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Strategies in E-Business

Positioning and Social Networking in Online Markets

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Chapter 1
Positioning in Online Social Networks Through QDQ Media: An Opportunity for Spanish SMEs?

Marta Peris Peris-Ortiz, Diana Benito-Osorio and Carlos Rueda-Armengot

Abstract Online social networks (OSNs) have gained enormous popularity in recent years. The emergence of OSNs has had a significant social impact and has profoundly changed daily life. People use the Internet as a social medium to interact with one another and expand their social circles, to share information and experiences and to organise communities and activities. Internet users are playing an increasingly important role, as they not only interact with each other, but also make their communication visible to thousands of millions of people. Currently, they have the power to influence consumption behaviour through their recommendations. Companies have realised this and begun to use OSNs to announce their products and/or services to the markets. Thus, many businesses strive to invest in OSNs to create values for themselves. This work studies the specific case of the company QDQ Media which offers its customers (SMEs) positioning in OSNs to help them grow or to soften the effects of the drop in consumption due to the current economic crisis.

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1.1 Introduction

Information and Communication Technologies (ICTs) have transformed the traditional forms of marketing. Companies' use of Internet and the World Wide Web is a good indicator of their level of modernisation and their ability to compete in a globalised environment. In this context, the likelihood of a web page being seen can vary widely and may depend on many factors, so any visit to a company's website must immediately attract users' attention and encourage their desire to purchase. This new medium means that the firm has to stand out, be visible and be a tool for promoting users' desire to purchase.

In this new environment of competence, online social networks (OSNs) have gained enormous popularity in recent years. The emergence of these websites has had a significant social impact and has profoundly changed daily life. Increasingly, people use the Internet as a social medium to interact with one another and expand their social circles, to share information and experiences, and to organise communities and activities. Recent advances in wireless communication technologies have made mobile social networks increasingly popular. Companies have realised this and have begun to use OSNs to advertise their products and services. Positioning in OSNs is therefore a key strategy for firms (Kent et al. 2009).

OSNs are used as a place to shop (social commerce) as well as to communicate, and so companies have a growing need to be present on such sites. Mere presence, however, is not sufficient, different media and different publics must be addressed and the messages adapted to the variety of target publics. OSNs are platforms which need to be understood before starting the communication process, so they can be used correctly to attract potential customers, without causing rejection through too many messages or inappropriate communication.

Nowadays, Internet users play an increasingly important role as they not only interact with each other, but also make their communication visible to thousands of millions of people. Thus, currently, Internet users are directing the conversation and sharing information on their tastes and preferences in many different media (blogs, OSNs, video channels, etc.). They have the power to influence consumption behaviour through their recommendations. We therefore need to pay attention to the conclusions of Association for Investigation into Communication Media (AIMC[1]). This association manages the most important audience studies in Spain, including the General Media Study and its 14th Survey of Internet Users (Navegantes en la Red). Through this survey, AIMC has been anticipating how the Web has evolved in Spain over the last 16 years. It has the largest sample of the Spanish market, and the survey is performed by active Internet users who give their opinion through over 350 websites, including the most visited sites in Spain. The survey is therefore based on the expert opinion of active Web users who anticipate how Internet use will evolve. Below are some of the conclusions of the study on Spanish people's online shopping habits:

[1] http://www.aimc.es/aimc.php (February 2012).

- Around 73 % of Internet users have consulted other people's opinions or comments online in the last 30 days; 48 % of Internet users trust the opinions that other people post on the Web.
- The number of Internet users who have shopped online in the last year is stable at around 85–90 %. Slightly less than one-third of Internet users shopped online in the last week.
- The products most commonly purchased online are transport tickets (13 %), accommodation (11 %), electronics and electronic devices (10 %), leisure activities (10 %) and computers/components/peripherals (8 %). Around 80 % of Internet users attach great importance to the need for online shops to have a quality seal.
- 75 % of Internet users maintain the leadership of credit cards as the preferred payment method. 74 % of users perceive that security is high when paying online by credit card and so payment platforms continue to grow in comparison with traditional methods (cash on delivery, transfer, etc.).
- Experience with online banking is growing: Around 77 % of Internet users have operated with a bank online. 50 % of Internet users consult their bank and perform transactions online and 27 % only consult. 77 % perceive that security is high in online banking transactions.

These data show the importance of Internet users' opinions and why all companies should take them into account. Marketing has become a question of dialogue on the Web between companies and Internet users. Thus, customers increasingly want corporate decision making to include their opinions. That is why presence on the Web and in particular on OSNs is essential for companies to find out what is being said about them on the Web and interact with users, taking their opinions into account. This new approach to marketing offers an opportunity for companies to grow and even soften the effects of the drop in consumption due to the current economic crisis. Thus, correctly applied positioning on OSNs can have many advantages.

This study analyses the specific case of the company QDQ Media and how it positions its customer firms in OSNs and the advantages that brings.

1.2 Online Social Networks: Much more than Facebook and Twitter

Social networking is not a new phenomenon. Social psychologists and organisational behaviour practitioners have studied and analysed them for years. Barnes (1954) coined the term social network in a study on a Norwegian fisherman's village, trying to give an account of the friendly and familiar relations that the inhabitants had built. The social structure observed then can be described as a map of relationships between individuals, indicating the ways in which they are connected through various social familiarities ranging from casual acquaintance to

close family bonds. However, although traditional social networking models are not new, OSN is a relatively new paradigm. OSNs are built on the concept of tradition networks but without relying on initial face-to-face contact.

Friendster was the first social networking software application to hit the Web. It was founded in 2002 and went online in 2003. Nowadays, the most popular services on the Web are OSNs built to help people find each other, share their stories and connect. Boyd and Ellison (2007) define OSNs as Web-based services that allow people to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and finally, view and traverse their list of connections and those made by others within the system. *Facebook, Twitter* and *MySpace* are the most popular of such OSNs that are used to cater to the needs of individuals, businesses and organisations. But OSNs have been in existence for longer than these services. *LinkedIn* and *Facebook* are good examples of the newer models of applied OSNs. *LinkedIn* offers an online business application of small-world networks, and in contrast, *Facebook* provides a large-scale diffusion and node-to-node cascading behaviour in social networks. In particular, *Facebook Ads* permits socio-demographic segmentation, by users' tastes and interests, and will shortly also include post-code segmentation. The main basis for success is to know what objective is being pursued with a *Facebook campaign*: promoting products or services, relating with users, generating fans, etc. There must be a clear idea of where users will go once they have clicked on the advertisement. Usually, a landing page is created adapted to the advertisement being promoted.

Interest has been growing recently in another OSN, *Pinterest*, a platform where users create and share boards with images and links to objects, places and products they like. This new OSN is all the rage in the USA, especially among women between the ages of 25 and 44. The number of single visitors on Pinterest increased 429 % between September and December 2011, and it is one of the platforms that manage to direct more traffic towards shops whose products are shared on users' boards. After registering on the *Pinterest* website, users can share their favourite images classified into different categories or boards. Users can load photographs directly from their computer or share the URL of the page where the image is hosted. The action of sharing any image on *Pinterest* is like pinning it on a board for everyone to see.

In order to draw *Pinterest* users' attention and increase the likelihood of them linking to the company's web page, those responsible for the action need to ensure that the photographs, graphics, and design of the website are as attractive as possible. Recommendations for a successful company website include the following: creating an account for the business with professional activity boards where the company shares attractive images, including professional photographs of its products, adding inspiring images and transmitting a relaxed, pleasant lifestyle, putting the *Pinterest* button on the company website, creating visual use instructions for the company's products and encouraging satisfied customers to share their special moments with the company through photographs.

Skype, Facebook, MySpace, YouTube or *Flickr,* among others, show that a Web 2.0 company's business and financial valuation depends on the number of users and how quickly those users accept, adopt and bring their positive network effects to a new online service (Shuen 2008). Despite the generalised belief that achieving as many followers as possible on OSNs is the most important thing, the question companies have to ask is whether that factor is truly relevant in terms of conversion. That is, whether followers on OSNs become future customers. In OSNs and advertising platforms, these users can be monetised immediately, through advertising and n-sided market sponsorship. Advertising ROI, clickstreams, individual customer profitability and average revenue per user (ARPU) can be tracked with Web analytics daily and even hourly (Shuen 2008). One of the keys for generating a critical mass in OSNs is to offer them contact that is informative, entertaining and interesting. Therefore, in order to achieve the largest possible number of followers, it is vitally important to know not only what type of publications are most successful among those who receive companies' messages in different online platforms, but also to know where the companies can locate the information that they will then diffuse on the OSNs. *Thus, the issue to be emphasised in a marketing strategy that focuses on OSNs are user loyalty and user interaction with the company's business. This is extremely important in view of the data offered by the AIMC study on answers to the question whether in the last year users decided to purchase products or services, oriented, motivated or informed by Web content.* The answer was affirmative in 75.3 % of cases. And these purchases were made online in the last 30 days in 34.6 % of cases and in the last 7 days in 21.5 %. Therefore, the important issue is not the number of followers on different OSNs but the generation of quality content to create interest and thus attract potential customers. Content on OSNs should therefore focus on users' tastes, avoiding a more corporate focus. If information overload can cause consumers to defer their purchase altogether (Iyengar and Lepper 2000), marketers must also realise that 65 % of consumers consider themselves overwhelmed by too many advertising messages, and nearly 60 % believe advertising is not relevant to them (Porter and Golan 2006).

Furthermore, in those channels, the advantages of viralisation can be made use of through those that share the posts with their contacts and thus make them into potential followers. At user level, it has been shown that Web users' opinions, preferences, and feedback on brands are essential elements for a company's success, and innovating strategies to increase their participation is fundamental. In this way, companies will achieve users who follow them because they are really motivated and they provide feedback that may lead to a possible purchase. Taking into account the data offered by AIMC again, 48 % of Internet users have consulted other people's online opinions or comments about a product or service, and they have great trust in those opinions. Furthermore, 20.3 % of users have also disclosed online their own opinions on a product or service.

All of the above suggests that the presence of businesses in OSNs is of key importance, as a large percentage of users become customers.

1.3 Positioning in OSNs Through QDQ Media: The Case of Spanish SMEs

Despite an increase in small business publications over the last few years, considerable knowledge gaps remain regarding how small-/medium-sized firms (SMEs) grow and develop (Hill et al. 2002). Internet technologies offer SMEs growth opportunities, however "competing using an e-business model is still at a nascent state for the small firm" (O'Toole 2003:121; Allinson et al. 2008). Internet has brought many changes in SMEs' functional commercial area, and advertising in particular, so companies need a strategic change to adapt to this new environment. The main differences in comparison with traditional marketing are shown in Table 1.1.

Thus, the key point for a SME in online sales is to create an online shop on the company website and diffuse information about its existence through OSNs. The important thing is for users to visit the shop and transform their desire to purchase into actual purchase. Ideally, SMEs should hire an external agency to measure the level of customers, what attracts them and achieves the sale. A 45 % increase in online sales is expected in 2016, totalling 205.85 billion Euros in Spain. It is a question of making the most of this opportunity, which is why QDQ Media's work is of interest.

Mr. Emilio Plana, CEO of QDQ Media Group (QDQmedia, Optimizaclick and Trazada) is well aware of this new reformulation of marketing and that Internet users act and relate with each other. He thinks "Internet is a world in itself", and he accepts that companies' relationships with their clients have changed as a result of the Internet, from unilateral to bilateral. In other words, customers do not just listen to the message, they communicate with the company. In addition, consumers increasingly carry out online searches before they shop, making them very different from traditional consumers as they have more information. For this reason, Mr. Plana offers companies tactics, strategies and advice on the online world—issues that QDQ Media manages for its customer companies:

- Search engine optimisation (SEO) is not stable, but variable, and so it is necessary to know how to adapt to changes and ensure continuity in the work being done. When trying to ensure a website appears as high up as possible in the organic results shown in *Google*, there are certain basic guidelines to follow, as the tool is controlled by those responsible for the search quality team at the

Table 1.1 Comparison of online social media marketing and traditional marketing

Online social media marketing	Traditional marketing
Two-way communication	One-way communication
Brand-customer/Customer-brand	Brand-customer
Participative	Pushes and interrupts
The customer generates the content	The brand generates the content

Source Original work

company in California. As regards on page SEO, attention to the technical aspects of site structure, placing the corresponding labels in the right place and optimising Web loading are essential if companies want to maximise the correct indexation of their content and therefore increase the likelihood of the search algorithm placing them in the leading positions for user consultations. Everyone is aware of these measures, and therefore, all companies that invest in optimising their Web positioning follow *Matt Cutts'* recommendations to the letter. Of course, a lot of advice, procedures and techniques that experts in Web positioning recommend can be found online. However, if a company wants to stand out in comparison with the millions of other websites, it must try to go a step further and do things differently. In general, the best advice is not to think about what *Google* wants the company to do with its website, but about what it can do to make it easier for users to navigate the site, locate information, shop and interact with the site. Furthermore, companies should consider whether online collaboration with other companies (in the form of links, banners, advertisements, guest posts, etc.) will provide some type of advantage or benefit to their potential customers, rather than simply copying a strategy that has worked for others (Benito-Osorio and Peris-Ortiz 2012).

- Companies with small businesses can use the Internet without having to invest heavily; however, they must remember that a combination of the online and offline world is essential.
- A website is a company's shop window, and therefore, to make its online strategy a success, the company must be active and dynamic: updating content, publishing offers, providing information on new features, etc.
- It is fundamental to listen to what the Web is saying about the company, as listening will provide valuable information, resolve doubts and build relationships. Like Mr. Plana, Mr. Enrique Burgos, Marketing Director of *QDQ Media* considers that close relationships with customers, talking with them is fundamental. According to Mr. Burgos, "Nowadays communication is more dialogue than monologue". *Google* is not just a search engine but also a reputation engine, with 95 % of users using *Google* to find information and express positive or negative comments about different companies, providing references for other Internet users. *Google Alerts* provides a free, easy way of keeping up-to-date with new online content related to a sector of activity or a specific company. This service sends everything that indexes and contains the key words that we have indicated straight to our inbox or feeds reader. Another simple way of detecting new items on a specific subject online and which users are normally the first to comment, is through a methodical, systematic use of Twitter searches. The microblogging network can be searched using relevant terms and noticing the users where the results appear. All those thought to have more diffusion are added to a list and after a while that list will be one of the company's best sources of content. A similar system would be to use blogs, news portals and users of other OSNs such as *Google+ or Quora*. Thus, companies can create personalised sources of information and obtain the best community content.

- Local proximity is becoming increasingly important; sites like *Foursquare* can provide many benefits if they are used correctly, for example, by offering discounts and benefits for checking into a business.
- SMEs have an advantage over large companies, their direct relationship with their customers. By taking this approach online, customers can become fans.
- And finally, it is possible to integrate search engines with OSNs in what is known as social search. This new trend introduces friends' opinions in search engine results, thereby increasing the value of the search by obtaining information and recommendations from people the company trusts. This issue is dealt with in the section below.

1.3.1 Activa Internet: Business Pages

QDQ Media innovates and tries to renew its clients' Web solutions. Recently, *QDQ Media* decided to migrate all the basic Web solutions for its clients to the new Business Pages, which they manage. The new Business Page will help *QDQ Media* customers to increase their volume of visits and improve information quality, and they will also be able to share all their information on the main OSNs. This change poses no difficulty for *QDQ Media* customers and will also considerably improve user experience, as it will be much more user-friendly.

The main advantage of the Business Pages is that all the conversion elements are easy to find on the same screen. Thus, users will know where to contact the professional at a glance. This will increase the Return on Investment in addition to improving usability, as everything can be obtained with a single click. The new Business Page can also be viewed on any mobile device and the free call service and the possibility of requesting information via e-mail have now been made much more visible. Discount coupons can be more varied and changed as necessary throughout the year, at no additional cost. And there is always a location map for the company.

However, we consider the most important feature to be the possibility of including a link to the client's website. This is another of the new features that will make it possible to redirect the button to a corporate website and a professional Facebook profile.

In these ways, QDQ Media has managed to strengthen the links between companies and their customers and improve efficiency for its clients.

1.4 Conclusions

OSNs have impacted the working of both individuals and companies. Many businesses are finding these networks extremely useful for expanding their business and improving their profits. Many companies have fan pages that help them

interact with their clients. We believe that OSNs create a potentially transformational change in consumer behaviour and will bring a far-reaching impact on traditional content, media and communications industries. Understanding how OSNs are used and how they shape purchasing decisions is one of the fundamental interests of business. Recently, OSNs have been used in e-commerce applications to some success. The use of OSNs in online shopping provides businesses with new revenue opportunities while providing consumers with product information and economic and social rewards for sharing.

Even SMEs that do not have a big marketing budget can use OSNs to market their products globally, and so it is important for them to take advantage of OSNs. They must also understand how they can correlate their business activities with OSNs. Many OSNs allow firms to open groups and fan pages that help companies to market their products and expand their business. Firms can also use these groups to answer queries that their customers have about their products and services. Using OSNs can help companies reduce their operating cost by reducing their manpower requirement. Moreover, another benefit of using online social networks is that it saves time. Customers can express their views and inform the company about the changes they expect in their products and services. Accordingly, companies can make changes in their products and services that will help improve customer satisfaction. Using these OSNs can help the company improve its sales and profits.

In terms of online marketing in general, we suggest that the strongest trends are now going towards achieving results. Therefore, professionalism is a growing trend and the companies dedicated to this market should be at the forefront when it comes to new technology and services to ensure that they never remain out of touch.

1.5 Future Progress and Business Trends

Some trends give us an idea as to what the future holds, however, in this particular field, nothing is certain. We hope that our study will motivate future research into social shopping, as well as give impetus to established e-commerce companies to add more social networking features. Some future areas of related study include the following: viral marketing to influence consumer choice in social commerce, analysis of user browsing data to develop refined consumer choice models for social commerce, buyer–seller trust relationships or the contributors and determinants of more accurate predictions of business success due to the efficiency of OSNs.

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Chapter 2
Modelling the Influence of eWOM on Loyalty Behaviour in Social Network Sites

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Abstract Social network sites (SNS) have become part of the daily reality of Internet users in recent years. Firms have recognised the importance of electronic recommendation (eWOM: electronic word-of-mouth) and its influence on consumer decisions. They use SNS as a two-way communication with their current and potential customers. In this context, this chapter means to establish a modelling of causal relations analysing the effect of eWOM communication on the affective commitment developed by SNS users and its effect on the behaviour of loyalty. In this model proposed, the online reputation, the consumer's satisfaction and the user's social involvement in SNS are considered as antecedents. The model's central variable proposed is eWOM communication. This is an efficient means of capturing and retaining customers, as it presents a high level of credibility to developing long-term value relationships as relational marketing suggests. The model proposed, the justification of the relationships and the measurement scales aim to understand, explain and predict how eWOM communication influences loyalty behaviour in users' SNS.

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2.1 Introduction

Information and communication technologies (ICT) have transformed social relationships. We increasingly use our time communicating with the help of devices connected to Internet, using applications for communication. This situation of hyper connectivity means communication and information about our experiences as users and consumers of products and services. Firms have recognised the importance of electronic recommendation (eWOM: electronic word-of-mouth) and its influence on consumer decisions, although it is difficult to measure its impact and use it efficiently with commercial aims (Katona et al. 2011).

Social network sites (SNS) have awoken the interest of businesspeople who wish to explore new ways of communicating using ICT (Katona et al. 2011). This is because they facilitate the launching of new products and brands and improve the brand's profile visibility (Tegler 2009). Likewise, they supply a greater and better access to markets, information, technology and other resources which favour the possibilities of survival, growth and success in general (Gulati et al. 2000).

In this context, the effect of eWOM appears as a key element to achieve a greater effectiveness and a multiplier effect on the disseminating of the message. Recommendation is probably the oldest mechanism for opinions about products, services and brands to be expressed and spread (Lau and Ng 2001). Now, due to the huge repercussion their viral effect causes, they can even mean a greater long-term effect than traditional communication actions and they can produce a stronger elasticity of response (Trusov et al. 2009). Firms wish to take advantage of social communication means, benefitting from the contributions of both consumers and non-consumers: they both use the Web to evaluate some products compared to others (Wey et al. 2011), hence supplying decision-making information to potential consumers. In this sense, Ansari et al. (2011) gather together previous research which studies the role of social interactions and contagion (Iyengar et al. 2011; Nair et al. 2010; Trusov et al. 2010; Watts and Dodds 2007), as well as the impact of eWOM communication on the behaviour of others

To sum up, firms that foster the exchange of positive experiences through eWOM will be able to influence consumers' decision processes. A way of favouring this behaviour is via its development through Internet (Websites, online communities of brands) and mainly in the context of the social media (SNS) which offer a great opportunity for communication between users and, as a consequence, favour the exchange of experiences, opinions, knowledge and attitudes about and towards products and services (Kozinets et al. 2010).

This work means to establish a modelling of causal relations. This may serve to determine the influence of eWOM on the level of affective commitment developed by social network users and its effect on the behaviour of loyalty. The online reputation, the consumer's satisfaction and the user's participation in SNS are considered as antecedents. The model's central variable proposed is eWOM communication. This is an efficient means of capturing and retaining customers, as

it presents a high level of credibility to develop long-term value relationships (Garnefeld et al. 2011), very much in line with the aims of relational marketing.

2.2 Theoretical Background

The variables of the proposed structural model are defined in the context of the social Web and, in particular, SNS. The variables are as follows: (1) the online reputation; (2) the user satisfaction in SNS; (3) the participation of the users who interact in them; (4) the eWOM communication with other people; (5) the affective commitment which is created between the members of the SNS; and (6) the behaviour of loyalty to be achieved.

2.2.1 Online Reputation

Online reputation is the reflection of the prestige of a person or brand in Internet. With regard to corporate reputation, we define organisational identity and corporate image. Organisational identity is defined as the difference of an organisation from an internal perspective (Barnett et al. 2006). Corporate image, also known as corporate communication, is described as communications carried out by organisations to communicate with customers and other groups through different channels (Balmer and Greyser 2006). Corporate reputation is the result of a set of attributes, for example, the perceptions of customers and the firm, the aggregation of their perceptions, the comparison between them, the consideration of possible positive or negative effects and the stability and durability over time. Given that the online reputation is based on the internal perceptions (corporate identity) and external perceptions (corporate image) of the parties which interact in the social networks, the firm will have to assume a loss of control (Brown et al. 2006). This should be minimised.

Firms which wish to participate in social communication media must consider the Web 2.0 as an essential factor (Weber 2007), as the users disseminate opinions about the firms' brands, products and services and their competitors' in Websites. To sum up, we consider reputation to be an important variable for achieving user loyalty in SNS, as the network's prestige can influence the members' continuity.

2.2.2 Satisfaction

Satisfaction is the difference between what was expected and what was really perceived (Parasuraman et al. 1988). It is understood as a global evaluation or attitude which evolves over time as a result of the interactions produced by the

customer and the organisation. Quality of service and satisfaction are key factors to obtaining competitive advantage, retaining customers and fostering loyalty.

Customer satisfaction is necessary for the continuity of online relationships and implies the satisfaction of the expectations of a Website and of the emotional state perceived with the relationship with this Website (Ganesan 1994). If the customer considers that the organisation fulfils the conditions agreed, the behaviour will probably continue and the customers' predisposition to develop the relationship will grow. Although the services offered in many Websites are similar, these vary in their levels of service quality supplied. This affects satisfaction (Lin et al. 2008). Therefore, if the users' expectations are met with in a Website, this will give rise to an increase in the purchase intention/use in the future, to the user visiting the site more frequently and spending more time in it.

2.2.3 Social Involvement

The user's participation in an SNS is a key element to guarantee the survival of the network in the long term (Koh and Kim 2004), promotes the identification of its members with it, fosters the development of long-term relationships between them (Algesheimer et al. 2005) and allows the participants to share ideas and opinions and to contribute or receive feedback. In brief, this means the enjoyment of the use of the SNS (Li 2011).

Interaction affects emotions and experiences even more in online communities. Its essence lies in the fact that the new technologies have been adapted to their mode of expression and application to new situations. The content's attraction is what drives many people to join an SNS and become permanent and active members (Liaw 2011). Users tend to continually take part in the network and are influenced both by the technology and by the quality factors which are born from the relationship with the community (Jin et al. 2010). The potential of SNS depends, then, on the participation of the current users and not so much on the initial acceptation (Preece 2001).

2.2.4 eWOM (Electronic Word-of-Mouth)

According to Harrison-Walker (2001), WOM is informal communication between a non-commercial communicator and a receptor about a brand, a product, a service or an organisation. In general, WOM refers to the spreading of information (e.g. opinions or recommendations) through communication between people. When this communication takes place through the Internet—where there are numerous interaction spaces (forums, chats, blogs, SNS and so on)—and informal communication channels (Allsop et al. 2007), it is called eWOM. WOM stimulation has grown rapidly through Internet (Godes and Mayzlin 2004). To get to know its

effectiveness and impact on marketing is essential (Trusov et al. 2009). Nevertheless, its quantification remains difficult in spite of eWOM references having a strong impact on the acquiring of new customers.

eWOM favours the repurchase intention and the recommending of products to other people. It is, then, a key indicator due to its repercussion on loyalty (Omar 2009) and acts as an essential tool in retaining customers (Wangenheim and Bayón 2004). Indeed, as is pointed out in the work of Kalikati and Kalikati (2004), firms which trust more in WOM increase their number of consumers. Hence, Allsop et al. (2007) show that eWOM is one of the most influential communication channels in the market. Not only does it increase or broaden the marketing messages, it also systematically affects the consumer's information processing (Kozinets et al. 2010). eWOM communication's increase in volume and scope make positive eWOM be considered as one of the competitive advantages of firms (Hong and Yang 2009).

Nevertheless, as it is a communication that has arisen spontaneously, it can be positive or negative. Firms must not underestimate the effect of negative eWOM on customers and be proactive in following-up activities and in the management of the corporate image.

2.2.5 Community Commitment (Affective)

Commitment can be analysed as a three-component multidimensional construct: affective, normative and permanence (or calculation) commitments (Allen and Meyer 1990). Affective commitment refers to the person's emotional attachment to the organisation. This is a wish to continue with the relationship in the future due to the person being pleased to interact with it, enjoying the relationship and creating a feeling of loyalty and permanence (Bansal et al. 2004). Normative commitment has to do with people belonging to an organisation out of a sense of obligation. That is to say, they experience a feeling that the relationship should be maintained. Permanence commitment is based on the individual recognition of the (switching) costs associated with leaving the firm or on the lack of valid alternatives to set up other relationships. This is why the person respects the commitment, as maintaining the current relationship represents less costs than finishing with it and beginning a new one (Casaló et al. 2007).

In spite of the multidimensional study of commitment by many researchers, others, however, consider it to be a unidimensional structure (de Wulf and Odekerken-Schröder 2003) and consider the affective component to be the most relevant (Bagraim 2010). This component has a decisive and positive influence on the generating of the voluntary repetition of consumption and on loyalty. This leads to the maintaining of the activity and the presence in the SNS. In other words, affective commitment reveals that people remain in a relationship because they have a favourable attitude towards it (Bansal et al. 2004).

2.2.6 Loyalty

Loyalty is defined in marketing as the customer's intention to carry out a set of behaviours which reveal a motivation to maintain a stable relationship with the firm. Not only is it a long relationship of a customer with a specific company or the constant visits of a customer to a firm, loyalty entails a sensation of affinity with or support of an entity's products or services.

Consumer loyalty is a great challenge for marketing strategy (Flavián et al. 2006) and represents a positive aspect to achieve firm success and sustainability over time (Flavián et al. 2006). Furthermore, it generates profit and competitive advantage in the off- and online contexts (Abbott et al. 2000).

In general, customer loyalty is considered from two perspectives: loyalty as behaviour and loyalty as attitude (Evanschitzky et al. 2006). For Dick and Basu (1994), customer loyalty is a multidimensional concept which consists of behaviour based on an attitude, in such a way that it is shown as a relationship between the relative attitude towards a firm and the repurchase behaviour. True loyalty is produced when the consumer's relative attitude towards the entity is favourable, there is a repeat purchase behaviour and the customer acts as a prescriber of the firm.

2.3 Justification of the Relationships Proposed

In this work, we seek to model the effect of eWOM on loyalty behaviour in digital environments via the proposal of a set of causal relationships. These relationships can, for a better comprehension, be grouped into the different influences which the variables generate (1a) the influence of the online reputation on satisfaction, (1b) on eWOM and (1c) on social participation; (2a) the influence of satisfaction on eWOM and (2b) on affective commitment; (3a) the influence of social participation on eWOM and (3b) on affective commitment; (4) the influence of eWOM on affective commitment; and (5) the influence of affective commitment on loyalty.

2.3.1 Influence of the Online Reputation on Satisfaction

Firms must protect their online reputation rapidly and transparently, using an intimate language, offering a relevant content and professionally managing their online community. This is because the satisfaction in the context of virtual environments will depend on the consumer's pleasure regarding a previous purchasing experience or use of the service through Internet.

The work of Busnel et al. (2010) reveals a not very satisfactory situation in the systems in which the users create the network thanks to the success of their

interactions. They maintain that satisfaction coming from reputation is obtained from the efficiency and, especially, the coherence between the network and reality. A greater online reputation guarantees the absence of opportunistic behaviour in the network (Casaló et al. 2008) and a safe environment. This is necessary for there to be collaboration between the members (Ridings et al. 2002).

