

## Designing a hotel website: An empirical analysis for a classic destination using a conjoint experiment

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Internet has become one of the most important channels for the promotion and sale of services related to tourism. As a result, producers and distributors alike are keen to resolve the question as to which factors will determine website choice by internet browsers. In this paper we develop an experiment to determine the factors that need to be taken into consideration when designing a website for a mature, familiar tourist destination. To this end, the basic factors shaping the architecture of a website are theoretically described and, based on the results of a conjoint experiment, the main factors influencing a website for a classic destination are extracted. Our results suggest that a website that includes objective information (e.g., price, activities of interest, number of rooms) and multiple photos has a positive influence on customer perceptions. The paper also makes an important methodological contribution, as it proposes a new design for calculating the weight of the factors, interactions of two factors and the factors squared.

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### Introduction

Today, travel bookings and other tourist activities are one of the most important businesses being conducted on the internet (Law & Cheung, 2006). Tourism services are perceived as an ideal product category to be promoted and distributed via the internet because the items included in the delivery process are information (Wang, Chou, Su & Tsai, 2007; Elliott & Boshoff, 2009). The transformation of this physical distribution into datascape, initially, leads researchers to focus on analysing the differences between e-commerce and traditional commerce, and the technology adaptation process experienced by customers (Venkatesh & Vitalari, 1987). But several decades on, consumers feel overwhelmed and intimidated by the large amount of information available on the internet. And, moreover, sellers have responded with informational tools that serve merely to overload consumers further, by offering new search tools, new formats of direct offers and lists of best destinations, etc. (Cohen & Rutsky, 2005).

Many authors have considered investment in websites as a technological innovation to help tourism businesses improve their competitiveness (Camisón, 2000). Coelho, Easingwood and Coelho (2003) demonstrate that when a company starts using a new channel such as the internet, it can expect sales growth in that channel rather than in traditional ones, probably as a consequence of reaching new market segments. However, these authors also warn that after the launch period, when the growth due to increased penetration of new market segments slows down, a process of

cannibalization between channels begins (Coelho *et al.* 2003). Geyskens, Gielens and Dekimpe (2002) note that when a company does not routinely use direct distribution channels and then begins to use them, it can achieve greater performance from using the internet than those companies that do commonly use direct distribution systems. This means that investing in the design of the web is not a panacea and that it will not always result in increased sales. Certainly, any investment in a website can be considered a product and process innovation (Garau & Olfina-Sintes, 2008) and this innovation must be customer-oriented given that it is the biggest factor in the success of new products (Cooper, 2001). However, the ability to add value through the use of information does not mean adding as much information as possible; rather, the amount of information should be adapted to consumer needs, e.g., through a customization process (Rayport & Sviokla, 1995). Therefore, if a company opts to invest in its website, it should seek to ensure it satisfies customer needs and expectations (Poddar, Donthu & Wei, 2009), and - as we propose in this paper - in some cases less information is better than more.

There is an extensive literature on all the elements - tangible and intangible - involved in designing websites from both consumer and designer perspectives. Tangible elements are those that can be perceived at a glance (i.e., text, pictures, videos, links, etc.), while the intangible refer to those elements that are not easily perceived by consumers (i.e., code structure, navigation speed, etc.) (Duckett, 2011). This paper focuses on tangible elements.

A wide range of studies have attempted to identify the tangible factors that make a website popular among consumers. Some authors believe that website design plays a vital role in attracting and keeping customers (e.g. Liao, Palvia & Lin, 2006). Eberl and Schwaiger (2005) believe that the quality of information provided to website visitors should refer to the performance characteristics of the products and services offered. They also argue that the way in which information is presented to consumers is a key factor when it comes to perceiving the website as useful. In other words, the perceived quality of a website depends on the perceived quality of its content (i.e. the quality of information relating to the characteristics of goods or services) and the perceived quality of its presentation (i.e. how the website provides the information).

Therefore, knowing what information is being publicized about the products and services and how it is delivered via the internet is an important issue for companies (Van Nierop, Leeftang, Teerling & Huizingh, 2011). While hotel managers try to revive their businesses by establishing their own websites, they generally do not have enough knowledge about the preferences of their e-consumers and the overall quality of their websites (Law & Cheung, 2006). In particular, tourism industry managers need to have a better understanding of the generational differences in attitudes that are emerging between different customer groups and potential visitors due to the challenges posed by new trends in tourism (Dwyer & Kim, 2003). On the one hand, there has been a process of fragmentation of the holiday period and a growing tendency to take a number of short breaks rather than one long holiday, as used to be the case. This implies a much higher frequency of trips per year for the most active tourists. On the other hand, although the family holiday still accounts for a significant market share, the greatest growth is occurring in holidays for retired people and single people (Dwyer & Kim, 2009). These changing trends are also reflected in the literature and practice of web design processes, which are much more focused on designs for specific segments or even specific services (Van Nierop *et al.*, 2011). This means that the development of tourism services will focus increasingly on targeting segment markets and developing theme-based tourism products (Dwyer, Edward, Mistilis & Roman, 2009). However, the literature examining the design of websites for specific segments and destinations is much more recent and remains extremely limited.

