

# Information Technologies and System Evaluation: Uses and Practices in the Online Context

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**Abstract—** The purpose of this paper is to have a clear understanding of user's management strategies' in an online information technologies environment. The contribution focuses on a recent exploratory study carried out with notarial e-tourism platforms for a better understanding of design evaluation and uses. The conceptual framework links various dimensions with a strategic perspective in the information science and technologies domains: online information design evaluation. We develop a conceptual model emerging from the review of existing literature. We identify that homepage construction, users' satisfaction, Web 2.0 technologies and social media initiatives are key factors affecting positively the website design effectiveness. We stress that even though the different dimensions can be considered separately, as they have an interdependent and a positive correlation with platform performance. Research finding are used as a basis for developing prescriptive guidelines to better direct the activities for designing and developing e-commerce online platforms.

**Keywords--** Website design; E-tourism; Design evaluation; Uses and practices; online; information design.

## I. INTRODUCTION

The study of e-commerce website design and performance is not a new field of research. The present study extends previous research's literature by proposing an exploratory approach which offers actionable guidelines. Our article reexamines the deeper linkage and interdependency between different criteria of success. We suggest that the dynamic relation between the Homepage construction, users' satisfaction, Web 2.0 technologies and Social media initiatives are positively correlated with successful online platform design.

Many studies have examined the key factors of success of online information design process (Janda et al., 2002; Santos,

2003). However the existing literature does not fully examine the dynamic correlation between these dimensions that optimize the process. A web designer, managers or online information professionals need to focus on these dimensions which are important leverages for user's behavior.

The aim of this study is to contribute to the online information design literature by identifying the interaction between the different dimensions. The research question is: How a modern enterprise can build a design evaluation in order to transform a "simple" web surfer individual to become a potential consumer? In another word, our research focuses on the strategy identifying how browsers become buyers in cyberspace. The understanding of website design criteria of success is presented and the most common factors of the website effectiveness and efficiency are examined. In order to evaluate these factors, a survey of 10 leading French e-tourism websites is performed with the aim to define the key factors needed to evaluate an e-commerce cyberspace design. We are interested by the phase before the sale in the context of Businesses to Consumers (B to C). We use methods of comparison, structured data analysis and evaluation. Research finding are used as a basis for developing prescriptive guidelines which guide the efforts for developing performant e-commerce online platforms.

We will start by presenting the theoretical background, focusing on the definition of the concepts used in our research. Then we will suggest a conceptual model emphasizing the connection between the different proposed dimensions. The results of the exploratory study will be then presented. A discussion of the managerial implications, the limitations of the research will be finally suggested.

## II. E-COMMERCE AND FRENCH E-TOURISM ENVIRONMENT: DESIGN EVALUATION

Organizations' environment is highly dynamic and increasingly complex. The acceleration of technological progress led to an omnipresence of online information and a multiplicity of information sources. In a constantly changing and dynamic environment, modern enterprise has to adopt dynamic strategies in order to be competitive and survive in a competitive market. Increasing evolution of e-tourism points out the significance of design evaluation criteria (Tung, 2012). Organizations, regardless of their size or domain, can be represented on the e-commerce online space. The website platform of an enterprise became a real source of competitive advantage.

According to Rahimneya et al. (2012), e-commerce refers to the concepts of purchase, sale, transferring, exchanges of goods, services, or information by computer networks and Internet. E-commerce has an impact on business development, effectiveness and efficiency of modern organizations (Bruce and Perrott, 2006). It also helps organizations to have a more competitive advantage on the web market (Usahawanitchakit, 2012).

From an economic point of view, according to the research published by e-Commerce and distance selling federation in 2015 the market has generated €56, 8 billions<sup>1</sup> (Fevad, 2015). Tourism constitutes the first purchase online universe. The segment generated the most important sales through the Internet with a turnover estimated at €18.3 billion<sup>2</sup> or 32% of total French e-commerce. During the period of January-March 2015, more than 1 of 4 internet users consulted, on average each month, at least, one of the Top 10 of e-tourism platforms. About 13.2 million Internet users have viewed these sites during this period. The TOP 10 ranking is based on various indicators, such as the average coverage (in percentage of Internet population) unique visitors per day and per month. According to the e-Commerce and distance selling federation, the ranking is dominated by Voyages-Sncf.com (average coverage: 14,5%), Followed by Booking.com (average coverage: 10,5%), Air France (average coverage: 4,9%), Vente-privée Voyages (average coverage: 3,7%), BlaBlaCar (average coverage: 3,5%), Opodo (average coverage: 3,2%), eDreams (average coverage: 3,2%), EasyJet (average coverage: 3%), Voyage Privé (average coverage: 2,9%), Expedia (average coverage: 2,7%).

From a research perspective, studies in the field of e-commerce are changing rapidly, because of socioeconomic, cultural and technologic factors' dynamics. This context of e-commerce

obliges the implementation of numerous processes such as the command's management, the product's sending, the after-sales service but also the feedback and satisfying of customers' requests and needs. The website evaluation design is also an element which should not be ignored or underestimated because if the consumer does not find the platform functional and attractive, he/she will not concretize his/her purchase and will go to navigate on the competitor's website. The impact of website quality and the proposition of measuring methods were largely discussed in several domains and research areas (Bai et al., 2008; Parker et al., 2014; Jun et al., 2015).