In the literature, there are numerous arguments to consider reputation as an antecedent of satisfaction. Paying attention to the lineal model of adoption and acceptation, we consider that reputation measured through the positive image (Lim et al. 2000), the corporative image, the customer feedback, the service quality (Howcroft et al. 2003) and the solid relationships with the customers (Park and Kim 2001), amongst others, are aspects which contribute to intensifying the consumer's satisfaction. When the customers capture these values in the SNS, they achieve satisfaction and increase their commercial interest.

Proposition (1a) *Online reputation favourably influences the satisfaction of the SNS' user.*

2.3.2 Influence of the Online Reputation on eWOM

Currently, organisational reputation has changed its scenario and is mainly in Internet. This is why firms must pay the ustmost attention to content searchers, as they are now not only information seekers but have become genuine online reputation seekers. According to Kirmani and Rao (2000), the consumers make decisions centring themselves uniquely on the information available. This is generally asymmetric between the parties and causes customers to speculate about the information which they do not know and to establish conclusions through signals provided by the firm. These are carried out to reveal the unobservable quality of the product or service.

Walsh et al. (2009) state that customers who perceive a good reputation of a firm are more disposed to participating in positive recommendations. Furthermore, firms with a good online reputation stimulate positive eWOM, while firms with a bad reputation stimulate negative WOM. This idea is upheld by Sundaram et al. (1998). They find that consumers who have a negative experience in the use or consumption of a product with a good reputation will be less likely to spread negative WOM. They blame themselves or some of the factors of the situation instead of blaming the firm. The work of Khare et al. (2011) expresses that customers base themselves on multiple indicators (intrinsic or extrinsic) about the quality of the product or service before consuming them and include organisational reputation among these indicators.

In our model, we formulate the second proposition, following the idea of reputation as an influence on eWOM communication. The online reputation precedes the behaviour of the user's choice and, therefore, favours the recommendation to future users.

Proposition (1b) *Online reputation favourably influences eWOM communication in the SNS.*

2.3.3 Influence of the Online Reputation on Social Involvement

The appearance of new technologies has modified the rules for maintaining reputation. If, before, advertising and public relations were the main ways of achieving a reputation and disclosing corporate responsibility in the traditional communication media, a new communicative axis has now been set up.

In Internet, as there is not a physical contact between the parties, a greater risk between those that interact can be perceived. Reputation reflects a behaviour that is trustable and consistent over time. Its development can help to diminish the uncertainty experienced by the consumer in the online context (Casaló et al. 2007), supplies information about the past performance and is able to be a signal for future actions (Ganesan 1994). A confident atmosphere in the Internet has the consequence of a greater facility in promoting interactions and developing long-term relationships between its members, fostering participation, as this is more fluid when there is credibility (Ridings et al. 2002). A successful SNS needs motivated members who are disposed to actively participating in online discussions and, in the case of knowledge exchange, to supplying information and help to other members for them to obtain this information (Matzat 2009). Asynchronous communication allows people to participate at their own convenience and without time limits (Taylor and Murthy 2009).

To sum up, firms must bear in mind the effect of growing participation in Websites and use effective follow-up mechanisms of the online forums which control reputation. This is considered to be a fundamental aspect in the influence of consumer opinion.

Proposition (1c) *Online reputation favourably influences user participation in the SNS.*

2.3.4 Influence of Satisfaction on eWOM

Understanding the effects of satisfaction on WOM offers marketing managers the possibility of making certain decisions which improve customer satisfaction and increases the intention to spread positive WOM about the firm (Chaniotakis and Lymperopoulos 2009). Parasuraman et al. (1988) suggested there being a relationship between customer satisfaction and the wish to make recommendations. In general, satisfaction leads to purchase repetition and recommendation. A satisfied customer promotes WOM without any cost for the firm, and with an effect and a

credibility superior to that of conventional advertising (Villanueva et al. 2008). This communication is also broadened by the Internet (Trusov et al. 2009). Sharing this idea, De Matos and Rossi (2008) consider that it is possible for the satisfaction—WOM effects correlation to be more pronounced in an online environment, given the great power customers have when using Internet to transmit emotions, to warn other customers and to disseminate demanding actions.

Based on their satisfaction level, the disseminating process of eWOM by customers can be positive or negative. When their expectations are not met, negative eWOM takes place, airing their frustration, the increase in their anxiety and the warning and/or seeking of reprisals (Oliver 1997; Sweeney et al. 2005). Although only a minority of those unsatisfied complain to the firm, most start up negative eWOM communication. This can spread the unfavourable attitude to a multitude of people (Dominici and Guzzo 2010). Macintosh (2007) suggested that the quality of a relationship in general affects the satisfaction of the customers with the firm and a positive WOM. Chaniotakis and Lymperopoulos (2009) proposed a model based to evaluate the effect of the quality of the product or service on satisfaction and positive recommendation. They found five latent dimensions: tangibility, reliability, capacity of response, guarantee and empathy. The greater the positive value of these variables, the greater the consumer satisfaction, and this will have a favourable effect on WOM.

Proposition (2a) *Satisfaction in the SNS favourably influences eWOM communication.*

2.3.5 Influence of Satisfaction on Community Commitment (Affective)

Customer satisfaction generally causes the feeling of commitment towards a firm (Jones and Sasser 1995) and the maintaining of long-term relationships (Sirdeshmukh et al. 2002). It is positively associated with affective commitment, as well-being entails being more disposed to remain in a relationship. Therefore, satisfaction should be improved to enhance commitment.

The experiences of satisfactory consumption cause a positive impact on the degree of commitment in a marketing relationship (Brown et al. 2005). According to the study of Lloyd and Härtel (2010), only the capacity to regulate one's own emotions, to show them and to understand them has a significant relation to satisfaction and individual evaluations of intervening with participative safety and supporting innovation. And, in relation to affective commitment, a significant relationship is only found in the capacity to regulate one's own emotions and to show them.

When customers perceive that an organisation fulfils the conditions agreed upon, they will feel satisfied, the commitment will continue in the future, their willingness to develop the relationship with the organisation will increase and they

will know how to differentiate between firms and what these offer them (Casaló et al. 2008).

To sum up, satisfaction is positively associated with affective commitment. Jin et al. (2010) point out that user satisfaction and the fulfilling of useful needs are advantageous in explaining the affective commitment of the users of an online community. Service quality is seen to have a fundamental role.

Proposition (2b) *Satisfaction in the SNS favourably influences affective commitment*.

2.3.6 Influence of Social Involvement on eWOM

SNS have brought with them new ways of consuming. These stem from the greater capacity of creation and participation of users in Web spaces. In firms, a change in mentality is taking place towards customer orientation. This is closely related to the essence and the usefulness of the Web 2.0 tools. This has led to consumers multiplying their facet of prescribers, due to having the possibility of multiplying the range of the message through them. This is why consumers play a fundamental role in business strategies, given their capacity to communicate through eWOM.

Many Websites facilitate users being able to publish comments about the page and be part of the eWOM. The study of informal communication is interesting both for academics and for marketing professionals who try to understand the relationship between participation and recommendation (Hong and Park 2011). In consumer marketing, the intention of acting or behaviour (a prior step to participation) is generally shown as a repurchase decision or a positive recommendation (Bongran and Qu 2011).

To facilitate the effective participation of people, cooperation and aspects related to the experience of the service contribute to the intentions of positive WOM (Ferguson et al. 2006). Websites must incentivate users to carry out a valuable contribution (Pollach 2008), as participation is what maintains or breaks online communities. The user's online participation multiplies the possibilities that Internet offers for a product or a service to be recommended. Millions of customers actively take part in the Websites' changes and evolution because they are the producers and examiners of the contents and, consequently, the potential recommenders (Massari 2010). To conclude, the participation of users and the transmitting of their opinions generating safety through the SNS (eWOM) is the most reliable source for other consumers.

Proposition (3a) *Involvement in SNS favourably influences eWOM communication.*

2.3.7 Influence of Social Involvement on Community Commitment (Affective)

The users of SNS can participate in them, sharing their knowledge, collaborate in resolving problems and feel themselves responsible for others. Moreover, affective commitment is the most efficient way to develop mutually beneficial relationships between the members in an online context (Sánchez-Franco and Martín-Velicia 2011). This is because usability (or ease of use in the Internet) and the Web page's pleasant and stimulating aesthetics affect the degree of belonging, identity and attachment to the online service, improve the perceptions and attitudes towards it and positively influence affective commitment.

The greater the level of participation of a user in a virtual community, the greater the affective commitment generated (Royo-Vela and Casamassima 2011), in other words, participation as an antecedent of affective commitment. Thus, regarding brands, it has been noted that a high level of participation entails a greater degree of preference towards them (Zaichkowsky 1985) and a long-lasting commitment to them. Likewise, participating in an SNS helps to develop the relationship between the members and mutual interest in the Internet (Andersen 2005). Once people actively participate in a network, they identify and create emotional ties around it (Algesheimer et al. 2005). As a consequence, greater levels of affective commitment between the consumers can be fostered (Andersen 2005).

To sum up, the participation of users in SNS due to the ease of access to them, the pleasant aesthetics of the presentation of their pages, the breadth of their content, the general quality of the service, etc., fosters greater levels of affective commitment between them.

Proposition (3b) *Participation in SNS favourably influences affective commitment*.

2.3.8 Influence of eWOM on Community Commitment (Affective)

In the literature, it is accepted that WOM communication plays an important role in the attitudes and intentions of the receiver (Keaveney and Parthasarathy 2001; Libai et al. 2009). It is considered to be the most powerful advertising for repeat purchase behaviour (Ostrom et al. 2010). According to Wang (2011), recommendation favours the consumers' judgement on service quality and purchasing intention. WOM can influence perceptions of service quality, especially before buying or use, when consumers are not sure about what they are going to receive (Brown et al. 2005). To stimulate consumption levels, firms must use creative and innovative promotion tools which capture and retain customers in order for them to

produce positive recommendations and arouse interest in the buying of their products or services (Wang 2011). The reviews which the users carry out about online products and services create opportunities for the customers' continuous participation (Cole et al. 2011).

Best (2007) states that there are many ways of measuring the psychological commitment customers have with a brand, but the fact that they recommend it to other people places it at the highest level of emotional links. If firms create products or services about which the consumers feel proud, they can lead to the increase in consumption, to positive recommendation, to value co-creation and a greater commitment and loyalty (Decrop and Derbaix 2010). If the customers recommend—without having any other external explanation to do so—the conclusion is reached that they must like the service supplier and will maintain their relationship in the future. A positive relationship between WOM and affective commitment is assumed (Garnefeld et al. 2011). In this case, the consumers identify with the firm and enjoy the relationship.

Proposition 4 *eWOM communication has a positive influence on affective commitment.*

2.3.9 Influence of Community Commitment (Affective) on Loyalty

Affective commitment positively influences the customers' loyalty behaviour (Verhoef 2003) and is essential for the long-term success of relations and a key to the customers' continuity (Evanschitzky et al. 2006; Morgan and Hunt 1994). Loyalty is the consistent personal attitude, participation, emotional attachment and identification that leads us to remain in an organisation (Meyer and Allen 1997). Maintaining a long and exclusive relationship with customers is a priority for the creation of commitment and loyalty. However, relationships between organisations and their customers do not necessarily seem to improve over time as the volatility of customers is increasingly greater.

To create loyalty through affective commitment (Zhang and Bloemer 2010) requires centring on the direct effects of the value of congruity. That is to say the similarity between personal values and relevant objects and the moderator effect of the switching costs and of the preference for consistency, referring to the importance which a person ascribes to characteristics such as stability, foreseeability and trustworthiness (Nail et al. 2001).

Firms need to develop commitment with their customers before expecting to obtain their loyalty (Fournier 1998; Gilliland and Bello 2002). It is interesting to know how consumers perceive different types of benefits (functional, economic, emotional and symbolic) and how this perception influences the commitment that later affects loyalty behaviour (Hur et al. 2010).

Proposition 5 *Affective commitment in SNS positively influences the loyalty level.*

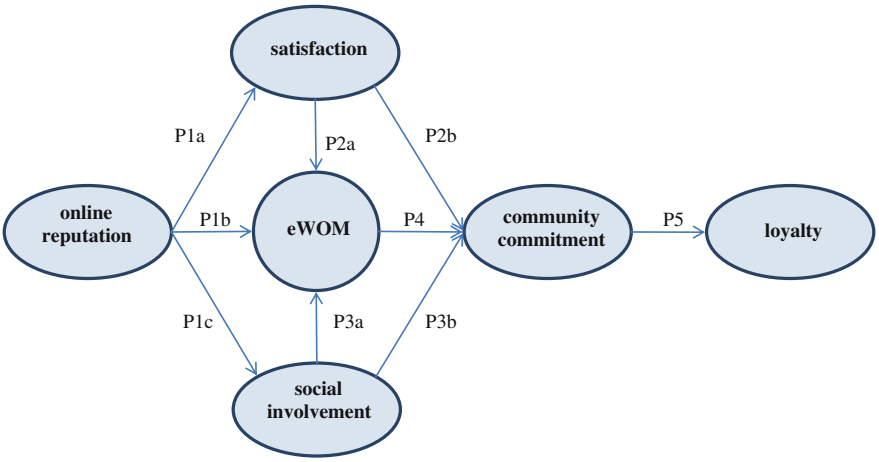

Fig. 2.1 Proposed model

Figure 2.1 shows the different proposals which determine the model's causal relationsships. The measurement scales of the six variables of the causal model proposed are presented in the Appendix.

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Appendix: Measurement Scales of the Variables of the Proposed Model

Online reputation	Hong and Yang (2009); Casaló et al. (2009)
REP1	I positively value quality in SNS
REP2	I positively value emotional attraction in SNS
REP3	I agree that the members of SNS have a good reputation
REP4	The members of SNS behave honestly when they set up relationships with other members
Satisfaction	Hong and Yang (2009, 2011); Casaló et al. (2009)
SAT1	I consider that both parts benefit in a relationship in SNS
SAT2	I positively value the satisfaction of an interrelationship
SAT3	I positively value happiness
SAT4	I think that I have made a correct decision about being a member of an SNS

(continued)

(continued)

Online reputation	Hong and Yang (2009); Casaló et al. (2009)
SAT5	The experience that I have had with SNS has been satisfactory
SAT6	In general, I am satisfied with my relationship with SNS and with other members
Social involvement	Casaló et al. (2009)
SI1	I am motivated to actively participate in SNS
SI2	I use SNS for stimulation
SI3	I provide useful information to other members
SI4	I frequently and eagerly send and answer messages in SNS
SI5	I participate in SNS because I like them
eWOM	Hong and Yang (2009, 2011)
eWOM1	In general, I recommend a lot of information to others through SNS
eWOM2	Many members use the information that I recommend them
eWOM3	In general, I speak positively in SNS
eWOM4	I encourage others to use the applications in SNS
Community commitment (affective)	Casaló et al. (2009)
COMP1	Unless there is a problem, I will continue using SNS in the future
COM2	I like to use the applications in SNS
COM3	Unless new alternatives appear, I will continue using SNS, as my relationship with them is very satisfactory
COM4	I am proud to use SNS
Loyalty	Casaló et al. (2009); Sánchez-Franco et al. (2009)
LOY1	I wish to remain a user of SNS
LOY2	I feel loyal to SNS
LOY3	I will seek applications in SNS in order to satisfy my needs
LOY4	I will try to use the applications in SNS
LOY5	If the SNS that I frequently use were to disappear, I would attain my aims with other SNS that are in the market

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Chapter 3
Crowdsourcing as a Competitive Advantage for New Business Models

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Abstract The current organizational environment is characterized by the evolution and transformation of information and communication technologies, the eruption of social networks, and, with it, the growing importance of the participation of customers and other contributors in the behavior of these firms. Participating customers are increasingly influencing the development of marketing initiatives in the production process of firms, while the development of social networks and online communities has engendered new business or strategic models where diverse participants in social networks are becoming the crucial element for success. Taking into account these facts, this chapter focuses on the importance of this participation through the development of "crowdsourcing". The chapter defines the concept, analyzes its possible uses for the improvement of different organizational areas, and finally explains the crowdsourcing implementation process via a series of steps. The study is important as it opens up new areas of research in the literature and also provides some practical analysis and examples of its use by organizations.

3.1 Introduction

The evolution of information and communication technology (ICT), coupled with the growth of the Internet and social networks, has transformed business model in recent years (Buhalis and O'Connor 2005, Garrigos 2010). In the new arena, both

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firms and customers want to jointly participate in almost all the processes of business development. Today, the importance of the crowd is essential to understanding the new business environment (Garrigos et al. 2011).

One of the most innovative developments now being used by organizations is crowdsourcing, "a participative distributed online process that allows the undertaking of a task for the resolution of a problem" (Estelles and Gonzalez 2012). By concentrating on this fact, this chapter attempts to define and explore the importance of crowdsourcing activities in the competitiveness of firms. It begins by providing an explanation of the relevance of social networks and the crowd in Internet activities by conducting an in-depth study of the relevant literature. Following this, the chapter focuses on describing the main possible uses of crowdsourcing and also provides several examples of its use in organizations. The analysis continues with a section that presents and explains the processes needed in order to carry out crowdsourcing activities or projects, based mainly on the work of Geiger et al. 2011. The chapter ends with conclusions and limitations of the study.

3.2 Crowd Participation

The networking potential promoted by new innovations "drives all of society and corporations to work faster, create and manage more interdependencies, and operate on global markets" (Kalpic and Bernus 2006). In the new arena, "as products and services become dematerialized, and the value chain itself no longer has a physical dimension", a change in the conception and analysis of organizations is paramount, particularly in cases where both the product and supply and demand chain are digitalized, "in sectors such as banking, insurance, telecommunications, news, entertainment, music, advertising, and certain areas of the public sector" (Peppard and Rylander 2006).

In addition, the transformation of the customer from a passive client into a hyperactive one who wants to participate in all production processes (Shiffman 2008), and the development of social networks are changing the view of production itself, forcing organizations to create a link with the market and interact, as well as obliging them to be open and cooperative with customers and other stakeholders in all production processes. In this context, according to Peppard and Rylander (2006), "the value chain concept becomes an inappropriate device with which to analyze many industries today and uncover sources of value". It is therefore necessary to move from the value chain to the value network concept where "value is co-created by a combination of players in the network" (ibid).

In the new framework, as Garrigos et al. (2011) point out, without the participation of users, we could not understand the new business environment. This fact is also stressed by Fuchs et al. (2010), who suggest that "the user is an integral part in the production process of content, tastes, emotions, goods, contacts, relevance,

reputation, feedback, storage and server capacity, connectivity, and intelligence". The participation of people, not only customers or employees, in all the processes of a firm is highly relevant to crowdsourcing, which has evolved into an important business model in the new era (Corney et al. 2009).

3.3 Crowdsourcing in the Literature

Crowdsourcing, also known as "massive outsourcing" or "voluntary outsourcing", is conceived in this study as the act of taking a job or a specific task usually performed by an employee of the company, or more widely termed by a "designated agent", such as a contractor (Howe 2009), and outsourcing it through an open call to a large group of people or a community (crowd or mass) over the Internet.

The expression was coined by Jeff Howe in the June 2006 issue of the computer magazine *Wired* (Howe 2006a). For this author, "crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call". This can take the form of peer production (when the job is performed collaboratively), but is also often undertaken by lone individuals (Howe 2006b).

The term, defined also as "the outsourcing of tasks to the general Internet public" (Kleemann et al. 2008), "describes a new web-based business model" (Brabham 2008), a "strategic model" (ibid p. 79) or "a new innovation business model through the Internet" (Ling 2010), aimed at "animating individuals to make a contribution to the firm's production process for free or for significantly less than that contribution is worth to the firm" (Kleemann et al. 2008).

3.4 The Use of Crowdsourcing

Crowdsourcing can be viewed as a development of the classical "self-service" which emerged with the evolution of department stores and the introduction of the first vending machines at the end of the nineteenth century. These guiding principles became prevalent in grocery stores and many areas of retailing, and also within tourism organizations, such as fast-food chains, since the 1970s (Kleemann et al. 2008).

The crowdsourcing process has expanded since the 1990s with the growth of the Internet, which played an important role in creating new forms of cooperation between firms and consumers in the production process and service provision, including customers considered as "co-workers" (Rieder and Voß 2010). In this regard, crowdsourcing can be viewed as a "form of the integration of users or consumers in internal processes of value creation" (Kleemann et al. 2008).

However, apart from customers or users who can be considered the essence of crowdsourcing, the process can also include "all kinds of stakeholders who are not employees of the organization" (Garrigos et al. 2012), amateurs, or even the general public "students, young graduates, scientists or simply individuals" (Estellés and Gonzalez 2012), in order to improve the production process, carry out any of the organization's tasks, and undertake the solution of problems and the generation of open innovations by the crowd (ibid p. 196). With their sudden expansion, social networks have made possible, and promoted, the development and profusion of the model, alongside the development and the instrumentalization of very diverse kinds of remuneration and motivation mechanisms for participants in the process (Geiger et al. 2011).

Nevertheless, authors such as Brabham (2008) point out that "crowdsourcing is not merely a Web 2.0 buzzword, but is instead a strategic model to attract an interested, motivated crowd of individuals capable of providing solutions superior in quality and quantity to those that even traditional forms of business can".

Although Poetz and Schreier (2012) focus on the importance of outsourcing the stage of idea generation to a potentially large and unknown population in the form of an open call, as Brabham (2008) puts it the crowd can also help to design products, to produce memorable commercials and images, and to outperform the industry faster and cheaper than even the experts in their fields. In this sense, it can be conceived as a "general-purpose problem-solving method" (Doan et al. 2011) that can directly help an enterprise in every aspect of the lifecycle of a product or service (Porta et al. 2008).

Moreover, the process could be very broad in domains ranging from tourism to T-shirt design. For instance, we believe that crowdsourcing can help to capture, systemize, or analyze large amounts of data (see also citizen science), it can let the public be the one to invent and develop new technology, solve the problems that stump corporate scientific researchers, improve a process or algorithm (e.g., human-based computing and a developer community), finance some processes or product development (crowdfunding), carry out a design task (also known as community-based design (e.g., shirts), and distributed participatory design), or a broad routine or cognitive task, develop products or processes (through the generation or exploitation of creative ideas (Estelles and Gonzalez 2012), produce memorable commercials, or monitoring, rating or recommending products, processes, services, or event texts, images, or commercials.

In short, the crowdsourcing process could include diverse tasks previously developed within an organization, from the design of a product or process, product development and configuration, solving problems, creating content, corporate R&D, advertising, and quality monitoring (Brabham 2008; Howe 2006; Kleemann et al. 2008), to the extent of almost every step in an organization's value chain (examples of crowdsourcing can be seen in Brabham 2008; Kleemann et al. 2008; Geiger et al. 2011; Buhalis et al. 2011; Estelles and Gonzalez 2012).

In addition, the process allows for the participation of customers, but also the participation of every kind of stakeholder or member of the public interested in generating an idea or developing a task. Obviously, as "the crowd outperforms

industry faster and cheaper than even the top minds in the fields" (Brabham 2008), the crowdsourcing procedure is essential as it represents "a profound paradigm shift in our view of the professional, of the corporation, of the global commons, and of the value of intellectual labor in a transnational world" (ibid).

Examples of traditional outsourcing to non-employees include ticket machines and online ticket sales, e-shopping and self-scanning in retail, self-check-in at offices, or for transportation and the wide range of transactions in tourism, as well as banking and investments that individuals can carry out via the Internet (Kleeman et al. 2008). Going further, extensive crowdsourcing has been utilized to identify new brands, operational activities such as marketing (e.g., Starbucks Idea), or user-generated content for social media Websites (e.g., Facebook) (Rieder and Voß 2010). "User-generated [advertising] content is a favorite of companies like JetBlue Sony and Chrysler, hoping to reach young, tech-savvy consumers who will spread their marketing messages [virally] around the Web" (Brabham 2008).

Nevertheless, and apart from marketing, crowdsourcing can be seen as a mechanism to improve the development of organizations, with several applications providing a view of a problem-solving model that can be generalized and applied to both mundane and highly complex tasks (Brabham 2008). Briefly put, people can create and submit ideas for products, processes, or the designs of all kinds of organizations.

3.5 Stages of Crowdsourcing

In each crowdsourcing project, we can identify four dimensions that describe how crowdsourcing processes develop. These four dimensions or stages are shown in Fig. 3.1. This figure displays the different stages that are developed over time.

The first stage is *the pre-selection of contributors*. During this stage, the crowd of potential contributors is selected and the crowdsourcing organization makes an open call to the group. In the literature, several authors discuss the different strategies with regard to the open call. Feller et al. (2009), for example, describe two different strategies in the selection of potential contributors: maximizing the size of the crowd and making a pre-selection of contributors with a filter, depending on their desirable skills. Vukovic and Bartolini (2010) categorize the type of strategy depending on the contract that the crowd has with the enterprise.

In this vein, an internal call is directed to the employees of the firm, while an external call would be directed toward non-employees, and the hybrid model would be an open call to both employees and non-employees alike. Other possible destinations of the call include a large group of people (Howe 2006a), i.e., the general Internet public (Kleeman et al. 2008), consumers (Kleeman et al. 2008) and online communities (Whitla 2009).

The second stage concerns *the accessibility of peer contributions.* During this stage, the crowdsourcing organization must decide how contributors can access the work of the other contributors (Howe 2009). Geiger et al. (2011) proposed four

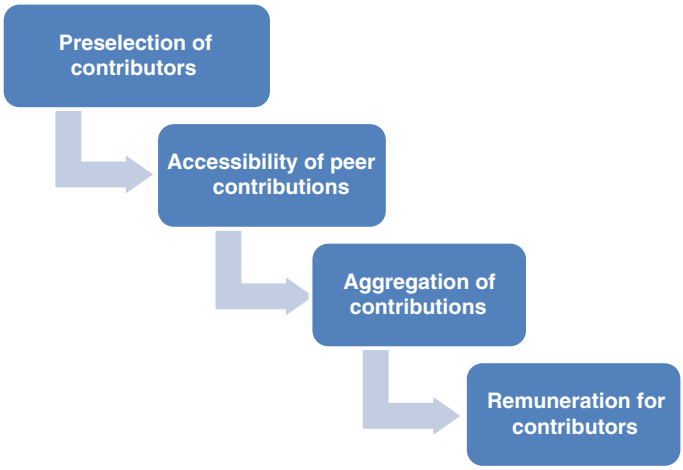

Fig. 3.1 Crowdsourcing stages. *Source* Adapted from Geiger et al. (2011)

possible levels of access for contributors based on the degree of accessibility. The possible means of access are as follows: *none* (contributors cannot see the projects of the other participants); *view* (all contributions are visible to the contributors); *assess* (contributors can see, evaluate, or comment on the other work); and *modify* (contributions can be modified, completed, or deleted by any author (Geiger et al. 2011). On this point, understanding the importance of factors such as intellectual property rights and information security are critical. The greater the access given to contributors, the more efforts should be made to ensure the safety of all involved (Vukovic and Bartolini 2010).

The third stage of the crowdsourcing process is *the aggregation of contributions.* During this stage, the crowdsourcing organization must unify all of the selected contributions with the aim of improving the final project results (Geiger et al. 2011). It is also during this stage that the contributions that have not reached the expected quality are discarded. If the number of contributions is high, only the best contributions are selected (Schenk and Guittard 2011).This is one of the most important stage, as the results depend on the ability to verify the data and to gauge the quality of the work (Estellés and González 2012). In evaluating the quality of contributions, it is also common to include the results of voting on the part of other contributors (Sorokin and Forsyth 2008).

Finally, the last crowdsourcing stage is the *remuneration for contributors*. As we know, crowdsourcing projects can provide gratification for the authors of the selected contributions. In line with the study by Geiger et al., there are three kinds of possible contributions: *no remuneration* (contributors offer their work on a voluntary basis); *fixed* (all of the selected contributions result in a fixed remuneration, which is previously agreed upon); and *success-based* (the incentives depend on the success of the project) (Geiger et al. 2011). Other simple

classifications of crowdsourcing project incentives are *monetary* and *non-monetary* (Vukovic and Bartolini 2010). In *non-monetary* projects, an organization that uses crowdsourcing must endeavor to motivate the contributors. Possible motivations for contributors can involve passion for the subject in hand, fun, establishing reputation and personal achievement (Leimeister et al. 2009), or social recognition and entertainment value (Kazai 2011).

3.6 Conclusions

This chapter focuses on the importance of crowdsourcing and how it can be used by organizations. After developing the concept and the definition of crowdsourcing, the study gives examples of the main types of crowdsourcing processes in the business literature. In this sense, the work analyzes its possible use in almost every step of an organization's value chain, from the marketing, design and development of products, processes and services, to the generation and exploitation of ideas and solutions to all kinds of problems. In addition, we have explained and focused on diverse stages for developing a crowdsourcing project: from the selection of the contributors to remuneration for selected works, considering participant access and contribution aggregation, using the model by Geiger et al. (2011) as a starting point and developing it.

