

# Usability Audit Model for Tourism Destination Websites

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## ABSTRACT

*In a globalized world, tourist destinations must have a website containing accurate information for potential tourists. However, there is currently no model that serves as a guide to evaluate the usability of tourism websites. A web usability audit manual is presented in this work with the application of a case study methodology, which combines theoretical contributions with those of a real audit of a tourism institution. Apart from the description of the manual itself, the results of this work have made it possible to identify a series of actions to be considered, as well as others that should be avoided when a usability audit is being carried out in the tourism field.*

**Keywords:** Audit, Tourist Destinations, User Experience, User Test, Web Analytics, Tourism Promotion, Costa del Sol Tourism and Planning, Case Study.

## INTRODUCTION

Due to the phenomenon of globalization, the tourism sector today can be considered a single market in which each country, region or city competes with others to attract tourists (Manhas, Manrai, & Manrai, 2016). This gives rise to a concern on the part of the governments of the different destinations to generate an attractive image that allows them to settle in a competitive position within the tourism market. One of the most effective ways to promote this competitive position is the construction of a recognized brand that can represent its identity in an attractive way for potential clients (Gallarza, Saura, & García, 2002).

It is in this competitive and global context that tourist destination websites play a decisive role (Fernández-Cavia et al., 2013; Fernández-Cavia, Rovira, Díaz-Luque, & Cavaller, 2014). This implies that it is not enough for tourist destinations to work on the creation of a competitive image on the Internet. The large amount of information currently available to users on the network complicates the task of capturing the attention of the tourist, increasingly demanding in terms of easy use, speed or design of websites based on a single website. This has resulted in a tendency among different tourist destinations to put greater emphasis on improving the website, in order to meet the demands and expectations of users and thus ensure that they have a satisfactory experience during their interaction with its web portals (Martinis, Papadatou, & Kabassi, 2019; McCartney, Butler, & Bennett, 2008).

This means that tourist destinations want to offer a promotional website that not only provides information about the destination, but is also presented in the appropriate way so that it is useful and simple for the user seeking information or intending to plan a trip. This implies that the presence of information about the

destination on a website is not enough, and that it must be presented in the appropriate way. This is where the concept of usability arises, meaning the degree to which a product or system can be used by specified users to achieve specific goals effectively, efficiently and satisfactorily, as defined by ISO standards. However, on many occasions, managers of tourist destination websites have felt lost, since they do not have a model to serve as a guide for evaluating the usability of their website. This is precisely the objective of this work: the elaboration of a manual that explains the steps to follow when auditing the usability of a website in the tourism sector.

## THEORETICAL FRAMEWORK

In a study whose main theme is the web usability audit of tourist destinations, we should start with a brief theoretical compilation based on the doctrines and explanations of some of the most prominent authors in this field. Therefore, before delving into the project, it is necessary to clearly and precisely define the terms that will be used in this manual. This is vital, considering that the usability audit field is still new and unknown to a large part of the population. Specifically, there are three key elements in this study: usability, usability audit and user experience (UX).

It is also necessary to indicate that, although many of the concepts presented here can be used by all brands in a general sense, this manual is focused on tourism destinations, so it presents a series of specific features. It is important to mention that they are websites that are often managed by public authorities focusing on the interests of a series of tourism enterprises that depend on the flow of tourists attracted by the destination at issue.

### Usability

As stated by the International Organization for Standardization in its Standard ISO 25000, the term usability is defined as the *degree to which a product or system can be used by specified users to achieve specific goals effectively, efficiently and satisfactorily in a specific context*. This capacity is related to very different aspects, from software design to its navigability. That is why these standards also present a broader outlook and specify that usability is divided into the following sub-characteristics:

- **Appropriateness/recognizability:** Degree to which users can recognize whether a product or system is appropriate for their needs.
- **Learnability:** Degree to which a product or system can be used by specified users to achieve specific learning goals to use the product or system *effectively, efficiently and satisfactorily in a specific context*
- **Operability:** Degree to which a product or system has attributes that make it easy to operate and control.
- **User error protection:** Degree to which a system protects users against committing errors.
- **User interface aesthetics:** Degree to which a user interface enables pleasing and satisfying interaction for the user.
- **Accessibility:** Degree to which a product or system can be used by people with the widest range of characteristics and capabilities to achieve a specified goal in a specific context.

Based on the above, we can affirm that we are not dealing with an absolute characteristic or capacity of the product or system, but something gradual, or rather, that can be considered to a greater or lesser extent. In this respect, the degree of usability of a system or website is an empirical and relative measure. According to Maldonado (2015), it is an empirical measure because it is based on usability tests that are carried out through field work or in laboratories; and it would be a relative measure because the result that can be obtained from these tests will be good or bad depending on the goals previously established in each case.

## Usability Audit

According to Rubin and Chisnell (2008), the general objective of a usability audit is to identify and rectify existing usability errors in a system in order to create products that are easy to handle and use satisfactorily, and that provides the utility and functionality sought by the target audience. This evaluation is particularly important, since a website with low usability is unattractive to the user in the commercial field and, in a context as competitive as that of tourist destinations, this can lead potential customers to seek competitors.