Additionally, Hartman and Sifonis (2000) consider that "any Internet initiative (Tactical or strategic) that transforms business relationships, whether those relationships be business to consumer, business to business, intra business or even consumer to consumer". It is important to note that we will emphasize, in our study, on business to consumer (B2C) websites aspects in e-tourism notarial platforms.

In order to organize our reflection, we will present the conceptual model with a focus on the design evaluation criteria and the theoretical background examined.

## III. RESEARCH CONTEXT AND HYPOTHESIS

Our research approach is considered to be a 'hybrid' approach, as it is made up of different theoretical approaches. Indeed, strategic e-commerce approach stands on three pillars which are complementary and interact continuously in e-tourism dynamic and modern environment.

### A. Conceptual model architecture

The key question that we use to organize our research is 'How can an organization implement a complementary approach in order to ensure e-tourism effectiveness and efficiency (optimality)?' We postulate that if an organization is able to mobilize these strategies, it can create a 'favorable' context for e-tourism exchanges. We construct a theoretical and conceptual model which helps us to demonstrate our proposals and research hypothesis.

The current study of websites design evaluation has focused on complementary dimensions. The different factors were classified into three dimensions: (i) homepage construction, (ii) user's satisfaction approach and (iii) Web 2.0 technologies and social media initiatives. We analyze the proposed dimensions in order to establish the dynamic relationship that exists

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<sup>1</sup> \$ 69.3 billions

<sup>2</sup> \$22.8 billions

between them and to show how they are distinct but related and involve dynamic interactions.

The conceptual model is based on several hypotheses. Hypotheses 1a, 1b and 1c concern one of the defined dimensions (Homepage construction or users' satisfaction or Web 2.0 technologies and social media initiatives) and the possible existing correlation with the website strategy effectiveness. Hypothesis 2 takes into account the interdependence and linkage between all the dimensions (Homepage construction and users' satisfaction approaches and Web 2.0 technologies and social media initiatives) and the possible existing correlation with the website strategy effectiveness. The operational definition of the variables are shown in figure 1 (conceptual model architecture).

- Hypothesis 1a: Homepage construction approaches are positively correlated with website design organization and evaluation.
- Hypothesis 1b: users' satisfaction approaches are positively correlated with design organization and evaluation.
- Hypothesis 1c: Web 2.0 technologies and social media approaches are positively correlated with design organization and evaluation.
- Hypothesis 2: Complementarity and interdependence between the different approaches Homepage construction, users' satisfaction and Web 2.0 technologies and social media initiatives are positively related to design' organization and evaluation, creating superior value in modern organization.

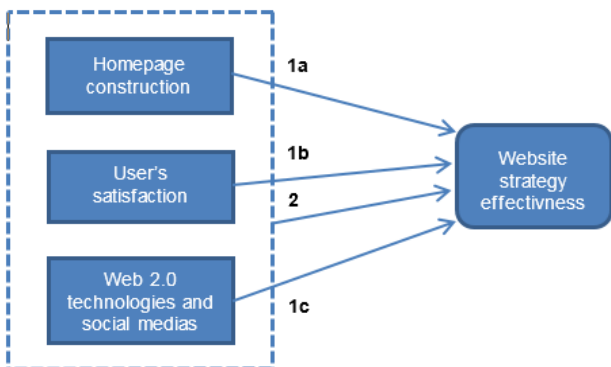


Figure 1: Conceptual model architecture

The choice of our conceptual model is motivated by the fact that it reflects a good dynamic correlation under different viewpoints. Based on the conceptual model, three groups of items were identified in order to better analyze the different hypothesis.

## B. Conceptual model items

In this study, we only show the most important factors that derived from various literature reviews. The aim is to transform the conceptual model into a practical approach of design and audit functions in the context of e-tourism. The different items will be logically adapted in order to constitute a practical framework to test. However, in such hypothesis, these items are far from being complete and exhaustive, that is why we identify only the most significant ones. This is mainly due to the complexity and rapid evolution that characterize the e-commerce, online information and web environment.

### Hypothesis 1a: Homepage constructions are positively correlated with website design' organization and evaluation.

Rockart (1981) argues that key success factors in e-commerce activities were developed in various studies. Cheng et al. (2004) propose nine key factors of success for e-commerce including enterprise culture, e-commerce team, increasing customer value, internal processes, information appliance, product planning, supplier system, website content planning, and physical and virtual channels. Additionally, Lin and Tseng (2008) demonstrate in their study that quality of information has an important influence of the consumer's purchases decisions and consumer's satisfaction and loyalty. The current study highlights that significant factors are linked with content planning. The current study also shows the how those factors impact consumer uses and practices.

We find in the literature a variety of research on e-commerce website quality design measurement (Cao et al., 2005; Dholakia and Zhao, 2009).