We consider this work to be an important addition to the body of literature since there is scant research focused on the relevance of crowdsourcing. In addition, our work can open up new possibilities for the use of crowdsourcing by all types of organization, by providing new ideas on its use. We consider this to be a crucial step toward the success of new business or strategic models, understanding that organizations that promote the participation and diverse mechanisms of crowd motivation will succeed (Geiger et al. 2011), effectively utilizing the collaborative intelligence of internal and external stakeholders, as well as the general public.

We are conscious that this chapter has also been an exploratory step toward analyzing the impact of crowdsourcing processes on organizations. We recognize the limits of this analysis and that these transformations need further research. For instance, future research might analyze the impact of social networks on firms and organizations or consider using crowdsourcing throughout every step of the value chain or value network of organizations by concentrating on diverse economic sectors.

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Chapter 4
Analyzing a Successful Incubator Business Model: The Case of Barcelona Activa

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Abstract Successful business incubators have a critical role in the development of local, regional, and national economies through the creation of jobs and the generation of profits, technology development, and innovations. Business incubators are recent and popular organizational forms that are created, often with the help of economic development agencies, to support and accelerate the development and success of affiliated ventures. The chapter examines Barcelona Activa as a successful business incubator in Catalonia (Spain), analyzing the incubator's supply and demand for products and services from the resource-based view approach. Empirically, the chapter is based on qualitative methodology analyzing in depth the case of Barcelona Activa. The findings of the study show that the incubator model's adjustments between the supply and demand of products and services generated are the main reason for the low mortality rate of new firms and the substantial increase in incubators' turnover. This research has important implications for both researchers and government agencies.

Keywords Business incubator · Entrepreneurship · Resource-based view · Resources and capabilities · Barcelona activa · Catalonia · Spain

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4.1 Introduction

Successful business incubator has a critical role in the development of local, regional, and national economies through the creation of jobs (Aernoudt 2004; Aerts Matthyssens, and Vandenbempt 2007; Grimaldi and Grandi 2005), technology development, and innovations (Cooper and Park 2008; Lee and Osteryoung 2004; Phan et al. 2005; Swierczek 1992; Tsai et al. 2009). Business incubators are new and popular organizational forms that are created, often with the help of economic development agencies, to support and accelerate the development and success of affiliated ventures (Marlow and McAdam 2011; Peña 2004; Rice 2002; Scillitoe and Chakrabarti 2010; Sofouli and Vonortas 2007).

The business incubation concept has changed over the past three decades, during which it has been studied as an organization that nourishes the creation of new ventures (Allen and Rahman 1985; Merrifield 1987; Stuart and Abetti 1987; Scherer and McDonald 1988; Udell 1990; Mian 1996, 1997), or more as an environment capable of realizing dynamic processes directed by the social, economic, and political issues (Rice 2002; Aernoudt 2004; Hackett and Dilts 2004a; Bollingtoft and Ulhoi 2005; Tsai et al. 2009; Scillitoe and Chakrabarti 2010). In this context, business incubators facilitate the acceleration, discovery, validation, and application of new ideas and concepts in order to develop business models and to commercialize new products and technologies.

The main purpose of this research is to examine Barcelona Activa as a successful business incubator in Catalonia (Spain), analyzing the incubator's supply and demand for products and services from the resource-based view approach. Specifically, using a case study method, the research questions are the following: (1) What are entrepreneurs looking for from the business incubators? (2) How do business incubators build their resources and capabilities? (3) Why are the resources and capabilities of the business incubators able to provide quickly the creation of new ventures and business growth?

In this study, business incubator is defined as a formal setup within the surrounding environment, a "community inside the community", which generates critical sources of opportunities and barriers across its network of support, where the availability, accessibility, and supply of services and shared resources facilitate the beginning, development, acceleration, and business survival of an enterprise, destined to commercialize new technological products and services.

According to resource-based view, in this research, the business incubator's resources (physical, human, financial, and technological) and capabilities (brand, reputation, networks, information, etc.) are described. We argue that the resources complement the capabilities and that while the capabilities are more difficult to build, they are most valued by entrepreneurs for their benefits (contacts, financing, synergies, networking, etc.). The study is also contextualized on a broader analysis of incubators (Hackett and Dilts 2004a; Aernoudt 2004; Grimaldi and Grandi 2005) and of their development (Choi and Kiesner 2007; Hackett and Dilts 2004b; Mian 1997; Scherer and McDonald 1988).

The findings ofss the study show that the Barcelona Activa incubator model's adjustments between the supply and demand of products and services generated are the main reason for the low mortality rate of new firms and the substantial increase in incubators' turnover. Also, Barcelona Activa and in general terms business incubators need to pay attention to their strategic positioning and should realize the key importance of the relations and interactions with the tenants, network, and community for the services they supply and for meeting the variety of demands and expectations coming from new ventures.

Concerning the structure of the article, after this brief introduction in the second section, the conceptual framework and research propositions are presented, including the mapping of business incubator research and the resource-based theory as business incubators are concerned. The third section presents the methodological details of the empirical research, and the next section discusses the results from the case of the Barcelona Activa incubator. The chapter ends with the conclusions and implications of the study.

4.2 Conceptual Framework and Research Propositions

4.2.1 Mapping Business Incubator Research

During the last three decades, the concept and study of incubators have undergone changes and they have increased in relevance as tools for enhancing the economic, technological development, and innovation of countries, by promoting entrepreneurial ideas and encouraging the creation and development of new ventures. Business incubators have been studied as an organizational environment that nourishes the creation of new business and as an institutional environment capable of realizing dynamic processes directed by the social, economic, and political aims to facilitate the discovery, validation, and implementation of new ideas in order to commercialize new products, technologies, and business.

In general terms, research has been focused on incubating initiatives using mainly public resources (Allen and Rahman 1985; Merrifield 1987; Stuart and Abetti 1987; Scherer and McDonald 1988; Udell 1990; Mian 1996, 1997), on private incubators (Aernoudt 2004; Grimaldi and Grandi 2005; Cooper and Park 2008), and on transformations in incubator networks and their interactions (Hansen et al. 2000; Rice 2002; Bollingtoft and Ulhoi 2005).

Table 4.1 shows the levels and topics of analysis studied in business incubators' research during the last 30 years. From this table, it can be seen that the research has been focused on topics such as the development of the business incubators (Allen and Rahman 1985; Merrifield 1987; Stuart and Abetti 1987), their configuration (Adegbite 2001; Peña 2004; Tötterman and Sten 2005), and their impact (Aernoudt 2004; Udell 1990). Therefore, it is possible to determine, on the one hand, the three subjects of analysis: development, configuration, and impact of the incubators and,

Table 4.1 Levels and topics of analysis in the literature of business incubators

Topics Levels	Development	Configuration	Impact
Individual or incubatee	(Allen and Rahman 1985; Merrifield 1987; Stuart and Abetti 1987)	(Adegbite 2001; Peña 2004; Tötterman and Sten 2005)	(Aernoudt 2004; Udell 1990)
Organization or incubator	(Choi and Kiesner 2007; Hackett and Dilts 2004b; Mian 1997; Scherer and McDonald 1988)	(Bergek and Norrman 2008; Hackett and Dilts 2004a; Mian 1994; Nowak and Grantham 2000; Phan et al. 2005; Schwartz and Hornych 2008)	(Aerts et al. 2007; Autio and Klofsten 1998; Bruton 1998; Colombo and Delmastro 2002; Cooper and Park 2008; Grimaldi and Grandi 2005; Lee and Osteryoung 2004; Marlow and McAdam 2011; McAdam and Marlow 2011; Mian 1996; Schwartz and Hornych 2010; Thierstein and Willhelm 2001)
Network	(Bollingtoft and Ulhoi 2005; Rice 2002)	(Fang et al. 2010; Sofouli and Vonortas 2007)	(McAdam and Marlow 2011; Mian 1996; Schwartz and Hornych 2010; Thierstein and Willhelm 2001)
Community	(McAdam and Marlow 2007; Rice 2002; Tsai et al. 2009)	(McAdam and Marlow 2011; Scillitoe and Chakrabarti 2010)	(Allen and Rahman 1985; Sofouli and Vonortas 2007; Thierstein and Willhelm 2001)

on the other hand, the four levels of analysis: individual, organization, network, and community.

In this research, according to the previous definition of incubator noted in the Introduction Section, we will focus on the organizational level (Hackett and Dilts 2004a; Aernoudt 2004; Grimaldi and Grandi 2005) and the development of the resources and capabilities of the particular business incubator Barcelona Activa (Choi and Kiesner 2007; Hackett and Dilts 2004b; Mian 1997; Scherer and McDonald 1988), using resource-based theory as a conceptual framework of the study (Fang et al. 2010; Grimaldi and Grandi 2005; Udell 1990).

4.2.2 Resource-Based Theory and Business Incubators

In general terms, the resource-based theory can be applied when critical resources are accumulated rather than acquired in markets as strategic factors (Dierickx and Cool 1989) and its usefulness lies in the resources and not in the products (Wernerfelt 1984, 1995) where is responsible for the reduction in competition from resources and capabilities of the organizations (Prahalad and Hamel 1990). In the context of business incubators, there has been a limited amount of research focused on the material and immaterial aspects of incubation, yet resources and capabilities have been identified as a valuable tangible and intangible resource associated with business incubators and the incubation process (Peña 2004; Lee and Osteryoung 2004; Bøllingtoft and Ulhøi 2005; Totterman and Sten 2005; McAdam and Marlow 2007; Cooper and Park 2008; Scillitoe and Chakrabarti 2010).

In this study, we distinguish various types of incubator' resources: human, social, physical, financial, and technological (Phan et al. 2005; Rice 2002; Cooper and Park 2008). Also, the capabilities are seen in this work as the ability of the incubator to integrate, build, and reconfigure through routines (succession of complicated patterns of actions—between individuals and other resources—that show regular and predictable tasks to be performed and the way to carry them out) the internal and external competencies to address rapidly changing environments (Grant 1991; Nelson and Winter 1982; Penrose 1959; Teece et al. 1997, 516).

4.2.2.1 Resources of Business Incubators

Business incubator resources (human, social, physical, financial, and technological) are configured, building and rebuilding a complementary interaction of the incubate, incubator, and network, through activities and routines properly structured and systematically organized according to supply and demand for services. The existence of network ties between those individuals and organizations involved in the incubator suggests that the exchange of information and resources between firms in the incubator is influenced by social norms, social structure, and individual power (Phan et al. 2005, 175). Prior research supports the notion that organizational resources enable

valuable business assistance. Incubators, a more efficient way to organize resources, whether by market exchange or a unitary hierarchy, would not occur if there were information asymmetry, asset specificity, and/or resource stickiness (Phan et al. 2005, 176). Typically, entrepreneurs are sophisticated with respect to the development and production of their product or service, but relatively unsophisticated with respect to one or more aspects of business development, e.g., acquiring and managing financial resources; sales, marketing, and distribution; assembling, developing, and managing the entrepreneurial team and company workforce; and so forth (Rice 2002, 171). In this context, resources (physical, human, financial, and technological) will better allow the incubator management to learn about the needs of the venture and supply more relevant business assistance (Peña 2004; Lee and Osteryoung 2004; Hackett and Dilts 2004a; Cooper and Park 2008). Thus, we suggest:

Proposition 1 *The venture tenants seek business incubators not only for resources, but also for their organizational capabilities.*

Many scholars point out that the optimal combinations of resources are the basis of successful high-technology ventures (Cooper and Park 2008). From a resource-based view, organizations need to develop and adapt their skills and capabilities through continuous interactive learning. Through the use of their own capacity to assist the tenants to succeed, incubation centers can directly and/or indirectly interact with and influence the environmental settings of the innovation. The role of business incubation has evolved from the originally expected facility and service provider into a consultant organization for knowledge, resources, and policy coordination for both enterprises and national innovation systems (Fang et al. 2010, 631–640).

According to Scillitoe and Chakrabarti (2010), the incubator is not simply a facility that offers shared office space and infrastructure but includes a network of organizations and individuals, although the boundaries of this network can vary. This network can include universities, research institutes (Vedovello 1997; Mian 1996), other ventures (Bakouros et al. 2002), industry players (Hansen et al. 2000), government agencies, and service organizations (Phillimore 1999). Incubator managers come from a variety of backgrounds, including prior incubator, business, and technical experience (Hannon 2005) and, subsequently, bring a variety of network contacts to the incubator when hired (2010, 159). Therefore, we suggest:

Proposition 2 *Business incubators dynamically build their capabilities from the systematic organization and the relationship between their services and the supply and demand of entrepreneurs.*

4.2.2.2 Capabilities of Business Incubators

The organizational capabilities have been identified as an important aspect of the incubation process (Bøllingtoft and Ulhøi 2005; Tötterman and Sten 2005; Fang et al. 2010; Scillitoe and Chakrabarti 2010). The incubators' capabilities can be

described as the unique contribution made by those incubators and their substitution and complementarities raise a key concern about the nature of their resources and capabilities. Incubators may be able to create greater value for the firms located in them if they possess specific, rather than general or non-specific, resources that are not available elsewhere. But their ability to learn from experience and develop their capabilities is also important in enhancing their ability to create value for their tenant firms (Phan et al. 2005, 176).

The incubator model is based on the clear goal of creating financially attractive spinouts. Each model is configured differently, in terms of its organizational, human, financial, technological, network, and physical resources. Publicly supported incubators are regarded as tools for economic development and political bargaining. From the resource-based view, more frequent interactions with incubator management will result in stronger ties that help them better monitor incubate progress, understand venture needs, help to develop venture capabilities to successfully utilize the incubator network, facilitate the creation and continuity of venture network relationships, and share knowledge and insights regarding technology supply pipelines, the commercialization process of products/services, technology transfer mechanisms, and protection of intellectual property (Hackett and Dilts 2004b). Therefore, we suggest:

Proposition 3 *The capabilities of business incubators quickly facilitate new venture creation and business growth.*

4.3 Methodology

The empirical part of this research is based on data gathered from the Barcelona Activa incubator as a relevant case study (Yin 2003), developed in 2011 over a period of approximately 6 months. Data were collected in the form of a review of documents, discussion groups, participant observation and personal interviews with incubates and employees of the incubator and the network, observations and participation in meetings and various events, and access to other archival documents. For the sake of confidentiality, none of the individuals from the incubators is identified by name. Barcelona Activa case was selected according to the following criteria: (1) incubator with national and international recognition, (2) based on technology and innovation, (3) businesses having similar characteristics were incubated, (4) the incubator had been transformed or evolved in the last years, (5) the incubator was integrated into the regional system and national innovation, and (6) the incubator was associated with conducive environments and innovative growth. These criteria primarily aim to achieve an adequate theoretical replication (Yin 2003), giving priority not only to the relevance of the selected case, but also to the learning opportunities offered by the incorporation of this empirical case (Eisenhardt 1989). The investigation of the incubator's network activities (private as

well as business-related) was based on the following sources. The business-related network activities with the businesses involved were researched through the review of documents and personal interviews at nine technology-based innovative companies that had been incubated in the last 10 years (three in the incubator—three years, three in the Nord Park—established companies with more than 4 years of incubation, and three outside the incubator—companies that met 3 years ago and decided to settle outside the incubated BA). The informal personal-related network activities within the incubator were observed during frequent contacts, discussion groups, participant observation, and interactions of the incubate–incubator–network–community during the 6-month period of the empirical study. The case analysis was based on documents (legal framework and organizational documents), personal interviews, discussion groups, and participant observation, using qualitative software Atlas.ti 6.2.

4.4 Results and Discussion

This section discusses the findings of the case study of Barcelona Activa. Tables 4.2 and 4.3 summarized the main results. Also, a detailed description of the incubator is provided in the Web site of Barcelona Activa (www.barcelonactiva.cat).

4.4.1 Descriptive Analysis

4.4.1.1 Supply for Products and Services of Barcelona Activa Incubator

Created in 1986, Barcelona Activa was transformed from a municipal corporation of the city of Barcelona, Spain, that supported a program of entrepreneurship and business incubation in 1992, to become today a privileged instrument for local economic development and for the productive transformation of the city through the promotion of integrated local economic development and employment, in the form of a local development agency. In fact, among its objectives and activities is embedded business incubation.

The agency carries out its work and provides resources and services in the following five lines of activities or areas of intervention: (1) creation of business-from the idea of business start-ups, (2) business growth -the new company, the company globally, (3) access to quality employment -from unemployment to employment, (4) human capital management -of basic training, specialized training-, and (5) digital culture -digital literacy from excellence technology. In its dynamics can be identified two cross-cutting and complementary activities: technology transfer and economic promotion of the city, operating in conjunction

Table 4.2 Resources and capabilities of Barcelona Activa

Category	Element	Description
Resources	Human resources	Qualified staff from the incubator, technical training, and industry knowledge which penetrates the incubated companies whose characteristic is to be technology-based innovation
	Social resources	Access to social and business networks through Xarxactiva, which links the business community of Barcelona Activa and the network of thematic and methodological expertise
	Financial resources	Bridge between the entrepreneur and organizations for access to seed capital, access to financing, and reducing the risk of potential investors
	Physical resources	Provides low-cost space, access to laboratory management, administration, logistics, and business services
	Technology resources	Promoting research networks and research projects, databases, and the use of technological infrastructure
Capabilities	Reputation and prestige	It is the only agency in the city performing as an internationally recognized business incubator
	Positioning and brand	Has received in the last 10 years more than ten national and international awards and enjoys international recognition
	Networking	The location and the close relationship of the business community of the incubator allow synergies and networking
	Mentoring	Generates support and mentoring opportunities for business
	Coaching	Develops training processes, training, and ongoing training
	Knowledge base	Allows access to knowledge bases of organizations, investors, employers, experts, consultants, and advisors
	Incubation model	It has a mixed model that integrates internationally validated innovative resources and services on-site and online
	Knowledge transfer model	Develops knowledge transfer processes part of tools, methodologies, and tools for entrepreneurship and business growth worldwide
	Negotiation methodology	There are methodological frameworks of negotiation on-site and online
	Model of management of financial resources	It is recognized by the various organizations as an organization that supports business plans and business expansion
	Legal assistance	Entrepreneurs provide a mechanism for legalization and formalization of the company within 48 h

Source Analysis of innovative mixed model, interviews, and reports of Barcelona Activa

Table 4.3 Main characteristics of the Barcelona Activa incubator

Characteristics	Decade 1980	Decade 1990	Decade 2000	Total
Companies located[a]	35	350	239	624
Promoters[b]	2,5	2,8	3,1	8,4
Workers[c]	3,1	3,4	4,1	9,6
Sectors[d]	4	6	12	22

[a] Total number of companies that have been and are installed in the incubator by decade; [b] Average number of company promoters or entrepreneurs installed in the business incubator; [c] Average number of company workers installed in the business incubator; [d] Number of sectors by decade in the business incubator
Source Barcelona Activa reports

with the city of Barcelona, and supplying the following resources and capabilities, as shown in Table 4.2.

Barcelona Activa is an example of an incubator that adheres to a more innovative model of incubation (innovative mixed model of business support), that is, within the five areas of intervention of Barcelona Activa, the business incubator (Glóries) has the second area (business growth) as a primary activity for the agency. The business incubator does not restrict its activities to specific sectors, but provides mainly logistic and tangible services, and has a rather long period of incubation (three years on average). Its organizational mission is to accompany the transformation of Barcelona into a key location for entrepreneurship, business growth, innovation, human capital, and job quality.

The case of the Barcelona Activa incubator shows their efficacy in transferring knowledge and in creating successful informal and formal relations with organizations. Their added value relies on their operating as interfaces between new ventures and sources of scientific and technological knowledge. This incubator does not adhere completely to the traditional incubator model, though it does display many similarities to it (Bøllingtoft and Ulhøi 2005; Cooper and Park 2008; Lee and Osteryoung 2004). This incubator also facilitates the access to resources and services and business facilities/equipment, which is particularly important for new businesses and start-ups operating in more innovative sectors (e.g., TIC, environment, creative productions, business services, and other services), which are normally characterized by high entry barriers in terms of capital equipment.

4.4.1.2 Demand for Products and Services of Barcelona Activa

In this section, we present a number of companies, promoters, workers, sectors, facilities, and services that help to bring out the differences between the resources and capabilities of the business incubators described earlier and the extent to which they adhere to the resource-based theory. We define these categories as incubators' "characterizing" aspects, since they can help to explain the differences between the different resources and capabilities of the incubating model.

The group of entrepreneurs linked to the incubator is composed of people with a higher educational level, some work experience in the field of venture company incubation and mostly of Spanish origin. The total number of companies incubated by Barcelona Activa in the 25 years of work is 624, with an average of 2.5 promoters per decade in 1980, 2.8 in 1990, and 3.1 in 2000 and an average of 3.1 workers per firm in 1980, 3.4 in 1990, and 4.1 in 2000. These new ventures are in the sectors of TICs, environment, creative productions, business services, other services, etc., as shown in Table 4.3.

The case of Barcelona Activa adheres to an incubating model that is different from the one adopted by traditional incubators. The case, though characterized by its own peculiarities, shows many similarities that make it reasonable to think of public incubators as adhering to the same incubating model, which our evidence suggests is an innovative model of business incubations that is valued positively for the resources and capabilities available to tenants.

In general terms, all those interviewed positively valued the resources (physical, financial, technical, social, and technological) and services (organizational capabilities such as mentoring, coaching, reputation and positioning, incubation model, information and knowledge, networks, etc.) received from Barcelona Activa. However, the resources and capabilities most valued, in order of preference, are as follows: (1) leasing physical spaces or cubicles, (2) education and training, (3) business logistics, (4) partnerships and social and business networks, (5) reputation and prestige of the organization, and (6) positioning or brand of the organization. Meanwhile, the lowest rated were as follows: (1) standardized internal procedures, (2) strategy processes and organizational control, (3) knowledge base investors, (4) technological infrastructure, and (5) negotiation strategy or methodology.

The entrepreneurs interviewed mentioned that Barcelona Activa is quite well consolidated and looks for acceleration in terms of capital and highly specialized competencies by the tenants. Only, public incubators can satisfy their demand. The case shows that public incubators, compared to private ones, experience fewer problems in terms of the provision of finance and of specialized management and financial competencies to their new ventures (Scillitoe and Chakrabarti 2010).

4.4.2 Propositions' Analysis

On the one hand, according to the empirical work developed in Barcelona Activa, we can note that there is a dynamic relationship between supply and demand for resources and support services to new businesses. However, the entrepreneurs expressed that they not only look to the incubator for the ease of physical spaces and support in launching their businesses, but also for the location, information, education, synergy, teamwork, support networks, and business and financial contacts, which give them a better chance of finance, sales, and economic growth (Rice 2002; Peña 2004; Lee and Osteryoung 2004; Hackett and Dilts 2004a;

Cooper and Park 2008). This result supports what was stated in the Proposition 1. ("The venture tenants seek business incubators not only for resources, but also for their organizational capabilities").

On the other hand, the incubators' resources are increasing diffusion of these organizations, which calls for a more detailed look at what this phenomenon actually is, and the specific sources of value it provides to entrepreneurs and entrepreneurial activities (Bøllingtoft and Ulhøi 2005; Fang et al. 2010). So, the role of business incubation has evolved from the originally expected facility and service provider into a consultant organization for knowledge, resources, and policy coordination for both enterprises and national innovation systems (Scillitoe and Chakrabarti 2010), with the systematic construction of organizational capabilities. The postulated in the Proposition 2 ("Business incubators dynamically build their capabilities from the systematic organization and the relationship between their services and the supply and demand of entrepreneurs") has also been supported in this research.

Finally, the incubators develop their organizational capabilities in a dynamic, innovative way, anticipating or adapting to the demands of the global environment, which are perceived by companies incubated in the reputation, prestige and brand of Barcelona Activa, the development and validation of models and methodologies for technical assistance and financial support, social networking, business, and technology (innovation bridges), among other capabilities that are installed to improve enterprise creation and business growth (Bøllingtoft and Ulhøi 2005; Tötterman and Sten 2005; Fang et al. 2010; Scillitoe and Chakrabarti 2010). These findings also support the Proposition 3. ("The capabilities of business incubators quickly facilitate new venture creation and business growth").

4.5 Conclusions and Future Research Lines

In this study, using a case study method, Barcelona Activa is examined as a successful business incubator in Catalonia (Spain), analyzing the incubator's supply and demand for products and services from the resource-based view. Empirical evidence from this case of study supports our initial research propositions on the two main categories (resources and capabilities). We believe that the rationale behind different incubating initiatives (and hence the positive aspects justifying a variety of facilities and services) lies in their ability to target different types of new venture with new products and services, having different objectives and requirements. Business ideas all have the same potential and receive resources and services tailored to each company, whether start-ups, growth, and consolidation.

On the one hand, the rationale behind Proposition 1 lies in the capacity the incubator has to build efficiently the resources and capabilities that the entrepreneurs demand in an increasingly complex and competitive world, from a mixed model that incorporates not only innovative resources and equipment, but also the

services and capabilities configured in the process of organizational learning and business. It is worth mentioning that a very few traditional incubators are also trying to revamp themselves and are increasing the number and the quality of services offered to their potential incubates.

On the other hand, the rationale behind Proposition 2 lies in their ability to accelerate and build dynamically their resources and capabilities based on the systematic organization and the relationship between resources and services offered to meet the demand of the entrepreneurs. The mixed innovative model also provides their tenants with synergies created through supporting strategic technological and commercial partnerships between new ventures and incubators' networks of partners. Barcelona Activa's adherence to this model can help aspiring entrepreneurs develop their ideas and flesh out their opportunities. Finally, the rationale behind Proposition 3, focused on the relationship between the supply and demand, lies in their capacity to facilitate efficient and timely resources (human, financial, technological, physical, and social) and capabilities (mentoring, coaching, networking, legal assistant, reputations, etc.) required by entrepreneurs to create a new business and to strengthen and consolidate the existing business market. The challenge for them is to supply would-be entrepreneurs the possibility of proving their abilities and skills in the market and to eventually found companies through which they can further develop their entrepreneurial potential.

This study has several limitations associated with the use of a case study, measures, scope, firm life-cycle development, and the use of the resource-based theory as conceptual framework. Regarding generalizations, this study has methodological limitations associated with the categories that suggest some common methodological aspects. The data used in this study are based on several informants (incubates, employees, and managers) and secondary sources. The unit of analysis for this study is also cross-sectional, across incubators, businesses, and countries and was not longitudinal in nature, allowing only for analysis at one point in time rather than over the course of time. While this study cites the value of case studies (Yin 2003), it also presents some limitations for generalization. In addition, this work only includes a business incubator and reflects a limited response rate from the targeted informants. More cases in future research will help determine whether the results in this study are generalizable to other incubators. Identifying and testing additional sources of counseling and networking interactions for non-incubated ventures as a comparison group would supply interesting insights into whether incubators supply a competence in these paternalistic interactions. This study is also limited in the scope. Specifically, this article does not consider the assistance that incubators can gain from other actors such as government agencies, universities, business consultants, funding organizations, other organizations. While research suggests that the technology incubator management serves as the primary source of beneficial networking opportunities for business incubators (Rice 2002; Hansen et al. 2000; Peña 2004; Scillitoe and Chakrabarti 2005), understanding the dimensions of beneficial networking with other actors would be valuable. This study strictly observes the relations between the tenants' supply and demand of resources and services and the business

incubator's resources and capabilities. Future research should consider the development, configurations, and impact of these innovative models of incubations. In addition, future research should include a comparative study both of business incubators in different countries and of the success of the relationships and interactions between the incubatee, incubator, network, and community and affiliated venture. Viewing these multiple levels of analysis simultaneously could supply valuable insights into the incubation process (Hackett and Dilts 2004a, b). This research lacks consideration of the life cycle of the firm, because the need for business versus technical assistance can vary according to these stages, offering additional interesting insights. Future research should include this life-cycle consideration. Finally, from the conceptual framework, the analysis of the internal factors (according to Resource-based theory) could be complemented by the use of institutional economics (Alvarez and Urbano 2011; Coduras et al. 2008; Liñán et al. 2011; Thornton et al. 2011; Veciana and Urbano 2008) to examine the environmental factors that condition the creation and development of a business incubator.

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Chapter 5
Website Effectiveness for Tourism Accommodation Companies

Carlos Devece, Rafael Lapiedra and Daniel Palacios

Abstract Being well positioned among the Internet search results of potential clients can be an important choice criterion for the customer. In this work, we analyse the online visibility concept, alongside with the Web design, taking into account the different search strategies of Internet users and proposing a method to measure website effectiveness for small- and medium-sized accommodation companies. Current online visibility measurement methods are based on measuring the number of links from other websites, listings in online directories, and online search visibility. These methods are focused on brand visibility but they do not take into account average customer search preferences. In this study, we propose a method based on the Internet search results of a potential customer sample, taking into account the information sought and the habits of the average customer. The method was tested measuring the online visibility of a sample of small- and medium-sized hotels. The conclusions extracted from this test are that the difficulties found in an objective procedure for imitating an actual costumer's search behaviour can be overcome by the evaluation of online visibility by real costumers.

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5.1 Introduction

E-commerce has extended the traditional channels used for providing goods and services to a market that has become global. This implies that competition is greater on the Internet and only organisations with a deep understanding of customer habits and behaviour in online environments will be able to benefit from this opportunity.