Various questions, therefore, remain unanswered. If the trend is toward market segmentation and product specialization, should web designers move in the same direction? Should they offer the same web design for accommodation in a mature location as for that in an emerging location or in a familiar or exotic destination? This study analyzes the relevant factors – presentation (type of illustration used) and content (price, number of rooms, activities offered by the hotel and the inclusion of customer assessments) – that a designer needs to consider when creating a website targeting singles for accommodation in a nearby destination. The paper aims to contribute to the literature on web design in two ways: first, by taking into

account the information needs that different segments of consumers may have; and, second, by proposing a new experimental design that provides a greater amount of relevant information than that provided by most other models in the literature. In particular, this paper follows three objectives: (1) to understand the roles that segment and product selection play in design features; (2) to show how the degree of maturity of a tourism destination plays a contingent role in the design – i.e., whether the nature of the destination determines the degree to which customers are familiar with it, and also the need for information that the website should offer – and, (3) to illustrate the use of Conjoint Analysis (CA) designs based on subsets.

Our results show the need for tailored designs because familiarity with a destination determines the degree of objectivity of the information to be provided by the website. Indeed, the results confirm that, for a familiar destination, the amount of information that browsers need when they are searching for a hotel is limited.

## Conceptual framework and hypothesis

Inevitably, the incorporation of the internet as a distribution channel for hotel room reservations has led to changes in the shares of the different delivery channels (Law & Cheung, 2006). In addition, Capella and Greco (1987) show that tourist services and travel are usually strong-involvement products and tourists tend to spend a great deal of time looking for information about accommodation and destinations using a wide range of external sources. However, when people are familiar with a destination they do not need much information to make their decisions (Murray, 1991).

This study is based on the Information Theory (IT) proposed by Shannon in 1948. One of the IT's essential paradigms is that it considers information to be a quantifiable factor in the communication process. Here, quantification does not refer to the amount of data that should be transmitted in a message; rather, it refers to the probability that a message, within a set of possible messages, is received by the recipient. As such, it proposes the possibility of an efficient coding system. Using this model, researchers seek to determine the quickest, safest and most economical coding structure for a message, avoiding the presence of noise which would impede its transmission and so increase the probability of its being perceived (Shannon & Weaver, 1963).

Although the literature classifies websites as either simply informative and/or allowing transactions (Teo & Pian, 2004), websites for tourism establishments are mostly commercial (Wang *et al.*, 2007). On the whole there is a broad consensus that attractive web design influences consumer decisions (Liao *et al.*, 2006). Indeed this consensus is not restricted to the specialist literature, as both analysts and professional designers agree that well-designed interfaces improve the performance and attractiveness of

websites and help to convert browsers into customers (Lin, 2011).

### Design of website concepts

To illustrate how the characteristics of the destination and target market determine the design specifications of a website, we follow the sequence for developing new concepts. The literature offers two perspectives: (1) a design approach based on parameters, and (2) a design approach based on needs. Users – who have the greatest information regarding their own needs – frequently have no knowledge of the technical issues underlying the design of the products; hence, they are not very good consultants on product design. On the other hand, designers at the top of their field often have very little information about user preferences (Randall, Terwiesch & Ulrich, 2007).

In a process where concepts are built based on parameters, designers first draft different concepts and subsequently users evaluate them according to the parameters employed in the design. In systems based on needs, by contrast, users first specify the relative importance of their needs and subsequently the designers propose the parameters that can maximize user utility. According to Randall et al. (2007) the former process is better for expert users, while the latter is better for novice users. In this paper we have followed the first system, and the design problem can be approached as the search for a set of website design parameters that maximize user utility (Ulrich & Eppinger, 2004).

The process for generating and selecting concepts follows four steps (Ulrich & Eppinger, 2004): (1) identifying customer needs; (2) establishing a set of design specifications; (3) building the product concepts, and (4) selecting the product concepts. In this last stage, the designers show different concepts to a sample of potential customers so that they can analyse and choose the most promising ones. It is usual here to use CA to gather stated preferences for the concepts (Raghavarao, Wiley & Chitturi, 2011).

### Criteria for evaluating the website

Generally, the criteria used to evaluate websites are the attitude toward the website and purchase intentions, resulting mostly in positive results (Martin, Sherrard & Wentzel, 2005; Lin, 2011). However, interactive access to the product that the internet offers gives tourists unprecedented control over how they spend their time and money (Buhalis, 2003). Some previous studies that have investigated the effectiveness of transactional websites using revealed preferences found very disappointing results. For example, Moe and Facer (2004) reported that only 5% of people who consulted information on a website eventually transformed this visit into a purchase, and often this percentage is much lower.

Internet providers should not only create websites with a high level of quality, but they should keep them active and

be constantly improving and updating them (Liao *et al.*, 2006). One way to achieve this is by adopting a better approach to web design and targeting specific markets (Dwyer *et al.*, 2009), which ensures a greater consistency between the messages sent from the destination and visitor preferences (Dwyer & Kim, 2003). This paper focuses on tangible elements of website design for a particular market segment without investigating its integration into the operating system, such as the booking procedure or payment procedure. We aim to answer the call made by some researchers such as Van Nierop *et al.* (2011) in terms of the need for future research to determine the circumstances and/or conditions in which both companies and customers benefit from a multichannel environment. One way of obtaining more ideas about the factors that have positive and negative effects is via experimentation.