Several researches have been conducted regarding online website quality (Ahn et al., 2007; Bigné-Alcaniz et al., 2008). However we believe that there is a gap in the identification of specific factors in the field of e-tourism enterprise. The challenge of these enterprises is certainly to attract consumers, but moreover setting reassured climate that facilitates the completion of the purchase decision. Today when peoples use internet as a mean of shopping they focus certainly on the service or product proposed, but also on the website quality (Liao et al., 2006). For this reason providing an attractive website has gained the attention at the practical research levels. In a recent practical study, Dong-Jenn et al., (2012) identified 10 key success factors in the tourism industry in Taiwan and classified them into three dimensions: "content and value of product, website content and application, and internal operations and resources". Additionally, Xiao and Benbasat

(2011) present the product-related deception in e-commerce websites. The authors propose a typology including two dimensions and focus on the fact that the apprehension of these factors contributes to website design. Among the deceptive factors the authors focus on specific deceptive techniques (i.e., manipulation of information content, manipulation of information presentation, and manipulation of information generation).

The homepage is an entry point allowing web consumers to access the resources and services they desire. This page has to offer a digital space which contains structured, available and attractive online information.

A priori, the visual attractiveness of the homepage has an effect on the web users' comportment. During their visit, the users can choose to continue visiting a website perceived as attractive. An attractive design could increase users' attention and influence their shopping intention (Agarwal and Karahanna, 2000). Website with attractive design stimulates more usefulness of online information. Chechen et al., (2011) suggest that unattractive web sites may reduce surfing enjoyment and lead to the reduction of users' enjoyment. Attractive design includes layout, colors selection and general impression. The content should certainly be rich but not overcrowded. Website functionality and attractiveness are critical factors: "for Lithuanians the most important factors are: reliability, website tractability, navigation, content, ease of search, and safety" (Davidavičienė and Tolvaišas, 2011 p 725).

Among the existing items allowing the design and assessment of homepage construction, we identify the 10 following items: Website design, Information organization, Text visibility, Image quality, Facility navigation, Easy search, Speedy connection, Update frequency, Sitemap, Multilanguage.

**Hypothesis 1b: User's satisfaction approaches are positively correlated with website design' organization and evaluation.**

The variety of products and services available in the e-commerce environment makes consumers demanding in terms of quality of products as well as prices. The significantly increase their requirements during their purchasing' decisions. An important number of articles have examined the impact of website attractiveness on customer's relationship management (Parboteeah et al., 2009; Kuan et al., 2008).

Professionals of e-commerce lean on different strategy in order to improve the consumer satisfaction and loyalty. In an experimental study, Benlian et al. (2012) show that online product recommendation affects consumers' purchase intentions. The authors argue: "vendors provide system-filtered

recommendations that recommend products to consumers based on their past buying behavior or on the preferences of other like-minded consumers". Benlian et al., (2012p 3). This strategy takes also into account the reviews and comments written by consumers in order to share their personal experience. Dong-Jenn et al., (2012), argue that: "in the website content and application dimension, companies should process any customer comments and complaints as soon as possible and evaluate the function and convenience of the website at regular intervals". Dong-Jenn et al., (2012), p 119.

Customer understanding and behavior on an online environment is a key element (Fairhurst, 2001) and should be taken into account when building and designing website for e-tourism: what information has the customer viewed will be recorded to future proposition. Specific proposition according to the customer profile and active personalization in the presentations of information content are for big interest. This is valuable before, during and after the purchase process. The aim is developing a shopping motivation on the internet (Gefen, 2003) and a continuous usage in the future. Among the existing items allowing the design of user's satisfaction approach, the most important groups of items are:

- Customization of users' information access (for example: the possibility of registration, creating account for services access, Creating account as condition to website access in the case of private sales, ...).
- Orientation towards personalized selection of products (for example, proposition of personalized selection of articles established from previous purchases).
- Classification/ranking of the best sales.
- System allowing the consideration of the level of consumers' satisfaction (for example, the evaluation of products by the internet users, the system of stars allowing to know the consumers' satisfaction level ...).
- The possibility of sending message: contact forms, tools of communication with the seller, Newsletter, Frequently Asked Questions, list of favorites ...).

**Hypothesis 1c: Web 2.0 technologies and social media initiatives are positively correlated with website design' organization and evaluation.**

In the online environment, companies can largely improve their visibility by including Web 2.0 services and technologies' mechanisms (O'Reilly, 2005; Jiang et al., 2009). The aim is to make online information available by using a more sophisticated media.



In the context of web 2.0 technologies, terms such as interaction, collaboration, participation and dynamic are essential. Users' contribution will be important because it is a prerequisite for successful harnessing of collective intelligence' as suggested by Hung et al. (2010). According to Andriole, (2010) and Chiang et al.(2009), Web 2.0 technologies (Tchat, blogs, podcasts, folksonomies, mashups, social networks, virtual worlds, crowdsourcing, and RSS filters) have a certain business value.

In e-tourism online environment it is current and pertinent to use blogs publishing customers-users comments and offering a discussion forum in the market-space. Blogs are a useful platform for implementing an effectiveness website.

It is also usual to find participative methods like tagging and folksonomies which provide selected terms and resources with the aim to guide online community.

Social networks linking are fully available and visible in the web design strategy. According to Bonsón and Flores (2011), e-commerce companies use web 2.0 and social media initiatives to improve their website competitiveness. These corporations can make greater advantage of the potential of the social media creating a community of practices. The communication process became multidirectional and dynamic: from the enterprise to the consumers-users and between different community of consumers-users. The uses and practices of consumer are changing; in fact the customer has become co-creator of value (Hughes and Beukes, 2012).