One of the great differences between e-commerce and traditional trade is undoubtedly the fact that it can establish direct communication between consumer and producer. This represents a considerable advantage, but it is not always easy to exploit. Firstly, for SMEs, whose size prevents them developing their own distribution channel and makes them entirely dependent on intermediaries, it represents a significant opportunity to control the value chain to their customers. According to Buhalis and Zoge (2007), the bargaining power of both buyers (consumers) and suppliers (principals) has been strengthened due to their ability to communicate directly at the expense of intermediaries. But this opportunity is difficult to exploit whether there is a myriad of competitors struggling for customer attention or "website positioning". Secondly, the Internet can be analysed as a shift in bargaining power forces in the industries, but also represents a new way of interacting with the customer. The perceived interactivity–synchronicity and two-way communication play a significant role for the relationship-building process of online retail brands (Yoon et al. 2008). The network is a good way to win customer loyalty and enhance relationships with suppliers. On the website, customers can view manuals and catalogues, accessing all the information the company wants to share. Also this will create a long-term relationship likely to generate loyalty and a better understanding of customers' needs. But the Internet interactivity allowed by the website design must meet customer needs, and how to obtain an effective design is still an open question. There is a complex mix of Internet customisation, website design quality and Internet marketing strategy involved in the problem, and companies need a greater understanding of how they can add value for consumers through their websites (Fan and Tsai 2010).

One of the most complex problems in Internet marketing is how to manage the company's presence on the Internet, or, in other words, how to measure the ease of access for potential customers a company's website and how to improve this positioning. To do this, managers should have a set of objective measures of their performance on the Internet. This study focuses on the measuring online visibility (Drèze and Zufryden 2004), including the two dimensions already mentioned—"online visibility" and "website design"—in the measurement.

5.2 Website Effectiveness

Website effectiveness can be understood as the extent to which a user is likely to come across an online reference to a company's website (Drèze and Zufryden 2004) and is able to find the desired information. In classical marketing, visibility

is associated with brand recognition by the customer. It is the result of a brand-building process and is linked to advertising campaigns and promotions (Keller 2003). The similar concept of positioning can be used in the virtual realm and we can define Internet positioning as the process of creating an identity in the mind of an Internet user (Serrano-Cinca et al. 2010). The concept of branding can also be translated to the Internet if we considered the network as another means of communication. In this case, brand recognition is achieved through a massive Internet presence. This online brand visibility is very important for multinational companies with global presence and a large volume of customers. In this case, the fight for brand recognition is of utmost importance. However, the interactivity of the Internet allows for different marketing strategies, offering some advantages over the mass media. On the Internet, although customers may not know a particular brand or company, they can actively seek information and compare different offers on the market and information on their quality and price. Being well positioned in the customer search results for a particular product or service can be as important as brand recognition. In this sense, we can use the term "online visibility" (Drèze and Zufryden 2004), "Web visibility" (Serrano-Cinca et al. 2010) or "online exposure".

The website effectiveness concept we propose is based on the online visibility, although we will include website design in the concept. It is misleading to assume that having a site with a good Web design ensures that thousands of people will find your website and buy the products or services offered, but good Web visibility is not enough without solid website design. The website is the most important part in the communication between the customer and the organisation in e-commerce. Not only does it allow for financial transactions, it also projects the image of the organisation and provides basic information to customers. It is therefore essential to understand customers' needs, habits and preferences when looking for information. This situation brings to the importance of value-driven evaluation and management of website effectiveness to the forefront. We therefore consider two dimensions in the concept of website effectiveness: "online visibility" and "Web design".

5.2.1 Online Visibility

One of the most complex problems in Internet marketing is the management of the company's presence on the Internet or how to increase the access potential customers have to a company's website. There are different strategies for gaining visibility on the Internet. The first is trying to be in the top positions on search engines when customers enter keywords related to the firm business. There are techniques that allow search engine optimisation (SEO) by manipulating the elements of the website in order to obtain a better rank in search engines. SEO analyses how search algorithms work and uses this knowledge to modify content, links, and the HTML source code of a site.

Another way of obtaining visibility is by means of online adverting, such as banner advertising or pay-per-click advertising on the Internet. Incoming links from other sites is another important source of visibility. This has led to the common practice of link swapping, but incoming links that do not require us to link them back are usually of better quality and it is more important to have links coming from high-ranking websites than from low-ranking ones. The major search engines rank sites depending on the quantity of quality incoming links from other sites. Besides, companies can increase incoming links rapidly by participating in forums, blogs or finding relevant directories where it is possible to submit sites for inclusion.

An important issue to consider in internet marketing strategy is the evolution of the most visited websites in order to predict the future trends. It is interesting to note that, according to Experina Hitwise US report based on US usage, in March 2010, for the first time, visits (7.07 % of total traffic) to the most important social network (Facebook) exceeded visits to the major search engine (Google) (7.03 %). Since their introduction, social network sites such as Facebook, MySpace and Cyworld have attracted millions of users, many of whom have integrated these sites into their everyday habits (Boyd and Ellison 2007). Social networks have been proclaimed as a new powerful media for the propagation of ideas. The effect of word-of-mouth marketing at an Internet social networking site can be very powerful and quick, and when it spreads through thousands of members, we are looking at viral marketing.

5.2.2 Website Design

Effective website design plays a critical role in attracting and maintaining customers' interest. Companies must understand how they can add value for consumers through their websites and the problems faced by customers on e-commerce websites (Fan and Tsai 2010). It is a complex problem, as the website design must be analysed in terms of the customer's behaviour and the company's Internet marketing strategy.

In the last decade, there have been great advances in the literature dealing with the website design problem, and some validated models have been proposed concerning the ways of designing a website efficiently. For example, Song and Zahedi (2005) synthesise the theory of planned behaviour with theories from social psychology in order to conceptualise the salient aspects of Web shopper behaviour and apply these aspects to website design. Srinivasan et al. (2002) consider 8 dimensions in a website: (1) customisation, the ability of an e-retailer to tailor products, services, and the transactional environment to individual customers; (2) contact interactivity or the dynamic nature of the engagement that occurs between an e-retailer and its customers; (3) cultivation, the extent to which an e-retailer provides relevant information and incentives to its customers; (4) care, the attention that an e-retailer pays to all the pre- and post-purchase customer interface

activities designed to facilitate both immediate transactions and long-term customer relationships; (5) community, the facility of the exchange of opinions and information regarding offered products and services among customers; (6) choice, the range of product categories and variety of products within any given category; (7) convenience, the extent to which a website is simple, intuitive, and user friendly; (8) and finally, the character of the website design.

Therefore, website design guidelines must include aspects such as information content, usability, ease of browsing, security (Tarafdar and Zhang 2007), marketing techniques and marketing strategy. This complex combination makes website design more of an art than a science. Tools for measuring the effectiveness of the website should include all these aspects and integrate them into the website assessment scale.

5.3 Website Effectiveness Assessment for Small- and Medium-Sized Hotels

Measurements that capture website performance have long enabled businesses to improve strategies and operations. Measuring the performance of a website has been proposed in many ways and various contexts over the past decade (Ghandour et al. 2010). From an operational point of view, the interest was soon shifted to the evaluation of website design effectiveness as a mediator variable for performance, and, later, to the evaluation of website visibility. At the same time, website metrics, such as the number of visits (Nikolaeva 2005), the duration of sessions and the number of pages viewed in a session can give an important insight into the performance of the website and the information-seeking behaviour and interests of the customers (Huntington et al. 2008).

But in any case, it can be observed that there is a clear differentiation between the studies measuring website design and online visibility. In addition, in the case of the tourism industry, and the hotel sector in particular, there are specific studies, due to the idiosyncrasy of the business and the important role that Internet marketing plays in marketing, promoting and selling its services (Buhalis and Law 2008). In the next two sections, we analyse some of the measurement tools for the online visibility of the website and its design in the hotel sector, proposed by the literature on tourism.

5.3.1 Online Visibility Assessment

There are several approaches to measuring the visibility of a website on the Internet. Besides those proposed by Ivory and Hearst (2001), we can include measures based on objective parameters like the website metrics. Here, Web

mining helps to define benchmarks with respect to competition and allows the calculation of visibility indices as predictors for site traffic. But there are different ways of obtaining Internet visibility, and small- and medium-sized hotels must assess the importance of each information search mechanism used by their potential customers. A hotel website can be visible through advertising on other websites. Another important form of Internet presence is through search engines. Other means, like newsgroups or online consumer-generated media, such as Tripadvisor in the tourism industry, are gaining preponderance every year in achieving addition, in the tourism industry, as in so many activities using Internet marketing, the reintermediation phenomenon, through online travel agencies, is gaining strength in tourism product distribution. The overwhelming amount of information on the Internet, customers' lack of trust, frustration at not finding the information sought and the need for an expert's recommendation—all these reasons have meant that the dream of direct communication between client and producer is not always the most attractive option for customers. So, as Internet information grows exponentially, we are seeing the proliferation of virtual intermediaries. Visibility in online travel agencies should be also taken into account.

An interesting tool using objective parameters and combining different search procedures of potential clients for measuring Internet positioning of e-tailers is that proposed by Serrano-Cinca et al. (2010). This scale has 20 parameters grouped in four dimensions: (1) website visibility defined as the number of incoming links to a company's website; (2) search engine relevance, defined as the values provided by PageRank and Yahoo's WebRank, (3) popularity in online newspapers, blogs, forums and shopping portals, measured by the news items referring to the company under study; (4) reputation in shopping portals measured by the ratings supplied by the three main shopping portals. Nevertheless, it is not always clear how to combine all these dimensions in a realistic way. Incoming links, search engines, portals, newsgroups, online intermediaries, social networks, all contribute to achieving online visibility, and their individual importance depends, in our case, on tourists' information search habits. It is for this reason that any measurement tool should reflect the search behaviour of the target market.

5.3.2 Website Design Assessment

An instrument to measure a website's design, attributes, usability and effectiveness is essential in order to manage business-to-consumer e-commerce and to establish a relationship between website characteristics and website performance. In the hospitality sector, where hotels are increasingly making use of the Internet as a marketing tool, professionals and researchers have made great efforts to develop a validated instrument for evaluating websites, their attributes, utilisation and effectiveness. Most of these instruments analyse the design characteristics and or functionalities of the website. Other authors consider other terms for classifying their characteristics, although the underlying concepts are very similar. For

example, Wan (2002) proposes an instrument for evaluating the websites of international tourist hotels and tour operators using three categories: user interface, variety of information and online booking. Muylle et al. (2004) consider four categories: information, connection, layout and languages.

5.4 Operationalisation of the Website Effectiveness Assessment

5.4.1 Sample and Data

The purpose of this study is to assess the effectiveness of the websites of small- and medium-sized hotels in Spain. Spain is the second largest tourist destination in the world and only France has more foreign visitors. About 60 million foreign tourists visited Spain in 2007 (1.4 % more than 2006), spending an average of 865 euros per person. In Spain, the tourism industry represents 12 % of GNP. British people are the most frequent visitors (16.5 million), followed by the Germans (10 million) and the French (9.5 million). The industry has 11,694 hotels and 8,968 campsites. In 2007, 56 % of the hotels with more than 10 employees used e-commerce. In total Internet sales in Spain, tourism products are dominant: 31.7 % were transport tickets (flights, trains, buses and ships) and 11.1 % hotel reservations. Online sales in the tourism industry were distributed as follows: 54 % within Spain, 35 % within the European Union and 11 % in the rest of the world (Telecommunication and information society observatory, 2007).

In addition, due to the method chosen for evaluating online visibility, only 4 destinations were considered: the two main Spanish cities for urban hotels (Madrid and Barcelona), and, for beach hotels, two important coastal destinations (Mallorca and Malaga). Enterprises with more than 250 employees were ignored. The hotels were selected from the SABI database [Sistema de Análisis de Balances Ibéricos, (Iberian balance sheet analysis system)]. The final size of the sample was 95 hotels in order to facilitate the evaluation (18 hotels in Madrid, 16 in Barcelona, 47 in Mallorca and 14 in Málaga).

5.4.2 Online Visibility Scale

The measurement of online visibility must be based on the information search preferences of potential customers. To include these preferences, a deep understanding of tourists' information-seeking behaviour is needed, and the model should integrate all the psychological/motivational, economic and processing approaches of tourists (Gursoy and McCleary 2004). The difficulties found in an objective procedure for imitating an actual tourist's search behaviour can be

overcome by the evaluation of online visibility by real tourists. As the aim was to obtain the online visibility of a specific hotel for an average tourist, a group of 20 people was asked to search for information about hotels in a specific destination. Although there is a number of alternative ways to segment tourist markets using the criteria of profitability, variability and accessibility of the segments (Gonzalez and Bello 2002) and consumer behaviour patterns, the criteria chosen were socio-demographic and economic. The subjects were selected using country criteria, distributing the nationalities according to the Spanish tourism market (10 Spaniards, 4 Britons, 2 Germans, 2 French, an American and a Ukrainian). The ages ranged from 27 to 51, and there were 11 men and 9 women. Their income varied from €18,000 to €85,000 per year. The procedure to establish the online visibility was as follows: 4 independent lists for the 4 destinations studied (Madrid, Barcelona, Mallorca and Malaga) with the commercial name of the hotels provided. Each person had to search for accommodation for a specific destination for 30 min. If, during the process, they found a hotel included in the list they had to write down the exact time. The scores were 4 points for destinations found in the first 5 min, 3 for those found at between 5 and 10 min, 2 points for between 10 and 15 min, 1 point for between 15 and 20 min, 0.5 points for between 20 and 30 min, and 0 points for the rest of accommodation. The results of each subject were added, so that the maximum possible score for a hotel was 80 points.

5.4.3 Website Design Scale

The evaluation of hotel websites was based on 40 attributes proposed by Law and Hsu (2005), grouped in 4 dimensions: reservation information (10 attributes, such as room rates and checking rates and availability), facility information (11 attributes, such as hotel information maps and hotel features), contact information (8 attributes, such as telephone number and address), surrounding area information (5 attributes, such as transportation and airport information) and website management (6 attributes, such as multilingual site and up-to-date information). The choice of this scale and its operativisation is due to its objectivity. Other scales rely too much on user subjectivity and require a sample of Internet users to combine the results and add solidity to the measurement.

The presence of each attribute on the website was counted at 0.75 points, so the maximum score for a website was 30 points. This amount was added to the aggregate scores for the online visibility made by the twenty fake tourists. The final score (from 0 to 120) was the measurement of the website's effectiveness. The maximum value of 30 for the website design scale was established to obtain a balanced score between visibility and design, after checking the values obtained for online visibility (see Table 5.1).

Table 5.1 Means and standard deviations of the hotels' website online visibility

Destination	Mean	s.d.	Minimum	Maximum
Madrid (n = 18)	5.06	7.43	0	30
Barcelona (n = 16)	7.00	9.08	0	28
Mallorca (n = 47)	3.11	5.76	0	23
Málaga (n = 14)	2.64	5.90	0	22

Note n = number of hotels in the list assessed by the fake tourists

Table 5.2 Means and standard deviations of website design scores

Variable	Range	Mean	s.d.	Maximum	Minimum
Website design (40 items)	0–30	25.43	3.31	30	14
Reservation information (10 items)	0–7.5	7.17	0.40	7.5	5
Facilities Information (11 items)	0–8.25	7.06	1.10	8.25	3.75
Contact information (8 items)	0–6	4.8	1.01	6	0
Surrounding area information (5 items)	0–3.75	2.87	0.54	3.75	1.5
Website management (6 items)	0–4.5	3.53	0.61	4.5	1.5

Note n = 95

5.5 Results

The statistics for the hotels' websites online visibility for the four destinations are shown in Table 5.1.

There is a clear difference between the scores for hotels in cities (mean score 6 points) and the seaside hotels (mean score 2.9 points), but in all four destinations, there were just a few cases where the hotel website was found by the fake tourist (maximum score for the four destinations are similar, although the seaside hotel websites were more difficult to find).

The values of the scores for each dimension of website design evaluation are shown in Table 5.2 (Table 5.3).

The website effectiveness scale is the addition of both scales—online visibility and website design. Its mean and standard deviation are shown in Table 5.4.

Table 5.3 Correlations among the dimensions of the website design scores

Variable	1	2	3	4
1. Reservation information	1	0.675**	0.573**	0.574**
2. Facilities Information	0.675**	1	0.839**	0.845**
3. Contact information	0.573**	0.839**	1	0.760**
4. Surrounding area information	0.574**	0.845**	0.760**	1
5. Website management	0.658**	0.839**	0.771**	0.845**

Note n = 95

*p < 0.05, ** p < 0.01 (two-tailed)

Table 5.4 Mean and standard deviation of the website effectiveness scores

Variable	Range	Mean	s.d.	Maximum	Minimum
Website effectiveness	0–120	29.75	7.82	56	21

5.6 Conclusions

Some of these results are interesting. Firstly, good website design is easily to achieve and is already a common characteristic in most of the hotels studied. Second, online visibility is rare, and even for tourists looking for accommodation for a specific location, the vast majority of hotels cannot be reached if you use generic keywords or search for information about a particular destination in a virtual travel community or an online intermediary. Therefore, the positioning in the network can be a source of competitive advantage. Online visibility is difficult to achieve. Most websites are being used as "electronic brochures" rather than being presented as "integrative distribution and marketing channels". They showed weaknesses in attracting customers and were not designed to generate substantial online profits.

To obtain good online visibility, managers need to have a proactive attitude. They must know their market and the search habits of their prospective tourists, depending on country, age, income or lifestyle. In addition, an understanding of the most important means of information searching on the Internet and how to be placed at the more visible points is indispensable. They need to have, or at least consult, technical knowledge on how to gain positions in search engines for a particular set of key words, as 85 % of Internet users find their information through search engines and 58 % use online directories (Drèze and Zufryden 2004). Negotiations with the main online travel agencies or the ones specialising in the specific SMTAE's products must be considered. Special care must be taken to pamper online consumer-generated media. Monitoring and participating in online consumer communities can be beneficial. The online visibility thus gained must be continually cared for and improved because of the fierce competition for the top places in the list of the most visible firms. At the same time, all this must be supported by the opinions of satisfied customers in consumer communities, as this can be a determining factor for prospective tourists.

The online visibility is difficult to attain and this is reflected on its distribution, with only a few websites being found by the fake tourist. The website design distribution is nearly normal, some censoring at the highest value (30 points). This limitation can easily be overcome by adding some restrictive attributes not easy to achieve.

It is important to understand tourists' behaviour and analyse the trends on information searches by potential customers. For future research, it would be interesting to analyse the differences in behaviour for different segmentation. Other segmentations different from the one used in this study and useful for analysis are those based on lifestyle or activities, interests and opinions (González and Bello 2002).

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Chapter 6
Gender in the Elderly Internet Users

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Abstract The world's population is getting older. Despite the stereotypes, the elderly use Internet increasingly more. The aim of this work is to analyze gender influence in the elderly's Internet adoption process. This generic goal results in two specific objectives. Firstly, the Internet adoption process in the elderly is studied. To do so we propose a TAM-based model that will be tested via PLS. The second aim we set out is to analyze the differences in the Internet adoption process that can be explained via considering gender-based divergences. To achieve this we combine multi-group analysis via PLS and the t test for our independent samples. The results obtained partially support the model proposed and point out certain differences between elderly men and women with respect to their perception of ease of use and Internet use.

6.1 Introduction

In the west, and especially in the European Union, population aging is one of the major challenges most of its member states have to face over the course of the next decennia (Peacock and Künemund 2007). According to data of the United Nations (2011), in the world, there are more than 865 million people over 60 years old:

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12.3 % of the world population. At the head per region is Europe with 24.9 % over 60, North America with 21.5 % and South America with 11.6 % Enhanced life expectancy and decreasing fertility rates result in an increased number and proportion of older adults. In brief, it is a growing segment interesting as Internet users.

Internet is being increasingly incorporated into the everyday routines of older adults (e.g., Dennis et al. 2009; Van Deursen and Van Dijk 2010). The negative image of older adults toward technology seems to be an inaccurate stereotype (Mitzner et al. 2010). Yet, younger and older adult users may use the Internet very differently. For example, older adults are more likely to seek health information, make purchases, and obtain religious information, but less likely to watch videos, download music, play games, and read blogs online (Chung et al. 2010). The Internet offers a myriad of contents and services that may enhance the quality of life, social participation, and the societal inclusion of online senior citizens (Czaja et al. 2008).

This work's main aim is to analyze the elderly's Internet adoption process. To achieve this, we develop the research in two phases. The first deals with the Internet adoption process in the segment of the elderly. The second analyze if there are gender differences in the Internet adoption process (e.g., Koopman-Boyden 2009; Pan and Jordan-Mash 2010). To attain this, we have analyzed a sample of people over 50 years old.

6.2 Literature Review

6.2.1 Technology and the Elderlies

The elderly are still under-considered in the technology world and seen as "non-technological" people, although there is no evidence that older people reject technology more than people of other ages. The elderly, like anyone else, accept and adopt technology when the latter meets their needs and expectations (Conci et al. 2009). Older people can be expected to have a different approach to technology than younger people. Because of sensory, motor, and cognitive changes due to aging, older people might need more time to learn, be more error-prone, and need more steps to operate the system (Conci et al. 2009). Mitzner et al. (2010) made a deep study on the use and attitudes of older people toward technology. Their results contradict stereotypes that older adults are afraid or unwilling to use technology.

Although numerous studies suggest that the age gap in Internet use appears to be closing over time, the perception persists that the gap due to age, particularly concerning those over 50, is not decreasing (Nayak et al. 2006). Karahasanovic et al. (2009) pointed to longitudinal trends revealing that Internet use is increasing at the highest rates among the elderly over the age of 55. Much research claimed

that the result of age group discrepancies within Internet usage was not only due to a lower access, but also to a lack of social networks (Iyer and Eastman 2006; Nayak et al. 2006; Reisenwitz et al. 2007), a negative influence of formal Internet skills (Van Deursen and Van Dijk 2010) or the difference in the information needed and sought (Dennis et al. 2009). This is why older people have fewer opportunities to have access to the Internet and other IT. Therefore, they might not fully appreciate the advantages of IT, and hence, their use and acceptation levels would be lower than those of other population groups.

6.2.2 Technology Acceptance Model

Based on the theory of reasoned action, technology acceptance model (TAM) suggests that users' acceptance of technology is driven by users' beliefs about the consequences of that usage. In particular, TAM predicts that users embrace a new technology when their perceptions of the ease of use and the usefulness of technology are positive (Davis 1989). Since TAM, several revisions and expansions have developed the original model. The most popular developments have been TAM2 (Venkatesh and Davis 2000) and TAM3 (Venkatesh and Bala 2008).

TAM has been tested with little attention to moderating factors (Sun and Zhang 2006; Yousafzai et al. 2007a, b) although a few studies called for the need to collect data on potential moderators and criticized the lack of analysis of moderating effects. Sun and Zhang (2006) explained that the inclusion of moderators could help improve the model's explanatory power and overcome the inconsistencies of relationships among key variables found in previous studies. In particular, the effect of age on TAM has received little attention (Sun and Zhang 2006) although some researchers suggest its significant role in decisions about technology adoption (e.g., Porter and Donthu 2006) and emphasized the danger of an increasing digital divide between generations (e.g., Chung et al. 2010).

6.2.3 Gender, Technology and Elders

Concerning gender, it has been suggested that technology adoption differs between males and females. Men tend to be more task orientated (Minton and Schneider 1980), systems orientated (Baron-Cohen 2004) and more willing to take risks than women (Powell and Ansic 1997). In line with the task-orientation difference, Venkatesh and Morris (2000) found that men's decisions to use a computer system were more influenced by the perceived usefulness than were women's. On the other hand, in line with the systems-orientation difference (Felter 1985), women's decisions were more influenced by the ease of use of the system (Venkatesh and Morris 2000). Therefore, gender can be considered as a moderator in relationships between various aspects of behavioral outcomes (Cyr and Bonanni 2005).

Given that females have traditionally expressed more negative attitudes and greater levels of anxiety toward computers than males (Nayak et al. 2010), less self-perceived competence and a lower ease of use perception with respect to Internet (Wood et al. 2010), Internet use may be influenced by gender. However, previous results about the moderator role of gender are not conclusive. In the one hand, researchers find gender-based differences in Internet use, such as Morahan-Martin (1998); Lee (2006). Nevertheless, on the other hand, some authors do not find any differences across genders (eg. Shaw and Gant 2002; Ono and Zabodny 2003). These inconsistent results call for a deep understanding of some aspects related to the gender gap in the Internet use that remains still in the shadow.

6.3 Hypotheses and Research Model

TAM has been widely applied to many areas of study (beyond the organizational context) on the IT adoption of the elderly (e.g., Chung et al. 2010; Ryu et al. 2009). This study adopts four main constructs from the original TAM model: perceived usefulness (PU), perceived ease of use (PEOU), intention to use (BI), and usage behavior (USE) constructs. The original TAM model has been improved with contributions from TAM2 and TAM3. The result demonstrability (RES) construct has been taken from TAM2 (Venkatesh and Davis 2000). This is defined as the degree to which an individual believes that the results of using a system are tangible, observable, and communicable. RES acts as an important antecedent of PU. Moreover, the perceived enjoyment (ENJ) and perception of external control (PEC) constructs have been taken from TAM3 (Venkatesh and Bala 2008). ENJ is defined as the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use. PEC is defined as the degree to which an individual believes that organizational and technical resources exist to support the use of the system. On the other hand, both ENJ and PEC act as precedents of PEOU. Using the mentioned literature as a basis, we formulate seven different hypotheses summarized in the Fig. 6.1. In addition, we formulate two more hypotheses for the moderator role of gender as follows:

H8a: There are statistically significant differences in the values attained by the constructs analyzed for the elderly according to their gender.

H8b: Gender affects the intensity of the relationships between the constructs analyzed in the model proposed.

6.4 Methodology

Data were collected using a survey conducted during the teaching hours of the "Class of Experience" (*Aula de la Experiencia*), where the collaboration of the students of the four levels of the program was required. One requirement to be

enrolled in the program of the Class of Experience is to be at least 50 years old. Data collection was conducted during the months of March and April of 2011. Finally, we collected 302 questionnaires (181 females and 121 males) of Internet users.

The measurement scales applied have been widely tested in previous research. Specifically, the scales proposed by Venkatesh and Bala (2008) have been adapted to measure the TAM constructs. The USE scale used was the one used by Kwon and Wen (2010). All items were anchored on a 5-point Likert scale, except for socio-demographic and other variables related to computer use and the Internet. To eliminate possible ambiguities in the questionnaire, it was piloted using seven older adult volunteers.

6.5 Results

The SEM analysis was carried out by constructing a measurement model and a structural model. The measurement model analyzes relationships among a set of observed variables and a predetermined number of latent variables. Reliability was tested using construct reliability and item reliability. Having ensured that the scale was reliable, the next step was to check the construct validity. The measurement model was then evaluated and finalized before the structural model was evaluated.

6.5.1 Measurement Model

To assess the constructs, we analyzed convergent validity, discriminant validity, and the reliability of all the multiple-item scales, following the guidelines from previous literature (e.g., Fornell and Larcker 1981). The measurement properties are reported in Table 6.1.

6.5.2 Structural Model

The assessment of the structural model involves estimating the path loadings and the R^2 values. Path loadings indicate the strengths of the relationships between the independent variables and the dependent variable, while R^2 values measure the predictive power of the structural models. Interpreted as multiple regression results, the R^2 indicates the amount of variance explained by the exogenous variables. Using a bootstrapping technique, we calculated path loadings and t statistics for hypothesized relationships. The results are shown in Fig.6.1.

Results of the PLS analysis for the model with the subgroups are shown in Table 6.2. As with the complete model, hypotheses H1, H2, H3, H4, H5, H6, and H7 have been accepted.