According to the classification of Nielsen and Molich (1990), the following audit methods would be used:

- **Formal method:** This method consists in conducting the audit based on technical analyses.
- **Automatic method:** It is based on the use of automated or computerized procedures.
- **Heuristic method:** This method enables us to examine the user interface, based on the auditor's own opinion.
- **Empirical method:** Although it requires more time than other methods, it is currently the most widespread and consists in analyzing the usability of the system through tests with users to obtain full information about the interaction between it and the system.

In this context, the proposals of Nielsen (1994) and Jeffrey and Chisnell (2008) are the most popular. Although both models have small differences and different levels of detail at some points, they propose the application of the empirical method with a very similar structure. Therefore, the two resort to real users, considering that they provide direct information on how people interact with the system and what the exact problems in the interface being evaluated are.

### *Nielsen Model*

Firstly, the Nielsen (1994) model proposes the creation of an audit plan in the form of an initial report that establishes the general aspects of the process, such as the objectives, duration or profiles of the users involved. This audit plan is followed by budgeting, which includes the financial requirements of the audit. After these tasks, Nielsen (1994) recommends the performance of pilot tests before executing the final tests, in order to identify eventual technical or planning errors. Upon completion of these tests, new or expert representative users who will carry them out are selected.

The auditors who will carry out the evaluation must also be selected. This author emphasizes the importance of the fact that the auditor should be a person with previous auditing experience and knowledge of the system to be evaluated. However, he also states that auditor profiles that do not fit in perfectly with those characteristics can also guarantee the effectiveness of the audit. After the selection of users and auditors, this model proposes that the next step be the identification of those tasks to be performed by users. These tasks must fulfill the main requirement of being representative, meaning that they act as typical users in their interaction with the website.

The next step is the performance of the tests. According to this model, it is divided into four phases:

1. **Preparation:** You must ensure that everything is ready.
2. **Introduction:** Auditors explain to users what they should know before starting to perform tasks.
3. **Test performance:** An official auditor should be appointed to intervene and interact with the user only if strictly necessary.
4. **Interrogation:** Questions are asked so that the user may complement the information extracted during the tests.

Finally, the last step marked by this model is the measurement of results. This stage aims to convert the usability of the audited website into measures and ratios, such as the time required to carry out a task or the number of errors made by the user during the interaction.

## *Jeffrey and Chisnell model*

On the other hand, the Jeffrey and Chisnell (2008) model follows a structure similar to that of Nielsen (1994), but, while the latter focuses mainly on the phases from the beginning of the audit to the execution of the tests, the former is much more detailed in those phases occurring after performing the tests. That is, the Jeffrey and Chisnell (2008) model shows greater development in the phases during which the results are analyzed. Therefore, the proposal of these authors also begins with the elaboration of an audit plan that fulfills functions similar to those indicated by Nielsen (1994).

The next step is the selection of representative users who will participate in the audit, so it is obvious that it does not refer to budgets or pilot tests. This selection is followed by the preparation phase of the materials needed to carry out the audit. It is followed by the development phase, which differs considerably from the one proposed by Nielsen (1994), since this model does not include an auditor selection phase with guidelines as to the ideal profile. In fact, in the testing phase, Jeffrey and Chisnell (2008) almost limit themselves to indicating how the auditors should act, with indications regarding how to control their tone or gestures to adopt a position as neutral as possible, intervene only when it is very necessary, etc. However, it makes a new contribution, since it refers to the need to use the “thinking aloud” technique, which means that users express their thoughts aloud during their interaction with the website.

After performing the tests, Jeffrey and Chisnell (2008) also recommend the questioning of users as a source of complementary information. The interrogation is followed by a phase of transforming data into findings and recommendations, which includes a preliminary analysis process and a comprehensive one in which statistics help to organize and summarize data to identify patterns. Once this task has been completed, these authors propose to continue with the task of identifying user errors and difficulties and their origins. This phase is supported by data organization carried out previously. In addition, these errors must be organized by severity level. After this analytical phase, the next step is the development of recommendations, which should be carried out by a team with some knowledge of usability and design. Finally, this model ends with the proposal to prepare a final report that includes an executive summary, methodology, results, findings and recommendations and an appendix with the raw information used.

## **User Experience**

User experience or simply UX, is a concept that is closely linked to usability. In fact, we can say that one is a consequence of the other. That is, if the usability of a product or system works well, this will result in an improvement in the UX. Therefore, it is important to know what exactly it is and what consequences it has.

Similar to the concept of usability, we should start with an official definition to understand the user experience concept. Therefore, its ISO definition states that the UX is *the person's perceptions and responses that result from the use or anticipated use of a product, system or service*. According to this definition, this concept includes emotions, beliefs, preferences, perceptions, physical and mental responses, behavior and skills that occur before, during and after use.

Nowadays, improvement of the UX is a fundamental pillar in a successful marketing strategy. In the web field it is a key factor for Search Engine Optimization (SEO) since, in fact, Google gives more and more priority to this factor over others. This is because what is very important to them is that users are as satisfied as possible with the content they find through their searches (Au et al., 2008).

In any case, regardless of the above, trying to improve in UX is of great importance, since its proper use has a significant and desirable impact in the internet world:

- It decreases bounce rate.
- It increases the duration of visits.
- It provides greater feedback from the user.

- It increases conversions.
- Users are loyal, so they return (thus increasing the traffic of recurring users).
- Users recommend the web to others, which results in an increase in new user traffic.