In addition, modern enterprises lean on the application of the Web 2.0 initiatives and the extension to mobiles technologies (Mamaghani, 2011). According to Farkhondeh, (2012), today's business is about commerce over the internet and the opportunities opened up by mobile phones. Enterprise can take advantage of the web technologies destined to a large community and they can both use new mobile technologies to inform and communicate with mobile devices users. The current practices are the combination of traditional communication media with 'modern' web technologies and mobiles applications. Web services are proposed allowing consumers-users to communicate in real time (video programs, iPod, iPhone and Android phones applications ...).

Among the existing items allowing the design Web 2.0 technologies and social media initiatives, the most important groups of items are:

- Web 2.0 technologies (forums, blogs, tchat, folksonomies/tags clouds, Rss filters, dynamic effects...).
- Publicity presence.

- Creating social networks provides an opportunity to users in term of exchanging their experiences (Facebook, Twitter...).
- Mobile technologies (videos programs, iPod, iPhone, Smartphone applications...).

**Hypothesis 2: The complementarity and interdependence between Homepage construction, users' satisfaction approaches and Web 2.0 technologies and social media initiatives are positively related to website design' organization and evaluation, creating superior value.**

Modern e-tourism companies are required to define strategies of website visibility, development and interconnection. Openness and high website quality are related to different dimensions such as accessibility, quality of content, design, navigation facilities. User's satisfaction strategies improve and optimize the website effectiveness. The use of social media and Web 2.0 technologies for online tourism environment can be embedded as a strategy for innovation and mobility.

The combination and the complementarity of the research hypotheses help to examine their direct impact on the website design development and functioning. The interdependence between the most important factors enhances the modern enterprise's digital performance, effectiveness and efficiency. We define firm's 'effectiveness' as an assessment measure by which organization is made accountable for achieving its own objectives. Moreover this can used to define how the organization can be more productive and can achieving maximum objectives. By firm 'efficiency' we refer to the way that organization can quantify the management objectives within the optimization of the resources committed.

#### IV. RESEARCH METHODOLOGY

As indicated earlier, it is essential to get an overall view of the current strategy and initiative used by established e-tourism enterprises to improve their business and effectiveness. The present research uses websites interface as the instrument of measure, analysis and evaluation.

##### A. Sample selection: online survey platform

The exploratory study was conducted between 2015 and 2016. Among the actors of e-commerce, our analysis concerns exclusively online French e-tourism platform. We focus on the factors influencing the phase before the sale. In this decisive phase, the consumer must be able to find information in order to validate his purchase decision.

Our sample is representative; as the top 10 online tourism platforms most visited in France were chosen and selected as the context of study. The classification performed by the e-Commerce and distance selling federation (Favad, 2015) is based on the websites ranking and the average coverage (in % of the online population). Here is the list of classified online tourism enterprises: Voyages-Sncf.com (website 1); Booking.com(website 2); Air France(website 3); Vente-privee Voyages (website 4); BlaBlaCar (website 5); Opodo (website 6); eDreams (website 7); EasyJet (Website 8); Voyage Prive (website 9); Expedia (website 10). This online survey platform is used to determine the influence of the different items that we have identified (the foundation of our research hypothesis) on the websites design evaluation.

### *B. Instrument development: items' construction*

When an internet user explores a given website, the first contact is certainly the homepage. This last one is determinant and essential because the visitor must have an overall vision of what the enterprise offers and have all the necessary tools for the information, communication and marketing process. The internet user, generally, operates in the first pages of the website to do his/her search and rarely linger over on a profound level. Taking into account these constraints of uses and practices, we limit our analysis to the first pages of the website without exploring, in detail, all the pages exhaustively. The interest is to understand whether the different strategies are available, visible and easy to be identified without requiring much effort. Ignoring the following visited pages will also help us to avoid the bias of the "combination effect" of several pages together which can be extremely hard to measure.

A pretest method is appropriated to assert the validity and the logical construction of our method. The objective is to check the pertinence of the items and validate their logical regrouping. Measurement items were adapted from the literature review. The items pretest was carried out by four researchers, specialized in the field of information science and information systems and technologies, accompanied by about 100 internet users, between 18 and 23 years, to check the content validity. The pilot test was performed on 30 websites with the aim to assess data logical consistence, items organization and content quality. According to the pilot test results, the comments collected led to several minor modifications. We regroup the relevant items and assure having homogenous frames of reference without potential incoherencies. The evaluation instrument consisted of 30 items measurement linked to 3 constructs:

- Hypothesis 1a: 10 items were used in order to score the homepage construction.
- Hypothesis 1b: 10 items were used to evaluate the degree of firm's website users' satisfaction approach.
- Hypothesis 1c: 10 items were implemented to investigate the degree of firms use Web 2.0 and social media in order to enhance website performance.
- Hypothesis 2: shows the complementarity and the necessary interdependence between the different groups of items.

We regroup our items in specific tables, in adequacy with the research hypotheses. In order to score the selected websites we use two indicators: "Existing" (1) in case the item examined appears to be significantly relevant and "Non existing" (0) if otherwise. Firstly, according to the hypothesis H1 (H1a, H1b, H1c), factors analysis was conducted separately. We evaluate the different construct and the existing link with website quality and effectiveness. Secondly, we make a special attention to the constituent of the hypothesis H2 with the aim to evaluate the group of constructs (the internal interaction and dependency) and the superior value creating in term of website usefulness, quality and effectiveness. After specifying the score attributed, each of the construct was evaluated by examining the place that it is taking in the global approach.