Table 6.1 Reliability and validity

Construct		Items	Loading
Behavioral intention (BI)	AVE: 0.659	BI1: Assuming i have access to internet, i intend to use it	0.680
	Composite reliability: 0.851	BI2: In the event of my having access to internet, i predict that i would use it	0.876
	Cronbach's alpha: 0.734	BI3: I plan to use internet in the next months	0.864
Perceived enjoyment (ENJ)	AVE: 0.864	ENJ1: I find using internet to be enjoyable	0.927
	Composite reliability: 0.951	ENJ2: The actual process of using internet is pleasant	0.930
	Cronbach's alpha: 0.923	ENJ3: I have fun using internet	0.936
Perceived ease of use (PEOU)	AVE: 0.635	PEOU1: My interaction with internet is clear and understandable	0.795
	Composite reliability: 0.874	PEOU2: Interacting with internet does not require a lot of my mental effort	0.741
	Cronbach's alpha: 0.808	PEOU3: I find internet easy to use	0.821
		PEOU4: I find it easy to get internet to do what I want it to do	0.826
Perceived usefulness (PU)	AVE: 0.620	PU1: Using internet improves my performance in my job	0.856
	Composite reliability: 0.867	PU2: Using internet in my job increases my productivity	0.718
	Cronbach's alpha: 0.798	PU3: Using internet enhances my effectiveness in my job	0.766
		PU4: I find internet to be useful in my job	0.803
Perception of external control (PEC)	AVE: 0.680	PEC1: I have control over using Internet	0.886
	Composite reliability: 0.864	PEC2: I have the resources necessary to use internet	0.747
	Cronbach's alpha: 0.764	PEC3: I find it easy to get internet to do what i want it to do	0.835
Result demonstrability (RES)	AVE: 0.740	RES1: I have no difficulty telling others about the results of using Internet	0.846
	Composite reliability: 0.919	RES2: I believe i could communicate the consequences of using Internet to others	0.835
	Cronbach's alpha: 0.883	RES3: The results of using internet are apparent to me	0.861
		RES4: I would have difficulty explaining why using internet may be or may not be beneficial	0.897
Use of SNS (USE)	AVE: 0.740	USE1: I tend to use internet frequently	0.838
	Composite reliability: 0.895	USE2: I spend a lot of time on internet	0.879
	Cronbach's alpha: 0.826	USE3: I exert myself to use internet	0.863

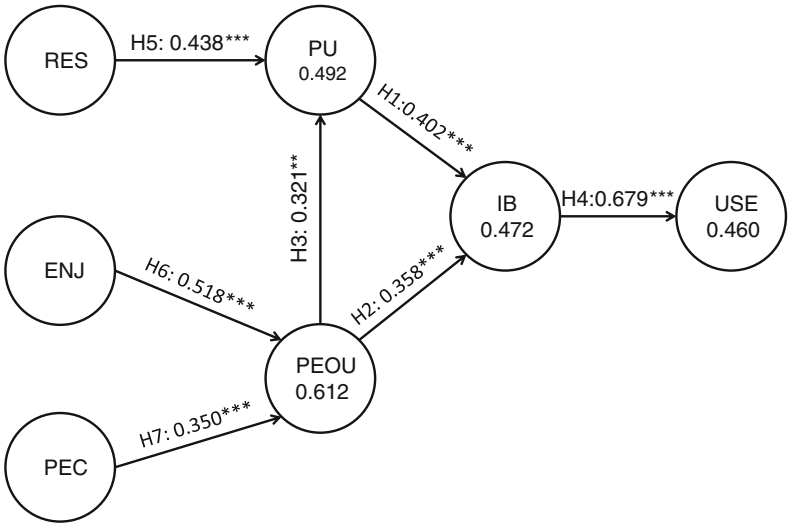

Fig. 6.1 Structural model

Table 6.2 Path coefficients

Path	Males	(Sig.)	Females	(Sig.)	t-spooled	(Sig.)
PU → BI	0.534	***	0.352	***	0.21416	n.s.
PEOU → BI	0.283	***	0.383	***	−0.19369	n.s.
PEOU → PU	0.437	***	0.247	*	0.19081	n.s.
BI → USE	0.715	***	0.656	***	−0.22414	n.s.
RES → PU	0.449	***	0.428	***	0.27257	n.s.
PEC → PEOU	0.570	***	0.469	***	0.03230	n.s.
ENJ → PEOU	0.298	**	0.417	***	0.37990	n.s.

Statistically significant: n.s. no significant; *p < 0.05; **p < 0.01; ***p < 0.001

From this table, we can reject hypothesis H8b, and no statistically significant differences between men and women have been identified in the proposed model of Internet adoption. To verify whether there were significant gender differences between the measurements of the constructs, the t test for independent samples was required. The results are shown in Table 6.3.

The results point out significant differences in four of the seven constructs analyzed. These results partially support hypothesis H8a.

Table 6.3 Measurements and *t* test for independent samples

	Gender	Mean	Standard deviation	Standard error	t test for independent samples
PU	Male	3.84	1.115	0.101	#
	Female	3.67	1.179	0.088	
PEOU	Male	3.87	1.033	0.094	*
	Female	3.56	1.001	0.074	
RES	Male	4.04	1.003	0.091	**
	Female	3.92	0.978	0.073	
ENJ	Male	3.99	0.955	0.087	*
	Female	3.84	1.130	0.084	
BI	Male	3.87	1.032	0.093	
	Female	3.66	1.084	0.080	
USE	Male	3.47	0.968	0.088	
	Female	3.18	1.083	0.080	
PCE	Male	3.75	0.991	0.090	
	Female	3.62	1.001	0.074	

#p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001

6.6 Discussion and Conclusion

The current work analyzes the influence of gender on the elderly's Internet adoption process. This has been achieved in two phases. In the first, we have based ourselves on a TAM model. In the second phase, we have set out to analyze the differences due to gender.

Regarding the first, this is, the analysis of the elderly's Internet adoption process, the results obtained lead us to various conclusions. Firstly, regarding the analysis of the measurement scales, we must highlight the suitability of the items. Secondly, with respect to the results of the structural model, we must stress the high coefficients of explained variance in the majority of the endogenous variables. The variables contributed by TAM2 and TAM3 behave as significant antecedents of the constructs included in the original TAM model. Thirdly, and connected with this, the results support all the hypothesized relationships. We wish to emphasize the achievement of this first phase in the face of the clear lack of studies that have adopted TAM with the elderly or, in any case, use the variables but do not deal with the relationships that the model proposes (e.g., Lee 2006; Nayak et al. 2010). To sum up, the results support the suitability of taking the TAM models as a basis for elders' Internet use adoption.

With respect to the second step, that is analyzing the role of gender within the population of the elderly, hypotheses H8a and H8b were proposed. Regarding the first of these, the average scores of the constructs obtained by men were higher in all the cases than those of women. Significant mean differences have even been found in the constructs: PEOU, PU, RES, and ENJ. On the other hand, when testing H8b, significant differences were not found in the paths between elderly

men and women. That is to say, the TAM model proposed is consistent across groups.

On average, men perceive Internet as easier. Likewise, men point out enjoying themselves using Internet more than elderly women, and the latter show higher scores when demonstrating the results obtained by Internet use. Our results are in line with those of Venkatesh and Morris (2000), who recorded significant mean differences between men and women, without age being considered, for the variables PU, PEOU, BI, and USE. Similar results have been offered by Pan and Jordan-Marsh (2010). They found that male seniors in China were more likely to use the Internet than female seniors; however, they did not find differences in terms of the intention to use the Internet across gender.

In general, the results obtained support the idea of Grimes et al. (2010) who propose the need not only to facilitate the access of this population group, but also to combine it with increasingly more sophisticatedly designing interfaces that simplify the navigation even for the most inexpert users. In this sense, it would consider the different perception of ease of use by both sexes. This would lead to a reduction in the digital gap between genders in the elderly.

We can suggest different implications for management. Firstly, it seems important to consider the elderly as a group with a heterogeneous behavior as Internet users (Hill et al. 2008). The elderly make up different subgroups and are differentiated at least in terms of gender, as the results obtained verify consequently TAM's variables, jointly with gender could be used in further research as a basis for segmentation. An interesting approach could be to classify elders considering their levels of Internet adoption and demographics and capture the heterogeneity of some behaviors related to Internet use such the adoption of mobile commerce, electronic commerce, the use of specific hardware—such as tablets. Nevertheless, it would be appropriate for firms that offer online services to consider other variables such as, financial status, values and lifestyle, the prior occupational level or the educational level, and other characteristics associated with the behavior of the elderly as e-consumers.

Finally, we would like to point out some limitations of our work. Firstly, we have used a non-probabilistic sample. This makes difficult to generalize the results. In future research, we hope to have access to other segments of the elderly via a probabilistic sample, as well as to analyze other variables such as cognitive age or health condition. These factors could influence the behavior of the elderly in Internet.

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Chapter 7
Search Engine Optimization and Ethical Leadership Strategies

Francisco J. Lara

Abstract The information technologies and media organizations embody the twin challenges of business ethics and leadership strategies. This chapter study of ethical leadership strategies (ELS, in advance) in media company management and their relationship with the search engine optimization (SEO, in advance). Analysis of the strategies and tactics used in the SEO and its results in the medium and long term. Comparative of ethical and unethical behavior in organizations based on information technologies. Deep studies through the strategies followed by search engines recognized in the market for information management. Analysis of the correlation between ethical behaviors in Web positioning strategies, and tangible and intangible results at information based organizations. This correlation would partly explained by a number of key factors such as integrity, commitment, people orientation, and transparency in communication. Finally, this chapter establishes a user guide that enables companies to have basic reference information on which to act at the strategic and operational on the SEO of your organization, taking into consideration the ethical codes of behavior.

Keywords Search engine optimization · Ethical leadership strategies

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7.1 Introduction

The goal of this chapter is not only new in the academia but also tries to link two current issues such as search engine optimization, or SEO in advance (Sullivan 1996; Carroll, 2010; Gonzalez 2011), and Ethical Leadership Strategies or ELS in advance (Trevino, Brown and Hartman 2003; Brown and Trevino 2006; Freeman and Stewart 2006; Melé 2012; Lara 2012). While there are some academic articles on both subjects, though not many, we found no literature, both academic and professional, linking or study the relationship between the two. This situation increases the interest of this research.

The overall objective of this chapter is to analyze and develop strategies and tactics used by news organizations. More specifically, given its large market share, we will analyze in detail the Google's case study, in relation to two concepts: SEO and ELS.

After analyzing the industry through case study, we present a proposal for user guide that allows news organizations have some basic references, non-exclusive, but to adapt to each particular case in a way, that will allow to act taking into account both strategical and operational Web positioning at any organization.

Specifically, we want to study the relation and correlation between the introduction of ELS in certain organizations, or not, and how it affects to SEO. Providing a theoretical and practical framework, we try to demonstrate that ELS is positively correlated with good strategies of SEO through a variety of factors such as integrity, commitment, people orientation, and transparency.

After this brief introduction, the chapter is divided into three sections. The first section analyzes the background and history of the concepts discussed, followed by a theoretical study on the concept of SEO, which will also see its brief history and background, the key factors of itself, and a number of best practices generally accepted. Secondly, we discuss the concept of ethical leadership, and we try to link with SEO strategies and tactics by analyzing the ethical and unethical behaviors, and its consequences. Finally, we close the chapter with a conclusions and future research on the subject.

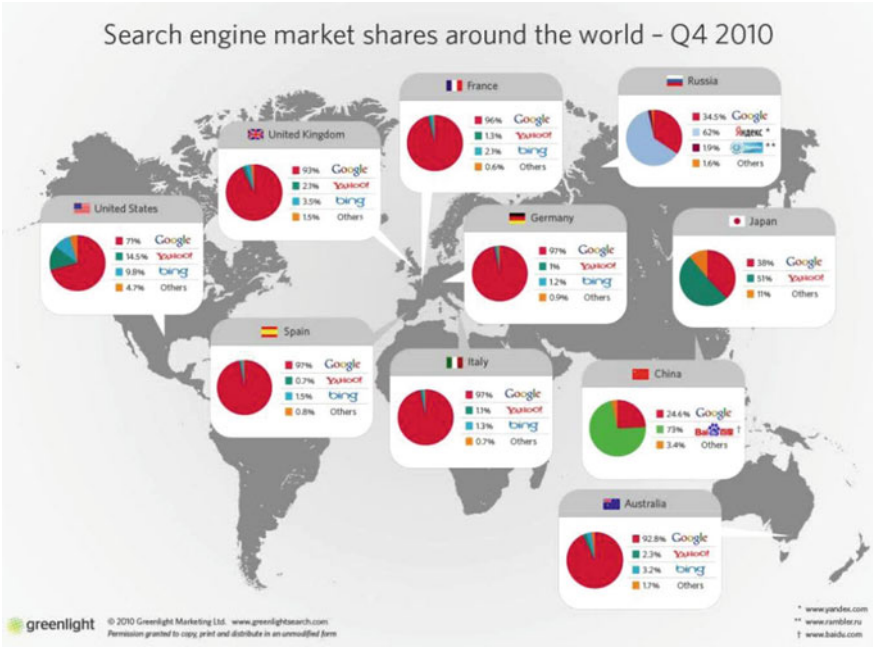
7.2 Brief History

We begin by defining some basic concepts and their origins, as Internet search engines. **Internet search engines** are services offered through Web pages. Its function is to obtain the best results correspond to the keywords that the user has inserted. There are two types of Internet search engines: directories and search engines. The first are a set of pages that are ranked according to several criteria. The most recognized one is DMOZ. DMOZ (for directory.mozilla.org) is also known as Open Directory Project (ODP). This is a multilingual collaborative project in which volunteer editors listed and categorized links to Web pages. Founded in 1998 by Rich Skrenta and Bob Truel, the original name was Gnuhoo.

Many search engines such as Bing, Yahoo, and Google regularly track to add these new pages to its database, although not used much lately.

As Internet grew, it was also increasing the number of users and contents. It was necessary to allow us to find something on Internet what we were looking for. This did not happen until 1993 when appeared the first search engine called Wandex. A year later appeared AltaVista, Yahoo, Lycos, and Excite, among others. Google did not appear until 1996. But at present times, the market share of browsers worldwide is the following: 95.7 % for Google, 2.1 % for Bing, and 1.7 % for Yahoo, as you can see in the next picture.

Given that Google's dominance, our research will focus primarily on the study of this case in depth, since the conclusions that we draw apply clearly significant for the vast majority of organizations and therefore also for communication and information businesses. Such is its importance today than the Britannica Encyclopedia has introduced a new verb "to Google" that means to write something to find in a search engine. The word "Google" comes from "googol" word coined by mathematician Edward Kasner in 1938 and means ten to the hundred, trying to represent something like the symbol mathematically infinite. The Google reality is manifested in a series of data: in particular, in Belgium, Google takes 85 % of the market, in Denmark 83 %, in France 90 %, in Germany 89 %, in Italy 80 %, in the Netherlands 80 %, in Norway 62 %, in Sweden 61 %, in UK 83 %. Average in the EU is 83 % of the market, while in the USA only 70 %. However, the most surprising data are that in Spain, Google holds 95 % of the market. The conclusion, talking about SEO, is talking about Google.



To make matters interesting, I think this link clearly explains how Google works inside: “How Google Work” (Cutts 2010).

7.3 Search Engine Optimization: Web Positioning

Nicholas Carroll (2010) states that “SEO is the art of raising Web site (corporate or individual) to high ranking positions on the Internet, through search engines and programming, marketing or alertness or insight of the content.” This definition also includes specifications sometimes increased traffic on a Web site, improving the quality of that Web traffic, increasing the benefits thereof, or of knowledge and brand recognition.

From the point of view of media and information companies in particular, the SEO is often associated with top positions in more prestige search engine rankings. That is, that a Web site appears among the first 10 or 20 results. SEO professionals often discuss the rankings in terms of position search engine results page (SERP, or results pages of search engines).

In this connection, it is interesting what Gonzalez (2011) said regarding the percentage of clicks that occur as a result of a Google search. Using the “Heats Maps” can be seen that statistically 50 % of users click the first link, 25 % also click the second, and the remaining 25 % of the search results are selected from the third onwards. That is, the importance of the position of the Web is vital to the success of any organization that moves at least in a virtual environment. And we are living nowadays in a **digital economy** afterward.

Before accepting payment for search engine ads, search engine optimization was considered the only form of promotion on the Web. This meant a radical difference from traditional forms of advertising. However, currently, it comes to Search Engine Marketing (SEM), unlike the “organic search” or “natural search” as opposed way to paid advertising for the position of ads on pages. It was the traditional or dominant search engines strategies before.

The SEO serves, therefore, to get visits by the terms (keywords in searches) for which we want a Web site appear in search results of search engines. In other words, the process of improve the visibility of a Web site in different search engines. The task of optimizing the structure of Web site, contents and use of various techniques of “link building” or “linkbaiting” in order to appear at the top of search engine results.

E-commerce was the original force that was behind the promotion of search engines and remains the dominant force behind the first SEO. Non-governmental organizations (NGOs) and government agencies apply some methods or methods of SEO, but they tend to relegate its importance because of its unique identity in the public domain that claimed to have no competition. This gives them security of a dominant position or prominent positions in the SERP.

- ***History of SEO***

The term "SEO" (search engine optimization) became popular after 1998, and it is often attributed to Danny Sullivan (1996), during that time working in "Search Engine Watch" (observatory of search engines). But as Sullivan says it is unclear who coined the term. Evidence of the use of similar terms and in 1997 by Jim Rhodes, author of "The Art of Search Engine Promotion", which included terms like "search engine placement", "search engine ranking", "search engine positioning", and "search engine promotion". Predecessors as Jim Health in his article entitled "Pointers on how to create business Web sites that work" did not formally mentioned the name of SEO or search engine optimization.

The period since the mid-1990s to early twenty-first century was characterized by extensive experimentation in business models related to the search engines and Web designers trying to promote each other. Search engines were relatively underdeveloped, and the main focus of attention was focused on maintaining the growth of new Web pages. SEO quickly became part of the wild World Web, where Web site owners competed fiercely with various methods to achieve better positions in search engine rankings, described as "SEO methods". A period where many multinational organizations had not even their own Web site.

As search engines grew and became more sophisticated, the number of sites increased more than tenfold, so that the relevance of the rankings in the search engines became important, and just as the criteria and methods to manipulate them.

- ***Professional SEO Software***

The first promoters and reporters from the search engines were individual efforts, primarily developed by small and medium enterprises such as hotels and manufacturers of sports equipment.

This niche market was extremely successful and popular such products, demonstrating that the SEO was part of the cause of their benefits.

From 1996 started appearing Web sites with forums to exchange SEO strategies such as

- www.virtualpromote.com
- www.searchengineforums.com
- www.deadlock.com/promote

Web sites reporting on search engine optimization and started at the same time as follows

- www.wilsonweb.com
- www.searchenginewatch.com
- www.webmasterworld.com

More recently include the following

- www.seobook.com/blog
- www.searchengineland.com
- www.toprankblog.com/search-markenting-blogs

Pure consulting firms in the hundreds SEO, first concentrated in the USA and UK. While it is true that they are still hundreds of thousands of Web designers and software developers, many of them being derived from its activities toward the implementation of SEO methods to their own Web sites.

- ***Black and White Hat SEO***

"White Hat SEO" traditionally refers to strategies and tactics that are consistent with the policies of search engines, in a tacit agreement to provide Web users with relevant content with your search. *"Black Hat SEO"* describes strategies and tactics that usually ignore the conventions of ethical behavior of Internet for business and/or personal interests.

The technically sophisticated strategies and tactics are often equated with the "Black Hat SEO", while focus to high-quality content is usually related to the "White Hat SEO". However, the issue is highly controversial, both from a technical point of view and ethical and aesthetic. From user point of view, the main criteria for legitimate SEO are that search results obtained relevant to their interests, regardless of how it was made the process of sorting the results. But this behavior and criteria are not always a valid from the ethical point of view.

Normally, the methods considered "Black Hat SEO" develop faster and get high ranking Web pages, while known as "White Hat SEO" tends to create classifications that remain longest in good positions. Therefore, preference for other strategies also depends heavily on user interests and objectives in the short, medium, and long term, and therefore, the business model is behind.

It is said that the Black Hat SEO initially is directed toward business models focused on the short term, with a high turnover of products or services, and high replacement products. By contrast, the White Hat SEO is better designed and would be more appropriate to the sites that offer products with long life cycles, as well as Web pages or academic agencies, which in principle will be consistent over time. However, these last few pages usually acquire a high ranking simply by the quality of content that tend to introduce, as well as the very old.

- ***Factors in SEO***

The position is focused on Web browsers, but since Google is the one with more quotas, we will focus on the specialist. Google works with about 200 parameters and only they know the weight of each one. Yet by experience in SEO, we can give some parameters that have been successful: the links or hyperlinks, domain name system, uniform resource locators, metadata, page rankings, and age of domain, among others.

1. ***Link (Link or Hyperlink)***: This is one of the most important. Technically, a link is an open-source Web browser in text mode and graphics. The original version was developed by Mikulas Patocka in 1999. But here we refer specifically to the "Hyperlinks" in relation to the references in a hypertext document to another document or resource. It is therefore an element of an electronic document that refers to another resource in the same document or a

different one. Search engines like Google or Yahoo use the links as a measure of popularity to determine which pages are to appear at the top of a specific search. The more links pointing to a specific page, the higher may be the positioning of the page in a browser.

2. ***DNS (Domain Name System)***: The domain name is one of the factors have more weight. The Domain Name System (DNS in advance) is a hierarchical naming system for computers, services, or any resources connected to the Internet or a private network. Its most important function is to translate names intelligible to humans in binary identifiers associated with network-connected machines, all with the purpose of locating and addressing these devices world. Its creator was Paul Mockapetris in 1983 in collaboration with Jon Postel of the University of Southern California, along with Paul Vixie, the Institute of Information Sciences (ISI).
3. ***URL (Uniform Resource Locator)***: Web pages have URL ("Uniform Resource Locator"). That is, uniform resource locators, which are used to locate Internet resources for the location or identification, such as text documents, images, videos, or presentations. Used initially by Tim Bernes-Lee in 1991, allows document authors to create links or hyperlinks. Therefore, the URL is the character string which is assigned a unique address for each of the information resources available online. The URL of a resource of information is its Web site, which allows the browser to find and display the right way. So, the URL combines the name of computer that provides the information resource, the directory where the file name and the protocol used to retrieve the data.
4. ***Metadata***: Metadata is data-focused search engines, and they are involved in the html code of a Web page. By combining the Greek ("meta": after, beyond) and Latin ("datum": it is given), literally "about data" is data that describes other data. In general, a metadata is a data set that refers to another data set, called "resource." The concept of metadata is analogous to using indexes to locate objects rather than data. Within the metadata, we focus on HTML metadata. These labels have information on the paper Web itself: author, editor, and encryption. This information helps search engines to find the subject that the information on a Web site is about and they are very useful for SEO, when a user searches for a keyword in the search. There are several types but basically uses two: description (in this field, we fill in a description) and keywords (this field will add the keywords).
5. ***PageRank***: PageRank was invented by Google founders Larry Page and Sergey Brin at Stanford University in 1998. This factor measures the importance of a page. So to say when another page links to us, we spend some proportion of their weight. If a page A has a PageRank 4 and has 4 links pointing to pages C, B, D, and E, each of them would pass a weight of 1. If instead of having four links have 400 links, the value will be 100 times lower, and if the PageRank were 1, the value of the page will be 4 times less.

   PageRank relies on the democratic nature of the Web by using its link structure as an indicator of the value of a particular page. Google interprets a link from a page "A" to a page "B" as a vote from the page "A" to the "B". But Google

looks beyond the sheer volume of votes or links a page receives. It also analyzes the page that casts the vote. Votes cast by pages considered "important", with a high PageRank, are more valuable and help to make other pages more "important". To sum, the PageRank of a page reflects the importance of the Internet Web. It is interesting to note that PageRank taken as a reference source and model of the Science Citation Index (SCI) produced by E. Garfield of the Institute for Scientific Information (ISI) in the USA in 1960.

6. ***Age of the domain***: It is important that the domain has enough time, pages that have been operating a number of years have preference over those who are younger. The pages that are newly created are often penalized in the first year. This penalty is gradual factor, which applies more clearly at first, until gradually disappearing.

- ***Best Practices for SEO***

1. ***Original content***: It is that the contents are original. Make a copying article from other Web sites has been attempted by many people and usually does not work. Instead, Google rewards original content. The more original content more searches. Although not exists fully significant correlation because there are many other factors. We cannot expect to get a thousand hits a day with a Web with 5 items or articles. However, if we have a Web site with hundred original articles, a thousand visits are virtually assured.
2. ***Patience and vision in the medium and long term***: We cannot expect that a Web site appears for the search terms that we look for from one day to another. When we talk about positioning usually takes a period of two to three months.
3. ***Indexing in Google***: It is very important to make sure you are indexed by Google. This is done with the command: "site: nombredepágina.com". If you are not indexed, you will not appear in search listings.
4. ***Study your changes***: When we make a change on our Web site often has consequences. We must be aware that changes have benefited us and what changes we have not been going well.
5. ***Regular updates***: Updates are rewarded by Google and will allow us to overtake the Web sites that are not made in the search results.
6. ***HTML errors***: Almost all the pages tend to have html errors. A page with clean html code and error with a simple structure for search engine robots will have fruit in the form of a good position. For example, the Web http://validator.w3.org/http://validator.w3.org/. It is a tool that detects errors in our code. We see that even very popular sites with millions of visits are not free of these errors.
7. ***Sitemap***: There are some tools that allow us to create maps of our site, which is more than all the URLs on a page. There are options to send this map to Google or Yahoo.
8. ***Social networks and forums***: In addition to direct visits to get through these means, we can get links to our Web site, which benefits us. Will also serve to

get us quote and let us know in the network. Groups and forums should be related to our subject and should not be overly burdensome.

9. ***Take care of metadata***: When you write articles, put in capital letters or bold words what is most important. Be ordered; think about the words associated with the metadata of the article.

7.4 Ethical Leadership Strategies: Google Case Study

References focus on existing academic literature related to the "Business Ethics" (Treviño and Weaver, 1994). Subsequently, focusing for brevity on the "Ethical Leadership" highlights the references focus on case studies like ours (Brown and Treviño 2006). However, there are numerous references to the regulatory treatment (Ciulla 2000, 1998; Freeman 1994; Freeman and Stewart 2006; Rost 1995). The interesting thing is that recent studies show an association between ethical leadership and organizational performance, namely (a) increasing employee engagement, (b) reducing ethical behavior in organizations, and (c) the value orientation of organizations with corporate ethics programs (Treviño et al. 1998). We propose in this chapter a new concept: Ethical Leadership Strategies (or ELS in advance) to sum up previous concepts with news strategies in SEO.

Because of the dominance of Google, sometimes implies an ethical dilemma, because someone could consider unfair competence, and therefore unethical, the user guides that Google Webmaster seeks to impose. Therefore, the discussion is served. Is it ethical or not to use different strategies and tactics even though they were penalized by Google? Is it ethical or not to use these strategies we have called "Black Hat"? Many people try to fool Google by various techniques we will discuss below the more usual, but at the same time, we have to advertise about the consequences:

- ***Domains short***: If Google sees that the domain is reserved for only one year, may suspect that there will be a page long and thus may raise a suspicion of possible spam.
- ***Duplicate content***: Many people try to get more visits by the famous "Copy and Paste". When Google detects that a page has many articles from other sites is activated an alarm that can trigger a penalty to that domain.
- ***Sale and purchase links***: To increase the PageRank, many companies offer to place links pointing to your pages in exchange for money. When Google detects this activity is causing an alarm and can penalize this page.
- ***Hidden text or hidden links***: Sometimes to climb by a keyword often create texts like "cheap car, buy cheap cars, cheap cars best". These techniques serve to increase by a certain keywords. But because is very wrong that users see that, often put the same color as the background or zero length so users cannot see it.

This is considered a hoax, and if detected, the elimination is almost certain. This technique is also used with links. List of links that we do not want users see.

- ***Excessive use of keywords***: Many times, we want to position for a given keyword. For that goal, many users abuse too much to repeat a word. Example: imagine that a user who is looking to position for "cheap travel in Colombia". A text may be penalized would be this:
  "ARTIP.CO is a cheap travel company in Colombia. If you want cheap travel in Colombia ARTIP is the company that has the best cheap travel in Colombia".
- ***Redirects or doorway pages***: Some companies want to get more visitors, and they continue to the following technique. I build 5 pages to be redirected to mine. When the user enters these pages automatically or almost automatically redirected to the official Web site of the company. This technique is not considered ethical and is penalized by Google.
- ***Links to banned pages***: If you have links pointing to pages that can be banned or suspected of being related, thus Google would penalize. Similarly, if many pages point to your site banned, it is likely to come into the list of suspects Google.
- ***Google Webmaster Guidelines***: Everything that does not meet design guide Google as not using friendly URLs, or several directions using the same content, repetition of metadata, use flash or frames, hurts your SEO.
- ***Massive link campaign***: Link campaigns can be good for SEO on the Web, but can also be harmful. In case we have an unnatural growth, it can backfire. If in a month we have 3 new links, the next 300, the next 4, and the next 700, Google will detect that there is fraudulent activity.
- ***FaceBook, Twitter, and other flows of inputs***: When starting a Web page usually begin with great enthusiasm. We created the template, get links, write original text, and put it all ready. After that Google index our Web site, we prepare to receive hundreds of visits and the surprise arise. The surprise for some time is called Google Sandbox. When we started a Web site, the first thing you have to do is prove to Google that you are not a SPAM page. There are filters that only penalize us for being a newly created Web site.
- ***Adwords, affiliation networks, and online advertising***: A fairly widespread strategy to attract visitors is online advertising. There are many programs to put advertising on the Internet, but again the undisputed leader returns to be Google Adwords. Adwords allows us to place text ads, graphics, videos, applications in million of Web sites worldwide. You can pay per thousand impressions or per click of a user. The price of the click depends on some variables (language, industry, competition, etc.). For example, it is logical that an ad for a car costs more than one food commercial birds. The affiliate networks are Internet platforms that allow users to make our ads have on their Web site a commission for each sale, registration or any target that we set. The most famous is called Zanox.

7.5 Conclusion

In this chapter, we discussed the origins and history of SEO and the basic concepts necessary to put us in a language not always easy to understand. The existence of ELS in the boards of these organizations not only has positive results in the short term, but also reinforces its position in the medium and long term, with important consequences in the degree of commitment achieved among the partners and employees, in the reduction of unethical behavior in the organizations, as well as the establishment of a corporate culture oriented to values.