In this paper we propose using stated preferences as a measure of the utility of different website designs in a sample of potential customers. Over decades the literature has developed and implemented a large number of both compositional and decompositional methodological approaches to measure utility. Conjoint analysis is the best-suited method (Raghavarao *et al.* 2011) as it offers the advantage of combining a simple data collection system with sophisticated design and evaluation methodology (Teichert & Shehu, 2007).

There is agreement in the literature that the components of a website can be divided into content and presentation, and concept building involves taking into account a number of relevant factors of both components (Eberl & Schwaiger, 2005).

### Elements of content

After visiting websites, potential tourists form a general impression about the characteristics of the products or services (Elliott & Boshoff, 2005; Lin, 2011). Honeycutt, Flaherty and Benassi (1998), point out that the more valuable and detailed the information on the internet, the greater the likelihood that the site will be chosen by and retain customers during the process of browsing. In addition, empirical results corroborate the fact that quality information positively affects user satisfaction and perceived usefulness (Lin & Lu, 2000), leading to greater use of the internet system by users (Liu & Arnett, 2000) and greater confidence in it (Fung & Lee, 1999). Indeed, one of the most basic objectives of transmitting information is to reduce the uncertainty of an event (Kantowitz & Sorkin, 1996).

However, the literature offers no consensus on how to define quality information. For instance, Krystallis & Ness (2005), suggest that information provided by the network is of high quality when it is personalized, comprehensive, relevant, easy to understand by browsers, and safe. Thus online service providers should offer enough information, with a set of questions that can provide personalized information to help customers choose exactly what services

they want (Liang & Chen, 2009). In short, website content remains an important subject for research and has serious implications for management (Van Nierop *et al.*, 2011).

However, achieving customized websites requires taking into account at least two components: client characteristics and the framework in which information is searched for on the web. Indeed, recent studies (e.g. Liang & Chen, 2009) show that, despite offering up-to-date, relevant data, some websites are still lacking some factor that would satisfy their customers; i.e., they are unable to generate confidence in a service provider. There is no guarantee that a greater amount of information offered by a website leads to a greater volume of purchases. In fact, a recent paper by Van Nierop *et al.* (2011) found that the introduction of an informative website had negative effects on the amount spent by browsers in the six product categories that these authors analysed.

### Elements of presentation

Presentation is also a relevant factor in determining whether a website will be chosen by customers. Thus, elements such as aesthetics, usability, structure and distribution of spaces influence the effectiveness of a website. Colours, fonts, multimedia capabilities and a good overall aesthetic design can all increase the visual appeal of a site (Ranganathan & Ganapathy, 2002). An aesthetically pleasing, well organized and attractive website increases customer confidence in the web (Liao *et al.*, 2006) and reduces the risk associated with the online environment (Boshoff, Schlechter & Ward, 2011). Chakraborty, Lala and Warren (2002) believe that the ability to organize content, information, images, and graphics is of great interest to managers due to the marked influence it has on user perceptions.

In discussions with website managers, they informed us that web-format designs are usually left to the discretion of the designers instead of being treated as a marketing-defined variable. The design of components such as page layout, background colours, white space and horizontal and vertical displays, which all form part of website architecture, depends on the style and culture in which it is developed (Razzaghi, Ramirez & Zehner, 2009; Snelders, Morel & Havermans, 2011). Although the design of a website must take into account multiple dimensions, in this paper we focus only on a few, which were collected in qualitative research from a sample of the target market.

### Hypotheses

After an extensive review of the literature related to web-design and an exploratory analysis that follows the logic of design concepts, three criteria for content and two for presentation were used.

In the case of content, three aspects have been selected: (1) the “number of activities” offered by the establishment; (2) the “number of rooms”, and (3) price. This information serves as factors informing users of the functional characteristics of the establishment and helps browsers make

their assessments. As for the number of activities, the tourist accommodation websites provide descriptions of the hotel’s characteristics, the environment around the hotel, and the activities organized as an introduction to Internet surfers (Lin, 2011). After reading these descriptions, potential tourists form a preliminary image of the service characteristics offered by the hotel. Because people increasingly expect a broad range of activities to be available at a destination (Elliot & Johns, 1993), the general assumption is that this factor will have a positive effect on consumer preferences.

The other two content factors were the number of rooms and the price. A large number of rooms are usually embedded in the mass tourism image, while the price for a classic destination is often a key factor in the choice process. One result of the implementation in Western countries of the ‘experience economy’ and tourism has been the continuing fragmentation of the tourism market into subsets that seek unique experiences. ‘Experience economy’ is generally based on customized holidays and personalized services allowing travellers to participate more actively in their experiences (Nordin, 2005). The amount of information provided by the network makes people more critical and less loyal, seeking value for money but not necessarily low prices. People are willing to pay large amounts of money for a quality experience and this might benefit the top-quality destinations of the holiday market, involving perhaps exotic locations in foreign countries. Many internet users tend to be experienced travellers who have seen what different package tours have to offer, and demand more tailored holidays or choices from “modules” that can be combined to meet their overall requirements (Nordin, 2005). The general expectation regarding these two factors is having a negative effect on consumer preferences – the number of rooms because of the massive target image generated, and the price because – in this case – it corresponds to the meaning of an amount of money to pay for a service. Based on the preceding arguments, the following hypotheses related to content can be formulated:

*Hypothesis 1a. The content item “number of activities” will have a positive influence on customer perceptions*