### *C. Results: item's evaluation*

In addition to the descriptive statistics, this paper presents a second way to explore in more detail the strategy used. The result will be organized according to the different research hypotheses.

#### • **H1a. Website homepage construction**

In order to facilitate the web strategies analysis, we codified all the used items as well as the analyzed websites. All websites are represented according to an abbreviation (Ws) followed by the site number (Ws1, Ws2...). Furthermore, the items used to analyze the homepage construction are represented as follows: Website design (item 1); Information organization (item 2); Text visibility (item 3); Image quality (item 4); Facility navigation (item 5); Easy search (item 6); Speedy connection (item 7); Update frequency (item 8); Sitemap (item 9); Multilanguage (item 10).

The results show that globally (as reported in table 1) the first 9 criteria are satisfying in all the analyzed websites. We could deduct that the "traditional" forms of websites construction, organization and presentation are respected. All these

qualitative and quantitative aspects should represent the minimum in terms of building an effective digital strategy.

In this first logical bloc of information, we can identify, at least, three subcategories. The first one is related to digital space structuration in term of content and form. The goal is the optimization of information quality and quantity (the first 4 items).

The second subcategory comprises elements promoting information access and website browsing (items 5-9). Taking into account this classification, a web designer must start initially by content items classification, articulate them logically and think then to the uses dimension (easier navigation and access to other pages). The challenge is to organize all these strategies on a single page, which is the homepage.

The last group concerns multilingualism aspects. By multilingualism we mean the ability of a website to be accessible in several languages. Multilingualism is accentuated through the phenomena of trade globalization and increasing international mobility. In our survey, 80% of the performed websites are multilingual and we can find ideally 5 major languages (French, English, Spanish, German and Chinese). Multilingualism remains very important and appreciated in the online tourism industry. The companies can convey a multicultural communication approach facilitating its international openness. We fully accept that this choice is not without constraints, since the implementation of this process requires constant updating and strict management of the editorial workflow. Some platforms offer the ability to change the language, through a country glossary. The websites that do not offer the multilingualism possibility are website 4 and 9. In the website 4, the multilingualism appears in some sections only. We note that these two websites have not a multilingualism global dimension for the whole website. One of the features that distinguish them from other platforms is the fact that these websites are accessible to private sales and concern a specific community who must authenticate before accessing the services. The second element is the very limited duration of the displayed information through these websites. The sales process is limited to 3 to 5 days for the website 4 and to 7 day average duration to the website 9. These two criteria help to control the absence effect of the multilingualism process.

Table 1: characteristics of website homepage

	W s1	W s2	W s3	W s4	W s5	W s6	W s7	W s8	W s9	W s10
Ite m 1	1	1	1	1	1	1	1	1	1	1
Ite m 2	1	1	1	1	1	1	1	1	1	1
Ite m 3	1	1	1	1	1	1	1	1	1	1
Ite m 4	1	1	1	1	1	1	1	1	1	1
Ite m 5	1	1	1	1	1	1	1	1	1	1
Ite m 6	1	1	1	1	1	1	1	1	1	1
Ite m 7	1	1	1	1	1	1	1	1	1	1
Ite m 8	1	1	1	1	1	1	1	1	1	1
Ite m 9	1	1	1	1	1	1	1	1	1	1
Ite m 10	1	1	1	0	1	1	1	1	0	1

The results corroborate that the first indicator of website quality is the homepage construction and attractiveness. The different items are present and respected in the majority of the website analyzed. We can deduce that all the websites scored meets quality requirements.

The conclusion from this first section is double. In one hand, modern e-tourism enterprises should pay attention to their criteria in order to improve quality. First of all, the homepage design, organization and attractiveness should be placed in the center of online strategy conception. On the other hand, quantitative and qualitative characteristics defined by this group are almost satisfactory and meet the minimum requirements of the hypothesis H1a. We deduce that website homepage construction have a positive correlation with website effectiveness. However, the items and construct are not discriminatory.

• **H1b. Users' personalization approaches**

A codification was used in order to simplify the hypothesis H1b analysis. The items were structured and numbered as follows: Creating account for services access (item 11) ; Creating account as condition to website access (only member private sales) (item 12) ; Personalized selection (item 13) ; System of best sales' classification (item 14) ; System of product's evaluation/stars (item 15) ; Contact formulary (item 16) ; Communication with the seller (item 17) ; Newsletter (item 18) ; Frequently Asked Questions (item 19) ; List of favorites (item 20). The table below gives an overview of criteria auditing.

Table 2: characteristics of users’ personalization approaches

	W s1	W s2	W s3	W s4	W s5	W s6	W s7	W s8	W s9	W s10
Item 11	1	1	1	1	1	1	1	1	1	1
Item 12	0	0	0	1	0	0	0	0	1	0
Item 13	1	1	1	1	1	1	1	1	1	1
Item 14	1	1	1	1	1	1	1	1	1	1
Item 15	1	1	0	0	1	1	1	1	1	1
Item 16	1	1	1	1	1	1	1	1	1	1
Item 17	1	1	1	1	1	1	1	1	1	1
Item 18	1	1	1	1	1	1	1	1	1	1
Item 19	1	1	1	1	1	1	1	1	1	1
Item 20	0	1	0	0	0	0	0	0	1	0

In a global overview, we can observe that the top ranking is dominated by the company 9, which is specialized in the private travel sale. Company 3 gets the lowest score. All the analyzed websites obtains an overall average of, at least, 7/10. The users’ personalization approaches are globally in the heart of web marketing strategies. Taking into account the limited gap, in term of score, we cannot consider that the difference is significantly and can constitute a way of discrimination and interpretation.