This chapter shows a series of practices and strategies for SEO, differentiating in particular the strategies known as "Black Hat" of the "White Hat". Although the use of one or the other has his doubts from the ethical point of view, there are several guidelines established by the positioning guide for Google, which holds a position of market dominance (and therefore a monopoly), no doubt from aesthetic point of view, would be recommendations to follow to get a quality SEO. Above all, we will prevent our Web site disappear from the main quest, because by the time they were detected such strategies and tactics by the managers of Google, our site would be relegated to the last positions. However, it remains an open discussion about the use or abuse of alternative strategies from the ethical point of view to a monopolistic position as the current situation in the browser market.

There are many limitations of this chapter, and it certainly has tried to make a first approach to the subject. Given the limited literature on the subject, both SEO and ELS as a new concept to use in the literature, opens the possibility to continue further with more rigorous studies from the academic point of view as well as from the professional approach.

Finally, it would be interesting to investigate the use of ELS or not, in order to give a better position to favorable or unfavorable information appearing in the media. Of course, the most interesting part of this future line of research would be also examine the consequences of this strategies, to develop a best practice guide based on experience, for the moment is obviously limited.

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Chapter 8
Search Engine Ranking: A SEO Strategy

Enrique Simarro Sanchís

Abstract Internet means immediacy. Whatever happens now is almost instantly no longer valid, so being well ranked in the search engines is as ever of paramount importance. This is particularly relevant in the media, as a source of information for the user. If your competitors are better ranked than you are, you lose out on users, visits, pages visited and, consequently, you generate less income. Therefore, big media groups increasingly develop their SEO strategy in the short, medium, and long term, in order to be highly ranked in each and every search engine, which is something that involves different elements in the productive process. Our case study shows how a reputable newspaper improved its SEO strategy for its online edition so as to become more competitive and raise its ranking against its competition.

8.1 Search engine optimization

According to the Interactive Advertising Bureau:

> *SEO (Search Engine Optimization) is the practice of using a range of techniques, including html code rewriting, content editing, site browsing, link campaigns and other actions, with a view to improving the positioning of a website in the search engine results for specific search terms.*

In other words, we could say that this process is about listing a Web page, indexing its content and ranking it in a privileged position in the different search engines in order to improve its visibility.

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When we refer to visibility, we do so from two different viewpoints:

- Seeking the best ranking for our Web site in the search engine results page, i.e., as close as possible to the first search result for a particular term (e.g., car hire in Valencia).
- Getting the best audience possible for our business and the most appropriate in terms of our target group.

But why is coming up first, fifth, or twentieth so important? The answer is quite simple: Of all, the Internet users who search for information on the Web through these search engines, only 40 % get to the second results page and only 10 % get to the third.

Therefore, search engine rankings become particularly important in a virtual environment. The ranking we may have in the search engine results with respect to our competitors, for example, could have crucial repercussions on any company strategy.

The difference between this type of visibility and any other online advertising model is that it indicates that the users who get to our Web site do so out of a real need for information, which may culminate in a sales process.

Therefore, from what has been pointed out in the last few lines, it is worth highlighting that SEO is a medium-term strategy for any company, as its results cannot be experienced from one day to the next. SEO involves many people, so it is important to involve different departments in any given company in order to achieve success in the strategy that optimizes search engine rankings.

8.2 A practical case

The influence of SEO traffic on online media

The online media in Spain, alongside the giants of the online world (Google, FaceBook, Twitter, etc.), account for the most popular sites for online users.

All these online newspapers rely on the strength of their well-established brand in the offline world. They directly receive visitors who switch from reading papers to reading online information.

In this scenario of increasing Internet users, sticking to a strategy based on the fact that users know the brand would seriously affect traffic to these Web sites, because the user is not looking for brands, but information and news.

This is why a correct SEO strategy is so important. For instance, with respect to a specific current affairs item, coming up first in the search results is not the same as coming up seventh. The impact, which will be reflected in the number of visits, will be infinitely greater for the first position.

What do these data mean?

The more traffic is directed from the search engines to the Web site, the more revenue from advertising this Web site receives.

The Web site for "El Periódico de Cataluña" (elperiodico.com) receives traffic from loyal users who already know the brand or who come through other sources. However, it was found to receive less traffic than competition newspapers because it had an inadequate SEO ranking, which failed to attract new users via the search engines.

In order to redress this deficit, an SEO audit was carried out with a view to defining the SEO strategy for elperiodico.com to follow. In this way, the Web site was optimized for search engines, and quality, organic traffic increased.

The most relevant aspects of this audit are described below.

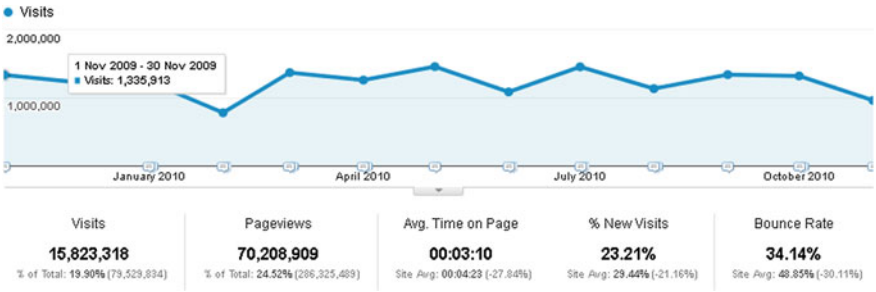
SEO traffic analysis

- SEO accounted for 35.93% of traffic in the selected period (from 1 November 2009 to 20 November 2010).
- 46.30% of the traffic was direct, which speaks highly of the brand's positioning.

- Branded Traffic vs. Generic Traffic

These users were not looking for the Web site or did not know of it, so there is an opportunity to win new users and build up loyalty.

Branded Traffic



- We can observe a constant tendency in the number of visits to the Website through searches that were related to the brand.
- The number of page views is above average.
- Therefore, the quality of branded traffic through SEO is quite good, as might have been expected anyway.

Generic Traffic

- We can observe a decreasing tendency of visits coming through generic search terms, which is quite negative.
- The bounce rate for these visits is 65 %, which means that 65 out of every 100 visitors do not click once on the page.
- The average time on the Web site is below standard and so are the page views.
- It is necessary to optimize the Web site content so that incoming traffic is of a better quality.
- A change in the tendency of annual visits should be a priority objective for the SEO project.

– **Content—Meta Tags Analysis**

An analysis of important pages was performed (home page and main sections) to assess the state and the use of the meta-tags, the choice of keywords, and the way pictures and head elements were treated.

The most relevant aspects were as follows:

– *Title*: Except for the home page, all the pages analyzed needed to include generic information about the section in the title.
– *Description*: There was no clear strategy because some pages were described in too many characters and others were short in their description.
– *Keywords*: Most of the times there were too many keywords for the little traffic received.
– *H1:* This heading was too generic—"elperiodico.com" in most cases, when it should have made reference to the section or the headline of a news item.
– *Pictures*: Correctly labeled in all cases.
– *Bold*: Never used for highlighting content, keywords, etc.

The conclusions drawn from this analysis were to train the editors in Web site optimization and the use of keywords, and to give them a document that ran through the strategy when creating content.

– **Technical Analysis**

An SEO technical analysis was performed on the elperiodico.com Web site for maximum SEO rankings performance.

Download speed

The download speed today is a determining factor for good organic search results. As we can see in the following graph, we were far from the 1.5 s recommended by Google:

URL Analysis

This analysis studied how good the format was for the El Periódico URLs. In particular, it was performed on a few URLs that were considered dubious.

Example 1—Sports Section

The URL for the sports section is http://www.elperiodico.com/es/deportes/; however, when clicking on any news item, the URL would change to http://www.elperiodico.com/es/noticias/deportes/20101126/ferrer-marcha-copa-masters-sin-ganar-partido/597500.shtml

Points worth mentioning:

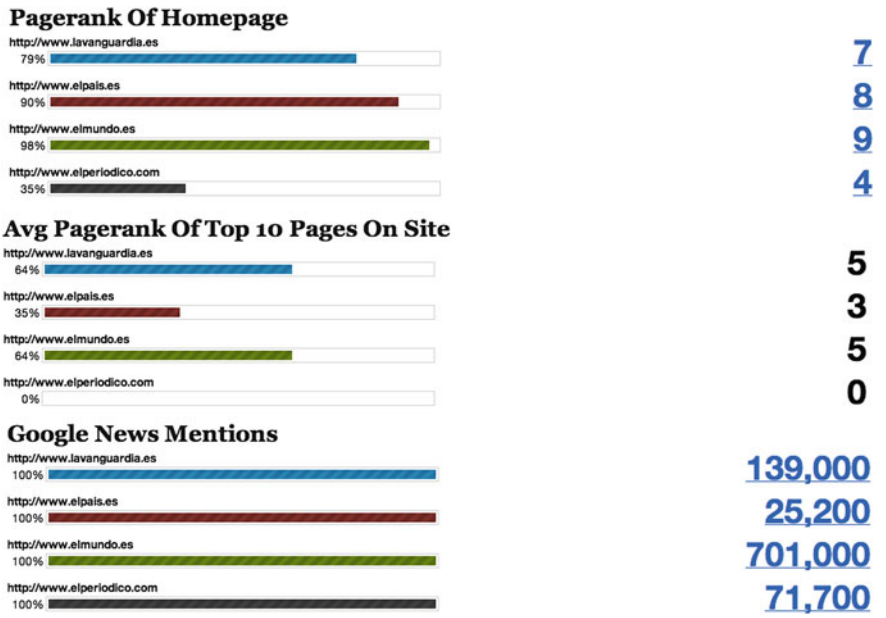
- This URL involved the inclusion of a new folder, /noticias/(news, in Spanish), which did not add value for the user or the robot.
- After /deportes/(sport), we find the date (/20101126/). This practice is not recommended because search engines do not like to find the date within the URL.
- The news part itself could be somewhat optimized. Instead of reading/ferrer-marcha-copa-masters-sin-ganar-partido/(ferrer-leaves-masters-cup-without-winning-match), it could be summarized as/ferrer-copa-masters-no-gana/(ferrer-masters-cup-no-win).
- Finally, the news item identity number should come with the news item text, i.e., /ferrer-copa-masters-no-gana-597500 (ferrer-masters-cup-no-win-597500).

These recommendations were applicable to the rest of the news in the Web site because these practices were repeated throughout.

Off-Page Analysis

– **PageRank**

Google provided a baseline report by assigning PageRank popularity scores for "El Periódico" on the Web and measuring how it compared with its competitors:



- The competition's PageRank was clearly better.
- The PageRank for the top pages in the Web site was not good, so the newspaper needed to redefine the structure of its internal links.
- The number of Google News Mentions was positive, but it could still be improved.

– **Link health for El Periódico**

Domain-Level Metrics	Subdomain (www.elperiodico.com)	Root Domain (*.elperiodico.com)
Domain Authority	--	82
Domain mozRank	6.15	5.97
Domain mozTrust	6.35	6.10
Total Links	185,504	538,833
External Followed Links	134,449	149,118
Linking Root Domains	8,645	8,843

The tool we used to work out these data (Open Site Explorer) shows the following:

- The total number of links to our site.
- The number of external links pointing to our site.
- The number of domains pointing to our site—it is important that there is variety of domains.
- Link variety ratio = 6 % (linking root domains/external links).
- External links ratio = 28.3 % (external links/total links).

Comparing these two ratios with the competition gave the following results:

	Total links	Link variety ratio	External links ratio
Lavanguardia.es	2,883,447	4 %	13.3 %
Elmundo.es	4,943,143	3 %	26 %
Elpais.com	187,184	7.6 %	91.7 %

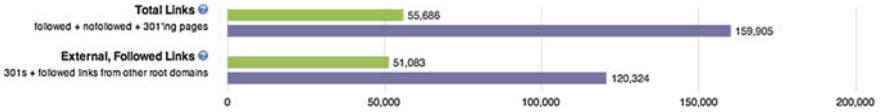
In view of these data:

- With respect to the total number of links, El Periódico is far from its competitors.
- In terms of link variety as per domains, El Periódico is not badly positioned compared to its competitors.
- The external links ratio for El País, i.e., their weight in the total links, is overwhelming for the competition.
- The external links ratio for El Periódico is second best compared to the rest.

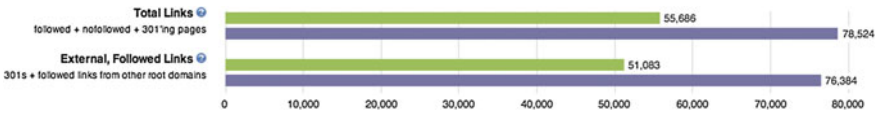
– **Links to the homepage compared to the competitors**

In the following bar charts, we compare some interesting metrics for El Periódico and its competition:

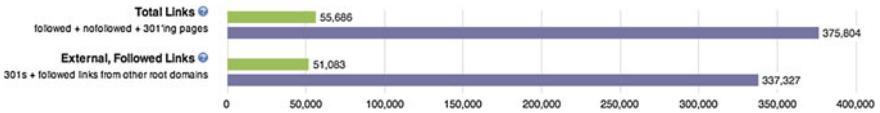
El Periódico vs La Vanguardia



El Periódico vs El País



El Periódico vs El Mundo



By way of summary, the following can be stated:

- El Mundo is the Web site with the greatest number of links to the homepage.
- El Periódico is far behind all its competitors in terms of inbound links.
- La Vanguardia is quite well positioned.

Links to the homepage are important because to a great extent they determine the authority of the Web site and the newspaper in the eyes of the search engine. It is interesting to see that El Periódico de Cataluña still has a long way to go to be on a par with its competitors.

In view of this audit, a strategy was designed to increase the percentage of SEO traffic. Editors were to be trained and given user-friendly tools so that they could optimize resources and improve results. The most prominent points in applying this change of strategy were divided into two parts: information gathering and strategy implementation.

Information gathering
Two types of analysis were proposed to this end.

Keyword analysis based on sources
This process allowed the SEO strategy to focus on a certain number of previously identified words or word combinations. It also served to confirm the best method for the strategy to be implemented.

Specific internal and monitoring tools were used to determine which of these tools were the most apt to later optimize results through a trend analysis.

1. Google Analytics. By using the "rank tracker", the aim was to discover how visitors arrived at our Web site from Google, to then select keywords worthy of review.
2. Free Monitor for Google. This free tool allowed monitoring the position of our keywords and those of the competition in Google.
3. Rank Checker. A free Firefox plugin that monitors a list of words in Google, much like Free Monitor.

Keyword analysis based on trends

Besides the keyword selection optimization through the analysis based on sources, this analysis served to seek trends and hot topics, as well as to create new content.

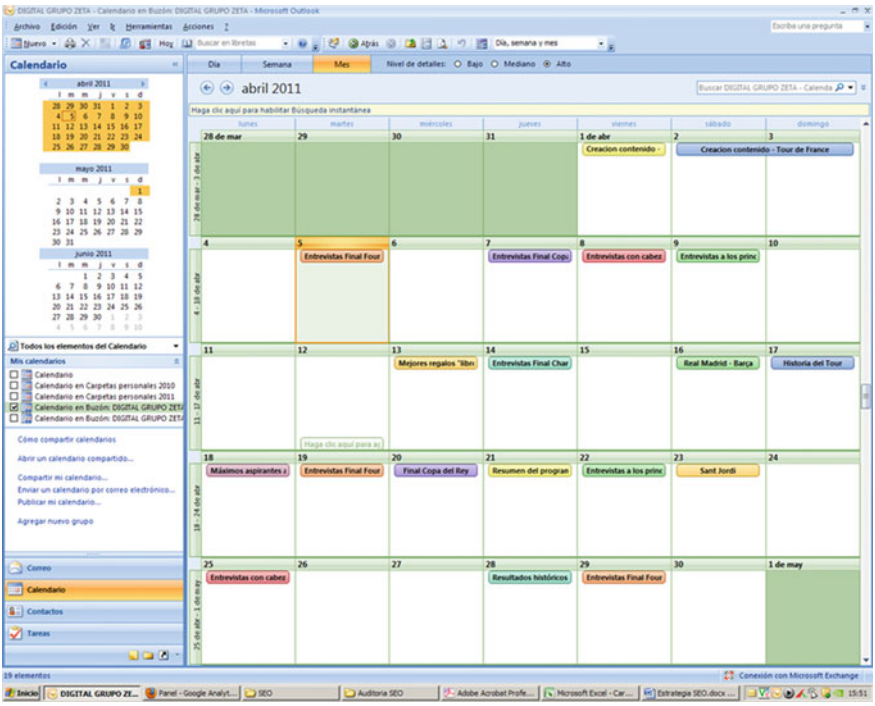
This process involved using different tools to find out which topics were the most searched at the moment. Searching content based on trends needs to be carried out on the understanding that it requires a great deal of time and keen insight into selecting the right content.

1. Google Insights. This service compares search term volume patterns by regions, categories, time intervals, and properties.
2. Google AdWords. A keyword analysis and competition.
3. Google Trends. This tool shows the most popular search terms in the US market.

4. Google Trends for Web sites. This keyword and Web site analysis is similar to Google Insights, but here it is necessary to know the terms to be analyzed.
5. YouTube Trends Dashboard. This tool shows and compares the most popular seen or shared videos by country, sex, and age.
6. SEMRush. This program analyzes keywords, competitors, traffic estimates, etc.
7. Trends Buzz. This tool shows Yahoo, Twitter, and Wikipedia search terms in the Latin American market, especially Mexico and Argentina.
8. Social networks. Monitoring Twitter, FaceBook, Tuenti, etc., is always a good guideline when generating content.

Strategy implementation

A content creation plan was created through the Outlook calendar with the events expected to be worked on by the online editors.



In the main body of each event, the analytical and editing administration team included the SEO strategic recommendations to be followed. These were the following:

1. **Meta-title**. The page title can be viewed in the search engine: high incidence.
2. **Meta-description**. The page description can be viewed in the search engine: high incidence.
3. **Meta-Keywords**. Keywords about the news item: low incidence.

4. **H1, H2, and H3**. News headlines: medium incidence.
5. **Bold**. Keywords in bold: medium incidence.
6. **Links strategy**.

Considering that the content was automatically updated in the sitemap, the problem was to position ourselves among the top rankings as soon as searches started to be performed about those events.

To this end, having created part of the content, it was necessary to enhance it with both internal and external links, through optimized anchor texts.

- **Internal links**. An attempt was made to enhance the content of all those pages created from links in the homepage, which is potentially where the greatest volume of traffic resides. In this way, we facilitated users' access to content, while we strengthened the SEO weight of the inside pages.
- **External links**. There was a search for sources of links, as domains other than elperiodico.com. An attempt was made to achieve the greatest possible volume of links and the greatest possible variety of domains.
- **Anchor Text**. The anchor text or link text, for both internal and external links (especially the latter), should contain keywords we wish to be ranked by. In this case, some generic keyword which users might use to find such event (the words suggested in the analysis). Moreover, using social networks as amplifiers was also recommended, as links could be obtained free of charge with very little effort. Publishing content in different social networks might have generated viral effects for some news item.

8.3 Recommendations Model

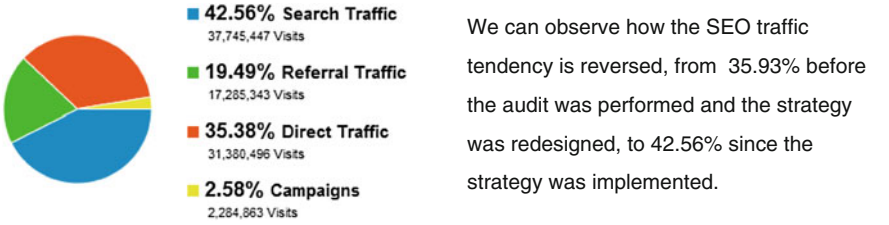
The SEO report, including the recommendations suggested for creating content, was added in the body of the event by directly linking to the analysis platforms and the predefined queries (e.g., http://www.google.com/insights/search/#geo=ES-

CT&date=today%201-m&cmpt=q). To facilitate the editor's job, the main screen for Google Insights and AdWords was also added.

8.4 Results

After a year of applying this whole methodology of a new strategy based on previous analyses, the results can be deemed satisfactory.

Below is how SEO traffic evolved from September 15, 2011 to November 30, 2012:



We can observe how the SEO traffic tendency is reversed, from 35.93 % before the audit was performed and the strategy was redesigned, to 42.56 % since the strategy was implemented.

Branded Traffic

There is an ascending line starting at 1,500,000 visits and currently placed at 2,000,000 monthly visits.

Generic Traffic

- Before the audit took place, the number of visits coming from generic traffic was under a million monthly. It is currently around 1,200,000 visits, which is nearly 50 % more.

Therefore, we can conclude that a correct SEO analysis, together with a correct strategy that is suitable to the media, allows for excellent results.

8.5 Conclusions

In view of the results, we can highlight the following conclusions:

– Traffic coming from search engines is one of the main sources of visitors for the media and should therefore be looked after and worked on.
– Apart from the *quantitative* results, there is a more intangible *qualitative* betterment of the media as opinion leaders and information providers, because their reputation has increased and improved online among the users.
– In order to achieve these results, it is essential that the editors are involved in the final steps of the productive process. In this way, information will be made visible in the eyes of the search engines.
– An adequate SEO strategy becomes an income generator for the media because it increases traffic to the Web site and it boosts the number of pages visited by the users. Income is generated through dispensing more publicity and being more competitive in the market.
– Any SEO strategy needs to be revised periodically. Its adequacy and correct implementation need to be assessed, and appropriate corrective measures need to be applied.

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Chapter 9
The Integration of Social Networks in the Competitiveness of Cooperation Networks: An Analysis to be Applied in Pharmacies

Camilo Prado Román, Maria Pilar Conesa García and Jose María Merigó

Abstract Concepts such as "virtual spaces" "networks", "interactivity" and "interconnectivity" are an essential part of the literature used by authors to refer to the future of the information society and knowledge. These days, there is considerable discussion about the use and impact of ICT in the development of enterprises. The research carried out in this paper is based on the evaluation of key variables for the implementation of social network and communication solutions in the pharmaceutical sector (and in other companies in the same industry). This research aims to validate the proposed model and thus generalise its use. The application of the model shows us coherent results, which encourages its validation and facilitates the analysis and diagnosis of the impact of the diverse solutions of social networks on the different needs of a range of sectorial groups.

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9.1 Introduction

Today's society is increasingly based on the exchange of information and on communications (Castells 1997). Rapid technological progress has created a global interconnectivity process that goes beyond the mere transfer of information and allows the socialisation of knowledge, which in turn stimulates the generation of new knowledge (Cash et al. 1990). Social networks consist of a group of people connected by common means (Engeström 2002) and are established in the new and future generations of professionals (Porter and Millar 1985), extending all relational spheres.

Social network technologies involve disruptive innovation (Gil et al. 2007) which evidently entails much greater risks. Established companies do not usually invest in this type of innovations. Firstly, firms usually need to be able to identify the potential of a new value proposal, because this is analysed from the logic that prevails in the business. Finally, these innovations often require fundamental changes in the cost structure of the company, i.e., suppliers, distribution and sales channels, which usually endangers or at least questions the company's current value proposal.

Social network technologies are developing strong leadership in the transformation of content and have been called Web 2.0 by many authors (Dougherty 2004). Research into this type of technology can be profitable when searching for new business models based on this type of solutions. This is the main objective of this article, to investigate the penetrability of these technologies and to identify the organisational processes which can be applied to this type of technologies.

9.2 Key Success Variables for the Implementation of New Technologies

The first step towards evaluating the advantages of introducing social network technologies in the diffusion of commercial processes between companies is to study the relationship between introducing technologies in companies and the strategies to be followed. This implies coherence with the methodology proposal made by Andreu et al. (1996) and by Hax and Majluf (1996), considering aspects related to:

- Existing markets and business models.
- Determination of the factors for success in the development of technological innovation initiatives.
- Companies that aim to tie their businesses to social network solutions come under two main groups (Applegate et al. 2003):
- E-frastructure ("infrastructure for the network"): areas of business or companies that take care of issues that are essential for the development of businesses on the internet, for example, integrated systems, networks, connections.

- E-market: businesses that operate in the different existing sectors and in activities that can be transferred to the internet, such as commercial transactions, advertising, information and management.

In order to identify the key success factors for the development of social network technology initiatives, a study needs to be carried out of the main variables so as to analyse the possibilities of implementing this type of solutions in companies. A model has been designed to characterise the key success variables which can facilitate the implementation of these initiatives. The combination of these variables allows an index of areas of interest to be established, which enables identification of the processes in which the technological solutions of social networks make more sense. Key success variables in social network technology initiatives are directly related to the degree of socialisation in commercial relations. Social network technologies have a series of attributes that will be used as key variables to evaluate the applicability of this type of solutions in a business (Drucker 1988 and Porter 2001). These variables are as follows:

9.2.1 Size of the Agents

Commercial relations try to establish agreements between companies which achieve complete sharing of information that completes their value chain. The implementation of social network solutions facilitates the establishment of commercial relations. Initially, initiatives in large-sized companies may have greater chances of success in this respect. The introduction of different technologies based on social networks in the relations between professionals raises a series of changes in an organisation's cultural level. It involves the need to make certain investments in technologies and in training the users of these technologies. Thus, within this attribute, we can highlight the following variables:

- Volume of commercial relations measured as the amount of money in the number of goods and/or interchanged services.
- Control of the cooperation, measured in the complexity of the business processes.

9.2.2 Quality of the Product and Standardisation

In business relations, product information flows between companies. The scope of social network technologies aims to facilitate these relations by acting as a communication channel. The potential socialisation of this type of solutions facilitates the approach of the agents involved. The interactivity that this technology provides in commercial relations enables customer demands to be identified and satisfied with a high-quality level of service. At the same time, flexibility in the form,

contents and use allows personalisation of the product which satisfies buyer demands. The decentralisation that this type of solutions offers facilitates all the processes involved in sales. The main variables of this attribute areas follows:

- Interactivity. Processes in which a channel is required to interact with the customer. The power of persuasion and the ability to satisfy demand are indispensable requirements in sales processes.
- Decentralisation. Processes in which the production of content does not have to be centred either on a person, on the mass media or on complex communication systems.
- Flexibility of content. Processes in which the flexibility contributed by the communication channel is of vital importance to show the quality of service in the relationship between the agents.

9.2.3 Negotiation and Establishment of Prices

It is said that the form of negotiation between agents determines the way in which the technological solutions implemented in a business are organised. Social network technologies enable practically all types of negotiation as they establish a type of communication that emulates reality. In order to measure this attribute, we have to evaluate the following variables:

- Autonomy: depending on the technological resources used for communication in commercial relationships, the levels of response to the buyer's needs are determined.
- Flexibility of form and use; level of decentralisation: in processes in which the potential of communication between agents is critical, the use of new technology enables contact with customers at any time, thus satisfying their needs immediately.
- Trust: in processes in which the generation of an atmosphere of trust is essential, having mass media facilitates the socialisation of relations, empathy between agents and the success of the relationship.
- High accessibility and decision-making: depending on the technological resources, the importance and value of communication technology and interchange of contents are directly related to accessibility at decision-making times.

9.2.4 Technological Adjustment, Enterprise Culture and Training

Firms need to make certain investments in technology and in training the users of these technologies. Companies that do not have a promotional culture of these variables or whose employees are not properly trained will have more difficulties in the implementation and development of social network technological solutions.

9.2.5 Contribution to the Value Chain

The implementation of social network solutions in the processes of business organisations must contribute to improve the benefits of the organisation through the contribution of the value chain.

9.3 Evaluation of the Variables

This section presents an evaluation method of ten variables. With these variables, we can evaluate whether or not a specific business process can support social network technology. If it can, the process can be implemented on the network with guarantees of success and can contribute by increasing the value of the company (Puiggermanal et al. 2003).

The variables mentioned above are defined as a numerical value between 1 and 3 on the basis of the following criteria:

1 if it is a non-motivator factor or barrier for the development of social network technological initiatives.
2 if it is a factor that generally enables the development of social network technological initiatives, although there are certain aspects that make it not suitable.
3 if it is a factor that acts as a catalyst for the development of social network initiatives.

The methodology develops an index that identifies which business models are most able to benefit from social network technological initiatives. Success variables are divided into two groups:

The first group is related to the level of usefulness perceived from a social network technological solution. This group includes the following variables:

- Interactivity (i)
- Decentralisation (d)
- Flexibility of contents (f)
- Autonomy (a)
- Trust (c)
- High accessibility (Ac).

The evaluation of this first group of variables is related to the establishment of potentially managed business processes in these mass media. These processes are thus excluded when there are more than two non-motivator factors for the implementation of this technology.

The evaluation of this first group of variables enables the construction of an index entitled “Perceived Usefulness (UP)”. The basic characteristics of this index are as follows:

- It grants the same weight to each of the three variables

- It considers the multiplicative factor (I × D × F × To × C × Ac)
- It discriminates between the processes when there are more than two entry barriers.

