects resulting from the case used in the research. It is clear that in this case, the results are correlated by the strategy followed by the destination regarding applications available and the level of implementation of the different technology solutions. Thus, the extrapolation of the results achieved in this study should take this aspect into account, previously identifying, in the case of any other destination, its performance level as a smart destination. For this reason, we consider it interesting to deepen the knowledge of the effects of technologies on the tourism experience in other smart destinations. If it had been possible to identify in general terms, the influence of each of the current technological applications or solutions of a destination on the tourism experience, the generalization of the results would be feasible. It is also interesting to understand better the mechanisms that connect the different elements of the tourism experience with satisfaction in these types of destinations. In this last case, it might be useful to modify the moment to carry out the questionnaire survey and to collect information about the trip after the tourist returns.

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Destination website quality, users' attitudes and the willingness to participate in online co-creation experiences

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Abstract

Purpose – An official destination website (ODW) is a key component for tourist's decision-making processes. ODW acts as a direct channel where users may share experiences and opinions about previous or future travels. At the same time, it drives user participation in destination branding activities. In this context, it is crucial to identify how the destination website, using Web 2.0 technologies, could motivate user's participation with the brand. The purpose of this paper is to propose and evaluate a model that posits the destination website quality as a determinant factor to predict users' attitudes toward the website and their willingness to participate in co-creation experiences.

Design/methodology/approach – Using a combined qualitative and quantitative method, this paper provides an exploratory research that examines the role of destination website quality on attitudes toward the website and the willingness to participate in online co-creation experiences.

Findings – Findings confirm that there is a direct and significant relationship between website quality, attitudes toward the website and willingness to participate in online co-creation experiences. Moreover, attitudes toward the website partially mediate relationships between destination website quality and willingness to participate in online co-creation experiences.

Originality/value – The literature of value co-creation is trying to identify which factors drive consumer's participation with brands across different consumption contexts. This study provides evidence that confirms, from a tourism destination website point of view, that website quality is one of these key factors that motives user's co-creation with a destination.

Keywords Co-creation, Attitude toward the website, Online co-creation experience, Tourism destination website, Website quality

Paper type Research paper

Introduction

According to the data provided by the ITB World Travel Trends Report 2015-2016 (IPK International, 2015), people, for the most part, search online for information about upcoming trips from three sources: tourist destination websites (35 percent), hotel websites (35 percent) and social networks (30 percent). The official destination website (ODW) has been positioned as a key source of information for tourists (Choi *et al.*, 2012). The technological capacities of modern information and communication systems, as well as the Web 2.0 platforms, have placed the tourist to become actively involved in the creation of the destination's brand (Oliveira and Panyik, 2015). These online users monitor contents, weigh in

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on the context and determine what is transmitted about a given destination (Yeoman and McMahon-Beatie, 2011). For the destination marketing organizations (DMOs), it is crucial to maintaining bilateral communication with online consumers. The natural experience of tourism and the quick development of online networks, together with a greater tendency to share information on behalf of the tourists, have generated a framework where one learns from the experiences of others when deciding on a destination (Volo, 2010). Tourist behavior in terms of creating, sharing, and disseminationg information has been analyzed by platforms such as travel websites (Yoo and Gretzel, 2008), blogs (Volo, 2010) or social networks (Munar, 2011; Oliveira and Panyik, 2015). Nevertheless, there is still a persistent need to look into the impact of contents created by tourists through e-Word of Mouth (e-WOM) (Pan *et al.*, 2007) and their participation in co-creation experiences (Mathis *et al.*, 2016).

Travel destination websites, despite being seen as a vital promotion tool (Choi *et al.*, 2007; Fernández-Cavia *et al.*, 2014) capable of originating virtual experiences that influence the user behavior and intention (Lee and Gretzel, 2012; Luna-Nevarez and Hyman, 2012), have not received enough attention as an analytical unit within the co-creation brand value paradigm.

This work, however, proposes the ODW as a pathway to generate brand value by means of online co-creation experiences. In such experiences, users participate in brand promotion (France *et al.*, 2015) by sharing information, ideas and experiences through the ODW in pursuit of image improvement and desirability toward potential tourists. In this regard, a comparative model of perceived website quality was developed for two competitor travel destinations: The Balearic Islands and the Canary Islands (Spain). The second part of the study examines the relationship between perceived website quality, attitude toward the website and the willingness to participate in the online co-creation experiences. This is achieved using structural proceedings.

Two main and specific objectives have been proposed: identifying the differences between perceived website quality of the destinations examined; and analyzing the role of the perceived destination website quality on attitude toward the website and the willingness to participate in online co-creation experiences. By responding to the aforementioned objectives, this study seeks to identify actions that improve destination brand management through its official website.

Perceived destination website quality

In tourism, the importance of assessing destination websites has been pointed out (Luna-Nevarez and Hyman, 2012; Park and Gretzel, 2007) and the same holds true for hotels (Pranic *et al.*, 2014), travel reservation centers (Scharl *et al.*, 2004) and online travel agencies (Park *et al.*, 2007). The methods followed for website assessment have generally focused upon validating concepts such as the quality of the website (Bai *et al.*, 2008; Law and Bai, 2008; Loureiro, 2015; Fernández-Cavia *et al.*, 2014; Tang *et al.*, 2012; Tsang *et al.*, 2010), or the persuasiveness of the site (Kim and Fesenmaier, 2008). The concept of website quality arises from the need to adapt the classic conception of service quality and its modeling to SERVQUAL dimensions (tangibles, reliability, responsiveness, assurance and empathy) in those contexts where consumers interact to a greater extent with technological elements instead of directly with the service staff (Parasuraman and Grewal, 2000). Perceived website quality is defined as customers' overall opinion about excellence and preponderance of a website (Park *et al.*, 2007). Maintaining high levels of website quality facilitates influencing satisfaction levels and consumer fidelity, as well as inducing repurchase behavior, promoting e-WOM dissemination and generating benefits derived from online activities (Bai *et al.*, 2008).

In tourism, website assessment has proven that there are significant discrepancies in the criteria used to decide the best applicable measurement dimensions. Essentially, the

differences between each approach vary in two aspects: according to the analytical context of reference, and how each of the dimensions is defined and grouped. The initial contributions in the assessment of website quality arose from a qualitative meta-analysis by Park and Gretzel (2007). Said authors pose a series of dimensions based on the similarity in their conceptualization and measurement throughout 153 academic works, including studies about tourism. These authors conclude that the key dimension for the success of destination websites are: ease of use (accessibility and ability to seek out information); the responsiveness (quick and effectiveness to solve user problems); fulfillment (extent to which service and product promises are met); security/privacy (confidence in website security); personalization (adaptability to unique user characteristics); visuals (colors, images and font); the quality of the information (variety, consistency and degree to which website information is updated); trust (credibility of the offer and the brand as it appears on the website); and interactivity (elements that facilitate the interaction between the website and other users).

Most of the aforementioned dimensions have recurrently been used by other authors when validating the measurement scales for website quality and performance. Authors such as Tsang *et al.* (2010) and Park *et al.* (2007) used six of these nine dimensions (ease of use/functionality, responsiveness, trust, visual aspect, quality of information and fulfillment) to analyze the effect of website quality on the willingness to use online travel agent website. On the other hand, authors such as Bai *et al.* (2008) and Law and Bai (2008) proposed a model to measure website quality with the main constructs being functionality and usability; these dimensions are used by Park *et al.* (2007). In contrast, Dickinger and Stangl (2013) assessed the performance of a touristic website by using the usability, user-friendliness, enjoyment, design, confidence, content quality, navigation and availability of the system as the dimensions of reference.

These and later studies have failed to reach a consensus regarding the dimensions that allow the quality of a destination website to be measured. The study by Tang *et al.* (2012) uses several sub-dimensions for the analysis: web design (appearance, user-friendliness and functionality); and the quality of the information (relevance, usefulness and amount of information). From another perspective, Fernández-Cavia *et al.* (2014) and Fernández-Cavia and Castro (2015) formulate that the quality of the destination website could be measured using the Web Quality Index. Said index integrates a series of technical, formal and web content indicators, grouped into four categories: persuasive aspects (promotional discourse and travel reservation capacity), technical aspects (web architecture, usability and functionality), interactive aspects (web-based environment and interaction tools) and communication aspects (adaptability of the website to mobile systems and the languages offered).

More recently, Loureiro (2015) applied four dimensions when assessing website quality for a series of islands that are tourist destinations. The dimensions correspond to the visual appearance (level of creativity, multimedia tools and adequate use of colors, images and animation), quality of the information (truthfulness, attractiveness, relevance and degree of maintenance), ease of use (functionality, accessibility, consistency and search capacity) and interactivity (interactive elements and capacity for reservations or contact destination attractions and services). Table I provides a summary of the main studies in the field of website quality applied to tourism.

In this study, the website quality dimensions validated by Loureiro (2015) for tourist islands are used; a combined qualitative-quantitative combination is used to measure consumer perception. In this regard, the Park and Gretzel (2007) recommendations have been followed; these authors note that a significant portion of all research studies focusing on assessing websites in tourism only use the opinions of experts and predetermined indicators as a reference, instead of consumer opinions.

Authors (year)	Dimensions	Application
Park *et al.* (2007)	Ease of use, responsiveness, trust, visual aspect, quality of the information and fulfillment	Online travel agencies
Bai *et al.* (2008)	Functionality and usability	Travel reservation websites
Law and Bai (2008)	Functionality and usability	Travel reservation websites
Tsang *et al.* (2010)	Functionality, quality of the information and content, responsiveness, assurance, appearance and presentation and relationship with the client	Online travel agencies
Tang *et al.* (2012)	Web design and quality of the information	Destination websites
Dickinger and Stangl (2013)	Usability, user-friendliness, enjoyment, design, confidence, content quality, navigation and availability of the system	Tourist websites
Fernández-Cavia *et al.* (2014)	Persuasive aspects, technical, interactive and communicative	Destination websites
Loureiro (2015)	Visual aspects, quality of the information and content, ease of use and level of interactivity	Destination websites

Source: By authors

Table I. Dimensions for website quality

Co-creation experiences and destination branding

Authors Vargo and Lusch (2004) pointed out the importance of incorporating consumers throughout the phases of value generation; in marketing literature, the idea of consumers acting as value co-creators has reigned. The concept of co-creation emerged from the service-dominant (S-D) logic paradigm as a process whereby consumers influence their own service experiences (Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2004). The co-creation activities include consumer participation by sharing information, ideas and opinions during the developmental, design, marketing phases as well as product and service consumption (Payne *et al.*, 2009). Consumers have evolved from playing a passive role (goods-dominant logic) to one of full interaction (S-D logic) between the relationship with companies and distribution systems.

The S-D logic paradigm encompasses the concept of the brand being part of the interaction between consumers, employees (Berry, 2000), the value in use (Grönroos, 2011) and the experience shared (Brakus *et al.*, 2009) is accepted. In this sense, brand is defined as a social process in which organizations, together with consumers and stakeholders, have added value through co-creation (Brodie *et al.*, 2009; Merz *et al.*, 2009). Following the model by Iglesias *et al.* (2013), the brand's co-creation of value occurs in communication spaces between companies and consumers. This covers what is known as points of contact, both online (websites and social networks) and offline (shops, product and visual identity) which are called "co-creation experiences" (Binkhorst and Dekker, 2009), or similarly, "experimental environments" (Prahalad and Ramaswamy, 2004). At these points of contact, the brand allows employees, stakeholders, brand communities and other consumers to create and share information as well as opinions about products making up the identity and perceptions that the brand will acquire on the market (Payne *et al.*, 2009). Authors Nabimsan and Baron (2007, 2009) sustain that the values of learning (cognitive benefits related to the knowledge a consumer has about a brand), social integration (feeling of belonging and identity in communities linked to the brand) and hedonistic (stimulation, motivation and pleasure derived from participating with the brand in creating products, information and services) motivate the consumer to participate with brands during the improvement processes and dissemination of a product online. The value of learning, social integration as well as hedonistic values are all part of the co-creation experience concept (Kohler *et al.*, 2011; Nabimsan and Baron, 2007, 2009),

defined as the consumer's mental state resulting from his/her participation in the co-creation process jointly with the brand.

In tourism, the online portrayal of consumers' travels is one of the best and most extensive sources of information available about experiences. (Binkhorst and Dekker, 2009). The concept of co-creation with the destination brand refers to the opportunity tourists have to create and share experiences and opinions about the destinations; this contributes to describing the brand/destination (Binkhorst and Dekker, 2009). It creates a specific image in the minds of tourists (Tussyadiah and Fesenmaier, 2008; Munar, 2011) and increases interest in visiting that location (Wang *et al.*, 2002). Furthermore, the contents that arise from co-creation establish a source of information that results more credible for consumers than official information (Leung *et al.*, 2013). Co-creation activities throughout the tourist experience could be analyzed before, during and after the visit phases (Buonincontri and Micera, 2016; Neuhofer *et al.*, 2012). In each one of these phases, tourists have the destination website available as a virtual experience. Thus, it helps tourists decide which destination to visit (pre-travel), consume or cultivate real-time information (at the destination) or share memories of the trip (post-travel).

Website quality, attitude toward the website and willingness to participate in online co-creation

Traditionally, co-creation experiences have been linked to consumer satisfaction. In tourism literature, the evidence shows a positive direct relation between co-creation experiences and the global experience of a trip (Mathis *et al.*, 2016; Shaw *et al.*, 2011). However, other studies confirm the moderator role of the co-creation experiences in the perception of value and satisfaction (Sirgy, 2010).

In the recent years, destination website quality has been considered to be significant stimulation in tourist intentions and attitudes. For example, Chung *et al.* (2015) confirm a positive relation between destination website quality, the intention of using the website and the intention of visiting the destination. If users perceive a high-quality destination website, they are able to experience emotions and feel an increased level of control and excitement. Said emotional and cognitive reactions on behalf of user affect their attitude toward the website, and as last resort, the attitudes influence positively in the intention of visiting and recommending the destination (Loureiro, 2015).

The perceived destination website quality has not yet been directly linked to the willingness to participate in the co-creation experiences. While in marketing literature there is evidence of a positive relation between the quality of the online service and users' online co-creation behaviors (Carlson and O'Cass, 2010; Elsharnouby and Mahrous, 2015; Sheng and Liu, 2010). Elsharnouby and Mahrous (2015) state that the seven components of the online service quality (e-SQ) directly and positively affect user attitudes and intentions to participate in online co-creation activities. Therefore, this paper proposes (see Figure 1):

H1. The perceived quality of the destination website has a positive effect on the willingness to participate in online co-creation experiences.

Numerous marketing studies have analyzed the influence of different types of online consumer behavior components (Alcántara-Pilar and García, 2015, p. 380). Examples of website design include color, text, screen size or audiovisual elements present (Davis *et al.*, 2008) as well as the website's capacity to contribute importance to the user in terms of perceived usefulness and ease of manipulation (Alcántara-Pilar and García, 2015; Castañeda *et al.*, 2007). In this context, the attitude toward the website is defined as the tendency to react positively or negatively toward a website (Chen and Wells, 1999). Consumer attitudes are key factors when predicting their future intentions and purchase behaviors (Bruner and Kumar, 2005). Specifically, research has positively linked the dimensions for e-SQ to users' attitudes toward it (Carlson and O'Cass, 2010).

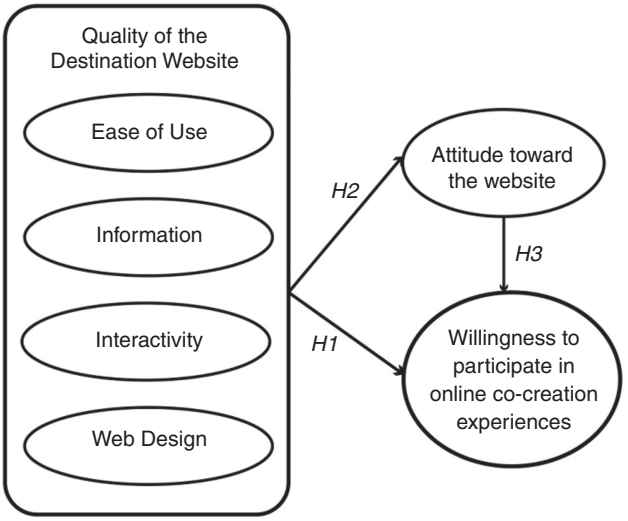

Figure 1.
Conceptual model

Likewise, the attitude toward the website positively influences the willingness to participate in the experience of destination online co-creation:

H2. The perceived destination website quality has a positive effect on the attitude toward the website.

H3. The attitude toward the destination website has a positive effect on the willingness of the user to participate in online co-creation experiences.

Methodology

This study adopts a mixed methodology design (Johnson *et al.*, 2007) with a qualitative-quantitative sequential exploratory focus (Creswell and Plano Clark, 2011) having been adopted. First, a content analysis was performed regarding the presence or absence of characteristic elements of the perceived website quality for the official websites of both competitor travel destinations: the Balearic Islands and the Canary Islands (Spain). The data were collected in July of 2016.

The starting point of this work has been the dimensions of the perceived website quality by Loureiro (2015) (ease of use, information, interactivity and web design) and the qualitative methodology developed by Luna-Nevarez and Hyman (2012) to analyze web quality. As did Luna-Nevarez and Hyman (2012), the analyzed unit is the first screen of the destination website. This main section must be visited by anyone accessing the destination website; it is also the area where the users' first impression is made, more specifically during the first 50 milliseconds of navigation (Lindgaard *et al.*, 2006). This first impression greatly affects the individual's global judgment of the website (Lim *et al.*, 2000).

For each dimension of website quality, it is noted whether there is a presence or absence of web elements and that, as a whole, allows visitor perception to be established (see Table II). Hereafter, each of the dimensions and categories are described:

(1) the visual design of the website includes these categories: website size (small – smaller than two screens with a 1,024 × 768 pixels of resolution, or big – equal or greater than two screens); website structure (balanced – with elements present on both the right and left side, or unbalanced – only one side); number of images (few – less than ten, or

Variable	Category
Visual design	
Size of pages	Small/large
Structure	Not balanced (left/right)/balanced
Number of images	Few images/lots of images
Videos	No videos on the website/videos on the website
Audios	There are no audios on the website/there are audios on the website
Sliders	There are no sliders/there are sliders
Ease of use	
Website map	There is no web map/there is a web map
Search tools	There is no search tool/there is a search tool
Change the language	Language cannot be changed/language can be changed
Type of scroll	Lack of long scroll/presence of long scroll
Menu categories	Few categories on the website/lots of categories
Information	
Presence of text	Few words/lots of words
Link to the website of each island	There are no links to the website of each island/there are links to the website of each island
Updated content	Outdated contents/updated contents
Interactivity	
Social media	No link to social media/links to social media (Facebook, Twitter, YouTube, etc.)
Weather information	No weather information/weather information is provided
Calendar of events	No calendar of events/there is a calendar of events
Reserve accommodations or activities	There is no reservation platform/there is a reservation platform
Space for user participation	There are no interactive spaces/there are interactive spaces
Contact area	There is no contact/there is a contact area

Source: From Luna-Nevarez and Hyman (2012)

Table II.
Variables and analytical categories

many – equal or greater than ten); and presence or absence of videos, animated images (sliders) or audios on the website;

(2) ease of use: presence or absence of searching tools, tabs to change languages, type of scroll downward or upward throughout the website and number of categories on the main menu (few – equal or lesser than five – and many – more than five);

(3) text and content information: this category includes the presence or absence of a section related to each of the islands as well as the total percentage of space occupied by words (few – equal or lesser than 25 percent of words or many – more than 25 percent); and

(4) interactivity: said section determines the existence of links to social networks, information about the weather at the destination, calendar of events, accommodation and activity reservation engine, interactive spaces for user participation and a contact section for suggestions.

Second, by means of an online survey, users' assessment of destination web quality, the attitude toward the web and the willingness to participate in online co-creation experiences are obtained. To measure the perceived website quality, 16 items are divided into four dimension adapted to the scale developed by Loureiro (2015): ease of use (four items); information (four items); interactivity (three items); and website design (five items). The attitude toward the destination website is measured through three items based on Mazaheri *et al.* (2011). Following Elsharnouby and Mahrous (2015), the willingness to participate in online co-creation experiences is measured using three items conditioned

to the destination website's content (Table IV offers a description of each item). The participants making up the sample are residents from Spain, most of them with university studies (89.69 percent) who were encouraged to randomly visit and experience one of the proposed destination websites from their computer. A total of 57.8 percent of the interviewees were woman and 42.2 percent men. Of the sample, 64.8 percent were within the 20-30-year-old range. The instructions include total freedom to focus on those sections of the website that were more attraction (Noort *et al.*, 2012) within a minimal navigation period of five minutes (Loureiro, 2015). In all, 135 surveys were valid.

Results

The analysis of both the Balearic Islands' and the Canary Islands' website contents have revealed: regarding the visual design, the Balearic Islands present a small website with a white background. The number of images is limited and there is no access to videos. The Canary Islands propose a large-sized website capable of completely covering the screen and a background with an island image. As regard to audiovisual elements, there are a number of accessible videos and images. One of the few aspects regarding visual dimension design that both websites coincide is the use of sliders, a series of changing images centered in the upper area, and also in the organization of contents in a balanced central position. When it comes to ease of use, the Canary Islands offer a reduced number of categories on the menu, although they incorporate a search tool and offer the possibility of choosing from among 14 languages. When navigating through the Canary Islands website, users encounter a long scroll to move upward and downward throughout the website. The Balearic Islands present a greater number of categories on the menu and an absence of long scroll; this allows the user to visualize the entire website on just one screen. The dimension referring to the text and content reflect the fact that the destinations do not use a great number of words on the home page. When it comes to the content being updated, there are significant differences. The Canary Islands maintain a current schedule of activities dated the same year as this analysis (2016), while the Balearic Islands present outdated information, from 2014, in the promotional section. Finally, in the interactive section, both destinations provide direct access to social networks and have created a contact area. However, the Canary Islands differ greatly from the Balearic Islands by including direct information about the weather of each island, estimated travel time from major European capitals to the destination and an interactive section where users leave messages in the sand as if they were on the beach.

Table III provides mean ratings obtained from the individual who has visited the website – the Balearic Islands vs the Canary Islands (the visited website is assigned randomly to each individual. Each interviewee only visits one website). First of all, the Canary Islands attained a much higher rating than the Balearic Islands in each dimension of the perceived website quality ($p < 0.05$ for ease of use; $p < 0.005$ for information; and $p = 0.000$ for interactivity and web design). The dimension with the highest average rating was ease of use (3.82) for the Balearic Island and web design (4.30) for the Canary Islands.

In contrast with the theoretical model, a partial least square structural equation model using software Smart PLS 3.2.4 was used, as was the method recommended by Chin *et al.* (2003) and Fornell and Bookstein (1982) for situations where theory is less developed, the researchers are using formative and reflective variables and when the primary objective of applying structural modeling is prediction and explanation of target constructs. The unidimensional constructs were verified by a confirmatory factorial analysis under the parameters of convergence and discriminant validation. Following the procedure by Loureiro (2015), destination website quality is conceptually incorporated as a second-order formation factor. In this sense, the modeling through PLS is useful since it focuses on searching an extensive number of variables manifested and formative factors (Chin *et al.*, 2003).

Variables	Destination	n	Media[a]	Typical deviation	F	p
Ease of use	Balearic I.	70	3.82	0.81	0.197	0.047
	Canary I.	65	4.10	0.80		
Information	Balearic I.	70	3.78	0.71	0.309	0.003
	Canary I.	65	4.14	0.69		
Interactivity	Balearic I.	70	2.73	1.13	4.993	0.000
	Canary I.	65	3.83	0.86		
Web design	Balearic I.	70	3.15	0.95	2.470	0.000
	Canary I.	65	4.30	0.70		
Attitude toward website	Balearic I.	70	2.83	1.13	8.693	0.000
	Canary I.	65	4.21	0.81		
WPOCE	Balearic I.	70	2.87	0.96	5.137	0.000
	Canary I.	65	3.69	0.87		

Notes: WPOCE, willingness to participate in online co-creation experiences. [a]Scale from 1 to 5 (totally disagree to totally agree)

Table III.
Results for the comparative assessment between destinations

The results for reliability and validation of the constructs analyzed were favorable and greater than the reference value, 0.8 for CR (Nunnally, 1978), 0.7 for Cronbach's α (Hair *et al.*, 1998) and 0.5 for AVE (Fornell and Larcker, 1981) (Table IV). Likewise, it confirms the discriminating validation of the constructs analyzed (Table V).

The results of the model measured with standardized statistics are presented in Figure 2. Destination website quality offers a positive, direct and significant effect on the willingness to participate in online co-creation experiences (*H1*: $\beta = 0.388$, $p < 0.001$), which confirms *H1*. *H2* and *H3* are also confirmed. A direct, positive and significant relationship between destination website quality and the attitude toward it has been obtained (*H2*: $\beta = 0.844$, $p < 0.001$) as well as the attitude toward the website and the willingness to participate in online co-creation experiences (*H3*: $\beta = 0.494$, $p < 0.001$). Finally, the model also indicates that the attitude toward the website acts as a mediator variable between website quality and the willingness to participate in online co-creation experiences (statistics from the Sobel test = 8.129) (Preacher and Leonardelli, 2001).

The model's goodness-of-fit measurement for the set of the endogenous focal constructs (attitude toward the website and willingness to participate in online co-creation experiences) provide a value of 0.75, which is acceptable regarding the limits (GoF = between 0 and 1) proposed by Henseler and Sarstedt (2013) and Tenenhaus *et al.* (2005). The importance and predictive capacity of the model are calculated through R^2 and Q^2 (Stone-Geisser's Q^2 criterion). Specifically, the R^2 parameter indicates that the constructs integrating the model explain 72 percent of the variance for the willingness to participate in online co-creation experiences. On the other hand, the positive values of Q^2 in the attitude toward the website ($Q^2 = 0.653$) and the willingness to participate in co-creation experiences ($Q^2 = 0.490$) indicate the predictive importance of the links between the constructs (Fornell and Cha, 1994).

Discussion and conclusions

Upon reviewing the literature analyzed, the willingness to participate in online co-creation experiences had not been previously proposed as a user response to the quality of the destination website. Starting with a website quality comparative model, the results indicate significant differences in the way that the Balearic Islands and the Canary Islands engineer their official websites. The authors' proposed model is able to confirm that the Canary Islands website obtained significantly greater assessments when compared to that of the Balearic Islands, and for all and each of the dimensions for perceived website quality.