*Hypothesis 1b. The content item “number of rooms” will have a negative effect on customer perceptions*

*Hypothesis 1c. The content item “price” will have a negative effect on customer perceptions.*

In relation to presentation, two criteria have been selected: (1) “visual content” (i.e., how the images related to the establishment and the environment are delivered), and (2) “recommendations from other customers”. In this case both factors are expected to increase the tourist’s feelings of reliability regarding the site. As for visual content, it is clear that an aesthetically pleasing site conveys a sense of confidence (Liao *et al.*, 2006). On the other hand, the comments made by other customers are considered an indirect sign of reliability (Giuliani, Petrobelli & Rabellotti, 2005). Therefore, in the case of images, we expect a dynamic display of images and music to be more greatly



appreciated than static images (Lin, 2011). As such, we can formulate the following hypotheses:

*Hypothesis 2a. The presentation item “visual content” will have a positive influence on customer perceptions*

*Hypothesis 2b. The presentation item “assessments from other clients” will have a positive influence on customer perceptions.*

In this paper, two contingent factors are considered: first, a market segment comprising single people (the target market) and, second, familiarity which is based on the degree of maturity and the proximity of the destination for this target group. We propose that these factors will affect the strategy adopted by browsers when searching for information on a website.

Mature destinations are characterized by having undergone strong growth in tourist numbers in the sixties and seventies and by a high concentration of activities in the tourism sector. Today, they either have a stable number of visitors or, in some cases, they have begun to decline (Knowles & Curtis, 1999). Alba and Hutchinson (1987: 411) define the familiarity of a product as “the number of product related experiences that have been accumulated by the consumer”. Experiences related to the destination may include exposure to advertisements, destination-name recognition, exposure to the destination through travel agencies, and buying and/or visiting the destination (Biswas, 1992). Increased familiarity can result in a more developed knowledge structure, both in terms of what knowledge an individual has stored in memory and what people perceive they know about a particular destination (Rao & Monroe, 1998). This is common in situations involving mature products.

How should we expect the choice of a mature destination to affect the design features of a hotel website? The IT establishes a positive relationship between the amount of information sent and the time needed for its reception, decoding and comprehension. However, subjects show different preferences regarding how they want to receive information and how much information they need to receive the message (Liu, 2005). In the case of the tourism literature, some authors suggest that the positive points sought by travellers vary depending on the distance to the destination. The type of information sought is, therefore, also different (Etzel & Woodside, 1982; Bonn, Furr & Susskind, 1999). Long-haul travellers, for example, often seek information about cultural differences or exotic natural environments, while for nearby and familiar destinations – where the main reasons for the trip are visiting relatives and friends, playing sports and participating in social events – information searching is smaller (Woodside & Dubelaar, 2002). Seeking information also depends on the degree of knowledge or familiarity with the destination; thus, travellers intending to visit a destination for the first time are expected to search for a broader and greater volume of information than travellers who are returning to a destination (Woodside & Dubelaar, 2002). Moreover, some authors have found a relationship between the reaction time and the way people search for information according to the

degree of familiarity (Somberg & Picardi, 1983). It is claimed that when surfers browse websites they analyse them in one of two ways: either by scanning, that is the browser rapidly glances at the site to seek relevant details, or by dedicating closer attention, that is the browser spends more time reading and analysing information. In this context, a greater degree of familiarity is associated with the scanning search type (Somberg & Picardi, 1983).

In short, although familiarity increases consumer involvement and motivation (Petty & Cacioppo, 1979), in the case of nearby, familiar destinations, it also reduces the cognitive effort required to capture and process information (Alba & Hutchinson, 1987) as people already have prior knowledge available from nearby sources (e.g., family and friends), and typically use the scanning search type. Moreover, items of information that require less effort to process tend to be the most objective (Wuyts, Verhoef & Prins, 2009). A piece of information is objective when it can be represented free of personal evaluations, prejudices and feelings (Lovelock & Wirtz, 2007). Quantitative information is considered the most objective, the clearest and the most readily verifiable (Wuyts *et al.*, 2009; Bryman, 1984). Therefore, in designing a website for a mature, familiar market, the most effective factors are expected to be those that provided the most objective, the clearest and the most readily verifiable information as opposed to factors offering less objective and less readily verifiable information. Based on the preceding arguments, the following hypothesis can be formulated:

*Hypothesis 3. Content items (i.e., “price”, “number of rooms” and “number of activities”) will have a greater influence on customer perceptions than presentation items (i.e., “visual content” and “assessments from other clients”) when surfers browse websites referred to a familiar destination.*

Given that the proposed experimental design makes it possible to estimate two-factor interactions and factors squared without confusion, we also explore the interactions of these factors.

## Empirical analysis

In this paper we propose a set of basic factors that a designer should include among a website’s tangible elements, aimed at promoting a hotel for ‘singles’ in a classic or mature destination.

As an example of a singles market segment, we have considered college students planning an end-of-course trip. The age cohort of this audience is the usual one for the destination analysed and, moreover, most of the subjects used the internet to gather information about it. According to the Spanish Tourism Studies Institute (IET), in 2009 about 64% of visitors to the Balearic Islands used the internet as a channel for collecting information about the archipelago and its institutions, and about half of them eventually visited the destination (IET, 2010). Website users

are – on average – somewhat younger and more educated than non-users (Bonn *et al.*, 1999; Burke, 2002). As an example of a mature destination, we considered Ibiza. This is one of the most popular islands in the Balearic archipelago, especially as far as the target considered is concerned. It is a major tourist destination for Spanish citizens, who represent the third largest group after the Germans and the British. Ibiza is rated a mature destination (Batle, 2000) and, according to Knowles and Curtis (1999), the whole of the Balearic archipelago is considered an example of second-generation mass European destinations.