UP will take the value of 1 if it is greater or the same as 16 ($2^4 \times 1 \times 1$) or the value 0 in the opposite case. This index is therefore defined as follows:

$$I \times D \times F \times A \times C \times Ac \geq 16 \rightarrow UP = 1$$

The second group is related to different users' interest in a social network solution. The variables in this group include the following:

- Contribution to the value chain (ACV)
- Volume of commercial relations (t)
- Control of the cooperation (Co)
- Technological adjustment, enterprise culture and training (Fo).

The effect of these four variables is considered to be multiplicative. The value that is assigned to each one is 1, when barriers to the implementation of processes in the scope of social network solutions exist. It is not considered profitable to develop initiatives related to this type of technology if the evaluation of at least one of these variables is not positive (is equal to 1: no motivator factor). For the evaluation of this second group of variables, the index is called "Interest of Use (IU)" and takes values of 1 or 0.

In order to determine the global effect on the business model another index was developed. This index was entitled "AREAS OF INTEREST" (AI) and determines the definitive interest for the application of social network technologies in a unique variable. AI takes a value of 1 if both partial indices are positive and takes a value of 0 if some consider that social network technologies are not of interest. Therefore,

$AI = UI \times IU = 0 \rightarrow$The investment of resources in social network technologies for the development of the studied factor is not advisable.

9.4 Methodology

In order to apply this method, we analysed the company and its sector according to the model discussed. The results obtained are compared with the opinion of industry experts.

Firstly, we analysed the characteristics of the pharmaceutical sector in which the companies studied are included. This analysis is based on the study of ITSGA (Information Technology Generic Strategic Actions).

The analysis then continued in the frame of the organisation. It was necessary to consider the activities of the value chain by studying the relationships established with the outside world. The main objective was to determine which activities in the value chain interacted with other companies in their commercial relations.

In order to perform the second phase of our model, we proceeded to implement and process the surveys collected. To do this, questions were written about the activities of the key business success factors and were reflected in a questionnaire. Specific questions were compiled for each critical variable and the activity and weight of each one were calculated. As mentioned before, these variables took values of 1, 2 or 3 so to facilitate calculations and the questionnaire responses also took these 3 possible values.

Table 9.1 Results of the method applied to a group of 5 pharmacies on the first group of variables related to perceived usefulness

	Interactivity	Decentralisation	Flexibility of contents, form and use	Autonomy	Trust	High accessibility	UP
Turnover	5	10	11	7	9	15	**1**
Market share	14	10	12	8	8	12	**1**
Geographical coverage	8	7	10	8	7	10	**0**
Network of wholesalers	12	10	10	7	6	12	**1**
Utility margin	15	11	11	8	8	14	**1**
Sales growth forecast	10	12	13	9	7	12	**1**
Price reduction trend	5	7	10	6	6	12	**0**
Knowledge of customers	15	12	12	10	10	15	**1**
Integrated services	15	14	14	11	11	15	**1**
Variety of products	12	14	12	12	10	12	**1**
Personal selling ability	15	12	13	12	12	13	**1**

Table 9.2 Results of the method for the second group of variables related to interest of use (IU)

	Contribution to the value chain	Volume of commercial relations	Control of cooperation	Technological adjustment. enterprise culture and training	IU
Turnover	9	8	14	10	**0**
Market share	10	10	14	12	**1**
Geographical coverage	8	9	10	8	**0**
Network of wholesalers	6	8	10	8	**0**
Utility margin	7	7	9	7	**0**
Sales growth forecast	10	11	12	8	**1**
Price reduction trend	5	6	5	5	**0**
Knowledge of customers	14	12	15	10	**1**
Integrated services	12	12	10	10	**1**
Variety of products	12	14	10	10	**1**
Personal selling ability	14	11	14	9	**1**

Table 9.3 Results on the basis of "Areas of Interest"

	UP	IU	AI
Turnover	1	0	**0**
Market share	1	1	**1**
Geographical coverage	0	0	**0**
Network of wholesalers	1	0	**0**
Utility margin	1	0	**0**
Sales growth forecast	1	1	**1**
Price reduction trend	0	0	**0**
Knowledge of customers	1	1	**1**
Integrated services	1	1	**1**
Variety of products	1	1	**1**
Personal selling ability	1	1	**1**

Once the answers were collected and the results were calculated, we interviewed a contact person with a broad vision of the business and the sector.

9.5 Results

The results obtained in the research deal with companies in the pharmaceutical sector. As a result of our cooperation agreement, we reserve the right not to publish their names until they consider this to be appropriate (Tables 9.1 and 9.2).

The results obtained from the application of the method show that all the processes and activities that the group of companies established in its commercial relations were favoured by social network technologies.

The benefits obtained from the application of social network technologies in terms of market share encourage companies to expand their business models and to explore other areas of the business such as dietetics, health and orthopaedics.

Given their involvement in ICT and their experience and interest in creating innovative activities in this field and sector, the applications being developed in different organisations (hospitals, public sector, professional associations, etc.) were considered as excellent.

9.6 Group of Companies in the Pharmaceutical Sector

The main activities of the pharmacies under study are the commercial distribution of pharmaceutical products. They sometimes distribute orthopaedic products on a large scale, and other dietetic and health products (among others). The results obtained cannot be generalised, although they can be extended to the whole pharmacy sector (Table 9.3).

9.7 Conclusions

Before evaluating the application of social network technologies, some of the pharmacies under study were working on technological tools which would enable them to identify the most profitable customers, put together potential loyalty campaigns and design promotions and customised supplies. The model presented analyses the variables which are key to the success of the pharmacies under study (from the point of view of business integration). This success is affected by social network technologies.

In this paper, we have shown that the model is of great interest to several companies and gives results which are in line with the practices of these companies. The coherence of these first results thus encourages us to complete the work to validate the model and to evaluate the suitability of the procedure with other types of organisations and sectors in order to assess the viability of social network technologies in different companies.

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Chapter 10
How are New Media Changing the Working Environment? What are the Challenges?

Lea Isopoussu-Koponen and Ismo Koponen

Abstract This chapter studies the changing communication environments of the modern business world. Our focus is on the new media that provide companies and individual people new possibilities for recovering from the economic depression. But, they are not only opportunities, but also threats as well. We take an ethical approach to the phenomena in focus. Data protection law plays an important role here. What are the affects of communication environments on an employee's working conditions and on his or her responsibilities and legal rights? Is Labor Law keeping up with the speed of development? This is another big issue.

10.1 Introduction

There is no doubt that capital and well-being are redistributed during economic depressions. In practice, rural communities with cheap labor force are being developed to become industrial ones. Industrial communities become rural again, because they were too expensive—labor costs were too high when they were industrial communities. Development, in the long run, takes place in cycles. (Koponen and Isopoussu-Koponen 2010; 746)

The social media is contributing to global development: individuals become citizens of the world and the global village has become a global shopping mall. Whereas the social media has made sharing knowledge and promoting the product cheaper, longer shipping distances are increasing delivery costs. Longer shipping distances are not good for the environment either (ibid.).

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Protecting the environment is not the only ethical issue concerning global development and social media. Constantly growing data move through global networks unbelievably fast. New businesses, technologies, and applications use information in innovative ways. Personal data processing has become the core business for many companies. At the same time, individuals disclose their personal information to social networking and online shopping. There should be a balance between the free flow of information and security in networks and on electronic markets.

Respect for privacy and the protection of personal data are crucial for the development and sustainability of any democratic society and are necessary for the effective exercise of other fundamental rights and freedoms, such as the freedom of expression and information. The reassurance that their rights are guaranteed is also a precondition for individuals' trust in the online world and their willingness to actively participate in it.

Our writing is based on sources adopted from the media, both traditional and modern. There are two practical examples we would like to communicate. The first example concerns cloud computing and data protection, and the second concerns labor law and data protection. Social media is present in both examples.

10.2 Cloud Computing and Data Protection in the EU

Cloud computing is Internet-based computing whereby software, shared resources, and information are on remote servers, i.e., 'in the cloud'. Cloud computing describes a new delivery and consumption culture for IT services based on the Internet (http://ec.europa.eu/justice/glossary/index_en.htm. The following are examples of cloud computing:

- a company outsources their customer data base,
- electronic commerce (an online shop) is established to serve customers online,
- a company acquires the employees' e-mail data base through the data network, and
- a Finnish municipality acquires office services through the Internet (Ertovaara 2012; 16).

Data protection and privacy responsibility in cloud computing create new compliance challenges for business. European Union regulation of data protection is void on an internal market (Directive 95/46/EC of theEuropean Parliament and of the Council of 24 October (1995) on the protection of individuals with regard to the processing of personal data and on the free movement of such data). Directive 95/46/EC regulates specific rules for the transfer of personal data outside the EU to ensure the best possible protection of personal data when it is exported abroad (Art. 3, 25).

Concerning cloud computing, if the servers and processing of personal data take place outside the borders of the EU or the European Economic Area, the actor has to ensure that the "third" country provides an adequate level of privacy protection. According to European Commission decisions, the following countries provide adequate levels of privacy protection: Andorra, Argentina, the Faroe Islands, Guernsey, Israel, Jersey, Canada (partly), Isle of Man, Switzerland, New Zealand, and Uruguay (Vanto 2011; 85–86).

In the year 2000, the European Commission and the US Department of Commerce agreed an arrangement known as the "safe harbor". This arrangement provides adequate protection for personal data transferred from the EU. Under the "safe harbor", US companies can voluntarily adhere to a set of data protection principles recognized by the Commission as providing adequate protection and thus meet the requirements of the directive as regards data transfers out of the EU (http://export.gov/safeharbor/eu/eg_main_018475.asp).

Quite recently, on March 19th of this year, a High Level Conference on Privacy and Protection of Personal Data was held in Washington and Brussels. At the end of the conference, an EU–U.S. joint statement on data protection was released by European Commission Vice-President Viviane Reding and U.S. Secretary of Commerce John Bryson. The main goal of the conference was to deepen the transatlantic dialogue on commercial data privacy issues (http://ec.europa.eu/justice/events/eu-us-data/index.html).

Article 26 of directive 95/46/EC regulates derogations on the prohibition on transfer of personal data to non-EU countries. According to the first paragraph of Article 26, the data subject must give his consent to the transfer. This is obviously the easiest way for an actor. Another practice is to use model contracts for the transfer of personal data to third countries. The Commission has the power to decide on the basis of Article 26 (4) that certain standard contractual clauses offer sufficient safeguards as required by Article 26 (2) (http://ec.europa.eu/justice/policies/privacy/modelcontracts/index_en.htm).

10.3 Labor Law and Data Protection in Social Media

We may have several different roles in the new media. Depending on the situation, we act as a family member, a friend, a colleague, an expert on leisure activities, an employer, or an employee among others. Is it possible to keep all these roles apart? And is it possible to protect your personal data and private life in the new media?

The EU has carried out a survey on attitudes to data protection and electronic identity in the EU, The Special Eurobarometer 359. The data were collected in November and December 2010, and there were over 26,000 respondents in 27 EU countries. According to the survey (http://ec.europa.eu/public_opinion/archives/ebs/ebs_359_en.pdf):

- 74 % of Europeans see disclosing personal information as an increasing part of modern life.
- The most important reason for disclosure is to access an online service, for both social networking and sharing site users (61 %) and online shoppers (79 %).
- 70 % of Europeans are concerned about their personal data, held by companies, being used for a purpose other than that for which it was collected.

As regards the "right to be forgotten", a clear majority of Europeans (75 %) want to delete personal information on a Website whenever they decide to do so.

Generally speaking, it is not possible for us to delete our profile or any personal information on a Website whenever we would like to do so. What kind of threats might be there concerning employment? Is it ethically right that an employer may search for information on job applicants in the social media? Or, is it even illegal? There are two directives on data protection in the EU concerning the working life; the data protection directive 95/46/EC and Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communication sector. However, neither of these directives directly regulate protection of employees' privacy in working life.

Our question was: Is collection of personal data ethically right, or could it even be illegal? In Finland, it may be illegal. Section 4 in the Act on the Protection of Privacy in Working Life (759/2004) regulates general requirements for collecting personal data on employees and for the employer's duty to inform his or her work force about the requirements:

1. The employer may collect personal data about the employee primarily from the employee himself/herself. In order to collect personal data from elsewhere, the employer must obtain the employee's consent. However, this consent is not required when an authority discloses information to the employer to enable the latter to fulfill a statutory duty or when the employer acquires personal credit data or information from the criminal record in order to establish the employee's reliability.
2. The employer shall notify the employee in advance that data on the latter are about to be collected in order to establish his/her reliability. If information concerning the employee has been collected from a source other than the employee himself/herself, the employer must notify the employee of this information before it is used in making decisions concerning the employee. The employer's duty to provide information and the employee's right to check the personal data concerning himself/herself are also subject to other relevant provisions of the law.

Social media and technological development have changed mutual rights and duties concerning employers and employees. Freedom of speech, right to access information, and protection of private life are fundamental rights in virtual networks too. On the other hand, an employee has to be loyal to his or her employer. Employers aim for a balance in this kind of a situation by formulating the instructions on acting in social media. An employer's essential right is to manage and supervise the workers, and he or she also has the fundamental right of

protection of property. Prior to the times of social media, an employer's right to manage and supervise an employee ended after working hours. Modern technology enables off-the-job control. Where is the limit? Is it ethically right to rule an individual's free time?

10.4 The Reform of Data Protection Legislation in the EU

Article 8 of the European Convention of Human Rights and Article 8 of the Charter of Fundamental Rights of the European Union regulate the fundamental right to protection of personal data. Freedom of speech (Art. 10 ECHR and Art. 11 CFR) and protection of privacy are complementary in the sense that information cannot be simultaneously private and public.

Early this year, the European Commission proposed a comprehensive reform of the EU's 1995 data protection rules to strengthen online privacy rights and boost Europe's digital economy. Technological development and globalization have changed the way our data are collected, accessed, and used. In addition, the 27 EU member states have implemented the 1995 rules differently. According to the Commission, the initiative will help to reinforce consumer confidence in online services, boosting innovation and growth, and creating jobs in Europe.

The essential goals of the reform are as follows (http://ec.europa.eu/justice/data-protection/document/review2012/factsheets/3_en.pdf):

- To strengthen the "right to be forgotten" to help people better manage data protection risks online—the actor has to delete the data when there are no legitimate grounds for retaining it.
- To guarantee easy access to one's own data.
- To establish a right for individuals to freely transfer personal data from one service provider to another (data portability).
- To ensure that individuals must explicitly give consent when certain types of data procedures are about to be realized.
- To increase the responsibility and accountability of those processing data by introducing data protection officers to companies with over 250 employees, and the principles of 'privacy by default' and 'privacy by design' to ensure that individuals are informed in an easily understandable way about how their data will be processed.)

The Vice-President of the European Commission, EU Justice Commissioner, Viviane Reding stated on March 19th, 2012, in her speech for the EU Conference on Privacy and Protection of Personal Data: "Let us build together a new gold standard of data protection based on clear and strong laws that will allow our businesses and citizens to fully benefit from the digital economy". (http://ec.europa.eu/commission_2010-2014/reding/pdf/speeches/20120319speech-data-gold-standard_en.pdf)

Y4 Universal	1-4	2-4	3-4	4-4
Y3 Cooperative	1-3	2-3	3-3	4-3
Y2 Social	1-2	2-2	3-2	4-2
Y1 Individual	1-1	2-1	3-1	4-1
	X1 Analytical	X2 Descriptive	X3 Practical	X4 Responsible

Isopoussu-Koponen&Koponen, 2012.

Fig. 1 Elements and levels of corporate ethics

10.5 Managerial Challenges

As Fiala states, "The manager is responsible for the state of the morale at the place of work. He or she is an example for his or her colleagues" (2008; 467). Also, he reminds us about the fact that "Within managerial ethics, responsibility is the key word" [ibid.]. Polonský (2008; 463) triggers a model of ethics that consists of the following ingredients: analytical and descriptive elements and individual and social levels. We would like to broaden the view and suggest a model where individuals are examples for other individuals and groups of people are models for other groups of people. The model can be used for evaluating a business firm's or any organization's level of ethical image and practices (Fig. 1).

An analytical manager has the knowledge. An analytical and descriptive one understands what he or she knows, and a practical manager acts in harmony with his or her knowledge and understanding. A responsible manager takes responsibility for his or her decisions and actions. Depending on the manager's authority in his or her environments, the practical deeds of the manager also affect the internal or social environment; this again affects the external or cooperative environment(s), and—ultimately—it has an impact on the global environment.

10.6 Concluding Remarks

Technological development has enabled people to act in social media. This development has emerged rapidly. Society and business have followed the footsteps of private individuals. This paper has focused on two current phenomena and their relationship with legislation and management. Cloud computing is a practical example of how business organizations are exploiting the changed situation aiming at finding new business possibilities and at gaining cost-effectiveness. Global activities challenge international law and put pressure on legislators.

Individuals' activity in social media means that their personal data accumulate in the public network. A remarkable problem of this is that people cannot delete their data, and that this data can be abused by others. The uncontrollable spread of data may cause trouble for the individual on the labor market, among others.

Our two practical examples have emphasized the importance of knowledge on the common rules of management. Responsible management contributes to the

well-being and productivity of the workforce and to the prolonging of careers. A recent Finnish study shows that bad management costs Finns 30 billion Euros per year.

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Chapter 11
Improving User Experience: A Methodology Proposal for Web Usability Measurement

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Abstract This work focuses on the concept of web usability. The objective of this research is to analyze, and improve on, currently available tools for measuring web usability, and propose a new evaluation methodology which will reduce the uncertainty that is inherent in the tools that currently exist. With this aim in mind, and taking as a starting point, the web usability evaluation framework proposed by Hassan and Martín (2003) and Suárez-Torrente (2011) a new collection of evaluation criteria with a high degree of disaggregation has been developed along with an associated metrics. We believe that the existing methodologies have been improved upon as the subjective elements of the evaluation process have been considerably reduced. The proposed improvements hold two main advantages: firstly, its use is less sensitive to a change of evaluator, thus offering greater robustness; secondly, expert evaluators are not necessary for its application.

11.1 Introduction

The development of web pages has undergone an enormous evolution in recent years, both in the technical and content aspects. In this second area, that of content, one of the elements that has come under a great deal of scrutiny recently is improvements in user experience. This has been facilitated by what is known as web usability.

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This concept is directly linked to the idea of ease of use of a web site, which may be more accurately described as the level of efficiency, effectiveness, and satisfaction achieved by users when accessing and using a website.

Measuring the usability of web environments is one of the most important tasks in the development of a user interface (Woodward 1998) and this can be done by evaluating a collection of attributes of the user's experience.

A number of authors have proposed a range of different criteria for web user evaluation, such as Nielsen and Molich (1990), and Hassan and Martín (2003). There have also been more complete methodologies proposed which, along with a set of criteria, include associated metrics (Olsina 1999 and Suárez-Torrente 2011). However, in our opinion, these tools or methodologies lack the necessary robustness to effectively evaluate web usability with some guarantee of objectivity, precision, and a low degree of dispersion among evaluations, given the generalized nature that these criteria often display and the consequent difficulty in the evaluation process.

To solve this problem, this work proposes a new methodology for measuring usability in web environments which directly deals with many of the deficiencies existing in the current measurement methodologies.

With this aim in mind, and using the proposals of Hassan and Martín (2003) and Suárez-Torrente (2011) as a starting point, we have defined a series of criteria with a high degree of disaggregation for the evaluation of web usability, also assigning its evaluation range, whether it be a global assessment of the website, or all or some of the parts of the site.

This work is structured as follows. Firstly, the theoretical development of the work is described, in which the concept of web usability is outlined along with some of the methodologies that have been designed to evaluate web usability. This first section also deals with some of the weak points in existing methodologies which have led to the development of this work. Following this, the new proposal is introduced. Finally, the conclusions are reached, and their implications and lines of future work are presented.

11.2 Theoretical Development

This section outlines the theoretical framework of the work presented here. The concept of web page usability and the problems associated with measuring this usability are discussed.

11.2.1 Web Page Usability

Any understanding of usability will depend on predefined ideas that may be held on what exactly a web system is. According to Deshpande et al. (2002), the

specialized scientific literature uses the expression web page to refer to a wide range of different concepts, such as any Web-based application, a web site, web page. This ambiguity in terminology helps to explain why specialized publications have not followed common patterns.

On exploring current literature, it is clear that many authors have concentrated on modifying business logic, identifying differences between a web application, a web system in which the user modifies the state of the business via the introduction of data, and a web site, in which there is no business logic. This approach considers the web system as being made up of a web server, a network, an http protocol, and a web browser (Conallen 1999).

There is another approach which begins with the idea of classifying web systems according to three new criteria, two of which are quantitative: the quantity (and type) of code, and the quantity of information contained, and one of which is qualitative: the quality and complexity of design. Using this logical starting point, the web system is conceived as being made up of three basic components: graphic design, content, and functionality (Guerrero 2003).

However, the main difference with those content-oriented web sites can be found on web applications and the development of tasks on the part of the user. In this context, web application users show quite specific objectives along with preconceived tasks or expectations. With this approach, it is understood that the main objective of a web application consists of allowing the user to carry out tasks or fulfill expectations.

On looking at the wide range of approaches to the idea of exactly what a web page is, expressed in this particular work, it is clear that there is no unified concept of web page, or of the complexity that goes with this idea. Having established a framework for usability, we are now ready to look more deeply into the concept.

From an etymological point of view, usability seems to have its roots in the expression *user friendly*, which means *ease of use* (Bevan et al. 1991). Tapping directly a reference source generated by the *International Standard Organization* (ISO),[1] a useful definition is *the degree of effectiveness, efficiency, and satisfaction with which a specific user can achieve specific objectives within a specific context of use*.

An analysis of this definition allows us to differentiate between two dimensions of usability: usability from the point of view of the product, and usability from the point of view of the user in terms of user satisfaction. Moreover, this definition allows us to identify a number of characteristics which must be satisfied, such as, *effectiveness,* which refers to the capacity of the user to do whatever they wish to do on the web site; *efficiency,* which refers to the capacity to do this in the shortest time possible; *satisfaction,* which means that the site is perceived as being easy and comfortable to use; and finally, *context,* which means that the web site is evaluated independently of the level of experience that the user may have (Fernández 2009).

[1] ISO Standards (1998), *Guidance on usability*. Geneva, Switzerland, no 9241–11.

The next question which arises is how to determine a methodology to measure usability and how to identify the various problems associated with this measurement.

11.2.2 Measuring Usability

This work uses the term *web site* based on the fundamental objective of allowing the user to develop one or more tasks, independently of the underlying business logic. Moreover, as there is no general consensus on how to measure usability and how an evaluation of usability should be carried out, this current research will not offer an exhaustive review of the literature on the tools proposed for measuring web usability. This study is based on the tool Sirius v3, which is in turn based on the 11 heuristic principles defined by Nielsen (1995). The purpose of this study is to widen the field of active users of the tool to non-professionals and to contribute to a greater robustness of this Sirius v3.

Sirius v3 is an instrument which aims to generate *an evaluation system driven by experts, in such a way that the web site can be redesigned before being evaluated by real users of the system. Those methods which are aimed at verifying functionality or even involve users in the evaluation are not considered, as input by users should be considered at a later stage of the evaluation* (Suárez-Torrente 2011). Therefore, we are talking about a collection of methods conceived to be implemented only by experts and which are based on an heuristic evaluation that clearly identifies the limitations of the user interface. Consideration has also been given to the question of which method best predicts end-user problems, as it can be used in any of the life-cycle phases of the system in development (Mack and Montaniz 1994; Suárez-Torrente 2011).

Concerning the heuristic evaluation used, as was mentioned by Suárez-Torrente (2011), one of the problems encountered in this process is the lack of unity in the criteria to be considered. Although, as already mentioned, it is not the objective of this work to look too deeply into the literature on the subject, many authors have proposed different processes for heuristic evaluation (Olsina 1999; Hassan et al. 2004; Pierotti 2005; González et al. 2006; Perallos 2006).

The great contribution of the work done by Suárez-Torrente (2011) was that they established certain criteria (sub-heuristic) grouped into aspects (heuristic) which formed a single relationship between the various elements to be evaluated by all the experts involved in the evaluation process. In this way, they structured an heuristic evaluation method for a web site using a single relationship between elements based on the work of Serrano et al. (2002) and Hassan and Martín (2003) which were in turn inspired by the seminal work by Nielsen (1995) and his 11 heuristic principles of usability.

The 11 heuristic principles of usability identified by Nielsen (1995) can be synthesized in the following way: (1) *clarity of purpose and objectives*, that is to say, the web site must communicate its purpose, function and objective in an

immediate way; (2) *immediate visibility and orientation*, and by this it is understood that users must be informed of their situation (location and state) and of what is happening at all times on the web page; (3) *suitability to the world, the mental objects of the user and the logic of the information*, which means that the web site must be adapted to the real world of the user, that is to say, to the user's language, knowledge, etc.; (4) *recognition more than memory*, which occurs in web pages that are based more on recognition than on memory, which allows the user to interact easily and productively with the web site; (5) *user control and freedom,* which means that the web page allows the user to control the process; (6) *consistency and standards,* in which consistency refers to the internal dimension, while standards are focused more on external factors; (7) *prevention of errors due to good design,* which means that the design of the web page prevents errors on the part of the user before they have been committed; (8) *flexibility and efficiency of use,* such that independently of the characteristics of the site, user access is optimized and facilitated; (9) *minimalist design and information,* whereby the aim is to determine and include only the necessary information; (10) *effectiveness of error correction,* such that it can be determined to what degree the error messages help to provide a solution to the problem; (11) *help documentation*, which establishes the degree to which the help documentation is adapted to the needs of the user.

As can be seen, this approach to usability considers the more unpredictable factors. This methodology reflects user knowledge to be the starting point and also involves a posterior evaluation of the site. The methodology also looks at how users react to the design of the web site, as well as their experience as users. Finally, this approach innovates with the clear objective of always improving the user's experience (Hassan et al. 2004).

The great attribute of the Sirius methodology is that it is able to quantify the concept of usability, while its weakness is that it lacks the robustness necessary to achieve maximum objectivity. There follows a description of the work carried out with the aim of bringing greater robustness to this methodology, which would in turn help increase the range of active users of the tool to include non-professionals.

11.3 Proposal for a Tool to Measure Web Site Usability

The concept of web site usability and processes to evaluate this have allowed Internet web sites to be developed to satisfy the needs of the users. As previously proposed, the wide range of work carried out in this area up to the present converges in the latest proposal developed by Suárez-Torrente (2011) in what is known as the Sirius v3 methodology. This work defines an evaluation system based on heuristics, provides a concrete framework of evaluation adapted to the type of web site in question, and most importantly, gives a percentage measurement of the site's usability. However, as we have seen, this system lacks the necessary robustness in the evaluation process given its generalized approach and, in some cases, the subjectivity present in the evaluation criteria.

In this context, this work proposes an improvement within the general framework of the Sirius methodology that will reduce uncertainty and dispersion of results in the different evaluation scenarios.

The improvements proposed are focused on three principal actions: (1) independent evaluation of the elements of the web page, according to how collectively they relate to the main page, the principal links or interior pages; (2) disaggregation of the criteria evaluated into different elements when these criteria deal with wider concepts; and (3) the concise description of the criteria and sub-criteria to allow effective evaluation.

11.3.1 Independent Evaluation of the Different Elements of the Web Site

There are different parts of a web site in terms of scales of informative hierarchy. The main page represents the first point of visual contact for the user, as well as an element that must be read and used. Its position in the hierarchy at the level of information is, therefore, at the top. The main links are also important pages in the scale of information, being placed at the first access level. After accessing the main page, the user will usually connect to one of the main links. Finally, the interior pages, although they may often contain relevant information, they represent elements of lesser importance in the informative scale of the web site.

The evaluation methodology proposed by Suárez-Torrente (2011), based in turn on Nielsen and Mack (1994), establishes a weighting system with a maximum value of 10 points. The points are given according to whether the criteria evaluated are fulfilled throughout the web site (10 points), are fulfilled in some of the interior pages (7, 5 points), are not fulfilled on the main page (5 points), are not fulfilled in the main links (2, 5 points), and are not fulfilled anywhere on the site (0 points). These evaluation criteria, although they hold certain advantages due to their simplicity and ease of evaluation, in our opinion have shortcomings due to difficulties in the assessment of the criteria which are only applied to certain parts of a web site, the impossibility of independently evaluating the different parts of the site or the lower weighting that the main page has compared to the main links.

With the aim of eliminating these shortcomings, in this work, a methodology for the separate evaluation of criteria is proposed in which a scale of 0–10 is used for each of the three parts of the web site: the main page; main links; and interior pages. A weighting is also assigned to each part according to the criteria evaluated in order to reach a single final evaluation for each of these three parts. Moreover, when the criteria requires, the evaluation can be done globally and not separately. As a general rule, the weightings for each of the parts of the web site will have the assigned values that are shown in Table 11.1. This value will have been obtained from the informative hierarchy scale of each of the parts. Even though these values will have a general application, the percentages may vary according to the requirements of the criteria evaluated. For example, in criteria RO.04 which

Table 11.1 General weighting in the evaluation of each part of the site

Part of the web site	Weighting in the evaluation (%)
Main page	50
Main links	30
Interior pages	20

evaluates whether the URL of the main page is correct, clear, and easy to remember, the total weighting of the evaluation will be applied to the main page. Also, as previously mentioned, some criteria will not follow this separate evaluation, but rather will be evaluated globally, as is the case of criteria EN.01 which evaluates if the web site is shown directly without passing first through the welcome page.