Variables[a]	Mean (DT)	Li	AVE	α	CR
Ease of use			0.74	0.89	0.92
It is easy to navigate the website	4.00 (0.90)	0.87			
Once on the website, I can quickly find the sections I want to see	3.94 (0.96)	0.82			
The website has well-organized categories	3.96 (0.93)	0.88			
With a few clicks, I access what I want	3.92 (0.97)	0.88			
Information			0.67	0.83	0.89
Information can be accessed easily on the destination website	3.89 (0.95)	0.81			
The website provides sufficient information	4.02 (0.95)	0.78			
The information on the website seems useful	4.07 (0.81)	0.84			
The website is a good source of information about the destination	3.73 (0.80)	0.84			
Interactivity			0.76	0.84	0.90
The website allows me to see the content from other regarding the destination	3.16 (1.27)	0.91			
I can share my opinions and contact others on the website	3.10 (1.33)	0.93			
From the website, I have access to destination social networks	3.56 (1.34)	0.78			
Web design			0.76	0.91	0.94
The website is attractive	3.60 (1.32)	0.89			
The website is organized	3.88 (1.02)	0.78			
The website correctly uses multimedia contents	3.68 (1.08)	0.86			
The colors used on the website are appropriate	3.64 (1.20)	0.92			
The font used on the website seems correct	3.73 (1.20)	0.89			
Willingness to participate in online co-creation experiences			0.69	0.77	0.87
I am interested in requesting further information directly from the destination website	3.74 (1.10)	0.83			
The destination encourages me to participate by sharing content or information	3.02 (1.28)	0.88			
There is an elevated probability that I will share content or opinions on the website	3.03 (1.23)	0.78			
Attitude toward the destination website			0.92	0.96	0.97
The destination has a good website	3.47 (1.23)	0.96			
My reaction to the website is positive	3.61 (1.16)	0.97			
I like the destination website	3.48 (1.22)	0.92			

Notes: Li, load factor; AVE, average variance extracted; CR, composite reliability. [a]Scale from 1 to 5 (totally disagree to totally agree)

Table IV.
Measure model: reliability and validity

Variables	1	2	3	4	5	6
1. Attitude	*0.961*					
2. Web design	0.876	*0.871*				
3. Ease of use	0.502	0.587	*0.860*			
4. Information	0.582	0.627	0.614	*0.816*		
5. Interactivity	0.662	0.640	0.339	0.424	*0.875*	
5. WPOCE	0.822	0.794	0.490	0.556	0.708	*0.835*

Notes: WPOCE, willingness to participate in online co-creation experiences. The diagonal values represented in italic type correspond to the rotation of AVEs

Table V.
Discriminate validity

These results are explained by the content analysis; the Canary Islands website provided users with a higher number of visual impacts (destination images, videos and larger sized web), with interactive areas (co-creation spaces to share travel photos taken at the destination) and updated contents. This evidence is in line with Kaplanidou and Vogt (2006) as it confirms that the visit to the destination website is significantly denoted by the visual aspects associated to colors, image, videos or even the font used. On the other hand, the

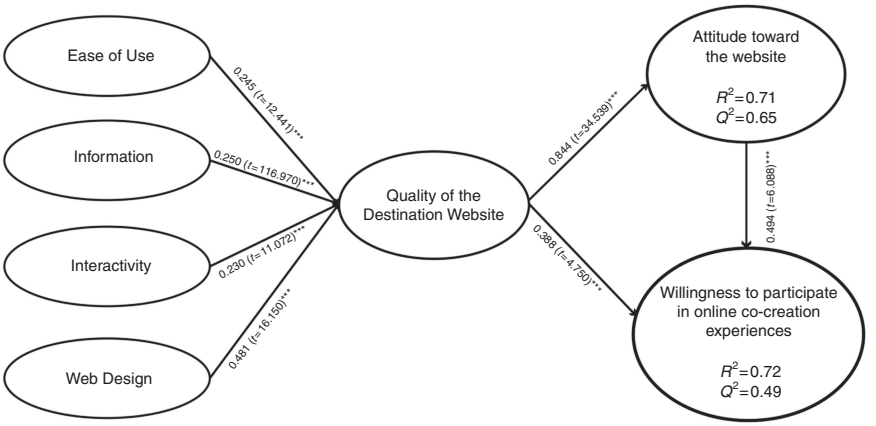

Figure 2.
Results of the relational model

Notes: GoF=0.75. ***$p<0.001$

Canary Islands website obtained higher average scores in the section for interactivity when compared to that of the Balearic Islands. Essentially, this is due to the fact that it has a platform where visitors can upload messages simulating that these are written in the sand, photos and travel testimonials. By comparison, the Balearic Islands only have one contact address and the direct access to social networks. These indications emphasize the importance of supporting website architecture with a high degree of user interactivity, as indicated by Míguez-González and Fernández-Cavia (2015) and Mohd-Any *et al.* (2015).

From the theoretical standpoint of this work, a relationship model between the constructs of perceived destination website, the attitude toward the website and the willingness to participate in online co-creation experiences can be verified. First of all, the dimensions for the perceived destination website construct are satisfactorily validated for measurement, coinciding with the results by Loureiro (2015). Participants in the study showed a keen interest interest in the design, in ease of use and the quality of the information offered on the websites. Second, this confirms that if a destination website has a perceived high quality, users show a more positive attitude toward the website, as well as greater willingness toward participating in online co-creation experiences. On the other hand, the attitude toward the website mediates, in a partial level, between destination website quality and the willingness toward participating in online co-creation experiences.

Implications for management

DMOs have the opportunity to use Web 2.0 platforms to establish relationships with potential and already loyal tourists. The destination website allows narratives from tourists to be collected, thus providing value as a source of information for decision making and travel planning. That said, to get users to actively participate in the generation of value for the destination brand, it is necessary to develop co-creation spaces that are able to motivate tourists and get them to participate. As indicated by the results, two tourist destinations that receive millions of visitors every year (Balearic Islands and the Canary Islands) have yet to implement relative, co-creation-based actions through their websites. In a context where it is essential to seek out differentiating elements between destinations, co-creation experiences present new challenges. Destinations' initial online co-creation strategies are in line with the proposal by the Canary Islands, which provides spaces on their website for tourists to upload their own travel photos. However, there are multiple options, such as the development of areas where locals and faithful tourists act as destination ambassadors by

sharing their itineraries and preferred locations. Management needs – to date unheard of – arise within these proposals. These correspond to those related to content moderation, created by the users. Thus, it would be necessary to protect the brand against possibly inappropriate messages or contents on the website that fail to grant value to users or that are detrimental to the destination image.

Limitations and future lines of research

It is essential to recognize that this work has a series of limitations that must be overcome in future research projects. First of all, the size and representativeness of the sample used needs to be expanded; the same holds true for the control environment, the duration and depth of participant navigation. Second, the measurement scale for the willingness to participate in co-creation experiences needs to be validated in a variety of contexts and scenarios for its conceptual acceptance, although it currently does provide adequate indicators for reliability as well as internal and external validity. Likewise, it is crucial that the work be expanded to apply theoretical models to other and divers tourist destinations. From the standpoint of content analysis, measuring a greater number of indicators per dimension for website quality would facilitate better discrimination of the differences between destinations. It would be enriching for future studies to include the various behavior response types of the virtual visitors in the model in such a way that the implications of online co-creation in the intention to visit could be measured, or even, if the websites receive a greater number of visits based on its ability to make visitors more participative. With more ample samples, it would also be interesting to analyze whether or not there are significant differences in online co-creation with the various destinations in terms of social-demographic variables, for example, gender, age or nationality, or other behavioral variables such as the users' preferred type of tourist offer.

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Study of the critical success factors of emblematic hotels through the analysis of content of online opinions

The case of the Spanish Tourist Paradors

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Abstract

Purpose – The purpose of this paper is to identify the critical success factors of emblematic hotels from the perspective of the guest, by analysing the direct activities that make up the value chain of these types of establishments.

Design/methodology/approach – The authors use the case study methodology to derive conclusions that contribute to the development of a theory about the success factors of emblematic hotels. The case selected is the Spanish Tourist Parador chain. The authors carried out over a period of two years a data mining analysis of the online comments posted by its guests.

Findings – The results indicate that the attributes of location and facilities are critical success factors expected a priori given the nature of the business of such establishments, based on the singular nature of the buildings. Another critical success factor is personnel, which seems to indicate that the Paradors support their business model by employing highly qualified staff, but give less attention to restaurant services or the room, according to guest perceptions.

Originality/value – The paper provides required evidence on the critical success factors of emblematic hotels adapting Porter's value chain, for the tourism accommodation sector, through the analysis of direct value chain activities. In addition, the existing literature is broadened by taking a perspective scarcely studied, the guest perception of hotel establishments, online content posted by the user on the establishment's website, rather than simply considering the traditional views of the experts/managers, through structures questionnaires. Besides, the results provide practical and useful implications for the managements of the emblematic hotels under study.

Keywords Critical success factors, Sentiment analysis, Analysis of content, Emblematic hotels, Spanish Tourist Paradors

Paper type Research paper

1. Introduction

The restoration of historical and artistic buildings through the assignment of new uses distinct from the original is becoming more frequent. Among these uses, the hotelier stands out and, in both Spain and Europe, the number of emblematic hotel establishments is increasing. Generally, these are located in buildings of great heritage or artistic value (historic buildings or buildings of architectural value) or in unique environments or environments with special charm (of special scenic or nature interest).

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In Europe, various associations have been created that bring together hotels located in buildings with historical and artistic value. The European Federation of Traditional Accommodation and Historic Houses groups national associations of Austria, Denmark, Spain, France, Ireland, Italy, Portugal, the UK and Sweden. The Europe Traditionae Consortium groups associations from Ireland, Holland, Portugal and the UK. In addition to these, there are other private initiatives on the part of hotel chains with units with these characteristics such as the *Relais Et Château, Relais du Silence* and *NH Collection*, with hostelries in several countries, including Spain, or the *Estancias de España*, *Hospederías Reales* or *Haciendas de Espana*, with establishments in Spain.

In our country, the *Red de Paradores de Turismo de España* (Network of Spanish Tourist Paradors) is a publicly owned hotel chain, which has 96 establishments, and has operated since 1928. It has been dedicated to the rehabilitation and maintenance of buildings of great historical and artistic value, in many cases set in places far off the traditional tourist circuits. Traditionally, these Paradors have been the most identified entities within this segment, until the emergence of the initiatives discussed in the previous paragraph.

In general, it is established that at European level there is great interest on the part of the hotel sector to have presence in this segment[1], which has been progressively taking into their portfolios diverse establishments, including historical buildings, building of significant design, monasteries, convents, etc. In many cases, this entails very heavy restoration expenses to get the establishments back into operation and continuing high maintenance costs.

Therefore, this paper tries to discover which factors are important or critical for the success of this type of hotel from the perspective of the consumer, those factors that managers should take into account as they provide valuable information to reach company goals and objectives. In line with our research question, the general objective of this paper is to identify the critical success factors of emblematic hotels in Spain. This is done from the perspective of the guest or consumer, by analysing the direct activities that make up the value chain, using a methodological case study framework and referencing the Spanish chain that has the most experience in the management of these types of establishments, the Parador network. In order to develop this general objective, we propose others of a second order: to adapt the Porter (1980) value chain to the hotel industry; to use the consumer perspective as a source of identification of competitive advantage in the emblematic hotel segment; and to derive practical implications for the managements of the emblematic hotels under study.

There is much literature on critical success factors in the field of business information systems and strategic and operational planning[2], but work oriented to the lodging sector is scarce and limited. Thus, Avcikurt *et al.* (2011), Brotherton (2004), Brotherton *et al.* (2003), Brotherton and Shaw (1996), Melia (2010) and Olsen *et al.* (2005) address the problem from the perspective of business owners/managers or from company business results. Only Hua *et al.* (2009) and Wang and Hung (2015) focus their research on the consumer perspective; the first paper also considers other stakeholders and views of the experts in the area under study.

In most of these studies, primary sources of a subjective type have been used. These structured questionnaires have the disadvantage that they may allow possible bias, since predetermined items can force the respondent to answer questions about issues that otherwise they would not have considered. (Hung, 2013). In addition, to the best of our knowledge, previous literature has not addressed the study of critical success factors in the emblematic hotel segment based on value chain activities. Therefore, the study of critical success factors is not a novelty in tourism research. However, this work focuses its analysis on an area scarcely studied, that of emblematic hotels and from the perspective of the consumer or guest.

The work is structured as follows. In the following section, the theoretical framework discussed above is expanded, developing the adaptation of the value chain to the hotel sector and its relation to the critical success factors of the emblematic hotel segment. Next, in Section 3, a review is carried out of the previous literature on the importance of online guest opinions in determining critical success factors. The methodology and data used to carry out the study are presented in Section 4. The results of the analysis are presented in Section 5 and they are discussed in Section 6. The paper ends by presenting the conclusions, the implications for management, the limitations of the work and proposes possible future lines of work.

2. Critical success factors and the value chain of emblematic hotels

Daniel (1961) was the first to propose the identification of success factors that Rockart (1979, p. 85) subsequently defined as "the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization". This is still the most widespread definition in the literature. Similarly, Leidecker and Bruno (1984) argue that critical success factors are those elements of the company that, when properly managed, have a significant impact on its success; and Johnson *et al.* (2005, p. 79) incorporate the customer perspective by defining critical success factors as "those product features that are particularly valued by a group of customers and, therefore, where the organisation must excel to outperform competition".

According to Esteves (2004), in the literature, there are two perspectives that connect critical success factors and business strategy. The first aims to determine what information is relevant to the business management control system and the second one uses critical success factors in support of the strategic planning process. In both cases, critical success factors must be identified. Rockart (1981) identifies the sources of critical success factors as: industry characteristics, competitive strategy and position in the industry, environmental factors, temporal factors and managerial position. Caralli *et al.* (2004) also consider the operational units of the organisation as critical success factors, due to their contribution to the achievement of company objectives and mission. On the other hand, Esteves (2004) lists different methods to identify critical success factors[3], such as literature review, field studies, case studies, the Delphi method, focus groups, group interviews, multivariate analysis, scenario analysis and structured interviews that can be used in combination.

On the other hand, Leidecker and Bruno (1984) consider that critical success factors can be identified from different sources of information, among which we highlight the so-called environmental analysis, which consists of identifying the economic, political and social forces that affect the company, so taking into account the views of different stakeholders, including consumers. Also for Esteves (2004), the identification of critical success factors by stakeholders is important, especially with regard to consumer opinion. Similarly, Johnson *et al.* (2005) argue that in companies, the value of a product or service is generally created internally and therefore organisations may have an erroneous view of what is really valued by customers. It is also essential to understand the customer perception. In the same vein, Esteves (2004) and Sedera *et al.* (2004) point out that the success of an organisation does not depend solely on the management. It is important to capture the critical success factors of different stakeholders, so that these factors reflect the vision of the different levels of the organisation, as well as the customers, suppliers, investors and employees. The design of any corporate strategy should also take into account the perspective of other stakeholders such as consumers since, according to Cetin *et al.* (2014), there must be a connection between the elements of the value chain and the clients' experiences. Opinions on these experiences are currently easy to obtain, as it is increasingly common for consumers to publish their opinions on the internet, whether on opinion portals or on the website of the establishment itself, and the hotel industry is not an exception, rather the opposite. This information is of

great value to companies, since its analysis helps in the identification of those activities that are more (or less) valued by consumers. This, therefore, constitutes an opportunity for the discovery of critical success factors that can be sources of competitive advantages.

The second conceptual element on which the development of this research is based is the Porter (1980) value chain. The value chain model analyses the business by disaggregating the company into the generic activities that must be carried out to sell a product or service, in order to identify the elements that most contribute to the generation of the value obtained. That is to say, identify the sources of competitive advantage that can have their origin in, or be obtained by, optimising some activity in the value chain or by achieving a high degree of coordination between activities, coming not just from a specific activity, but also from the interrelationships between the different activities of the chain and/or between customer and supplier value systems (Porter, 1985). The competitive advantages of a company can be achieved in two ways: by developing strategies of cost leadership or through differentiation of the product or service.

The activities that make up the value chain are classified into: primary activities, which are directly related to the company's production process and which include: internal logistics, operations, external logistics, marketing and sales and after-sales service; and support activities, those carried out for the normal operation of the company and which support the primary activities: procurement, technology development, human resources management and infrastructure.

This approach to value creation from activities is valid for all industries (Porter, 1985), although it is especially oriented to manufacturing companies; each entity undertakes different activities depending on its particular circumstances (Porter and Millar, 1985). In this sense, Alonso (2008), based on the arguments of Eiglier and Langeard (1987), adapts Porter's (1980, 1985) value chain to study service companies, in which support activities are minimally modified in regards to the original design, while primary activities are redesigned and differentiated between controllable: marketing and sales, contact staff, physical support and skills and service provision; and non-controllable: customers and other customers.

The marketing and sales group includes promotional activities (advertising, campaigns, etc.) and the development of commercial proposals after the contracting of the service. The contact staff are those who directly provide the service and so are one of the elements of greater influence in service quality. The physical support and skills staff form part of the service delivery, defining the quality of the service and influence the customer experience. The provision is the service itself. The customer determines the quality of the service through his own perception of it and the other customers are those who live in the same time and place when and where the service is provided and who can influence the experiences of others. On the other hand, regarding support activities, Alonso (2008) considers jointly infrastructures and environment, which comprises in a broad sense the physical space in which the service takes place and that forms the environmental framework of the service.

Following Alonso (2008), the value chain is adapted for the study of hotels, taking into account that hotels are, very often, part of a network and membership of a network will condition internal organisation activities and technology, and general management of human resources, as the establishments would follow parent company guidelines. In addition, we include, within infrastructure and environment, the location of the tourist establishment.

In relation to primary activities, contact staff can be taken to include both customer service at reception, restaurant and coffee shop, as well as in other accommodation facilities. Physical support and activities cover the state and comfort of the rooms and facilities, as well as the activities undertaken in the establishment and complementary services. Service provision activity covers both accommodation and catering services. It must be considered that customers, through their perception of the service, and their communication about this with the contact staff, will influence the quality of the service. In addition, the customer

becomes an experiential recipient and potential communicator of the experience to other customers and, finally, other customers and electronic word-of-mouth (eWOM), referring to the coexistence of clients both in the establishment and through the communication of their experiences on the internet.

In the case of tourist accommodation, it is possible to think that the emergence and development of the internet has meant a great change in the organisation of the sector value chain, allowing direct access by tourists to the final providers (Buhalis and Licata, 2002), the tourism sector being in a disintermediation process (Calveras and Orfila, 2010). As Porter and Millar (1985) argue, information technologies are also affecting the value chains of companies, their competitive environment and the ways to meet the needs of the buyer. These basic effects explain why information technology has acquired strategic importance and is different from the many other technologies that companies use.

Figure 1 shows the adaptation of the value chain that we propose for the hotels in generic form. The value chain shared by emblematic hotels differs from other establishments in the sector. This is, basically, due to their being located in special environments, picturesque, historic or unique places, and in their main infrastructure, that is to say, the patrimonial, artistic or historical characteristics of the buildings where the accommodation service is provided. This is covered in the value chain proposal in support activities under the heading: "infrastructure, environment and location".

Brotherton *et al.* (2003) link critical success factors to the Porter (1980) value chain. They argue that these can be derived from both the external and the internal environment and reflect the critical capabilities and competencies of the firm to achieve the competitive advantage that the company obtains from the set of elements that contribute most to value creation and that show the ability of the company to attain a superior performance in comparison to other companies in the sector. In this sense, our proposition is that it is possible to establish a relationship between the critical success factors and competitive advantage of an organisation through the value chain concept. Therefore, through an analysis of online opinions – the evaluation that customers give to the value chain activities – one can identify the critical success factors of emblematic hotels, which will be those activities that are most valued.

In the literature review, no studies were found on value chain/identification of critical success factors using the opinions of guests of emblematic hotels. Some studies have identified success factors in the lodging sector in general and have proposed success

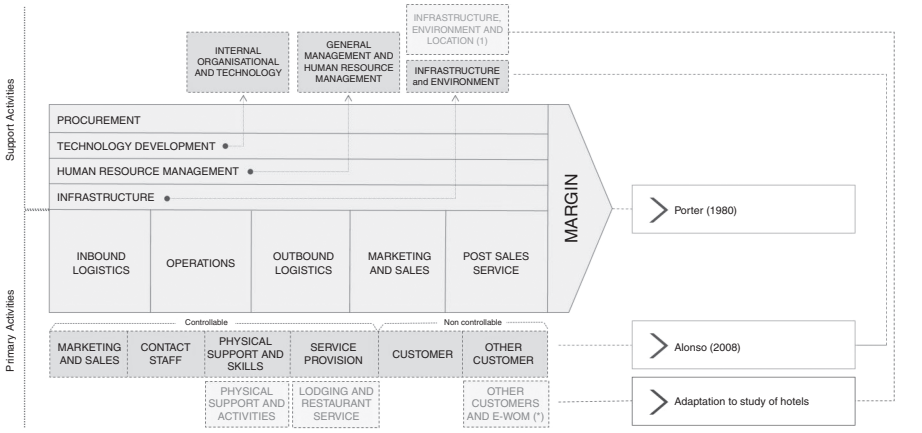


Figure 1.
Adaptation of the value chain to the hotel industry

Source: Authors' own design

models for specific areas of the industry. Brotherton and Shaw (1996) conducted questionnaires and interviews with managers of some British hotels. Their work suggests that success factors include customer service and support, staff quality, which includes attitude, skills and appearance, the quality of the product, income and benefits, safety and hygiene and cost efficiency. Brotherton *et al.* (2003) analysed the critical success factors of British and Dutch hotels through questionnaires, finding that 33 of 59 were statistically significant. These critical success factors are categorised into two types: generic or technical (64 per cent) and human (36 per cent) and they suggest that the success of hotel companies is based more on technical aspects and that human factors are more context specific. Brotherton (2004) identified 37 critical success factors for UK hotels by means of questionnaires and divided them into seven categories: basic product, consistency, customer service, quality and hygiene, strategic control, pricing and location. Olsen *et al.* (2005) identify through literature review and hotel company annual reports some critical factors such as location, marketing, brand management and human resources management. Hua *et al.* (2009) examine hotel critical success factors from a multi-stakeholder perspective through interviews and questionnaires. They note that the five success factors of major importance highlighted by guests in relation to service quality are: guest security, comforts, the hotel's capacity to respond to client demands, operational flexibility and the speed of customer service. Melia (2010) conducted in-depth interviews and held focus groups with owners and managers of independent hotels in Ireland and identified four common critical success factors: infrastructure and product quality, location, customer service and staff. Avcikurt *et al.* (2011) conducted questionnaires with managers and owners of a sample of small hotels in Turkey, as well as a literature review, and found that hotel critical success factors are the availability of internet, service quality, financial performance and marketing. Wang and Hung (2015) conducted an online content analysis of clients of a sample of guest houses in China and concluded that success factors, from highest to lowest satisfaction scores awarded by the consumer, are: the environment or atmosphere of the establishment, cleanliness, location and room features.

3. The consumer's perspective: the online opinions of hotel clients

In the present, thanks to the development of information technologies and Web 2.0, it is common for hotel users to share their consumer experience in reviews, comments or opinions published online. These generally incorporate an overall experience score and/or individual scores on certain relevant aspects of the service. This information, called user-generated content, has become an essential element in the decisions of other clients. In this regard, a number of studies have concluded that most users consult the opinions expressed by other users about hotel products and services in advance of a purchase decision (Pan *et al.*, 2007; Vermeulen and Seegers 2009; Ye *et al.* 2011). These reviews or comments are made through electronic communication: eWOM, which is defined as "[…] all informal communications directed at consumers through Internet-based technology related to the usage or characteristics of particular goods and services, or their sellers" (Litvin *et al.*, 2008, p. 459).

The impact of these types of opinions on hotel companies has been studied. This has given results showing, for example, that positive online opinions can increase a hotel's bookings so that a 10 per cent improvement in comment rating can increase sales by 4.4 per cent (Ye *et al.*, 2009) or permit an increase in price of hotels with better scores (Yacouel and Fleischer, 2011). The impacts of guest online comments can be viewed from the perspective of the manager as critical success factors, since the companies see them as opportunities because an analysis of, and an appropriate reaction to, the reviews can lead to the achievement of competitive advantage (Ye *et al.*, 2009).

Understanding the guest experience of a hotel and his/her perception of the service can help managers improve quality and identify the most important client complaints (Levy *et al.*, 2013; Stringam and Gerdes, 2010). This facilitates the creation of effective marketing strategies, the identification of innovative methods of business management and development of new policies (Jun *et al.*, 2010; Loureiro and Kastenholz, 2011). In short, investigating consumer experience through online commentaries can identify the critical success factors that should be taken into account by managers; hence, this has been the source of information adopted in the present work.

Some research has previously used online guest opinion to explore user satisfaction, focussing on the coding review content and using different indicators representative of the services in the hotels. One of the most used representative indicators discussed in the literature is the "room" as the core of the accommodation service, grouping with it multiple items such as cleaning, size, bed, silence, air conditioning, television, etc. (Chaves *et al.*, 2012; Dong *et al.*, 2014; Li *et al.*, 2013; Lu and Stepchenkova, 2012; Magnini *et al.*, 2011; Zhou *et al.*, 2014). Another indicator frequently analysed in the empirical studies is the "location" of the establishment, grouping aspects such as proximity to the city/town centre, proximity to public transport, proximity to the beach, shops, etc. (Chaves *et al.*, 2012; Dong *et al.*, 2014; Lu and Stepchenkova, 2012; Magnini *et al.*, 2011; Zhou *et al.*, 2014). The personnel and customer service is another of the most studied indicators in terms of tourist opinion; attributes valued are friendliness and willingness to help, language skills and efficiency in the resolution of problems, etc. (Chaves *et al.*, 2012; Dong *et al.*, 2014; Magnini *et al.*, 2011; Zhou *et al.*, 2014). Restaurant and food and drink services usually appear in some works; valued aspects are variety, the dining area atmosphere and the offer of special menus, etc. (Dong *et al.*, 2014; Li *et al.*, 2013; Lu and Stepchenkova, 2012; Magnini *et al.*, 2011; Zhou *et al.*, 2014). Some authors also discuss indicators related to facilities in general, such as WiFi operation, availability of a gym, swimming pool, spa, decoration and noise levels in common areas and parking availability, etc. (Chaves *et al.*, 2012; Dong *et al.*, 2014; Li *et al.*, 2013; Lu and Stepchenkova, 2012; Magnini *et al.*, 2011; Zhou *et al.*, 2014). Finally, several works also include indicators measuring price of the accommodation, services, restaurant facilities, etc. (Dong *et al.*, 2014; Li *et al.*, 2013; Lu and Stepchenkova, 2012; Magnini *et al.*, 2011; Zhou *et al.*, 2014).

4. Methodology and data

The methodology that, in our opinion, is best adapted to our purpose corresponds to the case studies that can be used to describe phenomena within real organisations or to explore situations where there is no well-defined theoretical framework, this being the case for the critical success factors of emblematic hotels. Case studies allow the development of a theory that can be transferred to other cases, since it is not our intent to generalise the results to other individuals (statistical generalisation) but rather to generalise the results to a theoretical framework (analytical generalisation) (Yin, 1989, 1993). Consequently, given that we do not wish to test any hypothesis, or to predict the behaviour of the company under analysis, or to obtain conclusions extrapolable to the sector as a whole by the logic of the case, we consider this methodology appropriate to meet the main objective of our investigation. Generally, the case study method is carried out through the analysis of one or more companies and, although normally we associate case studies with quantitative research, one can actually base them on any combination of quantitative and qualitative evidence (Ghauri *et al.*, 1995) and therefore statistical techniques or other quantitative methods can be applied, as when searching for patterns in existing data (Bryman, 1984).

There are different typologies of case study. In this work, we have applied the exploratory modality. This is appropriate when seeking to explore a phenomenon for which

there is no well-defined theoretical framework (Yin, 1989), or is in its preliminary stages, where there are few previous studies (Cepeda, 2006) and for problems where participant experience is important and the context of the situation is fundamental (Bonoma, 1985), as for the success factors of emblematic hotels. The case study methodology for detecting critical success factors in accommodation services has previously been used in the field of tourism in the work of Camillo *et al.* (2008) for restaurants and Hua *et al.* (2009) in the study of budget hotels.

On the other hand, our analysis focuses on reviews that users have posted on the websites of the establishments themselves. Krippendorff (1990, p. 28) defines content analysis as "a research technique designed for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use". Following the collection of the data, a well-organised classification and categorisation method is required to allow for its further analysis. Text mining or text analysis seems to be an appropriate method to carry out this task since it allows the analysis of the words and phrases that guests, who have already visited the hotels, have posted online and to classify them into simpler categories with the aim of discovering patterns or trends depending on the research questions raised (Weber, 1990).

Following Weber (1990), who points out that a true analysis of content must incorporate qualitative and quantitative aspects, in our study we consider both. Thus, we perform a quantitative content analysis that aims to determine the words most frequently used. This serves as a basis for choosing groups of words linked to the elements of the value chain under analysis, and a qualitative content analysis that focuses more on exploring the underlying meaning of the opinion. On the one hand, we use sentiment analysis, which consists of analysing the vocabulary of a text, in our case, the users' online opinions, in order to determine the mood or the emotional load of the reviewer (Leetaru, 2012). On the other hand, polarity analysis or opinion mining is used, which allows us to find out if the message is in general positive, negative or neutral (Feldman, 2013). Both analyses operate automatically through statistical software R that consists of various packages that process, recognise and evaluate polarity and feelings based on a vocabulary or lexicon provided for that purpose, in particular using the SEL lexicon (Spanish emotion lexicon) created by Díaz-Rangel *et al.* (2014).

Text mining enables the analysis of the frequency of mention of certain words, the associations between them, the similarities and differences between different groups of comments and the sentiment analysis. Text analysis has been used by different authors in relation to online opinions on generic hotel establishments to assess client satisfaction with services received in the establishment based on their expressed opinions: Chaves *et al.* (2012), Dong *et al.* (2014), Li *et al.* (2013), Lu and Stepchenkova (2012), Magnini *et al.* (2011) or Zhou *et al.* (2014). However, it has not yet been used in relation to emblematic hotels. In addition, Chaves *et al.* (2012) and Geetha *et al.* (2017) analyse the sentiment attached to the comments.