We can distinguish two logical groups of constructs in the user’s personalization approaches (group 1 items 11-15 and group 2 items 16-20).

In the first group, deployment tools commonly used are account creation process, personalized selection and best sales classification. This method permits capturing customer attention by offering the identification possibility and information can be useful to guide them in the purchase decision making. The item creating account as condition to website access is reserved exclusively to the enterprise specialized on private travel sales with coverage of 20%. This action is synonymous of the affiliation to a privileged club and accentuates the impression of membership private customer community. The rating systems based on stars obtain the score of 80%. This system is supposed to give indicators to

understand the buyer’s satisfaction and can helps to inspire customers in their purchases by an imitation effect. This strategy gives real information on the quality of products or services purchased by users. We can advance the idea that the absence of star systems is counterbalanced by the enterprise’s reputation and notoriety (idea verified particularly by the website 3).

In the second group, we can observe that 100% of enterprises offer the possibility to use contact forms, communication with the seller, newsletter and the access to the Frequently Asked Questions system. One of the key concepts of cybernetics and communication is the notion of feedback. Internet is a tool for direct communication with the consumer allowing the customization of the message. All the dynamic strategies are respected in the performed websites. 20% of websites propose creating list of favorites. This strategy is not limited and specific to the platform of travel private sales, because the website 4 is not concerned. This item does not represent a discriminated criterion linked exclusively to this enterprise category. We can explore the idea of “regular” customers and the fact that the company's strategy is to give them the opportunity to create a list of favorite and to have the possibility to use it in the purchase phase.

We can argue that as long as these criteria are largely respected, all the companies implement all possible tools with the aim to place the customer relationship management at the center of their strategy. Despite the fact that users’ personalization approaches are linked positively this website effectiveness, the different items cannot be considered as discriminating criteria’s for interpretation because of their systematic adoption.

• **H1c. Web 2.0 and social Medias**

Interactions, dialogue and feedback takes a very important place in the e-tourism online environment. These enterprises, especially in the current financial and socioeconomic environment, must be able to improve their technological and participative initiatives in order to create new dynamics and managerial practices. Including Web 2.0 and social media functionalities give to the firms a competitive advantage. These strategies facilitate the mass communication certainly, but also to create a ‘personalized’ communication with the consumers. The objective of the hypothesis H1c is to analyze Web 2.0 technologies and social media dimensions. A codification is used in order to simplify the items representation: Forums (item 21) ; Blogs (item 22) ; Tchat (item 23) ; Folksonomy/ tags/tag cloud (item 24) ; RSS filters (item 25) ; Dynamic effects (item 26) ; Publicity presence (item 27) ; Social networks (item 28) ; Videos (item 29) ; Mobile technology communication (item



30). The results of items declination are summarized in the table below.

Table 3: characteristics of Web 2.0 and social media initiatives

	W s1	Ws 2	Ws 3	W s4	W s5	W s6	W s7	W s8	W s9	Ws 10
Item 21	1	0	0	0	1	0	0	0	0	0
Item 22	1	1	0	0	1	1	1	1	0	1
Item 23	1	0	1	1	1	0	0	0	0	0
Item 24	0	0	0	0	0	0	0	0	0	0
Item 25	1	0	1	0	0	1	1	0	1	1
Item 26	1	1	1	1	1	1	1	1	1	1
Item 27	0	0	0	0	0	1	1	0	0	0
Item 28	1	1	1	1	1	1	1	1	1	1
Item 29	1	1	1	1	1	1	1	1	1	1
Item 30	1	1	1	1	1	1	1	1	1	1

We can expect three main categories: items non existing in all the websites, items existing in all the websites and those whose presence varies according to companies.

In the first category, Item 24 is totally absent in all the websites. Tag cloud is a technique that can improve collaboration, information management and collective intelligence. Presumably, we can argue that this technique is exceeded in the e-tourism cyberspace and its inexistence is supposed be compensated by other social networks such as blogs and wikis. In the second category, the dynamic effects, social networks, video and mobile technology are available in all the platforms. Modern enterprises are confronted to the mutation of uses and practices and became constraint to be accessible through different media. Dynamic effects and rich media initiatives are characterized by continuous animations changes that gives an interactive and openness dimensions to the platform. This technique confers the dynamic state of mind to the customer looking for tourism services. In addition, e-tourism platforms donot restrict and imitate their social networks to Facebook and Twitter and other social networks such as Google+, Pinterest, YouTube, LinkedIn, Instagram and Flickr. In addition to e-

reputation needs, social networks allow e-tourism companies to attract maximum visitors and large profiles with personalized relation. Within these platforms, the comments, questions and complaints are addressed and treated instantly. Some websites have a social media strategy more active than another one. Otherwise, consumer, today, are mainly nomads, the websites develop their strategy according to theses social evolution. They adopt responsive web design constraints and the communication with customers by diverse and varied devices such as smartphones and tablets. The available applications are downloadable by customers in different versions (iPad, Android, Windows) with generally a free access. The company on line's content is all the time accessible, because mobiles are everyday items that customers take with them. The customers are more reactive and retention is maximized.