These are powerful reasons to seek improvement of the UX on any website. Therefore, usability is one of the paths to follow to achieve this goal, and a usability audit is the first step to take (Dominguez, Hammill, & Brillat, 2015).

## Usability and User Experience of Tourism Webs

### *Internationalization in the Tourist Field*

The unbridled evolution of ICT has changed the way people search for and digest information. Today most travelers use the internet to search for information and plan their trips. Its characteristics are also closely linked to each local culture, that is, the tourist's requirements vary greatly depending on the culture from which they come (Degen, Lubin, Pedell, & Ji, 2005). The websites of tourist destinations play an essential role in the traveler's decision before leaving. Then, the attractiveness of these websites has a great impact on travelers' choices. Therefore, the UX has a great influence on tourism during interaction with the website. However, as the depth and scope of these websites have increased, the usability problems have become more apparent.

On the other hand, due to globalization, the usability of tourist destination websites must be considered as being closely linked to an internationalized or cross-cultural context. In fact, tourist demand is influenced by factors such as the design of the user interface, which has different requirements for each culture. Therefore, cross-cultural design should be considered from the beginning of the website creation process and should not consist of its mere translation to different languages once the original version is done (Zhou & DeSantis, 2005). In short, and given its trait of internationalization, when it comes to improving its usability, tourist destination websites should pay special attention and consider the different ways of browsing and searching for information that exist between users of different cultures.

### *Usability Audit on Tourist Destination Websites*

Many studies have attempted to measure the quality of a tourist destination website. However, even today there is no clear consensus as to the proper evaluation of the usability of a website in the tourism sector, due to the great disparity in the tools and factors considered when evaluating it. This makes it very difficult to find general guidelines on how the audit should be carried out. However, according to Fernández-Cavia et al. (2013), the empirical method has the most support in the case of tourist destination websites. It also recommends a review of all methods, so that a combination of tools from all of them is used, but without making a more specific proposal.

Despite the aforementioned lack of consensus as to the type of methodology to be followed in relation to the results of the few publications on audits in the field of tourist destination websites (Carstens & Patterson, 2005; Finn & Johnson, 2013; Hung, Hu, & Lee, 2013; Martínez-Sala, Monserrat-Gauchi, & Alemany-Martínez, 2020; Zhou & DeSantis, 2005), some conclusions and recommendations of interest can be drawn and taken into account when improving a destination website, among which are:

- **Giving users a starting point.** Normally, the homepage, being the web entry or the path, most commonly taken from search engines, is the page that receives the most clicks. It is therefore essential that it be a starting point for users who access it, offering content that generates engagement (Nielsen & Tahir, 2011).
- **Seeking simplicity,** given that the web environment is circumscribed within a world full of distractions, users appreciate the absence of noise, that is, unnecessary information (Nielsen, 1999).

- **Providing users with maps and directions**, as they offer crucial information for the potential user of these types of websites (Zhou & DeSantis, 2005).
- **Offering useful functionalities**, since the users need to have content according to their needs. Therefore, as Zhou and DeSantis (2005) argue, it is of no use to offer the user the possibility to search within the website by terms, dates or other criteria if this functionality does not return results consistent with the user's interests.
- **Making navigation intuitive**. This characteristic is reinforced by the law of simplicity defended by Nielsen (1999).
- **Clarifying information on visas and immigration policies**, since, according to Adukaite, Gazizova and Cantoni (2014), this type of information helps to better serve tourists by facilitating the work not only of the traveler, but also of the receiving country with an increase in tourist flow.
- **Using content, terminology and functions in several languages**, given the aforementioned international nature of tourism (Zhou & DeSantis, 2005).
- **Inserting images and multimedia content**. Previous studies conclude that this type of content stimulates the interest of users who will plan a trip and improve their experience during their visit to the website (Lian & Yu, 2019; Shani, Chen, Wang, & Hua, 2010).
- **Offering information on exchange rates**, which helps travelers from countries with different currencies to estimate the different prices of the country they intend to visit (Dwyer, Forsyth, & Rao, 2002).
- **Providing information about the climate and local weather**, due the interest it arouses in tourists who decide to visit a place (Becken, 2013).
- **Including personal stories**. Intelligent use of these personal stories by the managers of these tourist destinations can cause a great increase in engagement on the web. Hence the importance of "peer to peer" and of assessment, comments and recommendations made by other users, since they add a personality to the website that can make it connect emotionally with potential customers, which is especially true for the case of tourism (Cam, Anh, Moslehpour, & Thanh, 2019).
- **Showing the benefits that trips provide to tourists**. That is, showing users explicitly what benefits they can obtain on the website in a pleasant, visible and simple way is always more user friendly than exposing cold data that bothers them (Zhou & DeSantis, 2005).

All these recommendations and the absence of a model that serves as a guide to assess the usability of tourist destination websites show the need for a manual explaining the steps to follow to audit the usability of a website in the tourism sector, which is the objective of this work.

## THE CASE STUDY

The case study methodology was chosen to achieve the objective proposed in this work. This technique is appropriate when a holistic, in-depth investigation is required and for cases with a limited amount of prior research or data compiled in studies (Feagin, Orum, & Sjoberg, 1991). Specifically, as Yin (1994) states, the case study is an empirical investigation that studies a contemporary phenomenon in its own context in real life. This allows the researcher to take advantage of previous theoretical proposals that can guide the collection and analysis of data. From this perspective, the relevant use of case studies as a research methodology has been verified in various subjects, including several associated with business management, management and organizational change, and innovation (Brown & Hayes, 2008; De-Laguno-Alarcón, Sierra-Herrezuelo, & Rojas-de-Gracia, 2019; Higgins-Desbiolles, 2018).