Based on the previous literature on critical success factors, value chains and online opinions, we identify five elements, information on which it is likely to generate utility for the guests; room, facilities, location, personnel and restaurant services. These form part, directly or indirectly, of guest experience and satisfaction and, by extension, will be reflected in the comments they make about their experience. To each of these elements are assigned a group of related words so that, when at least one of the words in the group is present in the comment, it is linked to the corresponding element.

To carry out the study, as a representative example of emblematic hotels of Spain, the hotel chain the Spanish Tourist Paradors (*Paradores de Turismo de España*) was selected. First, because its experience in managing emblematic hotels is very extensive, both in the number of establishments in the network and by its length of operation. And, second,

because the Parador network has an information and reservation portal on the internet where tourists can directly search for general information, configure it according to their requirements, enjoy membership advantages and post information (to inform the company and other users) about their experience.

The Spanish Tourist Paradors is a Spanish State publicly owned hotel chain founded in 1928. It employs 3,500 staff and currently offers more than 10,000 beds in 96 Paradors with an average establishment size of 65 rooms. The establishments are grouped into three categories, namely, Naturia, Civia and Esentia. The majority, 45, fall into the category Esentia, which is formed by hotels located in historic and monumental buildings. For its part, the Civia encompasses 23 establishments, also located mainly in emblematic buildings, but in urban destinations. The remaining 28 Paradors, grouped under the name Naturia, include establishments in natural spaces both in the interior of the country and on the coast (Table I). The network has establishments in all the autonomous communities[4], half of them located in environments considered a combination of historical-artistic or in cities declared UNESCO World Heritage Sites.

The qualitative data collected come from verified reviews made by real guests, who belong to the loyalty programme "Friends of the Paradors" (Amigos de Paradores)[5]. The data appear on the website of each of the Paradors. The reviews include written free style comments and a scoring system between 1 and 10 evaluating the overall hotel visit experience. These opinions and ratings were collected for each hotel from January 2014 to March 2016 and make up the data on which our analysis is based. The total for the period was 10,362 opinions, with an average of 108 opinions per hotel (Table I).

The object of study are the elements of the value chain cited in the comments; the general stay score serves only as a segmentation variable for the comments that are classified into three levels according to that score. Thus, it is considered that the score associated with a comment is favourable if the user has scored the establishment with 7, 8, 9 or 10 points, unfavourable when the score is 1, 2, 3 or 4 and neutral when the score is 5 or 6. In general, as shown in Table I, 88 per cent of the commenting guests give a favourable score, with the average score in the three Parador categories being above 8. The best rated Paradors, on average, are those of the Esentia type, of which there are also a greater number of opinions per establishment.

To summarise, based on the Villarreal and Landeta (2010) model, we propose the fact sheet shown in Table II for our case study.

5. Analysis and results

We have divided the analysis into two parts: in the first part, we perform a classical analysis of the frequency of word usage and the differences that these frequencies represent in the comments of establishments belonging to different categories. In addition, in this first part, we analyse each comment, through polarity analysis, to discover whether the opinion

	Civia	Esentia	Naturia	Total
Favourables	84%	90%	88%	88%
Neutrals	9%	6%	8%	7%
Unfavourables	7%	4%	4%	5%
Average score	8.1	8.5	8.3	8.3
Number of opinions	2,306	5,688	2,368	10,362
Number of Paradors	23	45	28	96
Average of opinions per Parador	100	126	85	108

Source: Own design

Table I.
Frequencies, average scores, number of opinions and Paradors by hotel type

Research methodology	Single case broken down into different sub-units. Exploratory study
Geographical ambit	The whole country of Spain
Universe	Spanish emblematic hotels
Type of sampling	Theoretical, non-statistical sampling
Sample	Network of Spanish Tourist Paradors
Data collection methods	Extraction from user-generated online content
Information sources	Online platform of the Network of Spanish Tourist Paradors
Key contributors	Parador guests belonging to loyalty programme
Data analysis methods	Text and opinion mining
Study period	January 2014-March 2016

Source: Based on Villareal and Landeta (2010)

Table II.
Case study fact sheet

expressed is positive, negative or neutral. And with sentiment analysis, we determine the attitude or affective state of the person writing the review or comment, assigning each comment an emotional state; this is usually a question of determining whether the subject feels anger, joy, sadness, fear, disgust or surprise with his experience, focusing on our case on the states of joy as positive and of anger and disgust as negative, and eliminating the rest as being inconsistent with the emotional state that a hotel stay should cause.

In a second part of the analysis, we focused on the study on the elements of the value chain selected for the present study: room, facilities, location, personnel and restaurant services. Thus, in a first step, each element of the value chain is associated with a set of words used in reference to it. The comments are then classified based on whether or not they mention each element of the value chain. The words associated with each element of the value chain have been chosen based on the results of the previous stage, so that the words with the highest frequency of use are classified, where possible, with some of those elements analysed. The list of words on each element is completed by the words used or found in the earlier literature commented on in the previous section.

Specifically, in order to evaluate whether a comment refers to a room item, we searched for the following words: wardrobe, carpet, pillow, cupboards, bathtub, bathroom, bed, mattress, decoration, sleep, shower, mirror, room, sink and towel rack; for the attribute facilities, the keywords were: nice, comfortable, construction, care, building, facilities, pool and spa. For location, the words were: isolated, around, area, countryside, central, closeness, city, environment, location, sea, mountain, landscape, beach, situation, situated and views. For the personnel item, we searched for: friendly, employee/s, staff, reception, staff and treatment. Finally, for the item restaurant services, the following were used: lunch, drinks, coffee, coffee shop, waiter, dinner, chef, dining room, food, breakfast, gastronomy, menu, restaurant and wine.

Once the comments had been classified, the frequency of mention within them of the different attributes of the value chain was calculated and the statistical significance of the results was determined through the non-parametric χ^2 test for difference of proportions between two groups. The frequency analysis is done by grouping comments by type of Parador, and considering the scores that accompany each comment. Finally, to determine the relative positioning of each Parador with respect to the others, from the frequency of mention of the value chain attributes in the comments, we use correspondence analysis, which is a statistical technique that allows an analysis of contingency tables with numerical frequencies of different categories and provides a graphical representation that allows a quick interpretation of, and facilitates the understanding of, the data (Greenacre, 2008).

Thus, as a result of the analysis as a whole, the following results will be obtained: which words are the most frequent used in the comments and if there is a difference in frequency according to the type of Parador; what percentage of comments express positive/negative content; what percentage of comments express positive/negative emotions; what attributes

of the value chain are the most commented on and therefore most noticed by guests, both globally and by each type of hotel; what items in the value chain are most frequently mentioned with higher scores; if there are statistically significant differences in the proportion of comments that mention the different items of the value chain according to the hotel type of and/or score that accompanies the comments to allow a comparison between them; which Paradors most closely resemble each other based on the frequency of which the attributes of the value chain are mentioned in their comments; and the position of each Parador from different perspectives in relation to other establishments in the chain.

Finally, it must be noted that, in order to carry out both phases, the text of the opinions had been purified to eliminate or group words that could distort the results. Thus, we discarded articles, prepositions, the word Parador for appearing very frequently (in 40 per cent of the comments), plurals and genders and, as far as possible, suffixes or variations of the same word, maintaining only the root.

Moving to the first stage of the analysis, the frequency of occurrence of each word is calculated on the total words of the comments, both globally and by type of Parador. Thus, Table III shows, by way of example, the 20 most frequently used words, among which we can find words related to the five analysed items. In fact, personnel, room and views are the three most frequently used words, as well as the adjectives that show satisfaction, such as excellent, good, etc. These 20 words alone cover 16.62 per cent of the cumulative frequency and the first 50 words alone cover 29.25 per cent of the cumulative frequency.

The set of the 300 words most frequently used in the comments is shown in the word cloud in Figure 2[6], where the size of each word is directly related to its frequency of use.

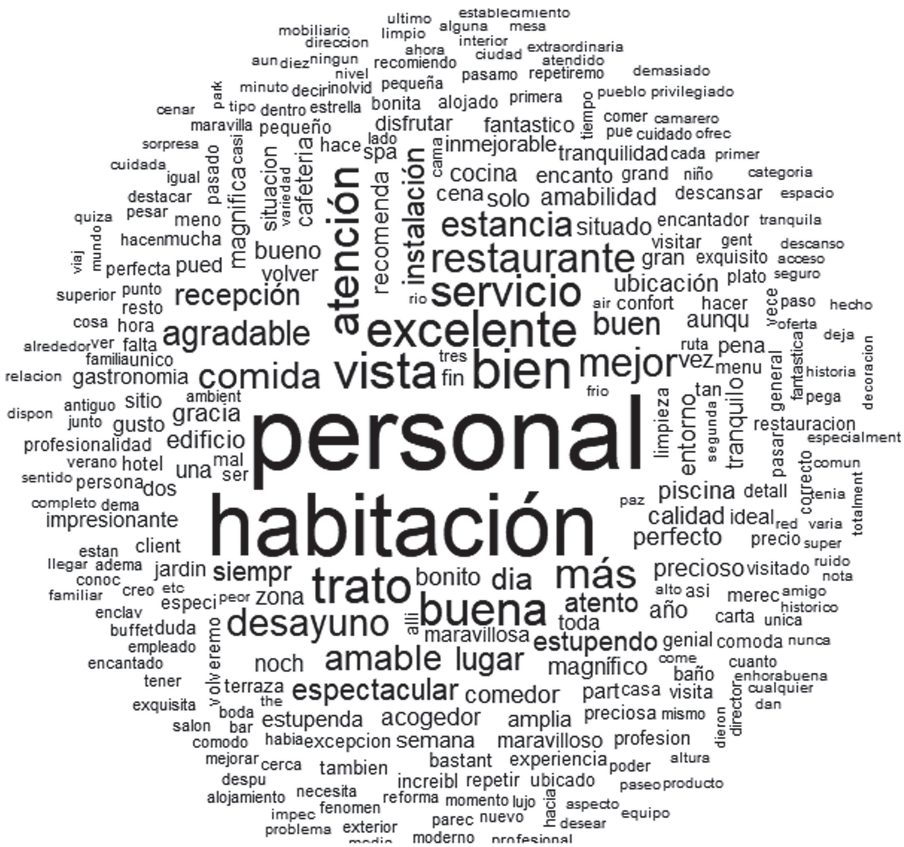
In order to establish another perspective of the analysis of the comments and to evaluate the differences between the three types of Paradors, in terms of the words used in the reviews, in Figure 3 is the so-called comparison cloud showing the words most associated with the different types of Parador based on relative frequency of use. It is observed that the differences between the three types of establishments are directly related to their characteristics, that is to say, with the attributes that the company uses when classifying an establishment as Civia, Esentia or Naturia.

Thus, we note that for the Civia Paradors we see the words “city” or “modern”[7], which do not appear for the other hotel types, which is in accordance with the characteristics ascribed to this type of establishment by the management. Equally, in the Esentia Paradors, prominence is given to the words “building” and “castle”[8], being Paradors located in unique historical buildings. Finally, in the Naturia Paradors, the words “environment” and “beach”[9] were highlighted, in agreement, as previously stated, with the description that the company provides for this type of establishment. Therefore, it is clear that guests clearly perceive the peculiarities of each type of hotel and this shows in their comments.

Table III.
Words most frequently used in comments

Word	Times	Freq. (%)	Word	Times	Freq. (%)
Personnel	2,727	2.21	Restaurant	897	0.73
Room	2,331	1.89	Better	872	0.71
View	1,389	1.12	Breakfast	842	0.68
Excellent	1,279	1.04	Environment	673	0.54
Good	1,254	1.02	Place	619	0.50
Treatment	1,218	0.99	Spectacular	605	0.49
Good	1,042	0.84	Stay	585	0.47
Service	1,010	0.82	Building	497	0.40
Attentiveness	931	0.75	Beautiful	458	0.37
More	924	0.75	Pretty	383	0.31

Source: Authors’ own design



Source: Authors' own design

Figure 2.
Word cloud showing
most frequently
used words

A classic sentiment analysis test and a polarity test of the comments were made. Regarding polarity (Table IV), it is clearly seen that the comments with a favourable score have a mainly positive sense (88.4 per cent), while the majority of comments with a negative score have a negative polarity (59.4 per cent). As for the emotions expressed in the opinions, of the six analysed by the usual methodology (anger, joy, sadness, fear, disgust and surprise), we consider it useful to focus on the comments that express joy as a positive or favourable emotion towards the stay in the Parador and the comments that express anger or disgust as negative or unfavourable emotions towards the stay. In this sense, the percentage of comments with favourable scores expressing anger or disgust is only 1.9 per cent, whereas those same emotions appear in 15.6 per cent of comments with unfavourable scores (Table IV). On the other hand, joy is noted to be the predominant emotion in 31.2 per cent of the comments with favourable scores; however, it is also the main emotion in comments with unfavourable scores.

The latter is because there is sometimes no agreement between the meaning of the comment and the accompanying scoring, as pointed out by Tsuji *et al.* (2015). Even if the overall assessment of the stay is not good, in the commentary the user focuses on highlighting the positive and not negative aspects, something that does not usually happen in the case of comments with very high scores. This result reveals the need to

Figure 3.
Comparison word cloud

Source: Authors' own design

	Polarity		Emotion	
	Positive (%)	Negative (%)	Joy (%)	Anger and disgust (%)
Favourable score	*88.4*	10.1	*55.2*	1.4
Unfavourable score	37.5	*59.4*	29.0	*15.6*

Table IV.
Frequency of comments according to polarity and emotion by type of score

Note: The remaining comments up to 100 per cent are identified as neutral, when analysing polarity; or in the case of sentiment analysis correspond to emotions not analysed or have not been assigned to any emotion in particular

Source: Authors' own design

analyse both elements of the review (comment and scoring) together in order to obtain results to help managers.

Entering the second stage of our analysis, we identify which attributes of the Parador value chain appear more frequently in reviews. To do this, we search the comments for any references to the value chain items: room, facilities, location, personnel and restaurant services.

From this coding, the percentage of comments by type of Parador mentioning the analysed items is calculated, that is to say, the percentage of comments with a word

related to the value chain items (Table V). It should be noted that, for each type of Parador, the frequency total is not 100 per cent, as the same comment can refer to more than one attribute.

It is noteworthy, for both the Paradors Civia and Esentia, that the comments with words related to staff are the most frequent (39.5 and 33.4 per cent of the comments, respectively), while in the Naturia Paradors, the most frequent comments are those that mention the location of the establishment. For the whole sample set of Paradors, location and staff are the items that appear most frequently (Table V).

This same analysis is performed on the scores given by the guests to their overall experience, that is, analysing separately the comments accompanied by favourable scores and the comments accompanied by unfavourable scores. As shown in Table VI, in the reviews with the best scores, the result shown above is maintained for all comments regarding the item in the value chain that has a higher frequency. Thus, 41.1 per cent of the best rated comments of the Civia Paradors mention personnel; this percentage is 33.9 per cent for the Esentia Paradors. Meanwhile in the Naturia Paradors, the highest frequency is location, present in 46.4 per cent of the comments. Therefore, as in the previous analysis, the personnel and location attributes are the most mentioned with higher scores.

As for comments accompanied by unfavourable scores, we note that the attributes most mentioned are room and restaurant services. Specifically, the room attribute is mentioned most frequently in the Civia Paradors (43.9 per cent), while it is restaurant services in the Esentia (48.9 per cent) and in Naturia (38.3 per cent).

In order to evaluate if there are statistically significant differences in the distribution or weight of the elements of the value chain dependant on type of Parador, we undertook a non-parametric test for proportional differences, or χ^2, that verifies if there are differences in the frequency of comments mentioning the value chain items analysed between the different types of Paradors, taken as a whole. Table VII shows the p-values of the contrast for the

	Civia (%)	Esentia (%)	Naturia (%)	All (%)
Room	25.8	23.7	22.1	23.8
Facilities	25.1	25.2	21.6	24.3
Location	35.1	31.9	*44.8*	*35.5*
Personnel	*39.5*	*33.4*	*36.4*	*35.5*
Restaurant services	34.0	29.6	29.3	30.5

Source: Authors' own design

Table V. Frequency of mention of value chain attributes in comments

	Civia		Esentia		Naturia		All	
	Fav. score (%)	Unfav. score (%)	Fav. score (%)	Unfav. score (%)	Fav. score (%)	Unfav. score (%)	Fav. score (%)	Unfav. score (%)
Room	24.2	*43.9*	22.0	45.5	20.2	37.4	22.1	43.2
Facilities	25.5	23.2	24.9	26.4	21.5	26.2	24.3	25.4
Location	36.3	25.2	32.5	23.4	*46.4*	33.6	*36.5*	26.2
Personnel	*41.1*	32.9	*33.9*	34.2	37.5	36.4	36.2	34.3
Restaurant services	33.0	43.2	28.4	*48.9*	28.7	*38.3*	29.4	*44.8*

Source: Authors' own design

Table VI. Frequency of mention of the attributes of the value chain according to accompanying score

results given in Tables V and VI. The figures in the italic type indicate that there are differences between the two types of Paradors under comparison.

When analysing the comments as a whole, regardless of the score that accompanies them (Table VII – upper panel), it is observed that the three types of establishments differ in the proportion of comments made about location. The frequency of occurrence in the comments of the room attribute is only significantly different between the Civia and Naturia Paradors, while the facilities attribute does not differ in frequency of mention between the Civia and the Esentia. The personnel item has a different frequency of mention among all types of Paradors with a 95 per cent confidence level, but it is highly significant only with the Civia and Esentia Paradors. Finally, Esentia and Naturia do not show a difference in the proportion of comments mentioning restaurant services. In summary, according to these results and in terms of frequency of mention of the different items in the value chain, Civia and Naturia are the most differentiated and Esentia and Naturia are the most similar, thus placing Esentia at an intermediate point between the other two types. The results are almost identical when only comments with favourable scores are analysed (Table VII – intermediate panel). However, we do not detect significant differences in the frequency of comments according to attributes when we analyse only the comments accompanied by unfavourable scores (Table VII – lower panel). Therefore, since the three types of Parador do not differ from one another in terms of the frequency of mention of the different items if the score is unfavourable, while there are differences when the score is favourable, we can conclude that when the stay is satisfactory, the elements that stand out, that have generated utility, or have made an impression on the guest, differ among Parador type.

We also analysed whether for all or each type of Parador, there are differences in the frequency of mention of the attributes of the value chain in relation to whether the score is favourable or unfavourable (Table VIII).

It is observed that for the attributes facilities and personnel, there are no significant differences, that is, the frequency by which they appear is similar in both the comments with favourable scores and with unfavourable scores. While for the rest of attributes

	Civia-Esentia	Civia-Naturia	Esentia-Naturia
All			
Room	0.0510	*0.0031*	0.1208
Facilities	0.9677	*0.0058*	*0.0008*
Location	*0.0056*	*0.0000*	*0.0000*
Personnel	*0.0000*	0.0291	0.0117
Restaurant services	*0.0001*	0.0006	0.8132
Favourable score			
Room	0.0602	*0.0026*	0.0889
Facilities	0.6547	*0.0038*	*0.0027*
Location	*0.0028*	*0.0000*	*0.0000*
Personnel	*0.0000*	0.0234	*0.0040*
Restaurant services	*0.0002*	*0.0032*	0.8317
Unfavourable score			
Room	0.8397	0.3571	0.2018
Facilities	0.5574	0.6902	1.0000
Location	0.7791	0.1757	0.0637
Personnel	0.8774	0.6443	0.7788
Restaurant services	03198	0.5056	0.0886

Source: Authors' own design

Table VII. p-values of the χ^2 test for proportional differences in the mention of items according to Parador type

(room, location and restaurant services), there are differences between both the groups of comments in general for the network of Paradors and for the Paradors of each type.

To complete the global analysis of the value chain attributes and in order to try to determine if these attributes contribute positively or negatively to the overall valuation of the guest stay, we calculate the percentage of unique comments, understanding that these refer only to one attribute of the value chain, expressing a positive/negative opinion and showing a favourable (joy) or unfavourable (anger or disgust) attitude on the part of the guest commenting (Table IX). It is observed that for location, personnel and facilities, the percentage of comments with positive polarity is higher, while the highest percentage of those with negative polarity is recorded for room and restaurant services. As for the emotion transmitted by the comments, personnel stands out among the favourable and, once again, restaurant services and room among the unfavourable.

If we analyse the information in Tables VI, VIII and IX in conjunction, we can establish some interesting results in relation to the attributes of the analysed value chain. Thus, we can infer that, since the room attribute is more frequently mentioned in the comments with unfavourable scores than favourable (Table VI), this difference is statistically significant (Table VIII) and that the percentage of comments with negative polarity and that express anger and disgust is high in relation to other attributes (Table IX). The management of the room attribute must be improved since it is generating client dissatisfaction and could cause the award of a poorer score for the stay. An identical result is given for restaurant services. Thus, the same recommendation can be made for the restaurant services attribute as it also manifests itself as a source of Parador guest dissatisfaction. At the other extreme is the location attribute, which is most frequently mentioned in the comments with a favourable score (Table VI) in a significantly different way in relation to its frequency of use in comments with unfavourable scores (Table VIII) and that has the highest percentage of unique comments with positive polarity (Table IX); so we can conclude that this attribute contributes positively to the guest's perception of

Table VIII.
p-values for the χ^2 test for the proportional difference in the mention of items according to score (favourable or unfavourable) that accompanies the comments

	Civia	Esentia	Naturia	All
Room	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Facilities	0.6024	0.6631	0.3119	0.6203
Location	*0.0068*	*0.0046*	0.0133	*0.0000*
Personnel	0.0565	0.9817	09051	0.4044
Restaurant services	0.0124	*0.0000*	00418	*0.0000*

Source: Authors' own design

Table IX.
Frequency of unique comments by polarity and emotion

	Polarity		Emotion	
	Positive (%)	Negative (%)	Joy (%)	Anger and disgust (%)
Room	72.5	*22.4*	28.1	*6.7*
Facilities	*86.5*	4.3	22.3	1.9
Location	*90.1*	7.2	21.1	2.6
Personnel	*87.0*	9.9	*33.1*	5.4
Restaurant services	78.2	*16.5*	24.4	*7.7*

Notes: The remaining comments up to 100 per cent are identified as neutral, when analysing polarity; or in the case of the sentiment analysis correspond to unanalysed emotions or have not been assigned to any particular emotion
Source: Authors' own design

the stay, generating utility and promoting general satisfaction with the experience, that is, in general terms, they think that the locations of the Paradors are excellent.

Finally, focusing our analysis on each Parador individually, we carried out a correspondence analysis to observe similarities and differences between the hotels based on the frequency of comments that mention the different analysed attributes (Figure 4).

The two dimensions explain 76 per cent of the variance. The attributes are indicated in red by their initial letter. The Paradors are named in blue. Thus, by way of example, to help interpret the graph we point out that the Paradors of Cruz de Tejeda, Plasencia and La Granja are similar in terms of the frequency in which attributes are mentioned and stand out because of the greater use of the word facilities. Similarly, the Paradors of Bielsa, Málaga Gibralfaro, Aiguablava, Toledo and Cervera de Pisuerga are similar and stand out because of the high frequency of the use of the word location.

For each establishment, we obtained the attribute with the highest frequency of mention according to type of score (favourable or unfavourable) accompanying the comment, the three most frequent unique words in the overall comments, the average guest overall rating, the percentage of comments with positive (+) and negative (–) polarities, and the percentage of comments expressing positive feelings (+), and negative feelings, disgust or annoyance (–)[10]. It is observed that the Parador best rated on average in the country is Cangas de Onís (9.37 points), a Naturia type, and the worse rated is Santo Domingo Bernardo de Fresneda (6.54 points), of the Esentia type. The next best rated are those of Santiago de Compostela, Corias, Casa de Ínsua, Santo Estevo and Lorca, all of the Esentia type. In relation to the polarity, at first sight neither a direct relationship between the percentage of comments with positive polarity and the average score of each Parador, nor between the emotion expressed in the comment and the average score, is observed. We do

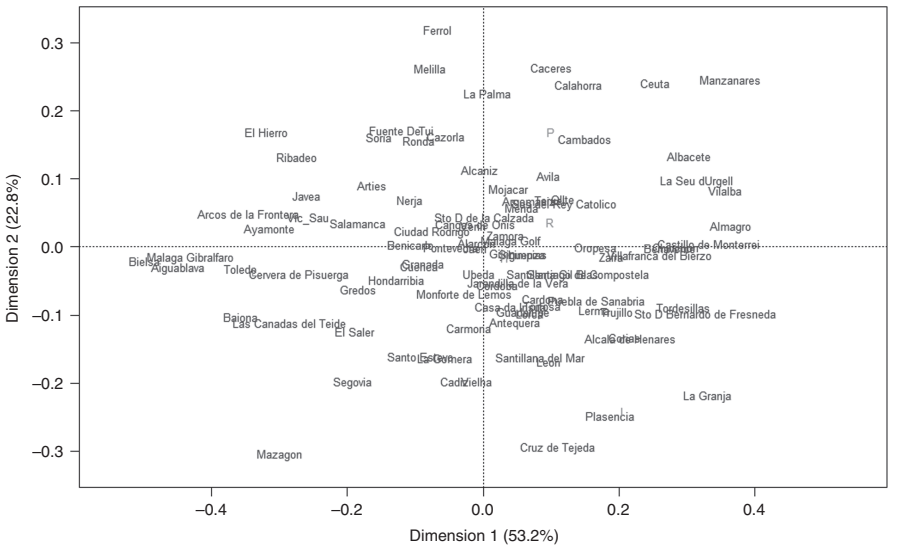


Figure 4.
Graphic correspondence analysis by Parador of the frequency of comments mentioning value chain attributes

Notes: Where H stands for room, I stands for facilities, L stands for location, P stands for personnel and R stands for restaurant services

Source: Authors' own design

not go deeper into analysing further aspects of the table, since we consider that the true recipients of the information should be the managers of the establishments, leaving to their discretion the interpretation and treatment of these results.

6. Discussion of results

The managers of accommodation establishments in general, and of emblematic hotels in particular, are aware of the current importance of the online content generated by their guests, given the multiple impacts this can have on their businesses. Similarly, they are conscious of its utility to improve the quality of their services and the adoption of effective marketing strategies, as it allows the identification of which aspects of the service are perceived positively and negatively by clients.

We examined more than 10,000 comments and ratings awarded by guests to a chain of emblematic hotels, on its own website, in a first exploratory study. In this work, we focus on a study of the language used in online commentaries, through the methodology of text analysis. We examined the most frequently used words in the comments in various forms, grouping them in relation to the different attributes that make up the value chain of a network of emblematic hotels, The Spanish Tourist Paradors. We use tools of different natures, based on textual analysis, with a descriptive purpose as an aid to identification and to highlight aspects that are not at first sight evident, given the high number of opinions available. The results obtained serve as a basis to answer the research questions and meet our objectives.

It must be taken into account that in order to fulfil the objective of the work, an exploratory analysis of the valuations (comments and scoring) of the hotel services was carried out in the guest post-consumption phase. We did not consider the expectations that they held prior to their stay, only the more concrete aspects of the service that they received.

On the other hand, we must emphasise that the data used in the analysis come from guests belonging to the Parador loyalty programme, so their opinions are of great value to managers to preserve and boost client loyalty, with the positive consequences that this would have for their business. In addition, it has been verified that many of the guests have stayed in several establishments of the chain, so their opinions are even more valuable, since they have a greater knowledge of the product, and can make comparisons between hotels.

In relation to the research question and the objectives of our work on the factors that contribute to the success of the emblematic hotels, our results suggest that the personnel attribute, in the comments where it is mentioned in a unique way, show it as having mostly positive polarity and the highest percentage of positive feeling (joy). Similarly, the facilities attribute, in those comments in which it is uniquely named, shows the lowest percentage of negative feeling (anger or disgust). Therefore, these attributes contribute positively to the guest's perception of the stay, generating utility and promoting general satisfaction with the experience, that is, in general terms, it is possible to think that they are elements well valued by users and that are critical success factors and contribute to the creation of competitive advantage for the chain. A similar conclusion came from the work of Brotherton and Shaw (1996), who emphasise staff quality. Melia (2010) accords with our results, highlighting facilities and staff quality as critical success factors. In works on online satisfaction, Chaves *et al.* (2012), Dong *et al.* (2014) and Stringam and Gerdes (2010) establish that staff quality is a factor that determines higher guest satisfaction in standard hotels. Zhou *et al.* (2014) find that the facilities attribute is important for guest satisfaction.