The type of product offered by the Balearic archipelago, i.e. climate, sun, sand and a good quality/price ratio (Garin-Muñoz & Montero-Martin, 2007), is that most frequently purchased on the internet (Bonn *et al.* 1999). It is also a tourist destination where mostly young people participate in activities, parties, etc. outside the facility (Juaneda & Sastre, 1999).

## Research method

The study follows the four steps for concept generation. In the first step we aimed to identify the needs of customers, and therefore we carried out a literature review and a qualitative research. In this process we assumed that the students were a homogeneous single people group. For qualitative research, we used two focus groups with eight students per group. Griffin and Hauser (1993) recommend collecting information from 10 to 50 participants per segment analysed. Based on the proposed destination (Ibiza), and using a visual approach with three hotel websites on the island, we conducted the sessions using open questions with written answers. We told the participants to express their needs independently of any particular design or service, i.e. they had to explain what the web had to do and not how it should do it. Subsequently we coded and classified the responses for the corresponding attributes. For the encoding process we followed the inductive-coding category, which consists of labelling repeated factors found in the text (Spiggle, 1994). Similar processes are used for content analysis in the services literature (Tax, Brown & Chandrashekar, 1998) and the method is used extensively in studies of consumer behaviour to identify relationships between different parts of a text (Spiggle, 1994). The fieldwork for the qualitative research was carried out in November 2010.

Focus groups reported that the aesthetic design of the website is an important factor, and that the presence of illustrations and images contributes to the attractiveness and interest of the website. Nevertheless, in this regard, they held conflicting views on the appropriate proportions of text and images. In addition, having information regarding the quality of the establishment's performance was considered very relevant. The content of the images also seems relevant; thus, there are differing opinions as to whether they should show pictures of the setting or the environment. The groups also mentioned the hotel structure, expressing different opinions about the preferred size. Accessibility and

proximity to the beach, recreation centres, and restaurants are also considered important. Pricing information should be prominently located on the website and they preferred a range of services, although there is no consensus on which are the most important. In general, the needs reported by most of the respondents are in accordance with those previously identified in the literature.

In the second stage, with the help of web design professionals from CRAI (The Resource Centre for Learning and Research at the University of Barcelona, Spain), we aimed to translate the stated needs into a set of web specifications. Specifications are functional requirements that must be defined by size and value criteria. In order to do this, we followed the recommendation of Gustafsson, Ekdahl and Bergman (1999) that not all attributes can or indeed should be taken into account; instead, they must be chosen realistically and in a way appropriate to the problem under analysis. Gustafsson *et al.* (1999) propose a list of rules for choosing these attributes when evaluating quality service. They suggest selecting those attributes that are important when the interviewees are buying, and which can be modified and used to compare with those of market competitors.

One way of translating needs into specifications is to use the quality function deployment matrix (QFD). The process to develop the QFD is based on the building of a central matrix known as “the House of Quality”, which is used to relate customer needs – also called performance specifications – with the requirements of webs – also called design specifications – as well as to fix design objectives and evaluate the services offered by competitors (Hauser & Clausing, 1988) (see Huertas-Garcia & Consolacion-Segura, 2009 for an illustrative example of this procedure).

The third step is the development of concepts. A concept is an approximate description of the technology, working principles, and form of a product or website. It is usually expressed as a sketch accompanied by a brief textual description (Ulrich & Eppinger, 2004; Razzaghi *et al.*, 2009). From the second step we obtained the following conclusions: (1) the literature divides the assessment of the website between that of its content and presentation; (2) the content elements used are the number of rooms, the price and the number of complementary activities; (3) the images of the hotel are the most relevant factor of the presentation, and (4) the recommendations from the web's customers need to be incorporated, as indicated by some interviewees and many authors (e.g. Giuliani *et al.* 2005). To continue with the third step and the fourth step (the selection of concepts), we carried out a conjoint experiment in the largest university of Barcelona. The literature currently suggests four types of experimental design: (a) based on brand alone; (b) on attributes alone; (c) on attributes and brands, and (d) on brands and attributes with interactions at two levels (Raghavarao *et al.*, 2011). In this study we used a design based on attributes alone and a quadratic equation for its estimation. The process for building an experimental design based on subsets is described in Appendix 1.

The factors (and levels) identified in the above process and encoded in a pattern vector were: (1) opinions from other customers (1 = presence, -1 = absence); (2) number of rooms (-1 = 20 rooms, 0 = 350 rooms, 1 = 800 rooms); (3) price (-1 = 230 euros, 0 = 650 euros, 1 = 1200 euros); (4) type of illustration used (-1 = static image, 0 = dynamic images, 1 = video), and (5) number of activities (-1 = 4 activities, 0 = 20 activities, 1 = 40 activities). Levels were obtained after analysing hotel advertising in various tourist brochures. Each hotel's website was scored according to a 10-point scale (1 is the least liked and 10 is the most liked). Appendix 2 shows an example.