As the name indicates, the case study requires a real case. The usability audit recently carried out by the Costa del Sol Tourism and Planning institution (Turismo y Planificación Costa del Sol, in Spanish), the entity that manages the website [visitacostadelsol.com](http://visitacostadelsol.com), has been chosen to create this manual. This entity emerged in January 2015 to promote the tourist destination of the province of Malaga under the Costa del Sol brand and support the growth of the economy, designing and executing projects at the service of private companies and public entities.

According to George, Bennett, Lynn-Jones and Miller (2005), the following steps must be followed to carry out a case study:

**Step 1:** Study design

**Step 2:** Development of the study

**Step 3:** Analysis and conclusions

The first step is to establish the objective of the study. As already mentioned, in this case, it consists of creating a manual that explains the steps to follow when auditing the usability of a website in the tourism sector. During the second step, data collection is planned and implemented using the different sources considered for the case. Specifically, an exhaustive review of the literature on this topic has been carried out first to obtain the necessary information to create this manual. This theoretical basis has served to extract some general canons, resulting in an initial model proposed for carrying out a usability audit on a tourist destination portal. Second, this initial model has been empirically compared with a real usability audit that, in this case, has been the recent one on the website [visitacostadelsol.com](http://visitacostadelsol.com) carried out during 2017. This has warranted in-depth interviews to be conducted with those responsible for the audit.

The third step, involving analysis and conclusions, has been made possible by the actual audit conducted by the Costa del Sol Tourism and Planning institution where recommendations and implementation improvements were obtained, not only from the web, but from the audit process itself. Consequently, we are urged to fill a gap existing in the literature and develop a detailed manual as a guide for auditors of tourist destination websites through comparing the initial model based on the actual usability audit case.

## **USABILITY AUDIT MODEL FOR TOURISM DESTINATION WEBSITES**

At this point and based mainly on recommendations made by Nielsen (1994) and Jeffrey and Chisnell (2008), together with information taken from the Costa del Sol Tourism and Planning case, we will finally describe how to carry out a usability audit on a tourist destination website. The basic objective of this is to identify any eventual errors the website may have, and to propose solutions that make it a useful, easy to learn, easy to use tool that makes it very unlikely for users to commit errors that are not easily remedied.

### **Contributions of the Costa del Sol Tourism and Planning Audit**

The contributions that, in principle, were not specifically considered in the theoretical models and that have been extracted from the audit conducted by the Costa del Sol Tourism and Planning institution are summarized in the following:

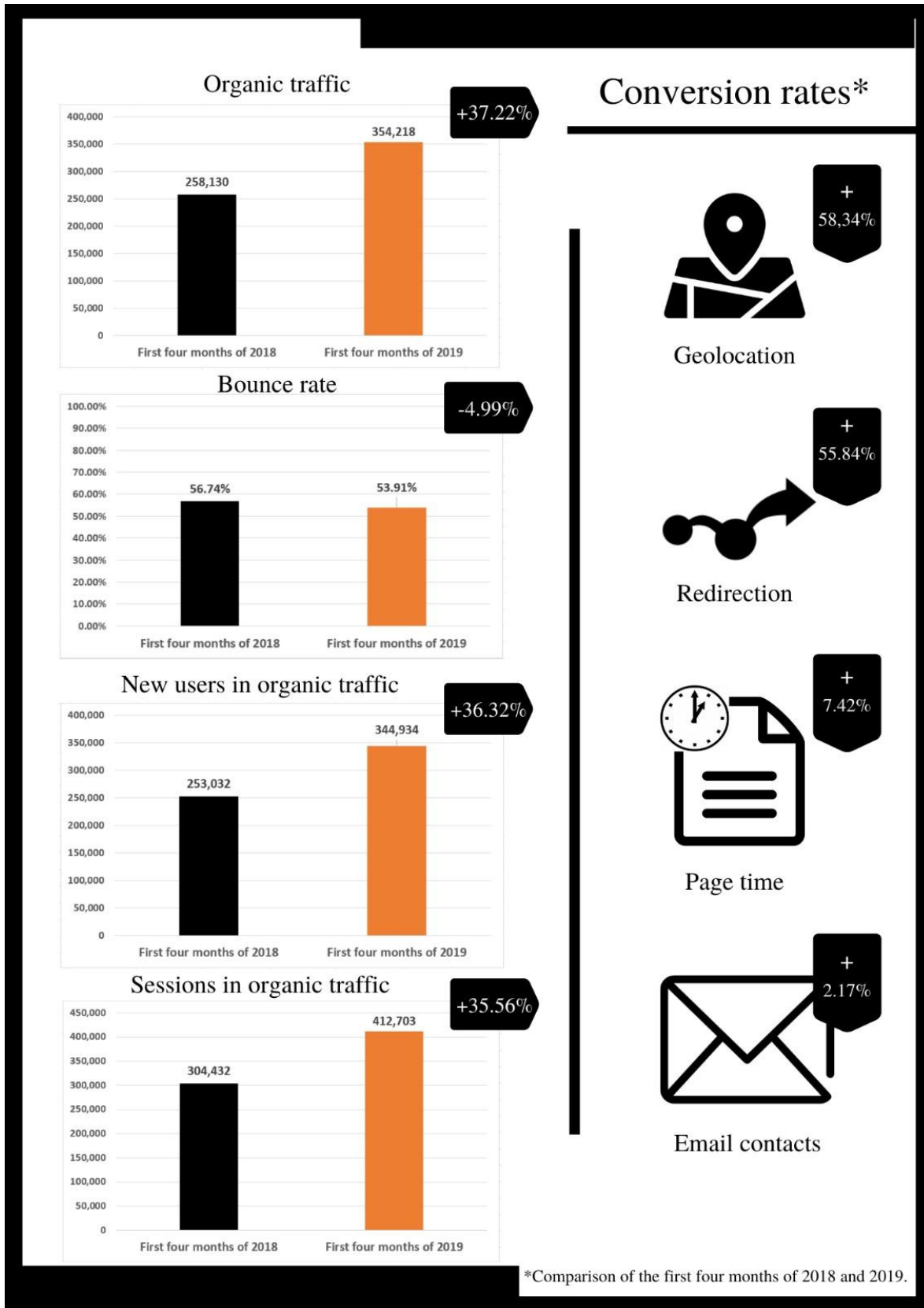
1. **Methodology combined with the user test as a core.** Regarding the method to follow, it has been very useful to implement additional methodologies, together with that of the user test, as they enrich the audit by identifying errors and generating recommendations from different perspectives.
2. **Focus on devices.** The audit adopted a model called “Mobile first”, since it was since users mainly access destination websites from their mobile devices and mobile access figures have increased through the abolition of roaming. The fact that visits to destination websites are eminently mobile has conditioned the usability of the portal. In this context, for example, the size of the device and the fact that it has a touch screen change the way users interact with the web and, therefore, usability requirements. Therefore, the usability analysis was carried out on the mobile phone and then moved