In the same sense, the findings show that the attribute location seems to be linked with higher scores and appears in the positive comments, and although it is not controlled by the management except in the initial decision to open the establishment, it contributes positively in the guest perception of the experience, generating utility and promoting general satisfaction with the stay. That is to say, in general terms, the location of the Paradors is

excellent, being a critical success factor. These results coincide with those of Olsen *et al.* (2005), who also identify the location of an establishment as a critical factor. Melia (2010) finds that both location and the personnel are critical factors of the hotels analysed in their work. These results also confirm those obtained in the work of Wang and Hung (2015) that highlight the location of guest houses in China as critical success factors. For standard hotels, the works of Chaves *et al.* (2012), Dong *et al.* (2014), Magnini *et al.* (2011) and Stringam and Gerdes (2010) point to location as one of the most influential factors in guest satisfaction.

Contrary to these findings, we note that the value chain items that more score more negatively and generate emotions related to anger and disgust are room and restaurant services. In the case of the room attribute, in works related to online satisfaction, such as those of Lu and Stepchenkova (2012) and Zhou *et al.* (2014), it is found that some room characteristics generate dissatisfaction in standard hotel guests. However, in the literature, there are also works such as Wang and Hung (2015) that argue that the room can be a critical success factor and can be a source of satisfaction for the tourists staying in such hotels (Chaves *et al.*, 2012), so there is thus no consensus in the literature. Something similar happens with restaurant services, which in our case does not provide competitive advantage for the emblematic hotels analysed. These results coincide with those of other studies on critical success factors. However, in other online satisfaction studies, such as those of Dong *et al.* (2014) and Stringam and Gerdes (2010), food and drink-related aspects are cited by tourists when they assign higher scores to an establishment.

In addition, a more detailed analysis of the results shows that for the most part, the most used adjectives have favourable connotations; excellent, good, well, spectacular, beautiful, nice, showing that guests, in general, seem to have a positive impression of their experiences. These results are similar to those obtained for standard hotels in the studies by Stringam and Gerdes (2010) which highlight words related to personnel and room and Geetha *et al.* (2017) that connect the words room and personnel with the adjective "good".

7. Conclusions and implications

In view of the results, it can be concluded that the critical success factors of the emblematic hotels analysed, the Spanish Tourist Paradors, are similar to the critical factors for standard hotels. The attributes of location and facilities are critical success factors expected a priori given the nature of the business of such establishments, based on the singular nature of the buildings. Another critical success factor is personnel, which seems to indicate that the Paradors support their business model by employing highly qualified staff, according to guest perceptions, with less attention being paid to restaurant services or the room. We believe that this last aspect about the room should be especially taken into account by emblematic hotels since the clients of this type of establishment expect to a greater extent than in other types of hotels that the rooms are in keeping with the rest of the facilities. If they are not, this can generate dissatisfaction as expectations are not met. However, given the absence of other similar works, it would be important to have more empirical evidence to support or refute the conclusions of the present study.

In addition, because most of the adjectives used in the comments have a favourable connotation, we can conclude that guests seem to have a generally positive impression of their experience. On the other hand, a positive relationship has been detected between the scores and the polarity of the opinions, that is to say, when a user awards higher scores to a hotel, his/her comment is expressed more positively. In comparative terms, between the three types of emblematic hotels analysed, with respect to the attributes of the value chain, we can conclude that when the stay is satisfactory the elements that stand out, that have generated utility or have given a favourable impression to the guest differ between the Parador types, in relation to the frequency of their mention in the comments. The Paradors

Civia and Naturia are the most differentiated and the Esentia and Naturia the most similar, placing the Esentia in an intermediate point between the other two. Of course, given the nature of its classification, the only item whose frequency of mention is significantly different among the three types is location. The restaurant services item is significantly different in its frequency of mention between the Civia type and the other two types and the facilities item between the Naturia type and the other types. The opinions seem to show therefore a guest tendency to comment on different aspects according to the nature of the Parador.

In general, this paper offers a number of contributions to the literature. First, it contributes to existing research by adapting Porter's (1980, 1985) value chain for the tourism accommodation sector in general. Second, it provides required evidence on the critical success factors of emblematic hotels through the analysis of direct value chain activities, those involved in creating value for the buyer, in order to identify sources of competitive advantage, following the Porter (1980, 1985) value chain model . Third, the existing literature is broadened by taking a perspective scarcely studied, the guest perception of hotel establishments using the factors that add most value, rather than simply considering the traditional views of the experts/managers. Fourth, we collect information on consumer perceptions of success factors, and explore alternatives to structured questionnaires by replacing them with online content posted by the user on the establishment's website. This content consists of voluntary and unstructured information provided by the consumer and provides a number of advantages such as the free availability of a large amount of organised and diverse data which is cheap to gather.

Text analysis has proved to be a valuable tool that shows some very useful results that we emphasise below as having practical implications for the management of the Parador hotel chain:

- Parador guests who belong to their loyalty programme give a very high average score to these establishments, with the highest ranked Paradors being Esentia (8.5 points) followed very closely by the Paradors Naturia (8.3 points) and Civia (8.1 points). As is clear from the comments, in many cases, the opinions come from customers who have stayed more than once in an establishment of the Parador network, since they are members of the loyalty programme. That is, customers loyal to the brand show high scores, which possibly means for the chain that it has achieved competitive advantage as loyal customers make a greater number of stays, are less price sensitive, make favourable recommendations to other potential customers, show less interest in moving to the competition and provide other series of advantages as shown in empirical work.
- Guests seem clearly to perceive the differences between the three categories of Paradors. Thus, guests highlight different words according to Parador type and these words coincide with the character which the hotel chain has wanted to ascribe to each of them: Esentia – historical character, Civia – urban and Naturia – natural environment. The directors and management of the chain have been able correctly to design a strategy of differentiation based on the location and physical characteristics or infrastructure of the establishments.
- Comments with favourable ratings (more than 6 points) express positive content in 88.4 per cent of cases and, in 31.2 per cent of cases, also joy. On the other hand, comments with unfavourable opinions (less than 5 points) express negative content in 59.4 per cent of cases with 15.6 per cent expressing anger or disgust. It has been found that in some cases, there is no agreement between the meaning of the comment and the score (e.g. comments with a general negative sense but accompanied by high scores), so it is necessary to warn managers that they must take into account the language of the reviews and their accompanying scores.

- As mentioned, room and restaurant services are those that seem to have more relation with low scores, appearing in negative comments and, in addition, they generate more feelings of anger and disgust. These items would benefit from management attention as they are generating client dissatisfaction and this could influence a diminution of the overall stay score.
- The work provides managers, graphically and through a detailed summary table, information on each of the Paradors. This can help them place each Parador in relation to the rest of the chain, in terms of aspects such as the average stay score and the feelings generated by the experience. A ranking of hotels according to overall score and type is also given. In this last regard, we note that the best average scored Parador is in Cangas (Naturia) and the worse scored is in Santo Domingo Bernardo de Fresneda (Esentia).

Finally, the limitations of the present study suggest future research lines. Thus, the work is a first step of an exploratory type and, as has been discussed, it will be necessary to validate and contrast it with other empirical analyses in the field of emblematic hotels, both national and international. Regarding the methodology, it is necessary to go deeper to try to determine the positive or negative meaning of the comments in a specific way, for each item of the value chain, and not just in a generic way for the whole of the commentary as done in this study. This is an important limitation. In relation to the case study, the results could be used as starting point for other analyses, such as a study of the efficiency in the use of resources by each establishment.

Notes

1. For example, the NH chain has 67 establishments in its "NH Collection", based in 13 countries, eight of them in Europe, including 22 in different cities in Spain.
2. A review of these is found in Brotherton *et al.* (2003).
3. A literature review of works identifying critical success factors through different techniques is found in Esteves (2004).
4. The Eivissa Parador (Ibiza) had not yet been opened to the public at the time of the work so, consequently, there are no reviews available.
5. Friends of the Paradors is a points programme with rewards for consumption. Conditions can be seen at www.parador.es/es/tarifas/condiciones-del-programa-amigos.
6. The words shown in Figures 2 and 3 are in Spanish as this was the language used in the analysis.
7. In Spanish in Figure 3: "ciudad" and "moderno", respectively.
8. In Spanish in Figure 3: "edificio" and "castillo", respectively.
9. In Spanish in Figure 3: "entorno" and "playa", respectively.
10. Available under request from the corresponding author.

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Drivers of the formation of e-loyalty towards tourism destinations

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Abstract

Purpose – The purpose of this paper is to determine the drivers of the formation of e-loyalty in a tourist destination, providing a model composed of variables that are under the control of the firm along with others that are not fully controllable by professionals.

Design/methodology/approach – The study was carried out with a sample of 497 subjects, university students and online consumers, and with the use of structural equations (partial least squares).

Findings – Results show that young people give a high valuation to all the variables used in the research. These results contribute to the literature on e-loyalty in tourism destinations and improve tourism loyalty in this population segment.

Research limitations/implications – The main limitation of this research has been related to the number of variables and measurement indicators that, according to the literature review, influence e-loyalty. Finally, a balanced and statistically significant model has been developed that has practical utility and analyzes online purchase of tourism products from a process perspective that includes variables that are internal and external to the firm.

Practical implications – The study suggests that young people have a favourable attitude and predisposition towards e-commerce, which, in turn, favours firms' efforts to promote consumption and loyalty within the framework of the model's variables.

Originality/value – This research paper has important value by analysing the initiating variables to determine how e-loyalty can be managed in tourist destinations, in addition to analysing an important segment for future tourism development.

Keywords E-satisfaction, E-commerce, Online reputation, E-loyalty, Website design, Tourism firm

Paper type Research paper

1. Introduction

Tourism professionals and academics are increasingly interested in studying the process of e-loyalty formation[1]. This is especially relevant in the current context of tougher competition, greater consumer demands, higher costs of capturing new customers and, above all, the ease with which customers can change destinations at a mere "click" (Winnie, 2014; Wu and Hsu, 2015).

In addition, achieving customer e-loyalty is a strategic need and objective for tourism firms because it allows them to increase profitability and obtain competitive advantages over the long term (Sobihah *et al.*, 2015). E-loyalty also favours the creation and maintenance of mutually beneficial relationships (Toufaily *et al.*, 2013) and is considered an indicator of success in tourism marketing (Chen, Yen, Pornpriphet and Widjaja, 2015). However, in spite of efforts to achieve e-loyalty in tourism and the benefits it generates, its study in the tourism industry is recent and limited (Llach *et al.*, 2013; Wu and Hsu, 2015). The few studies

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that have been carried out have centred almost exclusively on identifying the benefits loyalty offers to tourism firms (Elkhani *et al.*, 2014).

In particular, within the literature on e-loyalty formation in destination tourism, there is a need to study certain segments of potential consumers, as is the case of young people who make up generation "Y", a segment that has already been studied in some detail in the offline context (Nusair *et al.*, 2013; Bilgihan, 2016). The segment is immersed in online activities (Bansal and Chen, 2011), use e-commerce (Jing *et al.*, 2015) and have great potential to influence and consume tourism, leisure and sports products (Bilgihan, 2016). To delve deeper into this issue, this paper aims to study e-loyalty among young people in the context of destination tourism.

The paper presents a series of novelties. First, it contributes to the literature on the formation of e-loyalty in tourism within the youth segment and how this segment uses e-commerce. Second, we analyse the role of certain drivers over which tourist firms can exercise control (website design, quality of service), along with others whose control is relative (firm or website's image and reputation). Thus, the proposed model includes initiating drivers or variables (scarcely controllable), intermediate ones (more controllable) as well as outcome or consequential variables.

Finally, the model stands out for its equanimity, which facilitates the operation by the tourist firms, and it is formed by latent variables that include items that, although they have homogeneity with respect to the content, in other works, have been studied in an isolated way. Both aspects have statistical significance according to the results obtained.

2. E-loyalty in tourism: conceptualization, drivers and hypotheses

E-loyalty definition

In the online context, the two predominant approaches in the literature on the conceptualization of offline loyalty are also accepted: the behavioural approach and the attitudinal approach (Belanche *et al.*, 2012). In the behavioural approach, e-loyalty refers to the actual replication of a purchase on the web, or to a recommendation that is actually made (Yi and Jeon, 2003). According to the attitudinal approach, which is common in the literature, e-loyalty is conceived as a positive and future disposition by the consumer to make a new online purchase on the same website, or to recommend it to other consumers (Llach *et al.*, 2013; Gonçalves *et al.*, 2016). However, in previous studies (Winnie, 2014; Li *et al.*, 2015), the recommendation component is less frequent in the online context than the repeat one.

Initiating drivers of e-loyalty in tourism

It is reasonable to assume that certain drivers or variables related to consumers and their socio-cultural context will influence how a website is perceived and thus affect their buying behaviour, satisfaction and loyalty (Kim *et al.*, 2009). Likewise, the perception of a website used by a consumer is relevant, since it is the link between the subject and the product that a tourism firm sells (Afsar *et al.*, 2013; Li *et al.*, 2015).

Among the variables influencing the perception of a website are knowledge (Belanche *et al.*, 2012), experience of the environment (Chen, Chang and Lee, 2015) and technological literacy, understood as proficiency at using technology and the internet (Chang and Chen, 2008a). Additionally, in the study of e-loyalty socio-cultural variables have displaced the variables related to the individual (Lee *et al.*, 2009). Very important in this context is lifestyle, as well as attitudes, subjective norms or social pressure that lead consumers to develop certain habits regarding online shopping (Afsar *et al.*, 2013). Thus:

H1. Lifestyle, online shopping habits and technological literacy have a direct and positive influence on consumers' perception of a website's design.

The online reputation of a tourism firm is a variable that bears some relation to its image (De Maeyer, 2012). This variable is related to credibility, reliability and coherence and influences the value and service perceived by a tourist user (Ye *et al.*, 2009). Reputation depends on the user's own perceptions and experiences on the website, initially or at any point during the purchase process (Dijkmans *et al.*, 2015). It is a critical variable in tourism due to the rapid generation and transmission of ratings and comments about the quality of a site, a firm or a service, among other aspects (Martínez *et al.*, 2016). Therefore, the second hypothesis is stated as follows:

H2. The reputation of a tourism firm as perceived by consumers and its image or its website's image directly and positively influences the quality of the service and the value perceived by consumers.

In an online context, the user has more confidence in the information coming from the internet, especially transmitted through social networks, than that received through traditional communication channels (Li and Zhan, 2011). For this reason, opinions, assessments and general information shared on the internet can be considered to influence perceptions about the value and service offered, as well as influencing buying behaviour, satisfaction and loyalty (Gutiérrez *et al.*, 2013). However, the information received through traditional means can still have some influence on this perception (Winnie, 2014). Taking into account the above, the following hypothesis states that:

H3. The information and comments received by consumers through the website and other means directly and positively influence the service and the value perceived by consumers.

Intermediate drivers of e-loyalty in tourism

The website is the link between the consumer and the tourism products or services that firms sell or offer (Afsar *et al.*, 2013). Consequently, certain aspects of website design may influence the perception of value and trust regarding some attributes of the products offered, such as the tangibility, variety or availability, satisfaction (Chen, Chang and Lee, 2015) and e-loyalty (Cyr *et al.*, 2008), thus facilitating or hindering purchases (Afsar *et al.*, 2013; Chen and Wang, 2016).

Therefore, the following hypothesis states that:

H4. Website design influences in a direct and positive way the perception and evaluation that the consumer have of certain attributes of the tourism product.

Certain variables of tourism firms, such as the quality of service and the value perceived by consumers, also exert a significant influence on e-loyalty (Fuentes *et al.*, 2010) and online satisfaction (Li *et al.*, 2015). Regarding perceived value, which means the difference between what the consumer receives and what he brings, this is one of the variables of tourism firms that most influences e-loyalty (Chen and Wang, 2016; Jiang *et al.*, 2016).

Regarding the quality of the online tourism service, consumers take this into account when making purchasing decisions (Llach *et al.*, 2013). Although there is no agreement regarding the definition of service quality in an online tourist context (Barrera Barrera *et al.*, 2014), the construct can be defined as the extent to which the site confirms the expectations of consumers by evaluating the difference between the service expected and service actually received in the online purchase of a product or service, in this case a tourist destination (Sobihah *et al.*, 2015). In the online tourism context, the most widely accepted dimensions of service quality are those included in the e-SERVQUAL model, an adaptation of the SERVQUAL model to the online context (Elkhani *et al.*, 2014; Li *et al.*, 2015).

Bearing in mind the above on firms' variables, the following hypothesisis stated as follows:

H5. Consumers' perceptions of the value and quality of the service directly and positively influence their perception of certain attributes of the product (realism, variety, availability).

The products constitute the nexus of the union between consumers and the results of the shopping experience, that is, their satisfaction and loyalty (Ziaullah *et al.*, 2014). This is emphasised in tourism e-commerce, first, because of the insecurity and absence of real contact in e-commerce, and also due to the intangibility and lack of realism in the case of tourism products (Winnie, 2014).

As discussed, the products synthesise the direct and indirect effects of the above latent variables to generate consumer confidence (Kim *et al.*, 2009), an important aspect for consumers in online shopping because transactions are more impersonal, anonymous and automated (Winnie, 2014). Therefore, the website must provide a certain tangible and realistic character to the products, as well as information on the quantity, variety and availability of products, and on the purchase process (i.e. price, promotions, offers and payment) (Gonçalves *et al.*, 2016). It is for this reason that information about the product must generate in consumers the perception that their expectations will be fulfilled (Kim and Benbasat, 2003). Therefore, the following hypothesis states:

H6. The perception about prices and certain attributes of the product has a direct and positive influence on consumers' satisfaction.

Satisfaction as a mediator driver

In both offline and online contexts, customer satisfaction is the most researched factor in the literature because it is the variable that most influences the formation of e-loyalty (Anderson and Srinivasan, 2003; Wu and Hsu, 2015). Satisfied customers are more committed and willing to repeat the purchase on the same website, and to recommend it (Li *et al.*, 2015; Chen and Wang, 2016). However, some authors claim that the relationship between satisfaction and loyalty is complex, as shown in some studies, because greater satisfaction is not necessarily accompanied by an increase in loyalty due to the reduced costs of destination change (Sobihah *et al.*, 2015). Similarly, some authors have found that dissatisfied customers can remain loyal (Chang and Chen, 2008b).

Satisfaction can be defined in two ways; first, the satisfaction that refers to the psychological state derived from a customer's pleasure or dislike after an online shopping experience, compared to the shopping experience in traditional stores (Cyr *et al.*, 2008). Second, the satisfaction that refers to the perception of the degree to which a customer's previous expectations are confirmed after an online shopping experience (Anderson and Srinivasan, 2003). Some studies consider satisfaction from a cumulative and global perspective (Yang *et al.*, 2009) vs approaches that consider satisfaction in relation to the customer experience during the different phases of the purchase (Afsar *et al.*, 2013). Finally, satisfaction is a multi-dimensional variable, since it has affective (Oliver, 1993a, b), hedonic (Jones *et al.*, 2006) and relational components (Flavián *et al.*, 2006).

Consequently, the seventh hypothesis states that:

H7. Satisfaction in e-commerce has a direct and positive influence on e-loyalty.

Three hypotheses are added to analyse in greater depth the relationships between variables of e-loyalty. First, because the generational cohorts have different values, preferences and buying behaviours, it is an important objective for tourism firms to understand these preferences and generational differences in the young segment. It allows to promote and to offer more adapted products and services regarding e-loyalty and the variables that

determine them (Bilgihan, 2016). However, the online behaviour of this "online generation" is still poorly studied (Nusair *et al.*, 2011, 2013; Martínez, 2014).

Taking into account the above about and the results of previous studies (Martínez, 2014; Martínez *et al.*, 2016), the following hypothesis states that:

H8. Young people attach high importance and value to all the variables included in this study.

Finally, it is important for tourist firms to determine, within the same generational segment, if there are gender differences in the formation of e-loyalty, as this will affect whether integrated management can be carried out or if such management has to be differential (Martínez, 2014). It is also based on the premise that generations as a whole are influenced by similar socio-cultural factors and have homogeneous cognitive, affective and behavioural patterns, both in the offline (Charters *et al.*, 2011) and online contexts (Gurtner and Soyez, 2016). Thus, the following two hypotheses are established:

H9. There are no significant differences due to gender in the responses that young people give to the items, that is, to the observed variables and latent variables.

H10. There are no significant gender differences in the causal relationships of the proposed structural model.

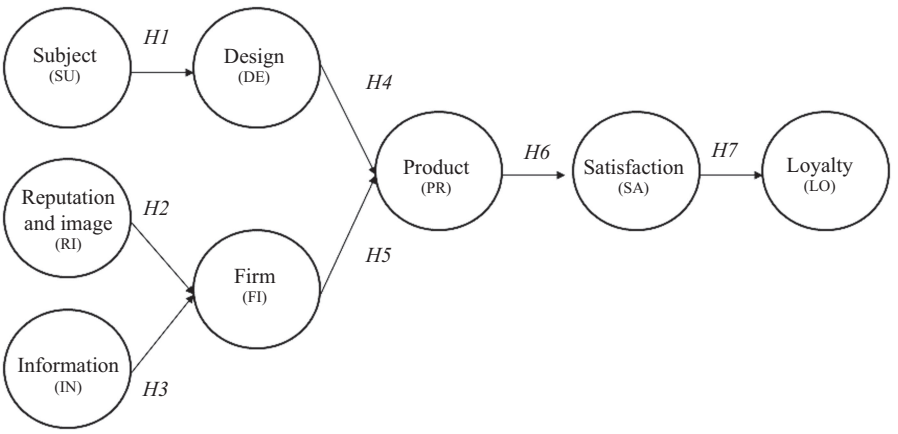
The e-loyalty formation model proposed in this paper is shown in Figure 1.

3. Methodology

Method, sample and information sources

Together with the analysis of structural equations (partial least squares (PLS)), descriptive analysis and discriminant in the context of e-loyalty have been used in this work. The PLS method has been chosen because it is rigorous and reflects the theoretical and empirical conditions of the social sciences in which the theories are not sufficiently established and the available information is scarce (Cepeda and Roldán, 2004).

The study was carried out using a sample of 497 subjects (45 per cent men, 55 per cent women). The size of the sample is in accordance with the "ten-fold rule" (Chin, 1998b; Hair *et al.*, 2014) when using the PLS method, and with studies on the perceptions of



Source: Own elaboration

Figure 1.
Causal model

young people in tourism (Jaafar *et al.*, 2015) and online contexts (Bilgihan, 2016). Regarding age, 98 per cent of the sample was between 18 and 22 years old.

The entire sample consisted of students from different degrees and years at the University of the La Laguna[2]. This segment is an adequate representation of virtual consumers by age, which brings generational character to the study, and because they have a higher level of education than the general public (Gurtner and Soyez, 2016) (Table I).

An ad-hoc designed questionnaire was used as an instrument for collecting data (Hsu *et al.*, 2006). It should be noted that the scales designed to measure loyalty in e-commerce tourism are based on existing measures in the offline context.

To design the scale, we first worked with two experts to identify the most appropriate variables, relationships and measures for the proposed model, thus guaranteeing the validity of content (Roy *et al.*, 2001). It was taken into account that in the recent literature, the variables included in this study can be measured by a small number of items, thus avoiding the methodological problems and costs derived from the use of multiple indicators (Bergkvist and Rossiter, 2007). Next, the Delphi technique (Chan *et al.*, 2001) was used to construct the definitive relations between items.

A Likert scale of 20 items was obtained with 5 response alternatives. Also included in the scale were two additional items: one related to subjects' gender and the other related to the degree of tourism consumption (the tourist destination) using the web, social networks or mobile telephony.

Dependent and independent drivers or variables

The dependent variable, e-loyalty (LO), is measured by two items: repetition of the online purchase on the same website or the recommendation of the site to other people (Allagui and Temessek, 2004; Toufaily *et al.*, 2013). The literature shows that the recommendation component is less frequent in the online context than the repetition one (Winnie, 2014; Li *et al.*, 2015).

The independent latent variable relative to the subject (SU) has been measured with 3 items based on the literature (Yoo *et al.*, 2012). The website design dimension (DE) includes three items following Yi *et al.* (2006). Image and reputation (RI) constitute the dimension of the firm and have been measured with two items as explained by Toufaily *et al.* (2013). Regarding information (IN), two items have been used from the work of Goyette *et al.* (2010). In relation to the dimension of the firm (FI), the perceived value and the quality of the service were measured with three items, following the works of Parasuraman *et al.* (2005) and Zehir *et al.* (2014). Satisfaction (SA) has been measured with two items following Elkhani *et al.* (2014) and Tseng (2017). Finally, for the design of the items related to the product dimension (PR), attributes considered in this paper and contributions of Ziaullah *et al.* (2014) have been taken into account regarding the influence of product quality on online satisfaction and loyalty.

Variable	Facilitates	Authors
Utility, ease and speed	Improved performance	Wu and Hsu (2015)
Interactivity	Reciprocal communication	Cyr *et al.*
Participation	Co-create value	Chen and Wang (2016)
Personalisation	Receive services and register preferences	Winnie (2014)
Aesthetics	Capture attention and experience	Yang *et al.* (2009)
Security reliability	Privacy, confidentiality	Jiang *et al.* (2016)
Positive experience	States of flow	Bilgihan (2016)
Brakes to change	Information, discounts	Kim *et al.*

Source: Own elaboration from the literature

Table I.
Variables related to quality website design

4. Results

Results of descriptive analysis

As can be seen in Table II and in relation to *H8*, young people state they purchase a moderate number of trips to tourist destinations in the online mode, firstly highlighting purchases through websites, followed by the ones made with mobile phones and, finally, social networks. This reduced or moderate consumption may be due to the young age of the sample, as well as the importance they give to security (Table III, item DE2: security 72.55 per cent), suggesting in any case the potential of future purchases. Additionally, the preference for the purchases using mobile telephony rather than social networks, although reduced, denotes the importance of the former for this population segment.

The data in Table III state that the levels of all variables are average/high, since none of the 20 items scored below 50 per cent of the maximum possible value ($497 \times 5 = 2{,}485$). More than 50 per cent of the items obtained more than 70 per cent of the maximum possible score (2,485), with items related to the subject having the lowest score, but above 60 per cent. Consequently, *H8* is confirmed.

Results of causal analysis

Firstly, an exploratory factorial analysis with varimax rotation was carried out using the principal components method (Anderson and Gerbing, 1988). An eight-factor structure was obtained (see Table IV). This factor structure was accepted because the variables that make up the factors have a high correlation with each other (higher than 0.70) and a reduced correlation with other variables (Worthington and Whittaker, 2006, p. 821).

The PLS analysis studied the reliability and validity of the relationships between the observed variables (items) and the latent variables with which they are associated. It was shown that the observed variables reached the required minimum level ($\lambda \geqslant 0.70$) (Table IV), thus confirming that the indicators were part of their corresponding constructs. In addition, the composite reliability (CR) study showed that because all values were above 0.70, the measurement model was internally consistent and all the indicators or variables observed were measuring their corresponding latent variable (Hair *et al.*, 2014).