We collected a sample of 243 interviews, from which we excluded those respondents who did not complete the entire questionnaire, leaving a sample of 216 respondents. Given that each respondent evaluated 8 profiles, the total number of data analysed was 1728. The dependent variable reflects the perceived usefulness in an aggregated form. The sample consists of young people who routinely use the internet, state they have experience in online shopping and that they all know Ibiza as a destination – this question was appropriate because of the small number of foreigners who participated. Just over half of the sample are women (55%), most around 22 years old (54%), and 96% are Spanish. The experiments were conducted in the computer room during the class period.

## Results and discussion

The results of the estimation are presented in Table 1. The degree of adjustment of the OLS model is usual in a study of this type ( $R^2 = 0,234$ ;  $F = 24,859$ ,  $p < 0,01$ ) (Verhoef & Leeflang, 2009).

**Table 1: Estimation results**

Factor	OLS coefficients (std. error)
Customer evaluation ( $F_1$ )	0,016 (0,016)
Number of rooms ( $F_2$ )	0,045** (0,020)
Price ( $F_3$ )	-0,280*** (0,020)
Type of images ( $F_4$ )	-0,055*** (0,014)
Activities ( $F_5$ )	0,083*** (0,014)
$F_2^2$	0,058** (0,025)
$F_3^2$	-0,039 (0,025)
$F_4^2$	0,001 (0,025)
$F_5^2$	0,177*** (0,026)
<b>Interactions</b>	
$F_{12}$	0,080*** (0,020)
$F_{13}$	-0,029 (0,020)
$F_{14}$	-0,036** (0,014)
$F_{15}$	-0,007 (0,014)
$F_{23}$	-0,021 (0,023)
$F_{24}$	-0,004 (0,016)
$F_{25}$	0,012 (0,016)
$F_{34}$	0,027* (0,016)
$F_{35}$	0,053*** (0,016)
$F_{45}$	-0,037** (0,005)
<b>Constant (means)</b>	1,604*** (0,042)
R	0,484
$R^2$	0,234
F	24,859***

As Table 1 shows, there are four factors that significantly influence customer preference. First, as the main element of the content, price is the factor that shows the greatest negative slope ( $-0,280$ ,  $p < 0,01$ ). This result is in line with the definition of price as a sacrifice that must be made to purchase the service (Rao & Sattler, 2007). It is also consistent with the results obtained from the literature on tourism products (e.g., Garcia & Tugores, 2006) and the good quality/price ratio of the Balearic product (Garin-Muñoz & Montero-Martin, 2007). Another content element is the number of activities; the significant and positive parameter (0,083,  $p < 0,01$ ) indicates that customers prefer hotels that offer a large number of activities (e.g., excursions, parties, etc.). In fact the squared term of this factor is also significant and positive (0,177,  $p < 0,01$ ). This is consistent with the characteristics of the target audience, made up of young tourists, especially those seeking off-site activities (Juaneda & Sastre, 1999). The third content element is the number of rooms; the parameter associated to this factor shows a slight positive slope indicating a tendency among customers to prefer hotels with more rooms as opposed to smaller hotels (0,045,  $p < 0,05$ ). The squared term of this factor is also significant (0,058,  $p < 0,05$ ). Therefore, both H1a and H1c are supported; on the contrary, H1b is rejected.

As for the presentation element – where we consider the way in which images are shown to browsers, either statically or dynamically – the slope of the variable indicates a preference for static images over video ( $-0,055$ ,  $p < 0,01$ ) for providing a graphic description of the hotel on websites. This result is somewhat surprising since it contradicts to some extent the stated preferences of respondents in qualitative research and the results from information technology research. Another surprising result is that the presence of “assessments from other customers” appears to be insignificant. These results contrast with claims made in qualitative research. Therefore, neither H2a nor H2b are supported.

Although the scope of this study was limited to detecting the contingent effect of the tourism destination on the design factor characteristics, we found that this effect to be important. The “price” and “number of activities” are both quantitative elements and showed the highest slopes in the expected direction, whereas “assessments by other customers”, which is subjective information, is not even significant. This means that the results partially prove H3, providing evidence of the use of a scanning-type information search strategy, and one focused on quantitative factors (such as price and number of activities) rather than on qualitative issues. However, two of the factors considered – “number of rooms”, a quantitative attribute, and “type of images”, a qualitative variable – present significant results but in an unexpected direction.

As for the exploratory analysis of two-factor interactions – the valuation made by other customers and the number of rooms – this creates a positive and significant impact on customer preferences (0,080,  $p < 0,01$ ). This indicates that respondents take into account the “value for other clients”



when seeking information about large hotels; however, when they seek information about smaller hotels they do not take other customers' evaluations into account. The interaction between other clients' assessments and the "type of image" shows a negative slope ( $-0,036$ ,  $p < 0,05$ ). This indicates the existence of a substitution effect between the two information sources – customer feedback and the use of videos presenting the hotel.