We can observe, in the third category, different variations. We can deduct that blogs are more deployed than forums and chat (website 1 and 5 incorporate all these strategies). These 3 items can be an element of discrimination with the others one. This is explained by the fact that the use of forums, blogs, and traditional tools should attract attention in particular using situations. Push communication by Rss follow are adopted by 60% of websites allowing enterprise pushing out information to their customers. These last one subscribe to Rss and receive updated information according to user-definable parameters. 20% of the companies propose publicity redirecting to another websites. The publicity is present directly on two online travel agencies. It should be noted that despite this lack, several companies offer affiliate, marketing and advertising services. We conclude that the tendency is more towards the information that comes to the user and adapted to these consumption patterns, dynamic, multimedia with more mobility and community aspects. Customer proximity feedback and personalized are emerging as the main element that triggers the purchase process decision. The hypothesis H1c. Web 2.0 and social Medias is related to website effectiveness and constitute a discriminant level because of the disparity of its adoption. The efforts and attention must be turned toward this group of strategies.

• **H2: Complementarity and interdependence between the dimensions.**

As we have seen previously all the hypothesis H1a, H1b and H1c are influenced and related to website design construction. The table 4 summarizes the global score allowing us to better visualize the constructs connection. Website 1 gets a global score of 26 which puts it in the first position. The last position is occupied by website 4. The global score, combined from the

30 items, cannot explain the position and ranking of the notorious e-tourism websites.

The tendency is to argue that the discrimination is situated at the level of the group 3 (hypothesis H1c). The hypothesis H1a and H1b constitute the minimal required when building a strategic platform.

Table 4: hypothesis complementarity: website ranking

Websites / Hypothesis	W s1	W s2	W s3	W s4	W s5	W s6	W s7	W s8	W s9	W s10
H1a - Homepage construction	10	10	10	9	10	10	10	10	9	10
H1b - Users' personalization	8	9	7	8	8	8	8	8	10	8
H1c - Web 2.0 and social medias	8	4	6	5	7	7	7	5	5	6

However, when designing their web interface for e-commerce, e-tourism enterprise may focus on the deeper linkage between various strategies in order to enhance their effectiveness (see figure 2 below).

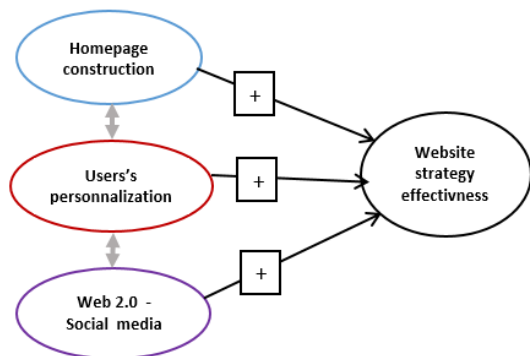


Figure 2: constructs interactions

We could argue that there is a significant relationship and complementarity between the various hypotheses. The absence of a factor may be offset by another item from another group. All the items are considered as exogenous from the user's point of view.

## V. RESULTS DISCUSSION

The discussion is organized around three main dimensions. First, the technological dimension based on the conclusion of

constructs used to perform and design the websites (all items and hypothesis). Second comes, the organizational dimension exploring the impact of the e-tourism categorization and seniority on the market. Third is the human and social dimension affecting e-tourism platform adoption. The “innovation dimension” relates to the modern uses and practices evolutions.

In term of technological website design aspects, we summarize our key findings through the points below:

- Homepage construction (see table 1): all items are present and the differentiation is made only at the multilingualism level
- User's personalization approaches (see table 2): items that may be discriminating are item 12 (creating account as condition to website services access), item 15 (system of products evaluation) and item 20 (creating list of favorite). Items 12 and 20 are not directly related to the visitating. Indeed, the websites 1, 2 and 3 obtain a value of 0 but also the last website 10 achieved the same score. The ranking of the 10 most notorious e-tourism is not significant.
- Web 2.0 and social media initiatives (see table 3): some items are present in all the websites such as items 26 (dynamic effect), 28 (social networks), 29 (video) and 30 (mobile technology communication), this can tell us that these indicators are very important in term of online use and practices. The total absence of item 24 (tag cloud) can be considered as indicator having a negative impact. Other items like 21 (forums) and 27 (publicity presence) approximates the category in the negative effect.

From the organizational perspective, throughout the conducted survey, when examining the impact of the e-tourism type service offered and the seniority on the market, companies have been classified over two groups. In the first group, we classify intermediary enterprises like online travel agencies that offer services provided by other companies, such as websites 5, 4, 6, 7, 9, 10. In the second group, we identify organizations offering themselves services with additional one (such as websites 1, 3 and 8). It may be noted that among this group, two website are classified according to their number consultation with a total accumulation of almost 20% (website 1: average coverage 14% and website 3: 5%). According to this deduction, can we assert that the organization category is a discriminating factor? It will be difficult to generalize this deduction because the website 8 which belongs to the same class is at the back of the list (average coverage: 3%). Similarly, the website 2 does not belong to the same category and is well positioned with 10%

usage. This argument forces us to limit the impact of the category in the uses of Internet users.