Degree year/gender	Men	Women	Total (%)
1st	82	105	187
2nd	63	77	140
3rd	45	51	96
4th	34	40	74
Total (%)	224 (45%)	273 (55%)	497 (100%)

Source: Own elaboration

Table II.
Sample details

Method	Min.	Max.	Sum	%
Using the web	1	5	1,480	59.56
Using social networks	1	5	832	33.48
Using mobile phones	1	5	1,079	43.42

Notes: $n = 497$. The percentage refers to the maximum value that the item would have reached if the entire sample had given the item the highest score (5)

Source: Own elaboration

Table III.
Online consumption data

Latent variable		Min.	Max.	Sum	%	Average	DT
Subject (SU)	SU1	1	5	1,526	61.41	3.07	1.05
	SU2	1	5	1,729	69.58	3.48	1.09
	SU3	1	5	1,676	67.44	3.37	1.01
Design (DE)	DE1	1	5	1,484	59.72	2.99	0.88
	DE2	1	5	1,803	72.55	3.63	1.01
	DE3	2	5	1,961	78.91	3.95	0.87
Reputation and image (RI)	RI1	2	5	1,905	76.66	3.83	0.87
	RI2	1	5	1,927	77.55	3.88	0.92
Information (IN)	IN1	1	5	1,555	62.58	3.13	1.08
	IN2	1	5	1,799	72.39	3.62	0.96
Firm (FI)	FI1	1	5	2,091	84.14	4.21	1.03
	FI2	1	5	1,935	77.87	3.89	0.91
	FI3	1	5	1,995	80.28	4.01	0.98
Product (PR)	PR1	1	5	1,973	79.40	3.97	0.97
	PR2	1	5	1,935	77.87	3.89	0.96
	PR3	1	5	1,955	78.67	3.93	0.97
Satisfaction (SA)	SA1	1	5	1,644	66.16	3.31	1.20
	SA2	1	5	1,700	68.41	3.42	1.17
Loyalty (LO)	LO1	1	5	1,708	68.73	3.44	1.14
	LO2	1	5	1,758	70.74	3.54	1.19

Source: Own elaboration

Table IV.
Descriptive statistics

Convergent validity and discriminant validity were also analysed (Fornell and Larcker, 1981). To test the former, average variance extracted (AVE) was used and in all cases the result was higher than 0.50, so it was found that more than 50 per cent of the variance of the construct was due to its indicators (Chin, 2010) (Table IV). In the latter, the square root of AVE (on the diagonal of Table V) was found to be greater than the shared variance between the construct and the other constructs of the model.

Latent variable	Items	Loading λ	CR	AVE
Subject (SU)	SU1: computer and website knowledge	0.710	0.762	0.517
	SU2: the website fits in with my lifestyle	0.708		
	SU3: be accustomed to buying online on the site	0.739		
Design (DE)	DE1: make the website interactive and allow participation	0.724	0.797	0.567
	DE2: security and reliability of website	0.756		
	DE3: website is quick and easy to use	0.778		
Reputation and image (RI)	RI1: perceived reputation of the firm	0.820	0.813	0.685
	RI2: image I have of the firm and website	0.835		
Information (IN)	IN1: information from other people about the website	0.709	0.772	0.632
	IN2: information received by other means	0.872		
Firm (FI)	FI1: on the website I receive more than I give	0.806	0.848	0.651
	FI2: the firm provides a good service through the website	0.764		
	FI3: the firm complies effectively as promised on the site	0.849		
Product (PR)	PR1: offers and promotions on certain products	0.710	0.815	0.596
	PR2: real and tangible character of products	0.831		
	PR3: variety and availability of products	0.770		
Satisfaction(SA)	SA1: my expectations have been met	0.945	0.946	0.898
	SA2: I have perceived and felt satisfaction	0.950		
Loyalty (LO)	LO1: I would recommend the site to other people	0.944	0.931	0.872
	LO2: I would repeat the purchase on the same site	0.923		

Source: Fuente: own elaboration

Table V.
Measurement model: basic data

Additionally, the matrix of cross-factor loadings (Chin, 1998a) was obtained (Table VI). The indicators were more correlated with their own construct than with the others, showing that the measurement model has an acceptable convergent and discriminant reliability and validity.

Regarding the evaluation of the causal model, it was verified that the exogenous latent variables contributed to explaining the variance of the e-loyalty variable significantly, since the path coefficients (β) reached levels above the acceptable minimum level ($\beta \geqslant 0.2$), and even at the optimal level ($\beta \geqslant 0.3$) (Table VII).

The highest paths associated the subject (SU) with the perception of the site design (DE) ($\beta = 0.440$), the firm (FI) with the product (PR) ($\beta = 0.434$) and, especially, the satisfaction (SA) with loyalty (LO) ($\beta = 0.882$). In contrast, the lowest causal relationships were those that linked the latent design variable (DE) with the product (PR) ($\beta = 0.281$) and the product (PR) with satisfaction (SA) ($\beta = 0.286$).

In addition, in all direct causal relationships, the *t*-statistic obtained levels that verified their high significance ($P < 0.01$), as evidenced in the bootstrapping analysis carried out

	SU	DE	RI	IN	FI	PR	SA	LO
SU	*0.719*							
DE	0.440	*0.753*						
RI	0.133	0.068	*0.828*					
IN	0.329	0.250	0.334	*0.795*				
FI	0.326	0.374	0.425	0.425	*0.807*			
PR	0.236	0.443	0.290	0.312	0.539	*0.772*		
SA	0.209	0.115	0.142	0.122	0.188	0.286	*0.948*	
LO	0.180	0.188	0.099	0.093	0.081	0.248	0.882	*0.934*

Table VI.
Disciminant validity: Fornell Larcker criteria

Source: Own elaboration

Latent variable		SU	DE	RI	IN	FI	PR	SA	LO
Subject (SU)	SU1	*0.710*	0.221	0.157	0.149	0.196	0.008	0.212	0.234
	SU2	*0.708*	0.299	0.288	0.473	0.406	0.348	0.097	0.110
	SU3	*0.739*	0.387	−0.088	0.105	0.125	0.126	0.158	0.085
Design (DE)	DE1	0.348	*0.724*	0.103	0.135	0.166	0.313	−0.018	0.060
	DE2	0.262	*0.756*	0.019	0.249	0.302	0.391	0.156	0.213
	DE3	0.381	*0.778*	0.032	0.182	0.374	0.298	0.122	0.152
Reputation and image (RI)	RI1	0.112	0.081	*0.835*	0.321	0.358	0.226	0.111	0.095
	RI2	0.108	0.030	*0.820*	0.230	0.345	0.255	0.124	0.070
Information (IN)	IN1	0.310	0.119	0.203	*0.709*	0.272	0.211	0.105	0.112
	IN2	0.234	0.258	0.315	*0.872*	0.391	0.280	0.093	0.049
Firm (FI)	FI1	0.168	0.213	0.286	0.253	*0.806*	0.400	0.106	0.011
	FI2	0.254	0.380	0.326	0.300	*0.764*	0.478	0.065	0.007
	FI3	0.344	0.299	0.402	0.453	*0.849*	0.424	0.266	0.162
Product (PR)	PR1	0.121	0.312	0.261	0.195	0.324	*0.710*	0.189	0.090
	PR2	0.280	0.376	0.274	0.303	0.521	*0.831*	0.268	0.260
	PR3	0.114	0.334	0.131	0.208	0.372	*0.770*	0.194	0.198
Satisfaction (SA)	SA1	0.205	0.058	0.120	0.118	0.195	0.260	*0.945*	0.815
	SA2	0.192	0.157	0.148	0.113	0.162	0.282	*0.950*	0.857
Loyalty (LO)	LO1	0.247	0.178	0.137	0.100	0.095	0.245	0.881	*0.944*
	LO2	0.076	0.173	0.042	0.072	0.054	0.216	0.758	*0.923*

Table VII.
Cross-factor loadings

Source: Own elaboration

with 500 sub-samples and 200 cases. Consequently, all hypotheses relating to the proposed causal model are confirmed.

In the study of the structural model, three additional indicators were calculated (Table VIII): R^2, ranging from 0 to 1; Q^2, developed by Stone (1974) and Geisser (1975) to measure the predictive relevance of the dependent constructs; and the goodness-of-fit (GoF) test, which also ranges from 0 to 1.

It was found that the previous latent variables explained sufficient variance of the consequent variables, since the basic indicator R^2 reached in all cases values above the acceptable minimum level ($R^2 \geqslant 0.19$). On the other hand, values above 0 of the indicator Q^2 ($Q^2 \geqslant 0$) verified the predictive relevance of the model. Finally, a GoF value of 0.507 was obtained, which is higher than the minimum acceptable value (GoF $\geqslant 0.360$) (Table VIII). Therefore, in addition to confirming hypotheses concerning causal relations (-*H7*), it can be said that the model has predictive potential.

Result of discriminant analysis

To test *H9*, a discriminant analysis was carried out. The results (Table IX) allow us to confirm that there are some significant differences in the responses directly provided by young people for reasons of gender, as evidenced by the levels of self-value (SV) and canonical correlation (CC), and because the level of the Wilks' Lambda indicator (WL), which moves away from 1. In addition, the significance is high ($p \leqslant 0.005$).

Based on the above data, it was found that men, unlike women, state that they are accustomed to buying online (SU3), value the perceived reputation of the firm or the site (RI1) and, to a lesser extent, are willing to repeat the purchase (LO2). Women tend to value more than men, the ease and speed of the site (DE3), the information they write and share other people (IN1) and the real and tangible character of the product (PR2). Consequently, *H9* is not confirmed, since there are differences in the responses between sexes, although these differences are not excessively significant (Table X).

Latent variable	Path (β)	T	p-values	CH
H1 Subject (SU) →Design (DE)	0.440	13.205	0.000	YES
H2 Reputation and image (RI) → Firm (FI)	0.318	7.169	0.000	YES
H3 Information (IN) → Firm (FI)	0.319	10.048	0.000	YES
H4 Design (DE) → Product (PR)	0.281	6.483	0.000	YES
H5 Firm (FI) → Product (PR)	0.434	11.128	0.000	YES
H6 Product (PR) → Satisfaction (SA)	0.286	5.789	0.000	YES
H7 Satisfaction (SA) → Loyalty (LO)	0.882	85.225	0.000	YES

Source: Own elaboration

Table VIII. Effects, significance and confirmation of hypotheses

Construct	R^2	AVE	Q^{2a}
Design (DE)	0.194	0.567	0.107
Firm (FI)	0.271	0.651	0.170
Product (PR)	0.359	0.596	0.205
Satisfaction (SA)	0.192	0.898	0.151
Loyalty (LE)	0.779	0.872	0.670
Average	0.359	0.717	–
GoF	0.507		

Note: [a]This test is a measurement of the degree to which the observed values are reproduced by the model and by its estimated parameters

Table IX. R^2. Q^2 and GoF test indicators

With respect to *H10* regarding gender differences, a multi-group analysis was performed using the analytical method called PLS-MGA (Hair *et al.*, 2014). The results obtained using 5,000 cases and significance level of 0.05 are shown in Table XI.

Taking into account that the path differences, with $p \leqslant 0.05$ and $p \geqslant 0.95$, are considered significant, *H10* is not confirmed, since most of the causal relationships between latent variables (path) are significantly different between men and women (Table XII).

5. Discussion and conclusions

This paper is a new contribution to the online context of tourism destinations providing a better understanding, both theoretically and practically, of the process of forming e-loyalty among young people, responding with it to the needs and concerns of other authors (Gonçalves *et al.*, 2016; Winnie, 2014; Bilgihan, 2016).

It is concluded that e-commerce is the prevailing form of commerce whether carried out through websites, social or mobile phone networks, therefore tourism firms must continue to strive to develop online loyalty among their customers (Elkhani *et al.*, 2014; Winnie, 2014).

Additionally, researchers and practitioners should research in greater depth the variables that affect e-loyalty in tourism. This is due to the benefits of e-loyalty, the increasing competition of the online market and the greater demands of tourist users

Table X.
Discriminant analysis, basic data

Results by sex				Centroids	
AV	CC	LW	Sig.	*H*	*M*
0.336	0.502	0.748	0.000	0.649	−0.516

Source: Own elaboration

Table XI.
Discriminant analysis, standardised coefficients

Items	SC	Items	SC
SU1	0.280	FI1	0.143
SU2	0.236	FI2	0.168
SU3	*0.557*	FI3	−0.183
DE1	0.236	PR1	−0.260
DE2	0.087	PR2	*−0.723*
DE3	*−0.464*	PR3	0.000
RI1	*0.558*	SA1	0.080
RI2	0.221	SA2	0.112
IN1	*−0.438*	LO1	−0.237
IN2	0.166	LO2	*0.365*

Source: Own elaboration

Table XII.
PLS-MGA multi-group analysis (men and women)

Latent variable	Dif. path (β) (*H-M*)	*p*-values
H1 Subject (SU) →Design (DE)	0.263	1.000
H2 Reputation and image (RI)→Firm (FI)	0.141	0.966
H3 Information (IN)→Firm (FM)	0.233	0.000
H4 Design (DE)→Product (PR)	0.198	0.016
H5 Firm (FI)→Product (PR)	0.013	0.582
H6 Product (PR)→Satisfaction (SA)	0.302	0.002
H7 Satisfaction (SA)→Loyalty (LE)	0.049	0.008

Source: Own elaboration

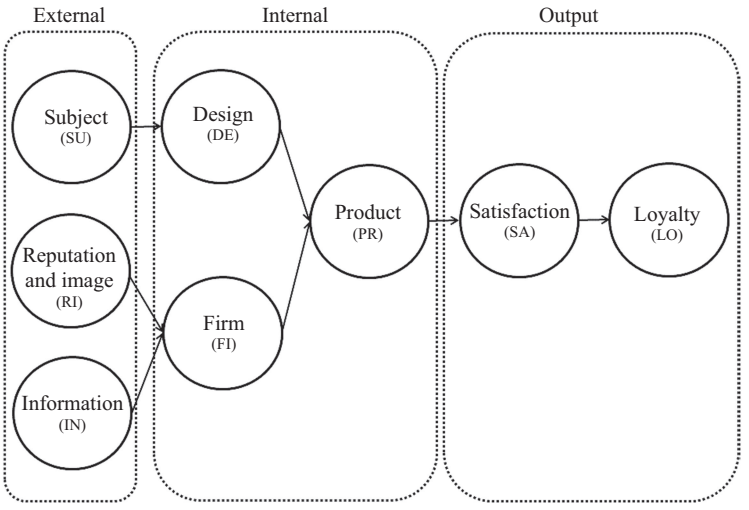
(Sobihah *et al.*, 2015; Wu and Hsu, 2015). There are several factors to be considered that are specific to online purchases of tourism products such as the inexistence of face-to-face interactions in e-commerce, as well as the insecurity, complex and intangible nature of the sector itself, and of the products and services that are marketed (Martínez *et al.*, 2016).

Thus, tourism firms must properly manage the variables involved in the formation of e-loyalty, bearing in mind that they do not have full control over some of them. Such management should be carried out on the premise that in the online context, young people constitute the segment of the least loyal consumers, but with the highest potential consumption and influence. In addition, this segment is highly predisposed to carrying out leisure and tourism activities, using e-commerce and regularly using the internet, social networks and mobile phones (Jing *et al.*, 2015).

In this paper, a causal model has been generated that is clear and largely approachable at a practical level by tourism managers, as far as most of the controllable variables are concerned. This model has generated three large groups of variables that must be adequately managed by firms (see Figure 2), which include external, internal and output variables.

The "external" variables are that that facilitate or precede loyalty and are characterised by initiating the chain of effects that leads to e-loyalty and to which tourism managers must pay special strategic attention. Thus, to orientate themselves to the online market and the digital consumer, tourism firms should take into account the users when designing their websites and, therefore, integrate information technology professionals with marketing and tourism professionals.

Likewise, tourism firms should, as far as possible, attend to all actions and messages that online tourist users send to and receive from firms and their websites, which could negatively affect the reputation and image as these have an influence on the value and quality of the service perceived by consumers (Çoban, 2012). Moreover, it should be ensured that messages and ratings by other users, on the site or on others, are the most appropriate owing to their influence on young people's perceptions about the value and quality of service as demonstrated.



Source: Own elaboration

Figure 2.
Grouping of variables in model

As for the "internal" variables, these have greater influence on satisfaction and loyalty as reflected by Chen and Wang (2016). The internal variables that most require attention when targeting the youth segment are: website design, value and quality of service offered, as well as information and presentation of products. Likewise, it is recommended that efforts be made to generate user-friendly websites to generate positive perceptions regarding the tangibility and realism of products, the availability of products and the value of promotions (Li *et al.*, 2015). To the extent that consumers perceive high value and effective and quality service, tourism products will also be perceived positively (Chen, Chang and Lee, 2015), and it will be more feasible to meet the expectations of young people and form loyalty (Jiang *et al.*, 2016).

Tourism firms, following the above, should continue to investigate the perceptions and expectations of their customers so as to satisfy them and only in this way, will online tourist users be satisfied, repeat the purchase on the same site or recommend it to other consumers. From the results of the descriptive analysis, it is concluded that young people make tourism purchases online in a moderate way, highlighting in first place purchases through the web, followed by mobile phones and, lastly, through social networks. This may be due to the limited resources of young people, or because, due to the age of the segment studied, their online experience is still scarce. However, these statements by young people about their consumption neither contradict their potential consumption and influence (Nusair *et al.*, 2011, 2013), nor the characteristics conducive to e-commerce that this segment has (Gurtner and Soyez, 2016).

Furthermore, it is useful for firms to know and take into account that, as well as the causal relationships of the proposed model, young people's assessments about the variables analysed in this study oscillate around 70 per cent, including satisfaction and loyalty. This suggests that young people have a favourable attitude and predisposition towards e-commerce, which, in turn, favours firms' efforts to promote consumption and loyalty within the framework of the model's variables.

Although studies on the formation of offline loyalty in tourism have demonstrated there are not large differences between men and women in a sample similar to that of this study (Martínez, 2014; Martínez *et al.*, 2016), in this online context, there are some gender differences in the responses given by young people, although these differences are not very significant. These differences suggest a pattern of online shopping behaviour related to satisfaction and e-loyalty that is more related to the search for security by women and a greater fit to their own lifestyles for men. Given that there are also some gender differences in the causal relationships of the proposed model, firms should study and understand these differences in more detail to assess the possibility of conducting differential online actions directed at men and women, in order to promote online shopping behaviour, satisfaction and loyalty of the segment.

Limitations and future lines of research

The main limitation of this study has been related to the number of variables and measurement indicators that, according to the literature, influence e-loyalty. Therefore, as a future line of research, we suggest studies that include other variables in the formation of e-loyalty.

In relation to the age segments, it might be interesting to compare the formation of e-loyalty between different generational segments. Likewise, it would be of interest to analyse in more depth what the gender differences found in direct responses and in causal relations may be due to. Additionally, it would be interesting to conduct a study of online loyalty by differentiating whether the purchasing process is carried out on social networks, mobile telephony or websites.

Notes

1. In this paper, the term e-loyalty is used. Consumer e-loyalty is studied in a global framework, i.e. considering consumer buying behaviour regardless of whether through websites, social networks or mobile phones. The "website" is the specific link that the consumer is using at a given time.
2. It has been verified that, regardless of studies or academic year, there are no significant differences in the responses of young people of the same age as shown by Martínez (2014) using subjects and variables similar to those included in this study.

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Effects of the intensity of use of social media on brand equity

An empirical study in a tourist destination

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Abstract

Purpose – The purpose of this paper is to provide a comprehensive research of the effects of the intensity of use of social media on destination brand equity. The authors use the schema theory and a multidimensional approach of brand equity to analyse how social media communication affects brand awareness, brand image, customer value, brand quality and loyalty.

Design/methodology/approach – The authors carried out a quantitative study through a personal survey with structured questionnaire. The study population were international tourists, over 18 years of age, who were visiting the city of Valencia, Spain. Respondents were asked to take the questionnaire upon arrival in Valencia, that is, before they had any direct experience of the tourist destination and when their knowledge of the city came only from the sources of social media information they have used. The final sample size was 249 interviewees.

Findings – Findings confirm a positive effect of the intensity of social media use on brand awareness. Results also suggest that brand awareness influences other dimensions of brand equity and highlight the influence of the destination affective image on the intention to make WOM communication.

Originality/value – Its originality lies in a unique approach for data collecting and using the schema theory of cognitive psychology to understand the phenomenon of social media influence on tourist perception of destination brands. The findings contribute to the development of better social media marketing in order to manage destination brands online.

Keywords Social media, Brand equity, WOM, eWOM, Tourism destination image

Paper type Research paper

1. Introduction

In the last two decades, social media have provoked a revolution in marketing communication, offering new possibilities for interaction between user and brand. This interaction has great relevance for brands because social network users rely on the advice they receive from other users (Schmitt *et al.*, 2011), and this communication influences the decision-making process (Hinz *et al.*, 2011).

Organisations are aware of the need to understand the effects of social media on brand perception (Kumar *et al.*, 2016). While social media researchers have focussed primarily on analysing particular social networks in isolation, such as Twitter (Hennig-Thurau *et al.*, 2015), Facebook (De Vries *et al.*, 2012; Schivinski and Dabrowski, 2015; Kumar *et al.*, 2016) and online surveys of web pages (Tirunillai and Tellis, 2012), there are few studies that incorporate different types of social networks for comparative purposes, with exceptions (Smith *et al.*, 2012; Schweidel and Moe, 2014).

Without doubt, previous studies have contributed to a deeper understanding of communication in social media (Smith *et al.*, 2012; Schweidel and Moe, 2014;

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Swaminathan, 2016), but few studies analyse the interaction of consumers with brands on different social media (Anderl *et al.*, 2015). Given the large scale of use of social media, there is a lack of research analysing the influence of multiple social media on brand equity (Schivinski and Dabrowski, 2015; Keller, 2016; Gürhan-Canli *et al.*, 2016).

Taking into account the need for further research into brand equity in the digital age, and due to the lack of theoretical knowledge and empirical research on the role of social media in the formation of destination brands (Halkias, 2015; Llodrà-Riera *et al.*, 2015; MSI, 2016), the present study focusses on the analysis of the effect of the intensity of use of different social media channels on destination brand equity (Llodrà-Riera *et al.*, 2015; MSI, 2016).

The structure of this paper is as follows: first, there is a literature review of the conceptualization of brand equity and its dimensions, and the influence of social media on the dimensions of brand equity and intention to recommend the brand by word of mouth communication. Next, the methodology of the research is described and the analysis and discussion of the results is given. Finally, the main conclusions of the study are described, highlighting the managerial implications, the main limitations of the study and possible future research lines.

2. Literature review

2.1 Brand equity in tourist destinations: definition and dimensions

In the marketing literature, brand equity is a fundamental, basic concept in brand management (Aaker, 1996; Keller, 1993, 2003; Gómez and Molina, 2013). From a marketing perspective, following Aaker (1991, 1996) and Keller (1993), brand equity is described as the value of the brand in the consumers' minds and, in particular, is defined as the differential effect exerted by brand awareness on the response of the consumer towards the brand (Keller, 1993, 2016), or as the perceived utility and overall superiority of a product because of its brand name, in comparison with other brands (Lassar *et al.*, 1995).

Since its appearance in the 1990s (Aaker, 1991; Keller, 1993), the concept of brand equity has become a prominent topic in tourism marketing literature (Echtner and Ritchie, 1991; Horng *et al.*, 2012). The first studies on brand equity in tourism were applied to hotels (Cobb-Walgren *et al.*, 1995), restaurants (Kim and Kim, 2005) and airlines (Chen and Tseng, 2010). Destination brand equity was introduced in the study of Konecnik and Gartner (2007), based on the works of Aaker (1991, 1996) and Keller (1993, 2003), and in this study brand is analysed from the consumer perspective as a multidimensional concept consisting of brand awareness, image, quality, perceived value and loyalty.

With regard to the relationships between the dimensions of brand equity, a review of the literature identifies three types of studies: research on the dimensions of brand equity as a higher-order construct (Konecnik and Gartner, 2007; Kladou and Kehagias, 2014); works identifying the external variables (antecedents/consequences) of brand equity (Bigné *et al.*, 2013) and works that focus on the hierarchical relationships between the dimensions of brand equity (Boo *et al.*, 2009; Pike *et al.*, 2010; Bianchi *et al.*, 2014). In this present investigation, we focus on the latter two, thus analysing both the hierarchical relationships between the dimensions of brand equity and the effect of social media as an antecedent of brand equity.

2.2 Social media, schema theory and brand equity

In order to analyse the relationship between the intensity of social media and brand equity, the present work starts from the schema theory model derived from cognitive psychology (Fiske, 1982; Mandler, 1982; Eysenck and Wilson, 1984), which forms the basis of various studies on information processing and the effect of advertising (MacInnis and Jaworski, 1989; Lane and Fastoso, 2016), and, more recently, the relationship between social media and brand equity (Bruhn *et al.*, 2012; Schivinski and Dabrowski, 2015, 2016).

According to the above-mentioned theory, consumers associate communication stimuli with their prior knowledge, which is organised into schemes (Puligadda *et al.*, 2012; Lane and Fastoso, 2016). Therefore, new information is not stored in a random fashion, rather it is sorted into categories that are associated with a concept in the consumer's mind (Halkias, 2015). For example, in the context of a destination as a brand, if information received is congruent with the consumer's knowledge about the destination, the information is assimilated into the existing scheme, but if the new information is inconsistent with his knowledge, the structure of the scheme changes to absorb the new data (Gürhan-Canli and Maheswaran, 1998; Lane and Fastoso, 2016).

The change in the scheme affects the upper node that, according to Keller (1993, 2001, 2016), represents the brand image. According to Bransford and Johnson (1972), Anderson *et al.* (1977) and Eysenck (2013), the process of assimilating the new information into the mind of the consumer happens so subtly that they are often unaware of changes in their mental structures. However, previous research confirms that these changes may affect consumer decision making (Puligadda *et al.*, 2012; Halkias, 2015) and their perception of brand equity (Bruhn *et al.*, 2012).

Following this line of research, the present paper argues that the intensity of use of social media influences the dimensions of brand equity. Second, we develop the conceptual model, shown in Figure 1. In this model, the intensity of the use of social media is a determinant of brand equity. Specifically, the relationships between the following constructs are analysed:

(1) analysis of the influence of the intensity of use of social media on brand awareness;

(2) analysis of the effects of brand awareness on image, quality, customer value and intention to make WOM communication;

(3) analysis of the relationship between the components of the image, cognitive and affective; and

(4) analysis of the effects of the dimensions of brand equity (image, quality and value) on the intention to make WOM communication.

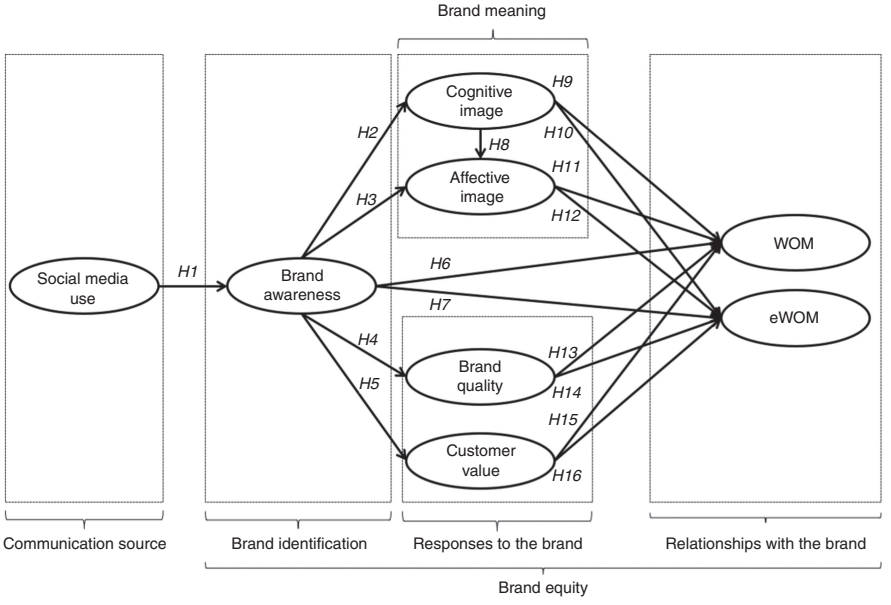

Figure 1.
Proposed conceptual model

2.3 Conceptual model and hypotheses

2.3.1 Effects of social media intensity on brand awareness. Previous studies empirically evidence that marketing communications can reinforce brand awareness (Aaker, 1991; Yoo *et al.*, 2000). Also, more recent studies indicate that communication on social media can have the same effect, based on schema theory (Bruhn *et al.*, 2012; Schivinski and Dabrowski, 2015). Social networking users are daily increasingly exposed to content on tourist destinations that they share with their friends (photos, videos, blogs, comments, etc.), which has a significant impact on brand awareness (Hutter *et al.*, 2013; Halkias, 2015).

Although the content generated by the company is always positive, compared to user generated content, which may be positive and/or negative, some authors argue that both types of content increase brand awareness and help the consumer in his purchase decision (Bruhn *et al.*, 2012; Hutter *et al.*, 2013; Kumar *et al.*, 2016). Therefore, it is considered that the intensity of interaction with the brand on social media can positively influence brand awareness of the destination at the moment of making the travel decision, proposing the following hypothesis:

H1. The intensity of social media use positively influences brand awareness.