to devices with larger screens. This approach organizes all your information according to the different versions of the web, which is very useful when it comes to understanding and implementing the recommended improvements.

3. **Selection of external auditors with previous experience in the sector.** Selecting auditors with experience in conducting usability audits on websites and who are familiar with or are specialized in the tourism sector was the right thing to do. This is due to the advantage of these auditors being able to better guarantee what mistakes are usually made and what solutions usually work.
4. **Description of the user profile based on their tourist habits.** The audit revealed the relevance of tourist habits as key variables when determining web usability. Therefore, when describing the profiles of users selected to perform the user tests, it is important that they be based on tourist behavior such as their accommodation preferences, their preferred means of transport or activities in which they are interested.
5. **Selection of personalized tasks for user tests.** The tasks that were selected to perform the user test were very specific actions of the destination website to be audited, that is, those actions most repeated by users on the site and, therefore, the most representative. For example, in the case of the Costa del Sol, they were asked to look for an event on the agenda, navigate through this agenda and consult about that event. The objective of this is to underline the importance of testing the major paths and tools offered by a specific website to know if they are useful or if they work correctly.
6. **Benchmarking as an additional source of recommendations.** This technique was used, based on other tourist destination websites which have worked well in those aspects in which the audited website makes mistakes, to serve as a source of inspiration to solve them.

Once the audit carried out on the website [visitacostadelsol.com](http://visitacostadelsol.com) was implemented, Costa del Sol Tourism and Planning compared the key performance indicators (KPI) for the first four months of 2018 (period in which the improvements proposed after the audit had not yet been implemented) and those for the first four months of 2019 (period in which the proposed improvements had already been implemented). In this comparison, several improvements were observed, which are shown in Figure 1. After the audit, an increase in web traffic has been achieved, which comes largely from new users and organic traffic. It should also be noted that indicators such as the increase in page time and conversions reveal that it is very likely that users' experience in their interaction with the website is now more satisfactory compared to the period before the improvements had been made.

Figure 1. Evolution of the KPI of the web visitacostadelsol.com



## **Usability Audit Procedure**

Before starting with the audit itself, it is essential to carry out a previous web analysis since it will be necessary to know which users visit the web, as well as the actions most executed by them. Specifically, the web analysis will show us which tourist profiles and which actions are more relevant for the case of the destination web in question, which will be necessary for the audit proposed in this model. For this previous phase, the use of tools such as Google Analytics is recommended. It is also recommended that the website creators themselves carry out this analysis since they are familiar with the content and operation of the website.

On the other hand, the empirical methodology has turned out to be the most suitable for use, or rather the user test, complemented with techniques of two methodologies, the heuristic (based on expert criteria) and the automatic (based on the use of automated software). Therefore, the final model proposed will be based on the user test technique as the main tool. The results achieved through this will be combined with those from the professional criteria of specialists in the field, as well as those from automated analysis tools. This combination aims to guarantee the detection of the greatest number of errors, to which the relevant recommended solutions will finally be assigned.

Specifically, the process proposed in this manual is organized in the phases shown in Figure 2, which are: (1) Audit plan; (2) Preparation of pilot tests; (3) User selection; (4) Auditor selection; (5) Task selection; (6) Development of tests; (7) Organization and analysis of results; (8) Generation of recommendations; (9) Preparation of a final report.