The company's creation date does not influence the global classification (the company created in 1933 obtain a score of 23 and the one created in 2004 have a score of 24). Seniority on the market is not a significant factor explaining those results.

In a human dimension an indicator major will helping result discussion. First of all, an important remark is necessary. It is characterized by the link with the diversity of organizations offering e-tourism. Looking at the websites 1 and 3 that belong to the same business category, we notice that the website 1 has an average coverage with 14% of users far beyond the 3 with the 5%. We especially looked at the relationship with the user, the website offering the service and the image conveys by the enterprise. It was found that the place occupied by each organism among Internet users strongly biased website uses. Indeed, the website 1 obtained the first rank by the fact that “the service train reservation” refers instinctively to this enterprise for the French internet users. This is not the case of website 3, because when a user thinks to “the service booking airline ticket” he does not intuitively refer to this enterprise, maybe he think to platform of travel comparison or to other airline companies.

In terms of modern practices evolutions, we can mention that different innovative practices are in vogue. Many platform are co-constructed with the internet user who can comment the website functioning from the homepage. The trend is also to develop mobile applications with free access and easily downloadable adapted to different types of mobile devices. The new tendency in the sector of e-tourism is the deployment of watches with connected services. The sustainable development is also incorporated on the website strategy and takes different forms like the platform accessibility dedicated to members with deaf and hard hearing disabilities. This approach is not much adopted by the 10 most notorious e-tourism platforms. In addition to the multilingualism approaches, several websites offer users to change currency of use. They incorporate international language indicators, but also financial ones, all with the goal of optimizing use and online practices. These innovative practices are much more present in the first websites. These last one, despite their ascension, continue to place technological, social and societal innovation at the heart of their communication and marketing strategies.

We could further divide endogenous and exogenous factors. The endogenous factors regroup the items that depend directly on the website intrinsic characteristics, activity sector and innovations. The exogenous factors refer to human and social

factors. We can conclude that the "User Repository" is based on other indicators own endogenous linked to him and his personal environment in addition to exogenous indicators proposed and/or generated by the various websites. The exogenous indicators, which are certainly important, must be related to human parameters, preferences and culture.

## VI. RESEARCH IMPLICATIONS

From a theoretical perspective, our finding provides a holistic understanding of the factors which affect the website design evaluation. We suggest that different constructs emerge as factor of success in term of online strategy development in modern organization. Our findings suggest that the consideration of one item separately is not sufficient for increasing the customer purchase intentions.

Web technologies keep evolving and changing over times and e-tourism consumers also modify their consumer habit and center of interest. The adoption of online strategic capabilities may have to undergo a continuous learning process in term of new content, design approaches, human, social and technological evolutions. In other words, in the online context, taking into account changes of consumer uses and practices in a social and societal direction should be situated at the heart of strategic approaches. This may be useful in term of building collaborative and collective intelligence strategies.

The study develops the key constructs influencing website design but also consumer online information and communication practices, uses and decisions. This paper enhances a conceptual and pragmatic understanding that could also serve as a basis for website designers and managers. The typology provides valuable input for practitioners in the field of e-commerce. Situated in a competitive environment, managers should devote all the necessary resources to be competitive. The findings are potentially useful to managers aiming to design their website and can establish benchmarks for good business practices for e-tourism companies.

## VII. CONCLUSION

Previous studies have examined the impact of success criteria in the design and analysis of the enterprise interface. Little research has focused on the role of deeper linkage that could exist between strategic items creating superior value.

We have empirically tested our conceptual model to identify three crucial factors that influence website effectiveness as well as the way in which they influence e-tourism platform quality.

These are not the ‘most important factors’, we stress that all the factors are linked and have not to be treated separately. The different items interact continually.

The results of this study empirically validate that the role played by the users is in the center of the attention (How a website attracts consumers?). The main finding of this exploratory study is that: web technologies choice must be related certainly with exogenous criteria (3 research hypothesis), but also regarding to the endogenous ones linked to the French internet actors’ repositories. Consumers’ satisfaction and loyalty are surely based on a technological dimension without excluding human and social factors.

The approach proposed and the model finding will be useful in helping practitioners and researcher’s better understanding the relationship with website quality dimensions and with other dimensions linked to purchase intention, user’s perception and behavior characteristics.

## VIII. LIMITATIONS AND FURTHER RESEARCH

In the current empirical study, the website design and auditing approach were based on 30 items related to the 10 notorious e-tourism websites, with the aim to understand the effectiveness dimension. The sample-websites analyzed has to be extended in term of number. This limitation is compensated by the website e-tourism notoriety and Fevad (2015) classification. The set of criteria cannot be exhaustive and represents just a subset of web concepts. In addition, the rapid growth of e-commerce and web space creates new practices and prerequisites.

In this study we have proposed a method to measure a website design in the e-commerce context. We have analyzed the impact of a set of criteria and establish a practical guide with the aim to build a strategic and performant website. Other dimensions like website and information security, sustainable development approach, big data and cloud are some topics of special interest which are worth being examined in future researches. In addition, an important direction of our further research is to develop further the conceptual model at both theoretical and practical levels.

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