2.3.2 Effects of brand awareness on image, quality, customer value and the intention to make WOM and eWOM. Along with brand awareness, as discussed above, brand equity comprises other dimensions such as image, quality, perceived value and loyalty (Keller, 2001). This section analyses the effect of awareness on these dimensions.

According to Keller (1993), brand awareness is necessary for the formation of image. A brand well established in the memory helps the consumer to form associations about the brand. First, the consumer recognises that a tourist destination exists and, later, a scheme or association is created in his memory that represents the image of the destination. Various studies support this analysis in the context of social networks (Llodrà-Riera *et al.*, 2015), because the content generated or shared by the other users represents the stimulus that influences the formation of the image of the destination (Keller, 1993). This process can occur in a conscious or unconscious way. In fact, Bruhn *et al.* (2012) find that content shared on social media influences brand awareness and, in turn, this influences brand image.

Based on previous research, image has two dimensions: cognitive and affective (Hyun and O'Keefe, 2012). The affective image is related to the emotional responses that the destination evokes. The cognitive image, on the other hand, can be defined as the perception of the functional and psychological attributes of the destination. The functional component is based on tangible attributes, such as tourist attractions. The psychological refers to abstract attributes such as the client's perception of quality and customer value (Bigné *et al.*, 2009).

Specifically, in the context of tourism there is a positive relationship between consumer generated content and brand image. Barreda (2014) empirically confirms the relationship between social media interaction on travel and brand awareness, and notes that awareness positively influences image. Consequently, based on the previously mentioned studies about the influence of brand awareness on image, and considering the two-dimensional nature of brand image of tourist destinations, the following hypotheses are proposed:

H2. Brand awareness on social media positively influences cognitive image.

H3. Brand awareness on social media positively influences affective image.

Previous research confirms that brand awareness influences brand quality (Keller and Lehmann, 2003; Pike *et al.*, 2010). Similarly, in the context of social media marketing, Schivinski and Dabrowski (2015) investigated the impact that communication on Facebook has on brand equity. The study analysed 60 different brands in three industries

(non-alcoholic beverages, fashion and mobile telephones) and empirically verified the positive influence of brand awareness on brand quality. Therefore, the following hypothesis is proposed in the field of tourist destinations:

H4. Brand awareness on social media has a positive influence on the brand quality of the destination.

Some authors empirically conclude that there is a positive relationship between brand awareness and perceived value (Webster, 2000; Oh, 2000: Kwun and Oh, 2004). Extending these results to the context of tourist destinations and the influence of social media on value formation (Schau *et al.*, 2009; Tasci, 2016), the following hypothesis is proposed:

H5. Brand awareness on social media positively influences customer value.

Works on destination brand equity have investigated the relationship between brand awareness and the intention to recommend (conceived as a component of attitudinal loyalty) (Pike *et al.*, 2010; Bianchi and Pike, 2011; Bianchi *et al.*, 2014; Yang *et al.*, 2015); however, the relationship between these two concepts in the social media environment has not been tested. Taking a similar approach to the studies previously discussed about brand awareness and WOM in the offline context, the influence of brand awareness on eWOM is posited. Therefore, the following hypotheses are made:

H6. Brand awareness on social media has a positive influence on the intention to develop WOM.

H7. Brand awareness on social media has a positive influence on the intention to develop eWOM.

2.3.3 Dual image of the destination. As indicated above, the present work analyses image through its two dimensions: cognitive and affective. In previous studies (Baloglu and McCleary, 1999; Hyun and O'Keefe, 2012), it was shown empirically that cognitive image positively influences affective image. In the field of tourist destinations, the following hypothesis is proposed:

H8. Cognitive image positively influences the affective image of the destination.

2.3.4 Effects of image, quality and customer value on the intention to develop word of mouth communication. In the review of the literature on brand equity of tourist destinations, several studies have found evidence of a positive relationship between affective brand image and intention to recommend (Pike *et al.*, 2010; Bianchi and Pike, 2011; Bianchi *et al.*, 2014; Yang *et al.*, 2015). Similarly, with respect to cognitive image, the study by Im *et al.* (2012) confirms that cognitive image influences the intention to recommend the destination. Consequently, it is proposed that, the greater are the values of the two components of the destination image, the greater will be the positive intention to recommend the destination, in traditional and digital ways (WOM and eWOM); thus, the following hypotheses are proposed:

H9. Cognitive image positively influences the intention to develop WOM.

H10. Cognitive image positively influences intention to develop eWOM.

H11. Affective image positively influences the intention to develop WOM.

H12. Affective image positively influences the intention to develop eWOM.

In previous studies of brand equity in tourist destinations, it was evident that the perception of destination brand quality influences attitudinal loyalty (Pike *et al.*, 2010; Bianchi and Pike, 2011; Bianchi *et al.*, 2014). Considering that use of social media will contribute to consumers' higher valuation of quality attributes, it is expected that the

higher the level of perceived brand quality of the destination, the greater will be attitudinal loyalty; in this case, in the intention to recommend the tourist destination. Therefore, the following hypotheses are proposed:

H13. Destination brand quality positively influences the intention to develop WOM.

H14. Destination brand quality positively influences the intention to develop eWOM.

Previous studies have shown the positive relationship between perceived value and attitudinal loyalty (Cretu and Brodie, 2007), and between perceived value and WOM (Oh, 1999; Olaru *et al.*, 2008).

Extending the precedent to the field of tourist destinations, it is expected that perceived customer value will have a positive influence on intention to recommend the destination; therefore, the following hypotheses are made:

H15. Customer value positively influences intention to develop WOM.

H16. Customer value positively influences intention to develop eWOM.

3. Research methodology

3.1 Study design

To test the proposed model, a quantitative study was carried out with international visitors to the tourist destination of Valencia, Spain. The choice of this destination is justified by its leading position in the Valencian Community in the use of social media as a communication tool (Invat.tur, 2015). As detailed in Table AI, Valencia has more than 160,000 followers on various social media. By way of illustration, #visitvalence has been used more than 20,000 times and #vlc more than 200,000. These hashtags represent filters that help users to research information about a destination, and are used by both brand managers and other Instagram users. These figures suggest that online communication has a great impact on potential tourists. Also, it should be noted that the use of digital media for contracting services is significant. As a specific example, 77 per cent of visitors to the city use the internet to hire transport and/or accommodation (Turismo Valencia, 2016).

3.2 Measurement scales

The intensity of social media use as a general source of information has been measured by adapting the scale of Llodrà-Riera *et al.* (2015) with three items, based on the intensity of interaction with the brand (how much content about the tourist destination did you see on social media?), applying a semantic differential scale of seven points (1 – I have not seen anything, 7 – I have seen a lot of content); the utility of the information found for the selection of the destination, applying a scale of seven points (1 – has not helped at all, 7 – has helped me a lot) and the utility of the information found for the organisation of the trip (the content seen in social media has helped in the choice of destination), applying a scale of seven points (1 – has not helped at all, 7 – has helped me a lot).

In order to measure the constructs of the proposed model, measurement scales have been used for the dimensions of brand equity: awareness of the destination brand, cognitive image, affective image, brand quality and the intention to recommend using WOM and eWOM. A seven-point Likert scale has been applied, 1 – totally disagree to 7 – fully agree. Table I shows the scale items.

It should be noted that the scale for the cognitive image of a tourism destination was adapted from the work of Echtner and Ritchie (1993), and it is a second-order construct that relates formatively to its dimensions (Laroche *et al.*, 2005; Gómez *et al.*, 2013). The attributes

Intensity of use of social media	
I saw content about Valencia on the Internet	Llodrà-Riera *et al.* 2015
The content that I saw on the internet helped me at the moment I chose to go to Valencia	
The content helped me plan/organise my activities in Valencia	
Destination brand awareness	
Valencia has a good name and reputation	Boo *et al.* (2009)
Valencia is a famous city	
The characteristics of Valencia come quickly to mind	Konecnik and Gartner (2007)
I saw a lot of publicity about Valencia	
Cognitive image of the destination brand	
Cultural image	
Valencia is a cultural and historic city	Echtner and Ritchie (1993)
The old city of Valencia is very attractive	
Valencia has a variety of interesting museums	
Valencia offers many attractive tourist attractions	
Nature	
Valencia has attractive beaches	Konecnik and Gartner (2007)
It has very beautiful parks and nature zones	
The environment of Valencia (villages and nature) is very pretty	
Attractions and Leisure	
Valencia has very vibrant nightlife	Echtner and Ritchie (1993)
Valencia is a city that offers many interesting events (fairs, festivals etc.)	
It has a lot of shopping facilities (shops, shopping centres)	
The local gastronomy is very rich and varied	
Mediterranean city	
Valencia has a nice climate	Echtner and Ritchie (1993)
Valencia is a Mediterranean city	
Affective image of Valencia	
Boring – Fun	Russel and Pratt (1980)
Unpleasant – pleasant	
Stressful – relaxing	
Depressing – exciting	
Quality of the destination brand	
Valencia has a very good tourism offer	Boo *et al.* (2009)
Valencia offers a range of lodgings	Konecnik and Gartner (2007)
Valencia has good quality local infrastructure and transport	
I believe that Valencia is a city where I will feel safe	
I have high expectations about Valencia	Boo *et al.* (2009)
Customer value	
Valencia has reasonably priced hotels and restaurants	Boo *et al.* (2009)
I believe that I am going to get much better value for money in Valencia in comparison to other destinations	
The cost of visiting Valencia is reasonable considering the benefits I will derive	
Intention to recommend using traditional word of mouth communication (WOM)	
I am going to speak positively about Valencia as a tourist destination	
If I was asked I would recommend Valencia as a tourist destination	
I would recommend Valencia to my friends and family	
Intention to recommend using electronic word of mouth communication (eWOM)	
I am going to share the details of my trip on the social media I use	Kim and Ko (2012)
I am going to recommend Valencia as a tourist destination on social media	
I would recommend Valencia as a tourist attraction to my friends and family on social media	

Table I.
Measurement scales used in the empirical study

of the image are measured by 13 items grouped around cultural aspects, nature, fun/leisure, climate and Mediterranean identity; these dimensions are related in a reflective way with their indicators.

3.3 Data collection and profile of respondents

In order to address the objectives of the research and to verify the hypotheses, a quantitative study was developed through a personal survey and a structured questionnaire. The study population were international tourists over 18 years of age who were visiting the city of Valencia. Fieldwork took place during the months of June, July, and August 2016. Respondents were asked to take the questionnaire upon arrival in Valencia, that is, before they had any direct experience of the tourist destination and when their knowledge of the city came only from the sources of social media information they have used.

For data collection, convenience sampling was used at two youth hostels in the city centre, Purple Nest and Red Nest. This decision to use this sample was motivated by the fact that the young are most active in the use of social media as a source of tourism information (Trekksoft, 2017; Nusair *et al.*, 2013). However, this biases the sociodemographic profile of the sample that, as is shown in Table II, is thus characterised by its youth: 87.5 per cent of respondents are between 18 and 35 years old. This age distribution significantly affects the subsequent interpretation of the results, and above all complicates their generalisation. The final sample size was 249 interviewees.

3.4 Psychometric properties of the measurement model

The relationships proposed in the theoretical model were estimated using partial least squares (PLS). The decision to use PLS for the verification of the theoretical model was fundamentally due to the fact that it is an algorithm that allows the measurement of models with formative constructs, without the need for additional global indicators to identify the model. In this work, cognitive image has been incorporated as a second-order construct that relates formatively to

Characteristics of the interviewees	Categories	Percentages
Sex	Male	42.2
	Female	57.8
Age	18-24	54.2
	25-34	33.3
	35-54	6.4
	< 18	5.2
	> 65	0.8
Group composition	Solo	41.8
	Friends	40.2
	Couple	12.0
	Family	6.0
Length of stay	1-3 days	41.8
	4-7 days	26.1
	1-2 weeks	7.6
	3-4 weeks	5.2
	> 4 weeks	19.0
Place of origin	Europe	61.8
	Australia	15.3
	S. America	10.8
	N. America	10.4
	Asia	1.6

Table II.
Profile of the interviewees

its dimensions (cultural, nature, leisure and Mediterranean image); these dimensions are related in a reflective way with their indicators. This molar theoretical model structure was measured through the "build-up approach" procedure (Hair *et al.*, 2014). The software used for the estimation of the parameters was the SmartPLS 3.0 (Ringle *et al.*, 2005), using a bootstrapping of 500 samples to calculate the significance of the parameters.

Before testing the structural relations of the theoretical model, it was verified that the measurement model would enjoy the proper conditions of reliability, convergent validity and discriminant validity. The three indicators used for the validation of the reliability of the measurement instrument were the Cronbach α coefficient (Cronbach, 1951; critical acceptance value = 0.7), the composite reliability index (Fornell and Larcker, 1981; critical acceptance = 0.7) and the extracted variance index (Fornell and Larcker, 1981; critical acceptance value = 0.5).

These three reliability indicators exceed the corresponding critical values for each of the factors (except for Cronbach's α for the nature dimension of the cognitive image, which has a value slightly below 0.7). As evidence of convergent validity, the results provided by SmartPLS indicate that all loads of the items on their predicted factor are significant ($p < 0.01$), these standardized loads being greater than 0.7 (Carmines and Zeller, 1979). The average of these is higher than 0.7 (Hair *et al.*, 2012) and the analysis of the cross loads did not establish higher loads on the indicators over other latent variables distinct from those predicted. Also, in Table III it can be observed that all loads of the dimensions of cognitive image on the second-order formative factor are significant (Chin, 1998).

As evidence of discriminant validity, it was found that the correlations between constructs were not higher than the square root of the variance extracted between each pair of factors, as seen in Table IV.

4. Results and discussion

Table V shows the values of the standardized coefficients of the structural relationships, and the respective levels of significance of their associated *t* statistic. It should be noted that of the 16 hypotheses, 13 could not be rejected.

First, the effect of social media intensity on brand awareness turned out to be significant, and we could not reject *H1*. This finding is in line with the results of previous studies (Bruhn *et al.*, 2012; Hutter *et al.*, 2013; Schivinski and Dabrowski, 2015; Barreda *et al.*, 2015).

Second, the results of the present study confirm the influence of brand awareness and cognitive image (*H2*). This finding contributes to Keller's (2001) theory of brand equity that the information that a user receives through social networks causes changes in the scheme (attributes of the image), and confirms the empirical evidence found in previous studies (Schuiling and Kapferer, 2004; Barreda, 2014).

As for the influence of brand awareness on affective image, a positive effect (*H3*) is confirmed, as well as a positive relation between the cognitive and affective dimensions of the image (*H8*), which allows us to conclude that between brand awareness and the rational and emotional components of the brand image there is a direct relationship in the form of a triangle where cognition is a precedent of affect.

Fourth, brand awareness influences brand quality (*H4*). This relationship has been confirmed in previous works by Keller and Lehmann (2003), Pike *et al.* (2010), and in Schivinski and Dabrowski (2015) in the context of social media. In an analogous way, *H5* is confirmed in that awareness influences customer value. This relationship follows the same line as Dodds *et al.* (1991), in the sense that the information that the consumer stores influences his perception of value, and of Webster (2000), Oh (2000) and Kwun and Oh (2004), who confirmed the same relationship in their studies.

For its part, the hypothesis that awareness influences the intention to make WOM communication (*H6*) has not been confirmed, although in previous studies by Hutter *et al.* (2013)

Factor			Item	Convergent validity Loads (*t* Bootstrap)	Average loads	Reliability Cronbach α	CR	AVE
Intensity of use of social media (RRSS)			RRSS1	0.916 (70.319)	0.910	0.874	0.921	0.795
			RRSS2	0.891 (44.655)				
			RRSS3	0.868 (32.573)				
Brand awareness(AWA)			AWA1	0.761 (18.821)	0.747	0.737	0.833	0.555
			AWA2	0.774 (21.483)				
			AWA3	0.725 (13.907)				
			AWA4	0.718 (12.964)				
Cognitive image (2° order, formative)	0.780 (17.584)	Cultural (CUL)	CUL1	0.767 (13.525)	0.757	0.759	0.845	0.578
			CUL2	0.795 (23.170)				
			CUL3	0.662 (17.064)				
			CUL4	0.807 (23.354)				
	0.807 (13.109)	Nature (NAT)	NAT1	0.613 (9.924)	0.746	0.612	0.794	0.566
			NAT2	0.797 (22.323)				
			NAT3	0.829 (28.153)				
	0.831 (14.638)	Leisure (LEI)	LEI1	0.737 (25.673)	0.788	0.800	0.868	0.623
			LEI2	0.753 (39.075)				
			LEI3	0.826 (23.246)				
			LEI4	0.838 (21.711)				
	0.658 (10.393)	Mediteranian (MED)	MED1	0.868 (34.435)	0.878	0.705	0.871	0.772
			MED2	0.889 (53.403)				
Affective image (IMA)			IMA1	0.840 (31.429)	0.858	0.757	0.836	0.570
			IMA2	0.494 (5.775)				
			IMA3	0.856 (29.025)				
			IMA4	0.772 (15.188)				
Brand quality (QUA)			QUA1	0.804 (27.060)	0.800	0.788	0.854	0.539
			QUA2	0.702 (14.973)				
			QUA3	0.740 (18.858)				
			QUA4	0.676 (13.307)				
			QUA5	0.744 (18.658)				
Customer value (VAL)			VAL1	0.825 (24.794)	0.814	0.805	0.885	0.719
			VAL2	0.879 (44.815)				
			VAL3	0.839 (25.628)				
Traditional Word of mouth (WOM)			WOM1	0.944 (87.730)	0.918	0.911	0.944	0.850
			WOM2	0.947 (89.119)				
			WOM3	0.873 (22.143)				
Electronic Word of mouth (EWOM)			EWOM1	0.754 (12.068)	0.847	0.757	0.843	0.643
			EWOM2	0.811 (18.645)				
			EWOM3	0.838 (28.182)				

Notes: CR, composite reliability; AVE, average variant extracted

Table III. Reliability and convergent validity of the measuring instrument

and Barreda *et al.* (2015) it was proven. However, *H7* which states that brand awareness influences the intention to make eWOM, is confirmed. Although a direct link between brand awareness and WOM has not been found, it is found that awareness influences other dimensions of brand equity (affective image, cognitive image, brand quality, customer value) that have a positive relationship with WOM. Therefore, it can be concluded that there is an indirect relationship between brand awareness and WOM.

On the other hand, a significant relationship is not found between cognitive image and the intention to make WOM and eWOM communications (*H9*; *H10*), but a positive effect is observed between affective image and WOM and eWOM (*H11*; *H12*). The results allow us to conclude that a favourable cognitive image does not result in the recommendation of a

	RRSS	AWA	IMA	QUA	VAL	WOM	EWOM	CUL	NAT	LEI	MED
RRSS	*0.892*										
AWA	0.342	*0.744*									
IMA	0.209	0.305	*0.755*								
QUA	0.187	0.474	0.434	*0.734*							
VAL	0.145	0.276	0.353	0.562	*0.848*						
WOM	0.209	0.344	0.476	0.533	0.442	*0.922*					
EWOM	0.282	0.364	0.410	0.475	0.406	0.634	*0.803*				
CUL	0.236	0.383	0.322	0.594	0.425	0.442	0.351	*0.760*			
NAT	0.140	0.263	0.243	0.563	0.365	0.410	0.335	0.560	*0.752*		
LEI	0.183	0.352	0.288	0.593	0.457	0.313	0.300	0.570	0.548	*0.798*	
MED	0.181	0.359	0.328	0.491	0.416	0.356	0.243	0.398	0.389	0.486	*0.772*

Notes: The square root of the VE is shown on the diagonal in italics; the correlations between the constructs under shown under the diagonal

Table IV.
Discriminant validity of the measuring instrument

Hypothesis	Structural relation	β	t Bootstrap	Contrast
H1	Intensity of use of social media → Awareness	0.345	6.570**	Not rejected
H2	Awareness → Cognitive image	0.412	6.625**	Not rejected
H3	Awareness → Affective image	0.199	2.911**	Not rejected
H4	Awareness → Brand quality	0.472	8.042**	Not rejected
H5	Awareness → Customer value	0.275	3.824**	Not rejected
H6	Awareness → WOM	0.072	1.123	Rejected
H7	Awareness → eWOM	0.151	2.585**	Not rejected
H8	Cognitive image → Affective image	0.255	3.212**	Not rejected
H9	Cognitive image → WOM	0.101	1.383	Rejected
H10	Cognitive image → eWOM	0.009	0.112	Rejected
H11	Affective image → WOM	0.269	4.652**	Not rejected
H12	Affective image → eWOM	0.212	2.695**	Not rejected
H13	Brand quality → WOM	0.229	2.684**	Not rejected
H14	Brand quality → eWOM	0.213	2.545*	Not rejected
H15	Customer value → WOM	0.146	2.303*	Not rejected
H16	Customer value → eWOM	0.166	2.462*	Not rejected

Notes: SRMR = 0.142; R^2 (awareness) = 0.12; R^2 (brand quality) = 0.2^2; R^2 (affective image) = 0.15; R^2 (cognitive image) = 0.17; R^2 (customer value) = 0.07; R^2 (WOM) = 0.39; R^2 (eWOM) = 0.32; Q^2 (awareness) = 0.07; Q^2 (brand quality) = 0.11; Q^2 (Affective image) = 0.07; Q^2 (cognitive image) = 0.10; Q^2 (customer value) = 0.05; Q^2 (WOM) = 0.32; Q^2 (eWOM) = 0.15. *$p < 0.1$; **$p < 0.01$

Table V.
Contrast of the hypotheses

brand if it does not provoke emotion. Thus, the affective image that derives from the cognitive component becomes the main driver of consumer behaviour.

Finally, the relationships between destination brand quality and WOM (*H13*) and the destination brand quality and eWOM (*H14*) have been confirmed. This relationship was empirically demonstrated in previous studies of brand equity (Pike *et al.*, 2010; Bianchi and Pike, 2011; Bianchi *et al.*, 2014), although it had not been previously investigated in the context of *social media* and eWOM. Finally, *H15* and *H16* regarding the influence of perceived value on WOM and eWOM communication are confirmed and, in this sense, evidence is provided along the same lines as Bianchi and Pike (2011) and Bianchi *et al.* (2014), who verified the relationship between value and attitudinal loyalty. Figure 2 graphically illustrates the results of the model measurement.

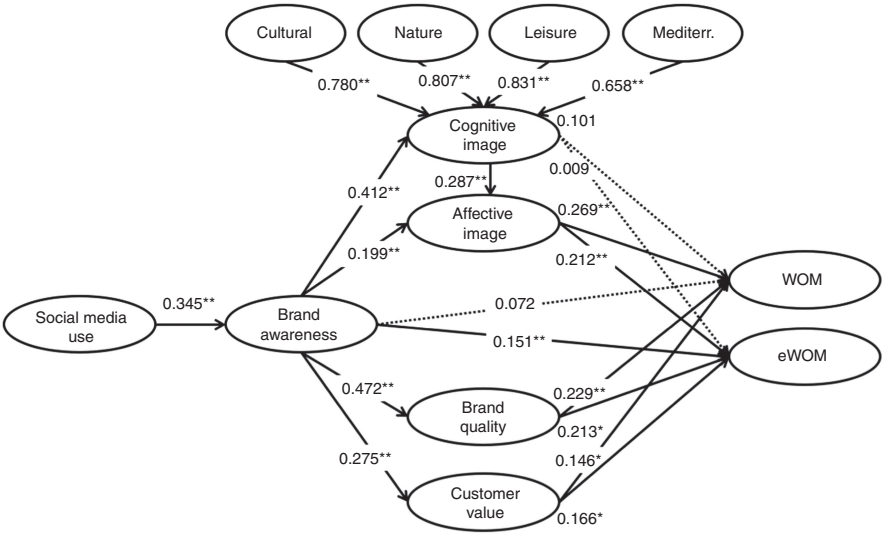

Figure 2.
Conceptual model estimation

Notes: SRMR = 0.142. *$p < 0.1$; **$p < 0.01$

5. Conclusions and practical implications

The present research analyses the effect of the intensity of use of different social media on destination brand equity; specifically, in the dimensions of brand awareness, image, quality, value and the intention to make WOM and eWOM communication. The results show that intensity of social media use significantly influences brand awareness. In turn, awareness has a positive relationship with cognitive and affective image of the brand, brand quality, customer value and the intention to make eWOM. As for the relationship between the two dimensions of the image, the results show that the affective image derives from the cognitive image.

The analysis of the relationship between brand awareness and the image components shows that the information that tourists find on social networks changes the cognitive image of the destination brand, but does not lead to a recommendation to visit the destination. The tourist recommends the tourist destination only if the information received provokes a positive emotion. Consequently, the affective image becomes the most important driver of prediction of consumer behaviour.

In addition, the positive relationship between brand awareness and destination quality and customer value has been confirmed. Tourists who obtain information about the tourist destination on social media have increased brand awareness and, at the same time, use quality and value as filters for the functional evaluation of the destination. A positive comparison will affect the behaviour of the tourist through his intention to recommend the destination both offline and online. Therefore, we observe an indirect relationship between the use of social media, awareness, quality, value and the intention to make WOM and eWOM communication.

Finally, it should be noted that these results constitute a contribution to the study of the effect of the use of social media on brand equity that has not previously been empirically studied in the context of tourist destinations. The verification of the hypotheses that make up the proposed model allows a better understanding of the dynamics of the relationship between social media as a source of information and its effects on the dimensions of brand equity, including the recommendation to visit the destination.

5.1 Practical implications

The results show the close relationship between the use of social networks and brand equity. If a destination is well positioned on social media it will generate greater brand awareness, which carries a significant impact on the image of the destination. In other words, the adoption of communication on social networks represents an opportunity to generate competitive advantages for the destination (Xiang *et al.*, 2015) and to improve the performance of the brand. Faced with these results two questions arise: how do social networks influence the performance of the brand? And how to develop an online strategy to manage the tourism brand?

In the first place, social media communication helps tourists to identify and know the destination much better. Consequently, destination managers committed to communicate on social networks can improve their positioning against competing destinations. To raise brand awareness, it is advisable to communicate the values of the brand's identity, through the symbology of the brand, thus generating a more attractive brand personality for tourists who are increasingly exposed to different social media content.

Second, the relationship between the cognitive and affective components of the image suggests that it is not enough only to offer content on your destination brand on social media (e.g. tourist attractions and promotions); it is necessary to promote the values of the destination that provoke a positive emotional response. Brand managers must analyse the unique personality of the brand and adopt these values in their online strategy. One of the strategies that can be applied is the so-called "Inbound Marketing", which focusses on creating value content that arouses the interest of the target audience and provokes positive emotion (Halligan and Shah, 2009). As observed in the present study, content that positively influences the affective image of the destination provokes a favourable attitude on the part of consumers and an intention to recommend the destination.

Third, it has been shown that brand identity has a positive relationship with brand quality and customer value. Tourists evaluate the quality of the destination as higher the greater their perception of quality of accommodation, tourist attractions, infrastructure and security. Therefore, it is very important, to meet tourist needs, that the destination strengthens these aspects.

Finally, it has been shown that content generated by users through the use of social media has a significant impact on destination brand equity. It is therefore recommended that destination managers incentivise tourists to generate more content on the brand by creating popular hashtags, organising photo contests, blogs, and more. In other words, a communication strategy based on active tourist participation through social media is a competitive advantage for the tourist destination, because of its relevance to brand equity.

5.2 Limitations of the study

Despite the contributions and practical implications of this study, several limitations are recognised. First, a larger sample would offer the possibility of further segmenting the results. On the other hand, the data collection was carried out city centre hostels with young people, which does not fully reflect the image of tourism in the city of Valencia and, therefore, it is not possible to directly generalise the results.

5.3 Future lines of research

The role of social media as an antecedent of the brand equity of a tourist destination is a scarcely studied theme (Keller, 2016). From the literature review and the conclusions of the present work, we suggest research lines of interest for future studies. In the first place, to give more validity to the model, it is suggested the research be extended through cross-cultural studies that would allow a comparison of the perception of tourists from different countries (Swaminathan, 2016). Second, the study might be repeated with a

broader sample and over a different time period to allow a generalisation of the results and to try to segment the results by analysing the data of the specific social media channels. For example, to compare visual applications (Pinterest, Instagram) with YouTube or Facebook (Swaminathan, 2016). Third, it would be interesting to include moderating variables in the model, such as age or the specific channel of social media used by the tourist, to understand their possible effects on the relationships raised in the study.