Figure 2. Phases of the usability audit model for tourist destination websites



## *Audit Plan*

Before beginning any test, it is necessary to be clear about the purpose of the audit, since this will condition the type of method to be implemented. Therefore, it must start from an audit plan. This audit plan will differ according to the type of tests to be performed and the degree of formality that the company in question requires, but it should include the following matters:

- Purpose of the audit
- Problems to be solved/Objectives of the tests.
- Place and time at which it will take place.
- Estimated duration of each session.
- Equipment needed to carry out the tests.
- Necessary status of the system at the time the tests begin.
- Desired speed of expected system response, so that the estimate is realistic.
- Identification of the auditors.
- Identification of users who will participate in the tests and how they will be reached.
- Criteria that will be used to determine whether the user has successfully performed the tasks established in the tests.
- Help users will receive during the tests.
- Limit presented by the auditor to assist the user during the tests.
- Information that will be collected and how it will be analyzed.
- Expected level after which usability objectives will be considered satisfied.
- Report and presentation of the content of the audit that will guide auditors and precede the final report.
- Audit budgets. At this point, it is also advisable to separate fixed from variable costs since it will be easier to plan how many users to include in the tests. Although the figures vary widely in each case, the costs are usually around €2,700 of fixed costs and €800 per user test. A general breakdown of the budgets would include the following points:
  - Usability specialists who plan, direct and analyze the tests.
  - Administrators who schedule user tests, enter data, etc.
  - Software developers who change codes to collect information or to achieve the desired modifications to perform the tests.
  - Users participating in the tests.
  - Extra equipment needed to perform the tests.

## *Pilot Tests*

Before carrying out the final audit, several pilot tests should be carried out to identify any possible deficiencies in the previously established audit plan. The number of tests to be performed will depend on the size of the audit, but generally one or two are sufficient. At this point, it is not essential to use

representative users. Ideally, this task should be performed with an initial batch of users like those used in the final tests.

### *User selection*

This is a crucial step in the audit process since the validity of the results of the audit depends on whether the profile of the participants resembles that of the end user. Therefore, at this point it is essential to bear in mind the need for them to be representative. The user source can be of a different nature: from current clients who volunteer, to people from temporary employment agencies, students (in case this profile will enter the system's target audience), etc. Most audits require the use of new users in the field, but there are cases where the presence of expert users is also required. In the case where both types of users are used, it is normal to perform separate tests in which some tasks are common, but there are differences in other tasks to be performed by them.

In the case of tourism, when selecting users, the most representative profiles must be taken as a reference according to the previous web analysis carried out. This representativeness that is taken as a reference must focus mainly on the user's tourist profile, that is, on those factors that are truly relevant for tourist entities, based primarily on their tourist behavior (leisure, culture, accommodation interests, transport, etc.). In addition, because this is a website that is being audited, the device through which they access is also an important factor to consider in the selection of users, with the use of mobile devices being particularly important. The internationality of a typical user profile on tourist destination websites must also be considered. Therefore, it is convenient to select users that represent the different cultural profiles that normally visit the website.

### *Auditor selection*

When choosing the auditors, it is obviously preferable to assign the position to people with previous experience in the matter and, specifically, in the execution of the evaluation method to be used. It is evident that the effectiveness of the audit depends largely on the method used and, therefore, it is important that the people who carry it out have prior knowledge. This does not mean that the presence of experienced auditors is essential, since it is also possible to perform an evaluation without them, although the chances of achieving the desired effectiveness are lower.

In addition to experience in the method to be used, another important factor to consider is the knowledge of the system to be evaluated, its applications and its interfaces. This knowledge is necessary to understand what users do when trying to carry out the tasks in the system and to draw reasonable conclusions about their eventual intentions while interacting with the system. This does not mean that the auditor should know how the system is implemented. In fact, the presence of programmers in the system is also recommended in case intervention is necessary to solve any problems that may arise during the audit.

An easy way to find auditors with knowledge of the system to be evaluated is to assign designers themselves for this position. This has its advantages, since the position is attributed to the person entrusted with the task of introducing the possible usability improvements resulting from the audit. In other words, the usability improvement process is shortened since the person who obtains recommendations for improvements and implements them is the same. However, this also has its disadvantage, since the degree of objectivity required of an auditor is at risk in these cases and there is a tendency to provide excessive help to users during the tests.

Based on this, in the tourism sector a good profile would be considered that of professional auditors not belonging to the organization, specialized in usability audits and with experience in the tourism sector. This guarantees great objectivity when it comes to inspecting the website and interesting contributions based on their experience in the sector, that is, it enables the heuristic methodology to be implemented.

## *Task selection*

A basic rule when selecting the tasks for users to perform during the audit is that these should closely represent the uses to be made of the system. This selection should cover the most prominent parts of the user interface. To carry out this work, users should make use of the information supplied by data analyses, as they do to understand the profile of the representative user. Furthermore, the tasks entrusted must be concise enough to enable them to be carried out within the established time limits, but without falling into the error that they are so simple that they become insignificant. Another important aspect of this point is that the tasks must clearly specify which result the user is expected to achieve.

Along the same lines, in the case of tourist destination websites, it is necessary to select those that were most representative according to the web analysis, as well as those that, at the discretion of the auditors, turn out to be critical actions on a tourist destination website: check the events agenda, find accommodation or make a reservation, for example. If they are better defined and more specific, it is more likely to detect possible errors associated with the corresponding task.