The other three interactions also show some interesting results. The interaction between "type of image" and "price" has a positive and fairly significant result ( $0,027$ ,  $p < 0,1$ ), which indicates that respondents have a tendency to associate the inclusion of videos on a website with higher prices. This association is probably responsible for the fact that browsers prefer static images to video. Another important interaction is between price and number of activities, where the result is again positive and strongly significant ( $0,053$ ,  $p < 0,01$ ). This indicates the association that consumers make between a larger number of activities and a higher price. It is therefore a perfectly rational perception. Finally, we consider the interaction between the "type of image" on the website and the "number of activities". In this case the slope of interaction is negative and significant ( $-0,037$ ,  $p < 0,05$ ), suggesting that respondents intuitively note a substitution effect between the presence of video on the website and the number of activities available.

## Conclusions and managerial implications

The literature considers investment in websites as a form of product and process innovation (see Garau & Olfin-Sintes (2008) in this regard for tourist accommodation companies in the Balearic Islands). It also considers that an attractive, aesthetically pleasing website can improve user perceptions of the products and offers it contains. However, this study has shown that the degree of maturity of a tourist destination for a given target market can act as a moderator variable as regards a website's aesthetic and informational requirements. This result goes runs counter to most claims that what matters is a sophisticated web design (Liao *et al.*, 2006), but such studies have tended to ignore the type of product or service being promoted and the target group being addressed. In this respect, the results of the study conducted here suggest that for a mature destination, which is familiar to clients, the strategy adopted by most browsers when searching for information is that of scanning and so the simplest designs are more likely to satisfy consumers than are more sophisticated websites. This finding suggests therefore that there is not always a need to invest great amounts of money in developing sophisticated websites. In line with Carneiro and Crompton (2010), among others, the degree of familiarity with a tourist destination appears to have a negative influence on the efforts expended in searching for information.

We conclude that special emphasis should be put on identifying the information needs of browsers engaged in a scanning search. Our results show that, from the perspective

of IT, quantifiable and objective information is easier to perceive than qualitative and subjective information. The website should therefore present objective data, such as prices, activities offered, number of rooms, etc., and it can positively influence customer perceptions by simply including multiple images. Indeed, it seems that customers typically perceive mature destinations as being less attractive than emerging destinations, and as providing fewer novelties.

From the exploratory analysis reported here of the interaction between factors, we have been able to deduce the conditioning effect that a mature destination has on consumer perceptions. Thus, consumers associate the presence of videos on a website with higher prices, perhaps considering this feature to be typical of more remote or exotic destinations. In all probability, this is a consequence of the "low cost" philosophy governing tourism services (including, air travel, hotels and holidays) for mature products and destinations. This being the case, such destinations should pay greater attention to improving their image to enable tourists to "brag" more about these mature and usually national destinations (Dwyer *et al.*, 2009). In other words, it is important to try to offset the perception that many customers have of certain classic destinations, compared to the more exotic or glamorous perceptions they typically assign to overseas destinations. From the results of the interaction between the number of activities offered by an establishment and the type of images used, we can deduce a certain degree of scepticism about the images displayed on websites, combined with the suspicion that the inclusion of a video is a negative sign as regards the number of activities available. A high audiovisual content on a website is not a panacea, and when a sample of subjects has previous experience with the internet and with online shopping, it begins to distrust their overuse.

Our research has several implications for companies, including hotels, apartments, airlines, etc., that offer tourist services via their websites. Tourism service providers should be aware that customers perceive that a classic, familiar destination offers fewer emotions and novelties than a new, distant destination, and so the amount of information customers will require to make their decision is much lower. A destination's familiarity means that it is easier for providers to transmit information through indirect mechanisms, such as by word of mouth, and they should strive to exploit this advantage by communicating the novelties that exist in the destination's equipment, services and activities and which make it more interesting and attractive. Although hotel managers should be aware that price is the most important factor for selecting a mature destination, a 'low-price' strategy is not a panacea, as it serves merely to ensnare them in a cheap destination-positioning trap.

Consumers perceive that existing service providers offer few novelties and so tend to focus on more objective attributes that require less cognitive effort. As such, generating innovations that can be communicated to customers via the



website is a reasonable alternative to a low-price policy as a means of enriching services.

However, web designers and information managers alike are concerned with finding the most efficient coding scheme for their sites and so they propose economical designs that are adapted to customer needs, where information search is as fast and as safe as possible, ensuring reception with a minimum amount of noise. And so, for a classic destination they should opt for a simple design where price – the main element sought by browsers – is accessible as quickly as possible.

### Limitations and further research

This paper has a number of limitations. One is that our study uses an experimental approach that is not fully able to capture the complexity and dynamism of the process of choosing a hotel. In this respect, a single study undertaken with a sample of students represents a further limitation. So, although our results may be sufficient to demonstrate the main objective of this paper, i.e., people use different search strategies when they are familiar with a destination, and this knowledge can help web designers enhance the customization of web pages, further studies are required to enhance the external validity of our results – especially the main outcomes obtained from the interactions reported here, which have been analysed in an exploratory manner.

A further limitation is that we have not considered strong brand hotels, as this might have interfered with our assessment of overall functional attributes. In addition, information has only been collected from evaluations of one facility. Clearly additional information is needed if we want to extend our results to other contexts, or to different stages in the life cycle of tourist destinations and different market segments, etc. An interesting extension of the present study would be to compare these results with the evaluation of websites for an emerging or more distant tourist destination.

Nevertheless, this paper provides a preliminary clarification of the main factors and interactions that are important in designing a website for a market segment. The experimental design used in this study can easily be applied to other situations to evaluate both products and services, online and offline. In conclusion, our research shows that the design of a website must be undertaken carefully if the aim is to meet consumers' needs.