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Appendix

Social media	Name	Language	Followers
Facebook	Turismo Valencia	Spanish	42.6K
	Visit Valencia	English	16K
	Visita Valencia	Italian	39.5K
	Valencia Espagne	French	17.7K
	Viva Valencia	German	7.1K
	Valencia Spanje	Dutch	8.3K
	131.2K		
Twitter	@Valenciaturismo	Spanish	25.4K
	@ValenciaCity	English	2.5K
	@VisitaValencia	Italian	1.7K
	@ValenciaEspagne	French	0.5K
	@_VivaValencia	German	0.6K
	@ValenciaSpanje	Dutch	0.3K
	31K		
Instagram	@visit_valencia	English	2.5K
Pintarest	Turismo Valencia	International	0.4K
Google +	Turismo Valencia	Spanish	0.5K
	Valencia tourism	English	0.2K
	Turismo a Valencia	Italian	0.2K
	Valence Espagne	French	0.2K
	Valencia Tourismus	German	0.3K
	1.4K		
YouTube	Valencia Tourism	International	0.6K
Blog	Turismo Valencia	International	
Minube	Turismo Valencia		
Trip Advisor	Valencia. España	264 K comments	
PaesiOnLine	Valencia Italiano	Italian	

Table AI.
Social media official profiles of the city of Valencia

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Cruise tourism: a hedonic pricing approach

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Abstract

Purpose – The purpose of this paper is to examine the effect on price of different cruise industry characteristics from the point of view of actual prices. The analysis is carried out from the supply side but taking into account the real prices paid by customers.

Design/methodology/approach – This paper uses the hedonic price methodology. To develop this research, a database of more than 36,000 prices paid by cruise passengers and different characteristics of ships in 2013 was built. To obtain the results, ten models have been developed with significant adjusted R^2 of between 0.85 and 0.93 making the models and results robust.

Findings – The results show that the main attributes affecting prices are the number of nights of the itinerary, the departure date, the number of days before departure the booking is made, the accommodation type and some facilities, such as casinos, cinemas and swimming pools. The results also yield a ranking of ship companies based on price and quality dimensions. Finally, the authors suggest some implications for management and new research.

Originality/value – This paper offers a new approach in the academic literature of the cruise industry in two respects. First, in its use of a broad database of actual prices paid by passengers – more than 36,000 observations. Second, in the application of the hedonic pricing methodology, widely used in the tourism sector (see the Methodology and Database section) but until now not in the cruising segment.

Keywords Pricing, Revenue management, Tourism economics, Cruising, Hedonic methodology

Paper type Research paper

Introduction

Cruises form one of the niches of the tourism industry that has expanded most in the last few years despite the economic recession around the world. According to the Cruise Lines International Association (2016) global cruise travel is continuing to grow steadily and, in the ten years from 2007 to 2017, the number of passengers will have grown by 62 per cent from 15.9 to an expected 25.8 million passengers.

This sector is characterised by the high level of business concentration, as three management groups accounted for 81.6 per cent of passengers in 2015: Carnival Corporation & plc (48.1 per cent of share and ten cruise companies); Royal Caribbean (23.1 per cent of share and five cruise companies); and NCL (10.4 per cent of share and three cruise companies). Kwortnik (2006) highlights the competitiveness of the cruise industry and the increasing price wars as a result of new and more efficient vessels attracting price-sensitive cruisers. Price wars go on not only between ship brands, but also in the distribution channel, which sometimes offers better prices than the company.

Cruise ships have sometimes been considered as "floating hotels" although exists relevant differences between ships and hotels such as the room-inventory management (Toh *et al.*, 2005),

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wave booking period, large numbers of cabin categories, trip extensions, airfare packages and onboard spending (Biehn, 2006).

The cruise product includes the ship and its itineraries. Rodrigue and Notteboom (2013) insist that the cruise industry sells itineraries – ports of call – not destinations, which is much more complex in terms of commercial potential and operational developments.

The aim of this paper is to identify features and characteristics that affect the price of a cruise using the hedonic pricing methodology. This study adapts some of the further research suggested for Ji and Mazzarella (2007) and Sun, Jiao and Tian (2011).

This paper offers a new approach in the academic literature of the cruise industry in two respects. First, in its use of a broad database of actual prices paid by passengers – more than 36,000 observations. Second, in the application of the hedonic pricing methodology, widely used in the tourism sector but until now not in the cruising segment.

The paper is organised as follows. Initially we offer an overview of the academic literature on cruising from the point of view of methodologies and sources used and pricing and revenue management. We then give a lengthy explanation of the database and methodology and show the results obtained. Finally, we present our conclusions, management considerations and suggestions for new research.

An overview of academic literature on cruising

In recent years there has been an increasing number of academic papers about the cruise industry. Papathanassis and Beckmann (2011) analyse 145 cruise-related academic publications from between 1983 and 2009 and their research focus is divided equally between conceptual/discussion papers, qualitative and quantitative research. Most are related to business and management (39 per cent) and economics (17 per cent). Cusano *et al.* (2017) review literature about cruising classifying it into cruise supply, demand for cruising, economic impacts, fleet and ship characteristics, and environmental concerns. London *et al.* (2017) analyse 103 publications from 2008 until early 2016 from the point of view of ports and cruise infrastructure and the developments made and new needs as a result of the increase in the market and the size of new ships.

From the point of view of professional publications, CLIA is the main source of reference, as 95 per cent of cruise companies belong to this association. There are other sources, most of which are from private companies, so it is usually necessary to pay for this information.

Methodology and sources in cruising research

The analysis of more than 150 articles related to cruising allow us to conclude that those including empirical research are based mainly on surveys and questionnaires, despite their disadvantages (Papathanassis, 2012) and the fact that they can have different results depending on the mood of consumers when they evaluate a cruise experience (Sirakaya *et al.*, 2004). Most of them are also local in scope, making it difficult to extrapolate conclusions (Hung and Petrick, 2011a). Qualitative research, such as observation (Yarnal and Kerstetter, 2005) and the Delphi method (Dawson *et al.*, 2016), is also used.

Recently, more useful and sophisticated techniques, such as GPS tracking technologies (De Cantis *et al.*, 2016; Ferrante *et al.*, 2016), and other new technologies, allow the use of qualitative information obtained from customers' opinions – word of mouth (Brejla and Gilbert, 2014; Zhang *et al.*, 2015).

Obviously, data from secondary sources and websites is also used increasingly often (Lee and Brezina, 2016). In some cases, multi-method research is used (Hung and Petrick, 2011b use in-depth interviews, a panel of experts, a pilot test and an online panel survey and Rocha *et al.*, 2017 use participant observation, individual in-depth interviews and group in-depth interviews).

However, it is difficult to get other information from companies because of the confidentiality required, and very few publications did (Coleman *et al.*, 2003; Langenfeld and Li, 2008; Sun, Gauri and Webster, 2011).

Revenue management and pricing in cruising research

Revenue management and pricing has rarely been used in the cruise industry (Sun, Gauri and Webster, 2011) and references are scarce. There may be various reasons for this, such as the difficulty of the subject and the problems in getting reliable and useful information, as mentioned above. In a review of the main cruise research of the last 20 years, no pricing database was found, and the references to prices were more conceptual.

The final price paid by a cruise passenger includes boarding fees and tips, which, although they are officially voluntary, after often charged automatically. Although tips are a small part of the cost of a cruise, they must be considered as part of the overall cost of the holiday. Lynn and Kwortnik (2015) concluded that tipping policies can affect customer satisfaction and that guests gave more positive ratings when tips were voluntary, although this may differ depending on the customer segment. Sometimes the itinerary includes some excursions, which makes it more difficult to compare strategies.

Coleman *et al.* (2003) analyse the effect on prices of mergers in cruise industry. The information set out is extensive, so this research can be considered a reference for pricing strategies in this sector.

Ladany and Arbel (1991) have pioneered theoretical models demonstrating the choice of multiple priced cabins (price discrimination) in cruise tourism and its advantages, despite the fact that it is not fool proof in some segments and some multiple-price optimisation strategies could cause customer dissatisfaction. Ji and Mazzarella (2007) analyse the application of modified nested and dynamic class allocations for cruise line companies and propose a model for cruise line revenue management. Langenfeld and Li (2008) develop a broad model based on price discrimination, highlighting the importance of price discrimination, mainly third-degree as a result of market segmentation, unlike the results of Coleman *et al.* (2003). Moreover, these authors point out that, in the cruise industry, price discrimination can be based on certain customer characteristics – i.e. customer age, customer willingness to be flexible, geographic location – that usually do not affect airlines or hotels. Vogel (2009) develops a model based on five main assumptions about the two leading markets considering that these companies act under identical conditions and concludes that dynamic pricing, different local competitive situations and different objectives for different markets can have an effect. The same author (Vogel, 2011) suggests a cruise line model related to the impact of onboard sales emphasising pricing, profits and capacity choice. Sun, Gauri and Webster (2011) develop different forecasting models and their effects on revenue management, while, more recently, Li (2014) proposes a cruise line dynamic overbooking model with multiple cabin types.

Price is seen as one of the determinants of cruise demand (Petrick, 2004a, b, 2005) but not the only factor (Smallman and Moore, 2010). Juan and Chen (2012) conclude that price influences tourists' decisions during the anticipation phase for planning the trip, and that price influences total tourist satisfaction and repurchase intention during the recollection phase only slightly. Conversely, Zhang *et al.* (2015) indicate that prices can affect satisfaction and dissatisfaction, suspecting that high prices are associated with high quality. Chua *et al.* (2015) conclude that if cruise vacationers perceive that the cruise fare is expensive, this perception might adversely affect the perceived value of their cruise holiday. Thus, cruise line operators should consider enhancing value perception by balancing price perception and cruise benefits. Li and Kwortnik (2016) identify price as a choice determinant but its importance varies depending on the class of the ship (55 per cent for cruisers with standard cruise lines, 48 per cent for the premium market and 40 per cent for the extraordinary segment).

Price sensitivity is one of the most topics analysed from the point of view of revenue management, mainly as a result of cruise companies' strategy of emphasising discount prices, affecting consumers' decision-making tendencies (Petrick, 2005). Petrick (2004a) considers price sensitivity as one of the measures to indicate whether loyal cruisers are a desirable target market and concludes that first-timers and less loyal cruisers tend to be less price sensitive and to spend more, and that the keener loyal cruisers are, the more price sensitive they are. This means loyal cruisers are desirable customers, but they are more likely to search for lower prices than their counterparts. Petrick (2005) points out some expected results, such as the fact that passengers who are less price sensitive have higher household incomes, spend more money per day on their cruise, and are more likely to purchase a more expensive cabin than passengers who are more price sensitive. "Moderates" and "highly sensitives" were found to be more attached, perceive the price more favourably, be more satisfied overall, rate the quality of services/activities higher, perceive the value to be higher and be more likely to repurchase in the future. Chua *et al.* (2015) attempts to incorporate price sensitivity as the moderator in the structural model to evaluate how price sensitivity influences the strength of relationships and conclude that perceived price is a significant and negative predictor of perceived value and that segmenting cruise holidaymakers based on price sensitivity levels could help cruiser line operators identify their specific needs. Chua *et al.* (2017) make an extensive analysis of price perception and results show that repeat cruise customers showed significantly lower perceived price and higher effective satisfaction, perceived value and behavioural loyalty than first-time cruise travellers. Very few research works have been done on price elasticity among cruise passengers. We found results in Coleman *et al.* (2003), who estimated the values at around −2 or higher, and in Langenfeld and Li (2008), who estimate the elasticity of price-insensitive customers (−1.2), and price-sensitive customers (−5) who are tempted by discounts, such as senior citizens or other segments.

Cruise passenger willingness to pay is also analysed. Neuts *et al.* (2016) and Chen, Neuts, Nijkamp and Liu (2016), Chen, Zhang and Nijkamp (2016) analyse customer value in segmented cruise markets in Japan and Taiwan and conclude that customer value increases with age, income, repeat times and escaping, so that these circumstances increase willingness to pay.

Ship companies obtain revenue from the ticket price but also from onboard revenues and commissions and from agreements with stakeholders, such as those involving shore excursions, restaurants, shops or airline companies (Weaver, 2005; Vogel, 2011). This leads to ship companies offering lower prices in order to have higher occupancy rates, as a large proportion of revenues come from onboard spending (Toh *et al.*, 2005). They also want to achieve customer loyalty. Vogel (2011) points out that the cruise industry is currently undergoing three important trends: net onboard revenues are outgrowing ticket revenues; ticket prices barely cover costs; and ticket prices are falling. Chua *et al.* (2015) shares this opinion, highlighting the fact that the focus of cruise companies on making an effort to get people onboard (e.g. selling tickets at lower prices) as a result of their high fixed costs.

Finally, in a very competitive market (Kwortnik, 2006) most articles suggest management strategies. Kwortnik (2006), Ji and Mazzarella (2007), Chua *et al.* (2015) and Sun, Jiao and Tian (2011) summarise pricing strategies and suggest new research.

Database, methodology and model

Database

One of the main strengths of this research is the database that supports it, which was created specifically, including itineraries, the main attributes and features of vessels and the prices paid for these itineraries.

The itineraries include all those lasting more than two nights, embarking and disembarking from northern Europe (Southampton) and making their way through northern

Europe during 2013. The sample uses all the cruise lines belonging to the CLIA, accounting for 95 per cent of the market, so it can be considered as highly representative. Itineraries were obtained from the cruise companies' brochures and websites. In the database we included the ship, the ship company, the date of departure and the number of nights of the itinerary. The total number of departures is 749, corresponding to 376 different itineraries.

The attributes and characteristics of vessels were obtained from the website of the cruise company and the Berlitz guide, a leading publication in the sector (Ward, 2013). The following were taken into account for all ships: the type of cabin (the types defined are the same as in Langenfeld and Li, 2008), ship size, category according to Ward (2013), year of construction/refitting, food system, number of outdoor swimming pools, number of indoor swimming pools and the availability of casinos, laundrettes, cinemas and libraries.

For any itinerary and departure day, the fares analysed were obtained from company websites and brochures. Three prices were obtained from the websites: the official online price, the online price and the best online price, which can be different depending on the date they are consulted depending on revenue management strategies. From the brochures published, two prices were collected, the official brochure price and the minimum brochure price, which cannot change during the year as the brochure is printed. In fact, with the development of more sophisticated revenue practices and pricing strategies, most brochures nowadays include little information about prices. The prices include boarding fees and tips, although in some cases these can be considered optional (Lynn and Kwortnik 2015).

Prices collected include boarding fees and tips but not cruise passenger onboard spending, which could affect the price decisions, as passengers' onboard elasticity is low (Vogel, 2011). Prices were collected very carefully once a month from 1 December 2012 to 30 November 2013, so another useful variable is the number of days until departure, providing interesting information for analysing revenue management strategies. In order to obtain homogeneous information, we exclude prices if airfare taxes or holiday extensions are included, although some cruise lines offer these options (Biehn, 2006). As a result, 36,634 prices were collected and included in the database. Apart from Coleman *et al.* (2003), this could be the most extensive database used in cruise studies.

Methodology and model

The effect of characteristics and attributes on prices can be measured in different ways. This paper presents a novel approach in the case of the cruise industry. In this case we use the hedonic pricing methodology developed from the supply perspective, assuming monopolistic competition where managers can offer a differentiated value proposition.

The use of the hedonic price methodology implies some assumptions, such as the product being a vector of objectively measured different characteristics and the effect of every attribute being separable from the rest, although they are not marketed separately in any market. In other words, the market price of a cruise can be split into the implicit prices of its different components and, as a result, total price can be defined as the sum of the price of every compound. The use of the real prices paid by the tourist, as it is the case of this research, facilitates to predict better results allowing the interaction between supply and demand.

More formally, the product, in this case a given ship, can be regarded as a set of attributes which can be related to ship features or services (see Table I) but also to its itinerary. As Biehn (2006, p. 138) points out: "The cruise product can contain several attributes including the ship, destination, cabin category, deck, fare class, number of guests, trip extensions, shore excursions":

$$SH_i = (q_{i1}, q_{i2}, q_{i3}, \ldots, q_{ik}, \ldots, q_{im})$$

Table I.
Variables included in the estimated regressions

Type of variable	Variable	Model 1A	Model 1B.1	Model 1B.2	Model 1B.3	Model 1B.4	Model 2A	Model 2B.1	Model 2B.2	Model 2B.3	Model 2B.4
Dependent variable	Total price (logarithms)	X	X	X	X	X	X	X	X	X	X
Independent variable	Ship	X					X				
	Ship company		X	X	X	X		X	X	X	X
	Departure month	X	X	X	X	X	X	X	X	X	X
	Days up to the departure	X	X	X	X	X	X	X	X	X	X
	Type of cabin	X	X	X	X	X	X	X	X	X	X
	Size of the ship		X	X	X	X		X	X	X	X
	Berlitz rating		X	X	X	X		X	X	X	X
	Number of nights of the itinerary	X	X	X	X	X	X	X	X	X	X
	Price type	X	X				X	X			
	Years of service							X	X	X	X
	Casino							X	X	X	X
	Outdoor swimming pools							X	X	X	X
	Indoor swimming pools							X	X	X	X
	Laundrette							X	X	X	X
	Cinema							X	X	X	X
	Library						X	X	X	X	X
	Food system						X	X	X	X	X
Price type	Online price	X	X	X			X	X	X		
	Official online price	X	X				X	X			
	Best online price	X	X				X	X			
	Brochure price	X	X		X		X	X		X	
	Minimum brochure price	X	X			X	X	X			X

where $i = 1, \ldots, n$ represents the ship and q_{ik} ($k = 1, \ldots, m$) each of its attributes. All these have impact on cost and consequently in prices so that the hedonic price function for each cruise is represented as:

$$P_i = (q_{i1}, q_{i2}, q_{i3}, \ldots, q_{ik}, \ldots, q_{im})$$

where the functional form of P is assumed to be constant in time and across ships, though the weight or contribution of each attribute may change (Espinet *et al.*, 2003).

The first studies of this methodology come from Rosen (1974). From a theoretical perspective the developments of Halvorsen and Pollakowski (1981) and Cassel and Mendelsohn (1985) are also relevant. In the tourism sector, the empirical research initially focussed on hotels in different segments such as luxury (Hartman, 1989), sun and beach hotels (Coenders and Espinet, 2003; Cox and Vieth, 2003; Espinet *et al.*, 2003, 2012) and city hotels (Chen and Rothschild, 2010). Other studies involve holiday packages (Sinclair *et al.*, 1990; Clewer *et al.*, 1992; Aguiló *et al.*, 2001; Thrane, 2005; Alegre *et al.*, 2013), apartments (Saló and Garriga, 2011) and campsites (García-Pozo *et al.*, 2011). The hedonic pricing methodology is also used for other types of studies, such as identifying variables or price-quality ratio, and also for other sectors (Fluvià *et al.,* 2005; Urtasun and Gutierrez, 2006; Rigall-I-Torrent and Fluvià, 2007, 2011; Falk, 2008; Abrate *et al.*, 2011; Rigall-I-Torrent *et al.*, 2011; Saló *et al.*, 2014; Balaguer and Pernías, 2013).

If the study of tourism prices is complex (Espinet *et al.*, 2003) it becomes even more so when considering the particular characteristics of cruise industry mentioned throughout this paper, which could be the reason why this methodology has not yet been used in this market niche.

In this paper, we apply this hedonic pricing framework using econometric models. In these, the price depends on different attributes and characteristics that can be presented as a regression in a semi-logarithmic specification:

$$\text{In } P = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \cdots + \beta_n x_n + \varepsilon_j$$

where P is the price, x_n are each of the n variables incorporated in the model, β_n are each of the parameters that indicate the effect on the price and ε_j is the standard error of the regression.

In quantitative variables, $\beta_n \times 100$ is interpreted as the percentage change in the price when x_n changes by one per cent. For qualitative variables expressed in dummy values, the value $\left(e^{\beta_n} - 1\right) \cdot 100$ is calculated as the percentage effect on the price of the category to which the variable x_n refers in the reference category.

Before presenting the definitive model, we grouped some quantitative variables in order to facilitate interpretation and to avoid multicollinearity problems. We also performed an exploratory analysis of the data where it has been verified that, a priori, the assumptions of the linear regression model are fulfilled (e.g. linearity, multicollinearity and homoscedasticity). The use of this model also implies the definition of dummy variables for every attribute or characteristic, and finally 179 dummy variables were defined. In addition, some values seemed incoherent and other were incomplete, so they were eliminated. The resulting model consisted of 35,506 prices belonging to 67 ships and 25 cruise companies.

After integrating the information, one of the preliminary results found was that the variables ship and cruise company are perfectly correlated due to the similarity in the characteristics of the ships belonging to the same company. We therefore developed ten different semi-logarithmic regressions, two using ship (models A) and eight using ship company (models B). The 1B models were developed without considering ship attributes but making divisions according the type of price. 2B models consider different explanatory variables. B.1 regressions consider all types of prices, B.2 online price only, B.3 brochure

price only and B.4 minimum brochure price only. The programme used to get the results was SPSS. The final variables included and the models developed are summarised in Table I.

Results

The regressions taking the ship into account (models 1A and 2A) result in an adjusted R^2 of 0.863 – a high value – but, as mentioned before, the analysis brings little value to the model as companies focus mainly on brand strategies not on ship strategies. That is why the analysis that follows is made with ship companies. The results are shown in Table II (results directly from SPSS) and Table III (percentage results related to the reference variable) which will be the main sources for interpretation.

Taking into account the company cruise models, the results show high values of adjusted R^2 – between 0.85 and 0.93 – which means the variables considered explain the price, especially when considering brochure prices (0.93). Other interesting results are the fact that there are few differences whether ship attributes – years of service of the ship, casino, swimming pools, laundry, cinema, library and board type – or not. Furthermore, the correlations between variables and multicollinearity are low.

In this section, we interpret the principal results obtained (Tables II and III), especially those that are significant with 99, 95 and 90 per cent of confidence.

Cruise companies

Results about cruise companies can be considered as an approximation of a ranking of company price-quality, the best predictor of value (Petrick, 2005), with different results depending on the variables introduced in the model. This is the first study in the cruise literature that proposes a price-quality ratio from the supply-side point of view. To date, price-quality analysis had been carried out using other methodologies, such as surveys (Chua *et al.*, 2017).

As not all companies offer all types of prices, we only are going to compare those with a minimum of 20 companies. In this case we analyse the models that include all type of prices (1B.1; 2B.1) and those that specifically include the online price (1B.2; 2B.2).

The range between the cheapest and the most expensive ship company varies considerably depending on the model. The highest range – 305 per cent – occurs when not discounting the effect and considering all the prices (model 1B.1), followed by the same model including only the online price (1B.2) showing a range of 288 per cent. The models that discount the effect of ship services provide less difference: 231 per cent when all prices are included (2B.1) and 179 per cent when analysing only online prices (2B.2). These last results highlight the wide range of possible prices.

Regardless of the model used, the cheapest companies are always Carnival – the market leader in the competitive low-price cruise market (Dev, 2006) and in price wars (Kwortnik, 2006) – Thomson and P&O Cruises. The most expensive are Crystal Cruises, Silversea, The Yacht of Seabourn and Regent. These results demonstrate stable strategies, show the models developed to be robust and coincide notably with those obtained by Li and Kwortnik (2016), although these authors consider price without any adjustment for product characteristics.

Itineraries and departure dates

Considering itineraries, results showed that for each additional cruising day, the price increases by 11 per cent. These results are also very stable in all models.

The destination is conditioned by climate: 94 per cent of departures are between May and September. July is the most expensive month, followed by August (–2 per cent),

Table II. Results

Dependent variable: total price (logarithms)	Model 1B.1	Model 1B.2	Model 1B.3	Model 1B.4	Model 2B.1	Model 2B.2	Model 2B.3	Model 2B.4
Ship company (reference: Fred Olsen)								
Aida	0.1922***	0.4445***	−0.0227**	–	–	–	–	–
	(0.0078)	(0.0117)	(0.0089)					
Azamara	0.5298***	0.7158***	–	0.5215***	0.3705***	0.2866***	–	0.3252***
	(0.0175)	(0.0244)		(0.0177)	(0.0182)	(0.0252)		(0.0211)
Carnival	−0.5134***	−0.445***	–	–	−0.4504***	−0.4822***	–	–
	(0.0195)	(0.0201)			(0.0221)	(0.0256)		
Celebrity	0.055***	0.1634***	–	0.1697***	0.0989***	0.2112***	–	0.1749***
	(0.0112)	(0.016)		(0.0142)	(0.0173)	(0.0242)		(0.0175)
Costa Cruceros	0.0834***	0.2129***	0.1084***	0.0228*	0.127***	0.26***	0.6615***	0.0006
	(0.0087)	(0.0137)	(0.0104)	(0.0119)	(0.014)	(0.0199)	(0.0317)	(0.0139)
Crystal Cruises	1.2934***	1.2594***	–	–	1.0725***	0.8334***	–	–
	(0.0166)	(0.0226)			(0.02)	(0.0286)		
Cunard	0.2379***	0.3469***	–	–	0.2853***	0.3329***	–	–
	(0.0131)	(0.018)			(0.0158)	(0.0218)		
Hapag Lloyd	0.5779***	0.9929***	–	–	0.4238***	0.5616***	–	–
	(0.018)	(0.0274)			(0.0192)	(0.0293)		
Holland American Line	0.464***	0.1482***	–	0.8866***	0.4789***	0.1677***	–	0.8782***
	(0.0084)	(0.012)		(0.009)	(0.0113)	(0.0168)		(0.0123)
Iberocruceros	0.2862***	0.3369***	–	–	0.0399	−0.0093	–	–
	(0.0285)	(0.0268)			(0.0338)	(0.0371)		
MSC	0.1853***	0.1778***	0.2405***	−0.0346**	0.2149***	0.2344***	0.7986***	−0.0575**
	(0.0089)	(0.0132)	(0.0121)	(0.0136)	(0.0154)	(0.0215)	(0.0381)	(0.0173)
NCL	0.0367***	0.147***	–	0.1047***	0.0776***	0.1874***	–	0.1047***
	(0.0119)	(0.0167)		(0.0141)	(0.0172)	(0.0238)		(0.0171)
Oceania Cruises	0.4121***	0.5249***	0.4058***	0.4602***	0.1886***	0.1047***	0.2914***	0.3836***
	(0.0117)	(0.0179)	(0.0168)	(0.0134)	(0.0137)	(0.0215)	(0.0188)	(0.0198)
P&O Cruises	−0.0622***	−0.0434***	−0.0923***	0.1481***	−0.0374***	−0.0497***	0.3798***	0.2159***
	(0.0086)	(0.0136)	(0.0109)	(0.0118)	(0.0109)	(0.0164)	(0.0328)	(0.0175)
Phoenix	0.165***	0.3468***	–	0.1278***	−0.0537***	−0.0818***	–	
	(0.0097)	(0.0132)		(0.0097)	(0.0151)	(0.0216)		
Princess	0.1118***	0.2551***	–	–	0.1343***	0.2653***	–	–
	(0.011)	(0.0147)			(0.0124)	(0.0165)		

(*continued*)

Table II.