## *Development of tests*

Focusing on the user test, usability tests generally have four phases:

**Phase 1:** Preparation. In this phase, the auditor must ensure that everything is ready: the materials to be used, instructions for users, questionnaires, that all legal requirements that may exist be met, that the system is in the initial status according to the plan or that everything necessary for data collection is available.

**Phase 2:** Introduction. At this point, the auditors give users a brief explanation about the purpose of the tests and the configuration of the system in case it is something they are not familiar with. Other aspects such as willingness to participate in the tests, confidentiality, etc. are also discussed.

**Phase 3:** Test development. At this stage, it is essential for the audit to be carried out on all elements of the audited product which, in the case at hand, are the tourist destinations, not on individual parts thereof. However, the reliability of an audit on a particular item would not be affected if the results of this audit were shared with the results of others on the other product items. The following are some key factors to consider when carrying out the audit:

- Previously assigning the position of officer to one of the auditors, who would be the only one who could speak during the tests, but only if necessary.
- Monitoring the session impartially. The auditor's attitude should not differ when faced with different results and he should react in the exact same way to a user error as to correct behavior.
- Being aware of the effects that the voice and body language of the auditor may have on the user during the tests.
- Treating each new participant individually. The auditor should not be influenced by his experience with the previous participant.
- Not "rescuing" participants when they find it difficult to carry out any task, unless it is obvious that the user is frustrated.
- If an error is committed as an auditor, such as releasing information to the participant, the tests must proceed without any interruption.
- Ensuring that the participant completes one task before continuing with the next one.
- Maintaining a relaxed atmosphere and making it clear to the participants that there are no right or wrong answers.

- Using the “thinking aloud” technique, which consists in making the participants express their thoughts aloud while carrying out the tasks entrusted to them. However, although this technique can help users focus and the auditor to obtain clues about the confusion that leads users to make mistakes, it slows down the thinking process and can be disturbing and unnatural for participants.
- Interacting with users appropriately. Interaction must be minimal, and direct questions should not always be used. The auditor must act as a mirror that reflects users’ thoughts to help them express what impressions they have during the course of the tests.
- Helping users as a last resort.
- Using checklists to guide the test development process.

**Phase 4:** Interrogation. In this last phase, users are provided with a questionnaire for them to make any comments and suggestions about the system. During the interrogation, questions are also asked about specific moments or events during the user’s interaction with the system, all by way of review. The objective of this step is to understand the reason for each error made by users and the difficulty encountered by them. This is the last opportunity to resolve these issues before users end their participation.

However, as already mentioned, apart from the user test, it has also proved very useful to perform two more types of tests. On the one hand, it is advisable to perform an analysis of the external auditors. In this test, it is the auditors themselves, as experts in web usability and connoisseurs of other tourist destination websites, who analyze the website in question to identify errors at their discretion. The auditors will work on the main pages of the website, as well as the different elements of same (forms, search engines, content, etc.). This would provide us with the second source of results. To complement the two previous tests, it is also recommended that participants carry out an automated analysis using different software tools to measure different aspects of the website, such as its adaptation to the different devices or loading speed. This analysis would constitute the third source of results.

### *Organization and analysis of results*

The task of measuring usability is complex since it requires quantification of an aspect of tremendous ambiguity. The following are some of the most commonly used measures:

- Time required to complete a task.
- Number of different tasks that can be carried out in a given period.
- Interaction/error ratio.
- Number of errors committed by users during the interaction.
- Number of commands or other system features implemented by the user.
- Number of commands or other system features not implemented by the user.
- Number of times that users showed obvious frustration or clear satisfaction.

Once the results are in the form of raw data, this information must be organized and polished to facilitate the task of identifying errors and their possible origins. For this purpose, it is important to carry out two different processes. The first is to carry out a preliminary analysis to quickly ascertain the most serious usability problems. This enables developers work on solving them as soon as possible. This should be done immediately upon completion of the audit in the form of small written report or a brief verbal presentation of recommendations. Once this analysis has been completed, a comprehensive analysis follows, which is carried out between the second and fourth week after the audit. Its format is an exhaustive report that includes both the updated recommendations of the preliminary analysis and the new findings.

Data collected during the tests performed in the audit must first be compiled and summarized to carry out these analyses. The key to compiling the data is to organize it into patterns. Inferential statistics (means, medians, time ranges, etc.) help identify these patterns. Subsequently, descriptive summaries should be produced to provide a snapshot of what happened during the tests, such as the points at which users acted correctly and at what point they erred. Once these two steps have been completed, it will not be difficult to identify the errors and problems found by users.

However, the greatest difficulty will be in finding the true source of these errors, that is, in attributing a reason related to the audited product resulting in user problems or errors. This requires many areas to be analyzed: annotations and reports made during the audit by each auditor, recordings made during the tests or the knowledge of auditors and developers on how the system and its user interface work. It will also be necessary to consider the background of the users who made the mistakes. When the errors and problems are identified, as well as the reason for them, the next step is to assign each of these problems a priority depending on whether the errors are critical, considering criticality as the combination of severity with probability of occurrence. In this way, those problems that are considered more critical should be solved first.