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## Appendix A

### Process for designing the experiment based on subsets

CA has typically been characterized by its use of small designs to fit first-order models, which usually allow main factor effects to be estimated without confusion, but not between-factor interactions. In some cases, interaction effects — particularly two-factor interactions — may be important in marketing research where sensory perceptions are essential (e.g., when designing new food or hair and cosmetics products [Green and Srinivasan 1990]). In our proposed experimental design, the number of profiles is larger than usual so that we can obtain more precise estimates of the model and so that we can use quadratic models and estimate two-factor interactions without confusion.

To design an experiment based on subsets, three stages have to be completed: (1) the number of profiles to be built needs to be determined; (2) the set of treatments or profiles provided must have a number of desirable properties, e.g. an efficient design such as D-optimal and an alias structure to estimate two-factor interactions without confusion, and (3) this set of treatments is then organized into blocks so that these properties are maintained.

To determine the number of profiles, we have used the "resource equation" proposed by Mead (1988). This equation requires at least  $n$  profiles or concepts which can be grouped into blocks of size  $n_b$ ,

$$n = \frac{n}{n_b} + \frac{q(q+3)}{2} + n_{lof} + n_{pe} \quad (1)$$

where  $q$  is the number of factors,  $n_{lof}$  is a small number of degrees of freedom (usually between 5 and 10) to estimate the higher order factors and verify the lack of fit, and  $n_{pe}$  is another small number (usually between 5 and 15) of degrees of freedom for estimating pure error. The resulting number of treatments was 40.

To construct the set of treatments we follow the designs proposed by Gilmour (2006). These designs use variables in a ratio or interval scale and the encoding of factor levels is performed using a vector model of three levels, equivalent in their spatial distribution and grouped into subsets. The design of this experiment was constructed from factorial  $3^q$  subsets, defined by Hoke (1974) and developed by Gilmour (2006).

In situations of high response variability, the use of designs arranged in blocks is relevant. For instance, in biological studies it is important to use blocks as a tool to reduce the high variability in laboratory cultures that occurs from one day to another simply due to changes in environmental conditions. This is not the case in conjoint experiments performed in marketing research, where what is important is to control the cognitive load in the evaluation process that is responsible for the high variability of customer responses in market research. Thus, in our study, it is important to delimit the number of profiles that each individual has so as to assess whether we want to control the error generation due to the limited cognitive capacity of subjects. Although it is possible to organize the experimental design into blocks to reduce the cognitive load on respondents, their use in the classic CA is very unusual.

Given that the experiment consists of 40 treatments and it is difficult for respondents to evaluate them, we decided to group these treatments into blocks in such a way that this grouping should not represent a loss in the reliability of the factor-estimation weight. Because the design is similar to a central composite design, we have separated the 40 experiments into five blocks of eight experiments each, which have been evaluated by a group of potential customers. The final design is shown in table 2.

**Table 2. A subset design of five blocks of eight experiments**

-1	-1	1	-1	-1
-1	-1	1	1	1
-1	1	-1	-1	1
-1	1	-1	1	-1
1	-1	-1	-1	1
1	-1	-1	1	-1
1	1	1	-1	-1
1	1	1	1	1
-1	-1	1	-1	1
-1	-1	1	1	-1
-1	1	-1	-1	-1
-1	1	-1	1	1
1	-1	-1	-1	-1
1	-1	-1	1	1
1	1	1	-1	-1
1	1	1	1	1
1	0	0	-1	-1
-1	0	0	-1	1
-1	0	0	1	-1
1	0	0	1	1
1	0	-1	0	-1
-1	0	-1	0	1
-1	0	1	0	-1
1	0	1	0	1
1	-1	0	0	-1
-1	-1	0	0	1
-1	1	0	0	-1
1	1	0	0	1
1	0	-1	-1	0
-1	0	-1	1	0
-1	0	1	-1	0
1	0	1	1	0
1	-1	0	-1	0
-1	-1	0	1	0
-1	1	0	-1	0
1	1	0	1	0
1	-1	-1	0	0
-1	-1	1	0	0
-1	1	-1	0	0
1	1	1	0	0

The utility function to fit is a second-order polynomial model:

$$\mu = \beta_0 + \sum_{i=1}^q \beta_i x_i + \sum_{i=1}^q \beta_{ii} x_i^2 + \sum_{i=1}^{q-1} \sum_{j=i+1}^q \beta_{ij} x_i x_j + \sum_{m=1}^b \delta_m (z_{um} - \bar{z}_m) + \varepsilon \quad (2)$$

where  $\mu$  measures the total utility of each treatment,  $\beta_i$  are the values of the vector slope of each main factor,  $\beta_{ij}$  the interaction effects of two factors, and  $\beta_{ii}$  the effects of squared factors, where  $\delta_m$  is the coefficient that reflects the block effect and  $z_{um}$  is a dichotomous variable, i.e.  $z_{um} = 1$  if the  $u_{ih}$  observation is in the  $m_{th}$  block and  $\bar{z}_m$  is the average of the dummy variables used to remove one of them and not make the coefficient matrix singular, and  $\varepsilon$  is the error term. Finally we transform the dependent variable into logarithm and fit this model with OLS using PASW Statistic 18.

## Appendix B

Example of website concept (in Spanish)