Dependent variable: total price (logarithms)	Model 1B.1	Model 1B.2	Model 1B.3	Model 1B.4	Model 2B.1	Model 2B.2	Model 2B.3	Model 2B.4
Pullmantur	0.5062***	0.544***	–	–	–	–	–	–
	(0.0195)	(0.0202)						
Regent	0.8737***	1.0869***	–	0.9123***	0.6577***	0.6577***	–	0.886***
	(0.0188)	(0.027)		(0.0195)	(0.0191)	(0.0279)		(0.0267)
Royal Caribbean	−0.0556***	0.1982***	–	−0.1179***	−0.0122	0.2344***	–	−0.0957***
	(0.0101)	(0.0144)		(0.0127)	(0.016)	(0.0221)		(0.016)
Saga	0.3561***	0.5411***	–	0.2098***	0.426***	0.5194***	–	0.1223***
	(0.0175)	(0.02)		(0.0215)	(0.02)	(0.0236)		(0.0348)
Silversea	1.109***	1.2296***	–	–	0.8929***	0.7981***	–	–
	(0.0217)	(0.0248)			(0.0224)	(0.0272)		
The Yacht of Seabourn	0.96***	1.0793***	–	–	0.7313***	0.6796***	–	–
	(0.023)	(0.0262)			(0.0234)	(0.0283)		
Thomson	−0.2512***	−0.218***	−0.4098***	−0.1987***	−0.4889***	−0.6659***	−0.948***	−0.3195***
	(0.0096)	(0.0176)	(0.0112)	(0.0104)	(0.0151)	(0.0234)	(0.0424)	(0.0163)
TUI	0.3452***	0.442***	–	0.4485***	0.3706***	0.4832***	–	0.4687***
	(0.0141)	(0.0247)		(0.0148)	(0.02)	(0.0315)		(0.019)
Month of departure (reference: July)								
January	−0.8031***	−0.8586***	−0.8145***	−0.8969***	−0.7973***	−0.8487***	−0.794***	−0.9177***
	(0.084)	(0.2303)	(0.0843)	(0.0826)	(0.084)	(0.2302)	(0.0802)	(0.0818)
February	−0.0983***	0.0328	−0.1701***	−0.0893**	−0.0891***	0.0206	−0.1455***	−0.0489
	(0.034)	(0.0582)	(0.0424)	(0.0416)	(0.0343)	(0.0585)	(0.0409)	(0.0415)
March	−0.0186	−0.08	–	–	−0.0228	−0.0836	–	–
	(0.0434)	(0.0533)			(0.0434)	(0.0533)		
April	−0.3156***	−0.2986***	−0.316***	−0.2698***	−0.3119***	−0.2976***	−0.2935***	−0.272***
	(0.0098)	(0.0147)	(0.0134)	(0.0191)	(0.0098)	(0.0147)	(0.0128)	(0.0189)
May	−0.1206***	−0.1472***	−0.1071***	−0.0862***	−0.1188***	−0.1471***	−0.094***	−0.0853***
	(0.0047)	(0.007)	(0.0069)	(0.006)	(0.0047)	(0.0071)	(0.0066)	(0.006)
June	−0.0608***	−0.0723***	−0.0386***	−0.0509***	−0.0605***	−0.0717***	−0.039***	−0.052***
	(0.004)	(0.0059)	(0.006)	(0.005)	(0.004)	(0.0059)	(0.0057)	(0.0049)
August	−0.0198***	−0.0218***	−0.0237***	−0.03***	−0.0202***	−0.0206***	−0.0221***	−0.0314***
	(0.004)	(0.0059)	(0.0059)	(0.0049)	(0.004)	(0.0059)	(0.0056)	(0.0049)
September	−0.1008***	−0.1477***	−0.0637***	−0.0376***	−0.1017***	−0.1455***	−0.065***	−0.0455***

(*continued*)

Table II.

Dependent variable: total price (logarithms)	Model 1B.1	Model 1B.2	Model 1B.3	Model 1B.4	Model 2B.1	Model 2B.2	Model 2B.3	Model 2B.4
	(0.0054)	(0.0079)	(0.0075)	(0.0074)	(0.0054)	(0.0079)	(0.0072)	(0.0073)
October	−0.2269***	−0.2593***	−0.1641***	−0.2682***	−0.2309***	−0.2546***	−0.1719***	−0.2812***
	(0.0126)	(0.0208)	(0.0138)	(0.0304)	(0.0126)	(0.0208)	(0.0132)	(0.0304)
November	−0.4098***	−0.464***	−0.316***	−0.2629***	−0.412***	−0.4669***	−0.3144***	−0.2339***
	(0.0114)	(0.0174)	(0.0133)	(0.0235)	(0.0115)	(0.0175)	(0.0127)	(0.0235)
December	−0.2571***	−0.3098***	−0.1925***	−0.1762***	−0.256***	−0.3135***	−0.1836***	−0.1662***
	(0.0106)	(0.0172)	(0.0131)	(0.0137)	(0.0106)	(0.0173)	(0.0126)	(0.0137)
Days up to departure: reference + 180 days								
1-15 days	−0.0786***	−0.1791***	−0.0028	0.006	−0.0791***	−0.18***	−0.0037	0.006
	(0.007)	(0.0108)	(0.0094)	(0.0085)	(0.007)	(0.0108)	(0.0089)	(0.0084)
16-30 days	−0.0772***	−0.1789***	0.0176*	0.004	−0.0773***	−0.1788***	0.0183**	0.0033
	(0.0067)	(0.0099)	(0.0093)	(0.0084)	(0.0067)	(0.0099)	(0.0089)	(0.0083)
31-45 days	−0.075***	−0.146***	−0.0042	0.0021	−0.0752***	−0.1465***	−0.0064	0.0018
	(0.0064)	(0.0093)	(0.0092)	(0.0083)	(0.0064)	(0.0093)	(0.0088)	(0.0082)
46-60 days	−0.0611***	−0.1389***	0.0171*	0.0037	−0.0609***	−0.1396***	0.0182**	0.0029
	(0.0065)	(0.0093)	(0.0093)	(0.0084)	(0.0065)	(0.0093)	(0.0088)	(0.0083)
61-75 days	−0.0515***	−0.0996***	−0.0042	0.0046	−0.0516***	−0.1002***	−0.0063	0.0046
	(0.0065)	(0.0093)	(0.0094)	(0.0084)	(0.0065)	(0.0093)	(0.0089)	(0.0083)
76-90 days	−0.0355***	−0.0735***	0.0159*	0.0015	−0.0354***	−0.0739***	0.0177**	0.0009
	(0.0064)	(0.0093)	(0.0092)	(0.0083)	(0.0064)	(0.0093)	(0.0087)	(0.0082)
91-105 days	−0.0377***	−0.0608***	0.0004	0.0078	−0.0377***	−0.0611***	−0.003	0.0072
	(0.0064)	(0.0093)	(0.0093)	(0.0084)	(0.0064)	(0.0093)	(0.0089)	(0.0083)
106-120 days	−0.0264***	−0.0468***	0.0127	0.0006	−0.0265***	−0.047***	0.0131	−0.0008
	(0.0065)	(0.0094)	(0.0093)	(0.0084)	(0.0065)	(0.0093)	(0.0088)	(0.0083)
121-135 days	−0.0299***	−0.0376***	−0.0059	−0.0005	−0.0298***	−0.0383***	−0.0067	0.0001
	(0.0064)	(0.0093)	(0.0093)	(0.0084)	(0.0064)	(0.0093)	(0.0088)	(0.0083)
136-150 days	−0.0096	−0.018*	0.0158*	0.0062	−0.0098	−0.0179*	0.0162*	0.0061
	(0.0065)	(0.0094)	(0.0094)	(0.0084)	(0.0065)	(0.0094)	(0.0089)	(0.0083)
151-165 days	−0.013*	−0.021**	0.0012	0.0013	−0.0132*	−0.0208**	−0.0033	−0.0002
	(0.0067)	(0.0096)	(0.0098)	(0.0086)	(0.0067)	(0.0096)	(0.0093)	(0.0086)
166-180 days	0.0031	−0.0031	0.0166	0.0031	0.003	−0.0028	0.0184*	0.0019
	(0.0071)	(0.01)	(0.0101)	(0.0091)	(0.0071)	(0.01)	(0.0096)	(0.009)

(*continued*)

Table II.

Dependent variable: total price (logarithms)	Model 1B.1	Model 1B.2	Model 1B.3	Model 1B.4	Model 2B.1	Model 2B.2	Model 2B.3	Model 2B.4
Cabin type (reference: external)								
Balcony	0.2368***	0.2468***	0.2258***	0.27***	0.2369***	0.2462***	0.2258***	0.2711***
	(0.0037)	(0.0055)	(0.0054)	(0.0048)	(0.0037)	(0.0055)	(0.0051)	(0.0048)
Inside	−0.1794***	−0.1786***	−0.195***	−0.1534***	−0.1796***	−0.1784***	−0.195***	−0.1542***
	(0.0037)	(0.0056)	(0.0054)	(0.0049)	(0.0037)	(0.0056)	(0.0051)	(0.0048)
Suite	0.58***	0.5878***	0.6319***	0.5347***	0.5802***	0.5872***	0.6319***	0.5358***
	(0.0038)	(0.0056)	(0.0054)	(0.0049)	(0.0038)	(0.0056)	(0.0051)	(0.0048)
Ship size (reference: large resort ship)								
Boutique ship	0.0366	0.0598*	–	–	0.1**	−0.046	–	–
	(0.034)	(0.0328)			(0.0399)	(0.0451)		
Middle-sized ship	−0.0046	−0.0355***	−0.0072	0.0726***	0.047***	−0.0981***	0.5633***	0.2471***
	(0.0066)	(0.0098)	(0.0086)	(0.0097)	(0.0129)	(0.0192)	(0.0336)	(0.0193)
Small ship	0.0679***	0.0653***	0.0286**	0.1169***	0.1096***	0.01	0.3568***	0.23***
	(0.0069)	(0.0111)	(0.0099)	(0.0096)	(0.0137)	(0.0208)	(0.0253)	(0.017)
Berlitz guide ship rating (numerical)	0.3053***	−0.055	−0.1077	0.0915	0.2939***	−0.105	−1.5615***	−0.1987**
	(0.0543)	(0.0787)	(0.093)	(0.0606)	(0.0722)	(0.1075)	(0.1512)	(0.0784)
Number of nights on cruise (numerical)	0.1125***	0.1085***	0.1232***	0.1102***	0.1123***	0.1086***	0.1249***	0.1097***
	(0.0004)	(0.0007)	(0.0006)	(0.0006)	(0.0005)	(0.0007)	(0.0006)	(0.0006)
Price type (reference: online price)								
Official online price	0.3542***	–	–	–	0.3542***	–	–	–
	(0.0053)				(0.0053)			
Best online price	−0.1854***	–	–	–	−0.1867***	–	–	–
	(0.0078)				(0.0078)			
Brochure price	0.3151***	–	–	–	0.3151***	–	–	–
	(0.0039)				(0.0039)			
Minimum brochure price	0.1271***	–	–	–	0.127***	–	–	–
	(0.0037)				(0.0037)			
Ship's years of service (numerical)	–	–	–	–	−0.0005	0.0016***	−0.0034***	−0.004***
					(0.0004)	(0.0006)	(0.0005)	(0.0004)

(*continued*)

Table II.

Dependent variable: total price (logarithms)	Model 1B.1	Model 1B.2	Model 1B.3	Model 1B.4	Model 2B.1	Model 2B.2	Model 2B.3	Model 2B.4
Casino (reference: no casino)								
The ship has a casino	–	–	–	–	0.0555***	0.0073	0.4235***	−0.1684***
					(0.0099)	(0.0139)	(0.0301)	(0.0261)
Outdoor swimming pools (numerical)	–	–	–	–	0.0087*	−0.0153**	0.1135***	0.0378***
					(0.0047)	(0.0069)	(0.0087)	(0.006)
Indoor swimming pools (numerical)	–	–	–	–	−0.0185***	0.0074	−0.0654***	−0.0077
					(0.0047)	(0.0071)	(0.0073)	(0.0065)
Laundrette (reference: none)								
The ship has a laundrette	–	–	–	–	−0.0109	0.0755***	–	−0.112***
					(0.0131)	(0.0187)		(0.0163)
Cinema (reference: no cinema)								
The ship has a cinema	–	–	–	–	0.0114**	−0.001	0.012	0.0171***
					(0.0058)	(0.0085)	(0.0097)	(0.0065)
Library (reference: no library)								
The ship has a library	–	–	–	–	−0.2734***	−0.1662***	–	–
					(0.0253)	(0.03)		
Food system (reference: full board)								
All-inclusive	–	–	–	–	0.2281***	0.4484***	0.4462***	0.088***
					(0.0118)	(0.0171)	(0.0342)	(0.0132)
Constant	5.924***	6.1924***	6.4542***	6.0757***	6.1074***	6.3528***	6.3041***	6.4282***
	(0.0401)	(0.0584)	(0.0685)	(0.0438)	(0.0594)	(0.0881)	(0.0864)	(0.0618)
n	35.506	13.611	7.644	9.176	35.506	13.611	7.644	9.176
Adjusted R^2	0.8514	0.8673	0.9271	0.9316	0.8517	0.8676	0.9342	0.933
F	3,449.4275	1,618.9177	2,778.4222	2,904.8677	3,137.1711	1,462.5871	2,714.5399	2,607.7672
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Standard errors in brackets. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

	Mod. 1B.1 (%)	Mod. 1B.2 (%)	Mod. 1B.3 (%)	Mod. 1B.4 (%)	Mod. 2B.1 (%)	Mod. 2B.2 (%)	Mod. 2B.3 (%)	Mod. 2B.4 (%)
Ship company (reference: Fred Olsen)								
Aida	21	56	−2	–	–	–	–	–
Azamara	70	105	–	68	45	33	–	38
Carnival	−40	−36	–	–	−36	−38	–	–
Celebrity	6	18	–	18	10	24	–	19
Costa Cruceros	9	24	11	2	14	30	94	–
Crystal Cruises	265	252	–	–	192	130	–	–
Cunard	27	41	–	–	33	39	–	–
Hapag Lloyd	78	170	–	–	53	75	–	–
Holland American Line	59	16	–	143	61	18	–	141
Iberocruceros	33	40	–	–	–	–	–	–
MSC	20	19	27	−3	24	26	122	−6
NCL	4	16	–	11	8	21	–	11
Oceania Cruises	51	69	50	58	21	11	34	47
P&O Cruises	−6	−4	−9	16	−4	−5	46	24
Phoenix	18	41	–	14	−5	−8	–	–
Princess	12	29	–	–	14	30	–	–
Pullmantur	66	72	–	–	–	–	–	–
Regent	140	197	–	149	93	93	–	143
Royal Caribbean	−5	22	–	−11	–	26	–	−9
Saga	43	72	–	23	53	68	–	13
Silversea	203	242	–	–	144	122	–	–
The Yacht of Seabourn	161	194	–	–	108	97	–	–
Thomson	−22	−20	−34	−18	−39	−49	−61	−27
TUI	41	56	–	57	45	62	–	60
Month of departure (reference: July)								
January	−55	−58	−56	−59	−55	−57	−55	−60
February	−9	–	−16	−9	−9	–	−14	–
March	–	–	–	–	–	–	–	–
April	−27	−26	−27	−24	−27	−26	−25	−24
May	−11	−14	−10	−8	−11	−14	−9	−8
June	−6	−7	−4	−5	−6	−7	−4	−5
August	−2	−2	−2	−3	−2	−2	−2	−3
September	−10	−14	−6	−4	−10	−14	−6	−4
October	−20	−23	−15	−24	−21	−22	−16	−25
November	−34	−37	−27	−23	−34	−37	−27	−21
December	−23	−27	−18	−16	−23	−27	−17	−15
Days before departure (reference: +180 days)								
1-15 days	−8	−16	–	–	−8	−16	–	–
16-30 days	−7	−16	2	–	−7	−16	2	–
31-45 days	−7	−14	–	–	−7	−14	–	–
46-60 days	−6	−13	2	–	−6	−13	2	–
61-75 days	−5	−9	–	–	−5	−10	–	–
76-90 days	−3	−7	2	–	−3	−7	2	–
91-105 days	−4	−6	–	–	−4	−6	–	–
106-120 days	−3	−5	–	–	−3	−5	–	–
121-135 days	−3	−4	–	–	−3	−4	–	–
136-150 days	–	−2	2	–	–	−2	2	–
151-165 days	−1	−2	–	–	−1	−2	–	–
166-180 days	–	–	–	–	–	–	2	–

Table III.
Numerical interpretation of the results for the regression of the determinants of total price for cruises

(*continued*)

	Mod. 1B.1 (%)	Mod. 1B.2 (%)	Mod. 1B.3 (%)	Mod. 1B.4 (%)	Mod. 2B.1 (%)	Mod. 2B.2 (%)	Mod. 2B.3 (%)	Mod. 2B.4 (%)
Cabin type (reference: outside)								
Balcony	27	28	25	31	27	28	25	31
Inside	−16	−16	−18	−14	−16	−16	−18	−14
Suite	79	80	88	71	79	80	88	71
Boat size (reference: large resort ship)								
Boutique ship	–	6	–	–	11	–	–	–
Middle-sized ship	–	−3	–	8	5	−9	76	28
Berlitz guide ship rating (numerical)								
Small ship	7	7	3	12	12	–	43	26
	0	–	–	–	0	–	0	0
Number of nights of cruise (numerical)	11	11	12	11	11	11	12	11
Price type (reference: online price)								
Official online price	43	–	–	–	42	–	–	–
Best online price	−17	–	–	–	−17	–	–	–
Brochure price	37	–	–	–	37	–	–	–
Ship's years of service (numerical)								
Minimum brochure price	14	–	–	–	14	–	–	–
Casino (reference: no casino)	–	–	–	–	–	0	0	0
The ship has a casino	–	–	–	–	6	–	53	−15
Outdoor swimming pools (numerical)	–	–	–	–	1	−2	11	4
Indoor swimming pools (numerical)	–	–	–	–	−2	–	−7	–
Laundrette (reference: none)								
The ship has a laundrette	–	–	–	–	–	8	–	−11
Cinema (reference: no cinema)								
The ship has a cinema	–	–	–	–	1	–	–	2
Library (reference: no library)								
The ship has a library	–	–	–	–	−24	−15	–	–
Food system (reference: full board)								
All inclusive	–	–	–	–	26	57	56	9

Note: Only significant variables at 10, 5 and 1 per cent significance levels are interpreted

Table III.

June (−6 per cent), September (−10 per cent) and May (−11 per cent). These results are notably stable between models and price differences depending on the departure date are common in the sector (Biehn, 2006).

Booking behaviour

One of the relevant aspects for study is whether there are differences depending on the time between the booking date and the departure date. As Biehn (2006, p. 139) says: "Incorporating the time of booking as a seasonality measure adds an important component to making pricing and availability decisions". The results indicate that the prices are lower

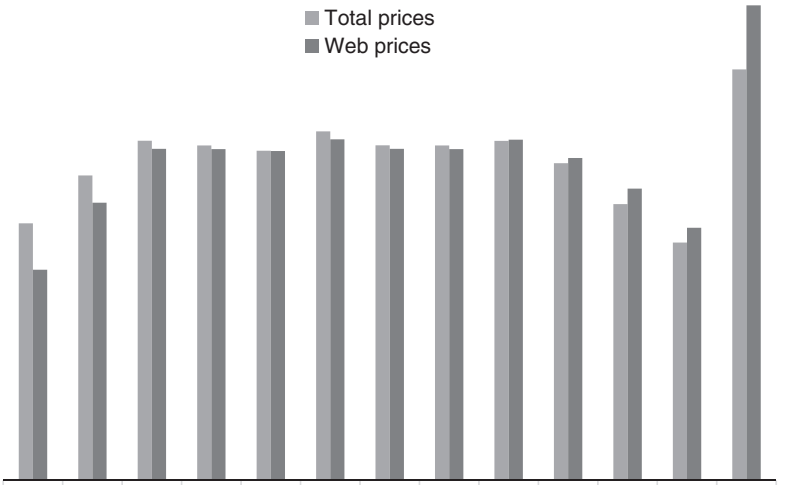
the closer the cruise departure date is to the passenger booking date (Table III), −8 per cent for the whole model and −16 per cent in the case of the model using online prices only.

These results could contradict some revenue management practices, as it is expected that consumers will get better prices if they book in advance (Ji and Mazzarella, 2007) and are in the line with Coleman *et al.* (2003, p. 142), a leading work on this topic, which points out "the lack of a consistent pattern of prices through the booking cycle". The results observed can be explained mainly because the itinerary is already complete and there are only some cabins free, which are probably the worst located ones (e.g. those next to the lifts). In fact, Figure 1 shows that, considering the online price model, the number of observations from 1 to 15 days is the lowest, representing only 5.1 per cent, while the number of observations for bookings more than 180 days in advance represents 11.4 per cent. Toh *et al.* (2005) point out that the early departure rate is very low in the cruise industry and that cruise passengers book further in advance than for hotels, extending the booking window up to a year. Moreover, companies do not always offer online prices, as there are other important channels, such as travel agents. Another explanation could be that when a cruise has exceeded a minimum level of expected income it seems not to need price reduction strategies to sell more cabins. The authors are analysing this situation more specifically and we hope to give more useful information in a future paper.

Price types

Models 1B.1 and 2B.1 allow a comparison of the differences depending on the type of price analysed. The cheapest price is the best price offered on the website (best online price), a saving of 17 per cent on the online price and a price actually paid by passengers that can be considered a "lowest price guarantee" or a "cabin category guarantee" where the actual cabin is assigned to the customer before departure to encourage bookings (Lieberman, 2012).

Official and brochure prices are intended to be a benchmark and are always above the online price (+14 per cent for the minimum brochure price, +37 per cent the brochure price



	1-15	16-30	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	151-165	166-180	More than 180
Total prices	6.2%	7.3%	8.2%	8.0%	7.9%	8.4%	8.0%	8.0%	8.1%	7.6%	6.6%	5.7%	9.9%
Web prices	5.1%	6.7%	8.0%	7.9%	7.9%	8.2%	8.0%	7.9%	8.2%	7.7%	7.0%	6.1%	11.4%

Figure 1.
Percentage of observations depending on the number of days booked before departure

and +42 per cent the official online price). It should be noted that online prices can be changed at any time depending on revenue management practices, while brochure prices are published and cannot be changed.

As already mentioned, the best online price could be the result of a strategy of subsidising ticket prices in order to get higher occupation levels, allowing revenue optimisation in a context of fixed costs (Vogel, 2011).

Although online bookings are increasing, it is believed these will not be as popular as in air travel and hotel reservations, as cruising is a more complex product. In fact, Toh *et al.* (2005, p. 134) point out: "on average it takes 14 phone calls between the travel agent and the customer to conclude a sale. People want informed choices, and only experienced travel agents can provide this".

Cabin types

The type of cabin considerably affects prices and shows substantial differences demonstrating price discrimination practices. The cheapest cabin is an inside one (−16 per cent compared to the outside cabin), followed by an outside cabin and a cabin with balcony (+27 per cent). The most expensive are suites (+79 per cent). According Langenfeld and Li (2008) prices are different within the same cabin category depending on the customers' price sensitivity and, on average, the price paid by price-sensitive customers is 34 per cent lower than that paid by price-insensitive customers, although these differences are lower in balcony (23 per cent) and outside cabins (21 per cent). Although cabins are usually classified in four types (inside, outside, balcony and suite), many cruises have 15-25 different cabin categories and newer ships have over 30 categories, so price differentials are frequently relatively small (Lieberman, 2012). This is another difference from other tourism activities, such as airlines or hotels.

Cruise Lines International Association (CLIA) (2017) shows that suite and balcony cabins are the most important features in a cruise ship and, in fact, new ships have more cabins with balconies, which can reinforce the importance of differential prices. Likewise, as mentioned in booking behaviour, as there are different types of cabin within the same type of accommodation (Ji and Mazzarella, 2007), revenue management is more difficult (Biehn, 2006). Along these lines, it can be clearly segmented for the same boat and itinerary, making the price differential between different types of cabin less dramatic (Ji and Mazzarella, 2007). As an example, suite customers in some cases have access to VIP lounges and other benefits, which may explain the difference in prices, validating the opinion of Biehn (2006, p. 140) that "in the case of a cruise product, customers are more likely to 'buy up' or 'buy down', especially if similar cabin categories are still available".

Ship attributes

The ship attributes and characteristics results offer some interesting findings. The year of service does not affect prices, so it seems that refitting is enough and is assumed by brand image.

Ship size affects prices. Descriptive analysis shows that shipping companies tend to have fleets of a similar size. Small and boutique ships are the most expensive – 12 and 11 per cent higher compared to large boats – with 5 per cent for medium boats. In other words, large ships are the cheapest, probably because they can take advantage of economies of scale, while smaller boats opt for specialisation and differentiation.

Most ships offer full board but some offer all-inclusive to differentiate. This results in a price increase of 26 per cent on average, going up to 57 per cent for online price. This can be a decision to consider for all companies which is, in fact, applied for 36 per cent of ships. In some cases, food and drink packages are offered to stimulate demand.

The characteristics that most affect prices are the casino – 6 per cent and one of the main source of revenues and very much used by cruisers (2017a) – and the cinema – 1 per cent and one of the most highly rated attributes by customers (Xie *et al.*, 2012). Along similar lines, outdoor swimming pools increase prices (1 per cent) and are also relevant, both for cruisers and potential cruisers (Xie *et al.*, 2012), and they are among the most used features (CLIA, 2017). Indoor swimming pool results tend to be negative, probably because they may not be useful for cruisers and library results can be rejected as they are available on all the ships except one. All these public rooms are very important for consumers (Brejla and Gilbert, 2014) and their satisfaction (Zhang *et al.*, 2015).

Finally, another result is that the Berlitz guide rating (Ward, 2013) does not affect price, which is rather surprising. More research should be done on this, as it would mean that the most similar approximation to category is not related to price.

Conclusions and management implications

This paper examines the effect on price of different cruise industry characteristics from the point of view of actual prices and in accordance with the hedonic price methodology. The analysis is therefore carried out from the supply side but taking into account the real prices paid by customers. Before exhibiting this research, a broad analysis of previous perspectives was made. To develop this research, a database of more than 36,000 prices paid by cruise passengers and different characteristics of ships in 2013 was built. To obtain the results, ten models have been developed with significant adjusted R^2 of between 0.85 and 0.93 making the models and results robust.

We can conclude that cruising is one of the sectors with the most sophisticated revenue management strategies, allowing resource optimisation. In fact, prices change depending on the date of departure, the number of days before departure the booking is made, the type of cabin and whether some features or services are offered, such as casinos, cinemas, outdoor swimming pools or all-inclusive. Many of these show remarkable similarities to the work of Xie *et al.* (2012) and Zhang *et al.* (2015). The application of price discrimination practices to improve pricing strategy revenues have been suggested before (Ladany and Arbel, 1991; Dev, 2006), particularly third-degree price discrimination (Langenfeld and Li, 2008). Although some results are not surprising, this is the first study to show figures for its impact, helping with the making of better financial decisions.

This work makes a contribution to the literature. To begin with, it is the first study using the hedonic pricing methodology based on considering the cruise product as a basket of characteristics and attributes. Second, is the first study to use prices obtained as if we were users and taking into account different channels and dimensions of prices such as online price, official online prices, best online price, brochure price and minimum brochure price. Third, is the first study in developing a ranking of cruise companies that can be considered solid as the robustness and stability of the models. Other new approaches offered by this study are the use of different types of price, the analysis of price differences depending on the number of days between the date of booking and the date of departure, as well as offering numerical values for the results.

From a management perspective, the results of this research make it possible to suggest some strategies. First, it would be very useful for ship companies to know their position in relation to competitors considering attributes and characteristics other than the nominal price and to better identify strengths and weaknesses in order to make decisions. Second, the results suggest the application of pricing and product strategies and their impact on prices, so that it would possible to estimate the impact on revenues more precisely. Some of these measures can be easily implemented and with a relatively low cost (casino, cinema, all-inclusive, etc.) and other are more difficult and costlier. These measures are complementary to those suggested by Ji and Mazzarella (2007) such as upselling, category-based upgrading, onboard RM and options/waiting lists.

The main limitation of this research is that the database is local and restricted to northern Europe even though it includes all itineraries and results, so there could be differences from other destinations. Another limitation is that some potentially relevant variables could be lacking, such as detailed itineraries, although the results of the models seem include most variables. This study also does not include total cruise passenger spending so that other strategies could be suggested (Ji and Mazzarella, 2007).

From the point of view of pricing and revenue management there is a wide range of possibilities for future research, as suggested by Sun *et al.* (2011). This paper opens up new sources of research in different ways. First, it would be useful to make more use of the possibilities of the database, combining the variables in different ways and using other methodologies, and the authors are working on this. Second, we suggest the creation of a panel of data on characteristics, attributes and prices representing the whole market – destinations, origins, segments and dates – allowing us to do more and more useful research. Other opportunity lies in the development of a stable price ranking, comparing the competitiveness of ship companies considering nominal prices as well as a price-quality ratio considering the price adjusted for features and attributes. It may be also useful to compare prices with quality and satisfaction variables like those offered by Ward (2013). Most of this new research can be done thanks to technological advances and the development of big data.

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Further reading

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