Regardless of whether the error has been identified by the user test, by the auditors' judgment or by automated methods, it is necessary to emphasize the need to search for general errors of the website as well as those in each of its different language or device versions. Since the tourism industry is an international business, webs must be adapted to cultural differences that may exist between potential users coming from the different markets we wish to analyze.

### ***Generation of recommendations***

After the previous analysis, the auditors will work together to propose recommendations for each of the errors identified. This step is the *raison d'être* of a usability audit. Knowledge of the principles of usability and user-centered design are always very beneficial in the process of developing appropriate recommendations. However, this task should not be carried out by a single person, but by a team, since this allows different perspectives to be provided, which is considered essential. Furthermore, those who have to implement the recommendations are consequently convinced of their usefulness since they have participated in their development. There are certain useful key factors to bear in mind when making recommendations:

- It is necessary to focus on solutions with the most general impact on the web.
- When making the first draft, the possibility of being able to implement the recommendations that are going to be proposed should not be considered, even if they must be discarded later.
- After the initial draft, and after weighing up the errors, it is advisable to propose recommendations that can be implemented in both the short and long term.
- It is necessary to indicate those areas that are found to need a deeper study after the audit.
- It is necessary to address every problem identified in the audit.

In this way, based on their knowledge of web usability and on their experience in audits performed on similar websites, auditors may have a greater knowledge of the problem. Additionally, the benchmarking technique should be used, which will be used as a reference other tourist destination website that have been able to function in those aspects in which the audited website makes mistakes. Depending on the errors for which a solution is provided, the recommendations will have greater or lesser priority when they are implemented, so the auditors should make it clear which ones are priorities.

### ***Preparation of a final report***

The final report is the document that the external auditors must present to the internal team of the entity whose website has been audited. It is essential that it be perfectly organized, and that it clearly inform the

reader and facilitate the task of implementing the improvements. It should thus be organized in the following way:

- **Executive Summary.** This is an initial section that constitutes a brief presentation of the main recommendations and benefits that the website will achieve with their implementation.
- **Methodology.** Everything related to the criteria, tools and methods used to find recommendations for improvement of the website appears in this section.
- **Results.** The results obtained from each test performed are organized in as many graphs as possible, by type of test (user test, evaluation of professional auditors and automated tests) and, in turn, by the different variants thereof, as well as the different sections audited in each variant. This will make it easy for the reader to identify the results each audited section of the website has obtained in each test.
- **Recommendations.** This is the most important part of the report, as it contains the improvements that should be implemented. It is advisable that these recommendations be organized into general recommendations, that is, those whose implementation affects the website in general, and specific recommendations or, which is the same, recommendations directed towards a specific version of the website, by device or by language. Both categories of recommendations should then be organized by section of the website, for example, sections dedicated to accommodation, activities, destinations, etc., as well as by priority. All recommendations should be shown, where possible, using graphics and comparative examples “before/after”, making it easier for the internal team to understand them.
- **Appendices.** It is advisable to include an annex that informs the recipient of the final report of the raw data on which the auditors’ recommendations are based. In this section, recordings of user tests can be added to demonstrate their opinions while interacting with the website, as well as the data obtained from the different tests to which the website has been submitted through the different automated software packages.

## CONCLUSION

In a globalized world, tourist destinations are forced to offer a promotional website that provides information about them presented in the appropriate way so that it is useful and simple for the user who seeks information or intends to plan a trip. This implies that the presence of information about the destination on a website is not enough, but that it must be presented in the appropriate manner. This is where the concept of usability arises, that is, the degree to which a product or system can be used by specific users to achieve specific objectives with effectiveness, efficiency and satisfaction in a particular context. This work fills an existing gap in the literature since, in many cases, those responsible for tourist destination websites have felt lost by not having a manual to serve as a guide for assessing the usability of their website.

A case study methodology has been chosen to prepare this manual. General theoretical knowledge on web usability audits found in the literature and the empirical contrast thereof have been combined in a real web usability audit in the tourism field. The real audit case was carried out by Costa del Sol Tourism and Planning, which is the entity in charge of promoting the tourist destination of the province of Malaga under the Costa del Sol brand through its website [visitacostadelsol.com](http://visitacostadelsol.com).

Apart from the description of the manual itself, the results of this work have made it possible to identify a series of actions to be considered, as well as others that should be avoided when a usability audit is being carried out in the tourism field. The recommendation to use external auditors and experts in the tourism sector, the application of a combined method that is enriched by the techniques of different methods, beyond the use of the solo user test, or the use of benchmarking as an additional source of recommendations have proved to be key factors in the audit of tourist websites. On the contrary, it has been shown that it is not

advisable to segregate the final audit report into several documents by subject matter since it makes it difficult to implement improvements.

However, the contributions of this work have certain limitations. Although Costa del Sol Tourism and Planning has verified the improvement experienced in the KPIs used as indicators by the entity after the usability audit, this is a recent experience and a study of its evolution in the longer term is pending. Regardless of this improvement, it would also be risky to attribute it solely and exclusively to the implementation of the usability audit, as this agency carries out other marketing initiatives during the same period.

Due to these limitations and given that it is a pioneering manual in the sector, it would be advisable that future lines of research be devoted to the empirical comparison of the proposed model to verify its effectiveness. It would therefore be useful to make comparative empirical studies, for example, following the steps of the manual in the audit of different tourist destination websites to identify the relationship between the implementation of the usability audit and the resulting subsequent improvements.

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