11.3.2 Disaggregation of the Criteria Evaluated

The grouping into one criteria of wide ranging concepts makes it difficult to evaluate the degree of usability and can accentuate the dispersion of the results obtained for a single web site for different evaluators. To solve this problem, in this work, we propose a disaggregation of the criteria proposed by Suárez-Torrente (2011) which, in our judgement, create difficulties in the evaluation process due to their wide focus and ambiguity. In order to do this, two principal sources were used. Firstly, the list of web site usability evaluation criteria developed by Hassan and Martín (2003) was used, and secondly, we referred to our own experience contrasted with experts in this field. As a result, different means of disaggregating the results were generated, which in turn gave way to a range of sub-criteria. Each of these sub-criteria will have a different weighting to enable the final value of the criteria to be obtained.

11.3.3 Description of the Criteria Evaluated

Finally, with the aim of reducing uncertainty on the part of the evaluator, the new tool proposed in this work includes complimentary descriptions for those criteria and sub-criteria which, in the judgement of the authors, are the most difficult to evaluate.

11.3.4 Proposed Criteria, Sub-criteria, and Descriptions

Below, we show the collection of criteria and sub-criteria, as well as their relative weightings and the proposed descriptions, used to measure the level of usability of a web site (Tables 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8, 11.9, 11.10, 11.11).

Table 11.2 Evaluation of general aspects

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE[a] (%)	MPW[b](%)	MLW[c] (%)	IPW[d] (%)
AG.01	Concrete, well-defined objectives of the web site	The content and services offered by the web site correspond to its objectives	50	No	50	30	20
		The web site is clear and well defined	50	No	50	30	20
AG.02	Complete and precise services offered	The main page is the showcase of the web site	25	No	100	0	0
		The design of the main page is different from the rest of the web site	25	No	100	0	0
		The design of the main page is synthesized	25	No	100	0	0
		The design of the main page is logical	25	No	100	0	0
AG.03	The general structure of the web site is oriented toward the user	Web sites must be structured with the user's objectives and needs in mind. The internal structure of the company or organization must not be replicated as this will not interest the user	100	Yes	–	–	–
AG.04	The general look and feel correspond to the objectives, characteristics, contents, and services of the web site	The design and structure used offer the appropriate image for the product on offer	40	No	50	30	20
		The logotype used offers the appropriate image for the product on offer	30	No	50	30	20
		The colors used offer the appropriate image for the product on offer	30	No	50	30	20
AG.05	The general design of the web site is recognizable	The more similar to other web sites on the Internet, the easier it will be to use and the time necessary to become familiar with the site will be reduced	100	No	50	30	20
AG.06	The general design of the web site is coherent	The structure of all pages has coherence and uniformity which do not disorientate the user	50	Yes	–	–	–
		Coherence and uniformity of colors is maintained in all pages to not disorientate the user	50	Yes	–	–	–

(continued)

Table 11.2 (continued)

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE[a] (%)	MPW[b](%)	MLW[c] (%)	IPW[d] (%)
AG.07	The user's language is used	The pages appear in the language most commonly used by the target public of the site	100	No	50	30	20
AG.08	Other languages are supported	One foreign language is supported	25	No	50	30	20
		Two foreign languages are supported	25	No	50	30	20
		Three or more foreign languages are supported	25	No	50	30	20
		Regional languages are supported (if apply)	25	No	50	30	20
AG.09	The translation of the site is complete and correct	Each page is completely translated	100	No	50	30	20
AG.10	Web site is periodically updated	The web site is periodically updated. This can be verified by the inclusion of dates associated with news, events, offers, etc.	100	No	50	30	20

[a] The sub-criteria requires global evaluation in all the web site
[b] Weighting for fulfillment of criteria on the main page in the global calculation of the criteria
[c] Weighting for fulfillment of criteria in the main links in the global calculation of the criteria
[d] Weighting for fulfillment of criteria in interior pages in the global calculation of the criteria

Table 11.3 Evaluation of aspects related to identity and information

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
II.01	Meaningful, identifiable, and sufficiently visible identity and logotype	The logotype is meaningful, identifiable, and sufficiently visible	100	No	50	30	20
II.02	Identity of web site demonstrated on all pages	The identity of the web site company is clearly shown on all pages	100	No	50	30	20
II.03	Slogan or tagline is appropriate to the objective of the web site	Slogan or tagline expresses exactly who the company is	50	Yes	–	–	–
		Slogan or tagline expresses exactly what the company sells	50	Yes	–	–	–
II.04	Information on the company is available	A link is offered which provides information on the company	100	No	100	0	0
II.05	There are mechanisms for contacting the company	Mechanisms for contacting the company are provided, such as e-mail, telephone, postal address, fax	50	No	50	30	20
		Contact mechanisms can be found in an place that is easily identifiable for the user	50	No	50	30	20
II.06	Information is provided on protection of personal data and on author's rights over the contents	A link is provided which gives information on protection of clients' personal data and author's rights over the contents of the web site	100	No	10	0	0
II.07	Information on the author, sources and dates of creation and revision in articles, news, and reports is provided	Information on the author, dates of creation and revision of articles, news, and reports is clearly available	100	No	50	30	20

Table 11.4 Evaluation of aspects related to structure and browsing

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
EN.01	The welcome page has been avoided	The web site is displayed directly without passing through the welcome page	100	Yes	–	–	–
EN.02	Appropriate organization and browsing structure	Quick Access to all pages is available, for example via a menu	50	No	50	30	20
		The user knows where in the web site he is at all times	50	No	50	30	20
EN.03	Organization of elements consistent with conventions	The organization of the elements follows an order similar to: 1) if different *types of product* are offered, these are clearly visible, preferably as tabs where each of them is a different product; 2) the logo of the company appears in upper left-hand part of the screen; 3) the most important information can be found in the center of the screen; 4) access to the customer area is clearly marked	100	No	50	30	20
EN.04	Control of number of elements and of terms per element in the browsing menu	In the browsing menus, the number of elements must not exceed 7 ± 2, or 2 or, at most, 3 terms per element	100	No	50	30	20
EN.05	Balance between depth and width in the case of hierarchy structure	There must be no significant imbalance between the number of different elements in the various menus and sub-menus, nor between the number of hierarchy levels (for example, a menu with various sub-menu hierarchies, each of which has various elements and other menus without hierarchy and with few elements)	100	No	50	30	20
EN.06	Links should be easily recognizable as such	Links should be easily recognizable as such	100	No	50	30	20
EN.07	The characterization of the links indicates their state (visited, active, etc.)	The characterization of the links indicates their state (visited, active, etc.). The links must not only be recognizable as such, but also their characterization must indicate their state (to orientate the user), and be recognized as a unit (links that occupy more than one line)	100	No	50	30	20

(continued)

Table 11.4 (continued)

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
EN.08	There is no redundancy in the links	In any one page, there are never two or more links to the same page or site	100	No	50	30	20
EN.09	There are no broken links	The site is monitored to ensure that there are no links that do not connect anywhere	100	No	50	30	20
EN.10	There are no links which connect to the page already being viewed	The site is monitored to ensure that there are no links which connect to the page already being viewed (for example, links to home page from the home page itself)	100	No	50	30	20
EN.11	In the link images, the content which will be accessed are indicated	The link images are recognizable as clickable	40	No	50	30	20
		The link images include a title attribute describing the destination page	30	No	50	30	20
		There are no images which look like links but are not	30	No	50	30	20
EN.12	There is a link to return to the home page	On every page, there is a link to the home page using text or the company logo	100	No	0	60	40
EN.13	There are browsing elements that orientate the user as to where they are and to finish their browsing	On every page, there is a route or indicator that shows on which page the user is located at every moment	100	No	50	30	20
EN.14	There is a site map to enable users to access directly the contents without browsing	The web site has a map of the site	100	No	50	30	20

Table 11.5 Evaluation of aspects related to headings

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
RO.01	Meaningful headings	The links have headings which are meaningful with respect to what they represent. Headings of the type *click here* are avoided to identify links	100	No	50	30	20
RO.02	Precise and controlled heading system	Standard headings are used whenever there is a generally accepted standard, such as *site map* or *About*	35	No	50	30	20
		A single, well-defined, clear organization system is used for all headings. Different systems must not be mixed in the same web site. The different organization systems are basically: alphabetical; geographical; chronological; thematic, oriented toward tasks, oriented toward the public, and oriented toward metaphors	35	No	50	30	20
		Incoherence is avoided, for example, if a link has a heading *who we are*, it cannot lead to a page whose heading is *About*	30	No	50	30	20
RO.03	Page titles are correct and well planned	The page titles must be clear, facilitating indexing and later searches via search engines	100	No	50	30	20
RO.04	Main page URL is correct, clear, and easy to remember	The URLs of the main page must not be made up of acronyms or abbreviations, excessively long words, words that are difficult to remember or which include unusual punctuation marks	100	No	100	0	0
RO.05	URLs of internal pages are clear	The URLs of the internal pages follow the structure of the menus	50	No	0	0	100
		The URLs of the internal pages do not include unusual codes or symbols	50	No	0	0	100
RO.06	URLs of internal pages are permanent	The URLs of the internal pages do not change over time	100	No	0	0	100

Table 11.6 Evaluation of aspects related to the layout of the page

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
LA.01	Page areas of high informative hierarchy are used for the most important content	The center of the page has the most relevant information, such as an important offer, the main message, or an important link. The edges of the screen are used for menus and less relevant links	100	No	50	30	2
LA.02	There is no overload of information	The different groups of informative objects on a page must not exceed 7 ± 2	50	No	50	30	20
		Colors, typographic effects, and groupings are correctly used to discriminate information	50	No	50	30	20
LA.03	The interface is clean, without visual noise	The use of images or objects, which may be perceived by the user (such as a line, shapes, or icons) are avoided as these make it difficult to understand the main message that is being transmitted	100	No	50	30	20
LA.04	There are blank areas between the informative objects of the page to not overburden the user while viewing	There is a space of at least 2 cm. between informative objects in the central part of the page	100	No	50	30	20
LA.05	Correct use of the visual space of the page	The space is not cluttered with decorative elements or left with large blank areas	50	No	50	30	20
		Too much space is not given to elements of lesser importance	50	No	50	30	20

(continued)

Table 11.6 (continued)

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
LA.06	The visual hierarchy is correctly used to express relationships of the type *part of* among the elements of the page	The sub-menus are clearly linked to the menus, which group them together through the use of text size or color, backgrounds, or different alignments, etc	35	No	50	30	20
		The blocks of text are clearly linked to the section or point to which they refer and are clearly differentiated through the use of text size, color, backgrounds, or different alignments, etc	30	No	50	30	20
		Buttons and options are clearly linked to the section or point to which they refer and are clearly differentiated through the use of text size, color, backgrounds, or different alignments, etc	35	No	50	30	20
LA.07	The length of the page is controlled	Scrolling, or moving the page down to see content, has been avoided as far as possible	100	No	50	30	20
LA.08	The printed version of the page is correct	The printed pages of the site are legible	50	No	50	30	20
		The printed pages do not contain loss of text at the edges	50	No	50	30	20
LA.09	All text can be read without difficulty	The font used on the web page is big enough to be read without difficulty (recommended minimum 9 points)	35	No	50	30	20
		The font, typographic effects, line width, and alignment used on the web page make reading easy. Serif family fonts are recommended	35	No	50	30	20
		On all pages, there is a strong contrast between font and background colors to facilitate reading by people with visual impairments (some pages, in spite of not having a visual strong contrast in the information shown, have links which allow this contrast to be increased)	30	No	50	30	20
LA.10	Blinking or sliding text has been avoided	The site does not have flickering text	50	No	50	30	20
		The site does not have sliding text	50	No	50	30	20

Table 11.7 Evaluation of aspects related to ease of understanding and use

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
EF.01	Clear and concise language is used	Ambiguity of messages is avoided. The web site clearly expresses its message	100	No	50	30	20
EF.02	Friendly, familiar language is used	The use of constant imperatives and difficult to understand messages or language that is disrespectful to the user is avoided	100	No	50	30	20
EF.03	Each paragraph expresses an idea	The expression of various ideas in the same sentence or paragraph is avoided	100	No	50	30	20
EF.04	Constant use of interface controls	Interface controls (buttons, blocks of text, selectors, etc.) act as they should	40	No	50	30	20
		The dimensions of interface controls are appropriate for the information to be introduced (in the case of blocks of text) or the information contained (such as buttons)	30	No	50	30	20
		Interface controls are coherently grouped and set out	30	No	50	30	20
EF.05	Visible metaphors are recognizable and easy to understand for any user	Icons and images have a clear meaning. After a brief look, it is easy to understand what they express	100	No	50	30	20
EF.06	If pull-down menus are used, they have a coherent or alphabetical order	Pull-down menus are coherently or alphabetically ordered	100	No	50	30	20
EF.07	If the user has to fill in a field, the available options can be chosen instead of having to write them where possible	Except in fields where specific information is required such as name or address of the user, in general, the site makes use of pull-down fields to allow introduction of data and avoid errors. With this in mind, wherever possible the available options should be included for direct introduction of data	100	No	50	30	20

Table 11.8 Evaluation of aspects related to control and feedback

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
CR.01	The user has complete control over the interface	The web page does not use elements that lead to a loss of control of the interface on the part of the user, such as pop-up windows, windows which open up to a complete screen or intrusive banners, etc	100	No	50	30	20
CR.02	The user is informed as to what is happening	At certain times, the web server must carry out particular tasks which mean that the user has to wait, such as uploads, downloads, or information processing. The system must inform the user during these waiting times of the current state of the process that is taking place, either with some form of indicator, percentage of completion or explanation of the task being performed at that moment	100	No	50	30	20
CR.03	The user is informed as to what has happened	It is important to keep the user informed of any events taking place, for example, when a user evaluates an article or responds to a survey, they must be informed that their response has been correctly processed	100	No	50	30	20
CR.04	There are validation systems in place before the user sends information in order to avoid errors	To save time for the user and to avoid errors in the introduction of data, the web site must incorporate events that analyze the information introduced and validate it, for example, with the incorrect introduction of dates	100	No	50	30	20
CR.05	When an error has occurred, the user is informed in a clear, not alarmist way, of exactly what has happened and how to rectify the problem	Error messages inform the user in a natural tone, without causing alarm, indicating how to rectify the problem	100	No	50	30	20

(continued)

Table 11.8 (continued)

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
CR.06	The response time is appropriate	It usually takes a little time for the server to processes messages and operations, but this waiting time should not exceed 10 s	100	No	50	30	20
CR.07	The windows of the web site do not annul or superimpose themselves over that of the browser	The creation of windows superimposed over that of the main browser must not take place to avoid loss of time for the user as well the generation of confusion	100	No	50	30	20
CR.08	The proliferation of windows on the user's screen is avoided	The generation of new windows is controlled, avoiding excessive proliferation. This is achieved by opening the new page in the same tab of the browser when a link is accessed, without opening new ones. This, however, is acceptable when a web site external to the current one is being accessed, such as a support system	100	No	50	30	20
CR.09	The download of additional plug-ins by the user is avoided	The download of additional plug-ins by the user is avoided	100	No	50	30	20
CR.10	If there are tasks which involve various steps, the user is informed of which step he is at and how many steps remain	When a long process is started on the web site (for example, placing an order, requesting new insurance, etc.), the user knows at all times which stage they are at	100	No	50	30	20

Table 11.9 Evaluation of aspects related to multimedia elements

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
EM.01	Well trimmed photographs	Images are not badly trimmed and do not have irregular edges	100	No	50	30	20
EM.02	Images easy to understand	Images are coherent with the texts to which they refer	100	No	50	30	20
EM.03	Images have correct resolution	The images have a minimum resolution of 72 dpi, which is the minimum for correct visualization	100	No	50	30	20
EM.04	The use of images or animation provides some sort of added value	The images shown improve understanding of the message being transmitted	100	No	50	30	20
EM.05	The use of cyclical animations is avoided	The use of cyclical animations is avoided	100	No	50	30	20
EM.06	The use of sound provides some sort of added value	If sound is used, it should improve understanding of the message being transmitted	100	No	50	30	20

Table 11.10 Evaluation of aspects related to web searches

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
BU.01	Web searches, if necessary are available from all pages of the web site	The search field is easily accessible	100	No	50	30	20
BU.02	It is easily recognizable as such	The search field id easily recognizable, either with text, images, or both	100	No	50	30	20
BU.03	It is easily accessible	The search field is in a visible area, preferably in the upper part of each page	100	No	50	30	20
BU.04	The text box is sufficiently wide	The text box for the search field allows viewing of at least 15 characters, as well as the introduction of text of at least 50 characters	100	No	50	30	20
BU.05	Clear, simple search system	The basic search system is made up mainly of a field for the introduction of text plus a button to execute the search	100	No	50	30	20
BU.06	Allows advanced search	The option of advanced search is available to allow the application of more specific filters	100	No	50	30	20
BU.07	Shows the results of the search in a way that is easy to understand for the user	The search system shows the results according to affinity with the text and in a way that is easy to understand	100	No	50	30	20
BU.08	Assists the user in the case that no results are available for a given query	The search system offers suggestions/advice in the case that no results are found for a particular query	100	No	50	30	20

Table 11.11 Evaluation of aspects related to the help system

Code	Criteria	Description/sub-criteria	Sub-criteria weighting (%)	GE (%)	MPW (%)	MLW (%)	IPW (%)
AY.01	The link to the help section is located in a standard, visible area	The link to the help section is, if there is one, located in a standard, visible area, such on the upper or side edges of the page	100	No	50	30	20
AY.02	Easy access and return to and from the help system	The entry to the help system, if there is one, is carried out in a new tab on the browser	100	No	50	30	20
AY.03	Contextual help is offered for complex tasks	For complex tasks such as introduction of a completed form or a bank transfer contextual help is available	100	No	50	30	20
AY.04	If there is a FAQ section, both the choice and presentation is correct	If there is an FAQ section, the questions are correctly chosen to include the main aspects about which a user may have queries	50	No	50	30	20
		If there is an FAQ section, the questions are ordered logically, for example, according to the structure or importance of the menus	25	No	50	30	20
		If there is an FAQ section, the questions are correctly written (without orthographical errors and in a clear and concise way)	25	No	50	30	20
AY.05	If there is a FAQ section, are the answers to the questions correctly written	If there is an FAQ section, are the responses to the different questions correctly written (without orthographical errors and in a clear and concise way)	100	No	50	30	20

11.4 Conclusions

This present work has taken as a starting point, and then complemented, the framework for evaluation of usability proposed by Hassan and Martín (2003) and Suárez-Torrente (2011) with the development of a new set of criteria supported by an associated metrics to evaluate usability in web environments.

The main objective of the work has been to reduce the uncertainty present in web site usability evaluation processes by improving on already existing tools. Thanks to this greater objectivity, the aim has been to obtain evaluations of usability that can be independently compared whoever the evaluator may have been. According to the authors of this study, the subjective nature of previous tools imposes a personal influence on the evaluations, limiting their range to changes in evaluators. In other words, the previous tool had a subjective element of such importance that a change of evaluator could suppose a change in the analysis of the criteria under evaluation. To avoid this, as well as to separate and describe concisely the criteria to be evaluated, a more specific measurement system has been applied. The result has been the proposal of an evaluation framework with a set of criteria and sub-criteria with a range of associated weightings and applications.

In this way, the results obtained are closer to reality, thus reducing the dispersion of results for a particular object examined by different evaluators. To achieve this, it was assumed that the evaluation process would probably take more time.

This work obviously has certain limitations, the first of which is related to the nature of usability itself which makes it difficult to carry out a completely objective evaluation. This means that there are still some criteria which are susceptible to a lack of objectivity. The second limitation is related to validation. Due to the theoretical focus of this work, validation has not been a primary objective. This opens the door to future lines of research which focus more on the improvement of these aspects through a range of empirical testing which will allow the previously mentioned shortcomings to be resolved.

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Chapter 12
The Importance of Trust in Information Security in Interconnected Organisations

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12.1 Introduction

The introduction of technology into massive personal and professional environments, initially by gathering information and then handling and processing it for increasingly important functions while managing systems as interconnected entities, has a number of positive aspects, yet it also entails a progressive increase in risk in all information areas. Enterprises need to ensure the confidentiality, integrity and availability of information stored in their systems and that they can operate normally while maintaining trust in their technology management efficiency. This in turn will determine how much they are trusted and their technological reputation as an undertaking. Obviously, each type of business or organisation will require different levels of security depending on their kind of activity. However, in spite of their differences, each new market requirement cannot be met merely by the protocols and security standards in place. They cannot even be met by strict compliance with legal requirements since no matter how extensive the latter are, it would still be a case of doing the bare minimum and addressing either known vulnerabilities or potential new ones similar to those already known. However, without the commitment of everyone involved in managing information and its systems, it will be extremely difficult to tackle all existing vulnerabilities or unknown ones resulting from the disruptive and swift evolution of technological innovation.

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12.2 Need for and Relativity of Security

In a perfect world, reality would always tally with our ideals and our expectations would always be met. However, it is when you put an idea into practice and face reality that expectations are not met due to our own mistakes and also because we do not control the environment.

A complex system has many parts and functions, and grasping how they interact can be difficult. A tightly coupled system has strict time and sequence requirements with a small set of options. An organisation can undoubtedly be described as a complex and tightly coupled system.

Any organisation can have excellent security measures for its information in place. However, if its people are incompetent or do not have proper accountability and commitment, the upshot for the organisation may be as bad as doing nothing, i.e. in terms of security, you are only as strong as your weakest link.

Establishing security based on the context, in other words based on our expectations, means you do not have to consider exceptions to current security standard principles and rules as some requirements will not always tally with our expectations.

An expectation is the hope of future and continued compliance with a series of features or functions of something. We have expectations about the ethical behaviour of members of our organisation, but shareholders, regulators, customers, suppliers and partners also have their own expectations about our organisation.

Expectations are qualitative and informal. Requirements are used to formally express an expectation, and they set out the satisfaction thresholds of the features of the object or service in question.

There is a close relationship between security and quality. When our expectations are met, we consider that there is quality, as for instance when we buy a product at a price that seems reasonable, which does what we want it to do and does not break within a reasonable period of time. If an organisation is able to deliver the same quality over and over again in spite of malicious attack, changes in raw materials or distribution problems, then it can be described as a secure organisation. In short, quality means doing things well and providing the resources to do so, while security means always doing things with the quality we are used to. Quality is measured by the extent to which expectations are met and security by the frequency with which they are met. An organisation that produces with quality "does things well"; an organisation that produces with security and quality "always does things well".

We think that an organisation is secure if its expectations vis-à-vis its assets are continuously met. Hence, to decide whether an organisation is secure or not, you need to know what these expectations are so you can assess whether they are being met and whether or not they are continuously being met.

Quality is achieved when a customer finds their expectations are met or exceeded, while security is achieved when there are resources in the organisation

to deliver this quality and it is delivered in spite of all the threats inside and outside the organisation.

Measures that do not jeopardise the organisation's mission must be put in place to make it more likely that our expectations will be met and therefore achieve greater security.[1]

Technological and legal solutions tend to provide a degree of protection that is roughly appropriate to the security of an organisation required for a given situation and environment at a particular time (and with a fixed expiry date). However, it should also be borne in mind that not all of them do this in the same way because each one may have a specific task and not all of them can guarantee coverage of a sufficient array of internal and external risks over time.

This approach has led to a growing commitment to self-regulation which is embodied in codes of conduct involving ethical assessment. These are measures designed to improve the security and trust expectations of people inside and outside the organisation and step into the breach in cases where technical measures are lacking or there is no appropriate legal regulation (i.e. a legal vacuum).

Nowadays, there are a number of domestic and international codes of conduct that seek to safeguard specific aspects of organisation and user security mostly to do with technology.

There are several organisations in countries such as the United States which bring private sector companies together to draw up codes of conduct that sometimes are the only regulations in their fields. Codes of conduct produced in the United States include the CDMA Code of Ethics & Standards of Practice: Protection of Personal Privacy, the DMA's Marketing Online Privacy Principles and Guidance and the DMA Guidelines for Ethical Business Practice.

In Europe, the EU's Economic and Social Committee has suggested drawing up an ethical code for online business practice to protect the rights of users and thus build trust in using the Internet by ensuring coverage over and above expectations.

12.3 Legislation, Technology and Information

Manuel Castells[2] argues that we have gone from a society in which centre stage was taken by an individual or a group (a company or institution) to a new information society in which the Internet takes centre stage.

As noted above, however, though modern technology does have immense advantages, there is also a greater chance of it being misused leading to various kinds of damage and injury. Hence there is the paradox in the information society of a significant increase in the possibilities of communication between people with all the positive effects that this entails and yet also a greater ability to do harm to them.

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[1] Security should not be confused with security measures. Security measures enable us to increase the likelihood that our expectations will be met (in a nutshell, security).

[2] *La Era de la Información*, vol. 1, p.226.

The slow reactions of national and international authorities in responding to the new situations brought about by the use of new technology in communication processes mean that we only have relative trust in exclusively legal security measures. Furthermore, as they are intended to be general and applicable to all the situations that may come up in a particular social or economic setting, they have to be relatively abstract, and this makes it difficult to use them in specific cases. In addition, the law lays down severe punishments and hence can only be used when the circumstances of the case clearly fit the legal grounds.

The limitations of legal measures do not stop here as even in cases where regulations have been brought in, their enforcement is often incomplete. This may be due to problems in interpreting them, or because legal practitioners have difficulty in taking them on board, or because society as a whole finds it hard to accept the new rules (as would be the case of the widespread acceptance of P2P programmes for downloading music, films, software, etc.).

That there are problems does not mean we should (or can) give up on or do without legal measures as a way of providing and guaranteeing certain levels of security or as instruments for conflict resolution, or as a guarantee of social (and organisational) expectations. Instead, we should be aware of their limitations and the need to turn to ethics, whose advantages come from its greater flexibility and greater ability to adapt to situations in social and organisational life and specifically to the one posed by an information society, even though it may lack the coercive power of law. This apparent limitation may indeed even be an additional advantage inasmuch as it may lead to more sincere commitment and consequently more effective compliance with its rules.

This is not to say that ethics is merely an adjunct to the law. Ethics have its own foundations and field of action which often coincide with the law's but also reach areas that the latter either does not cover at all or covers inadequately.

New technology enables the massive and reserved use of all kinds of data without the consent of the people concerned, which brings with it obvious perils for people's legal certainty in physical and moral issues and also in the financial field. What should we do about the growing marketing of data affecting the reputation or privacy of individuals? The European and Spanish authorities have drawn up rules to prevent the marketing of companies' personal information databases and in fact have handed out fines and even prison sentences for the most serious offenders. Yet, government cannot control the transfer of personal data between smaller companies as there are so many of them.

The Internet is the paradigm of the information society since information technology and communication come together with it. It is also especially difficult to apply existing case law to the Internet.

The rigidities of the legal system have led lawmakers to increasingly advocate the ethical formula of self-regulation. The European Union Council of Ministers passed a resolution on 17 February 1997 that invited member states to "encourage and facilitate self-regulatory systems including representative bodies for internet

service providers and users, effective codes of conduct and possibly hot-line reporting mechanisms available to the public".[3]

So what tools do we have to tackle such complex and ever-changing issues using an ethical approach? We lack the technology institutions or councils needed to address issues that straddle the border between ethics and law in a new way other than direct public management and self-regulation. This new way would be "co-regulation", which is a hybrid of both methods as it includes elements of the law and elements of ethics by involving people outside government and using standards set by codes of ethics. It is a new system for managing collective interests that are more in line with modern times. What is clear is that the imagination to tackle the new ethical challenges of new technology will be an increasingly necessary tool given the dizzying pace of social change as a result of a process that has only just begun and whose long- or even medium-term future remains unpredictable today.

The attitude of the authorities to social media faces two perils that need to be averted. Firstly, an authoritarian interventionist stance may lead to censorship of any message that might be considered inimical to the interests of the rulers. Then secondly, the ultra-liberal stance of allowing the market alone to resolve conflicts merely leaves the control of information to those who hold economic and media power.[4] We should take a cautious approach that respects all the rights at stake (through consultation policies promoting self-regulation and co-regulation) and also bolster and add to ethical codes and other international cooperation mechanisms.

12.4 Computing, Ethics and Education

Information and communication technology brings innovations and changes to market so quickly that most of society does not have enough experience to deal with it appropriately and occasionally does not identify its real power, challenges and risks.

Many end-users are not aware of good and evil, the possible uses of ICT and the consequences of abusing it and of their actions for the group in an information system. They can therefore be easily found adrift if security depends solely on their judgment and what they "identify", "perceive" or "think of" as common sense. For instance, it is by no means uncommon to hear cyber criminals or potential or actual hackers say things like the following: "…if they didn't want people to get into their systems, they would have used better security measures and mechanisms…"

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[3] For Spain see the Information Society and Electronic Commerce Services Law 34/2002 of 11 July (Article 18).

[4] "Ética en Internet" in *Ecclesia,* 16 March 2002, p.406.

Non-existent or limited ethical guidance and education in the appropriate use of information technology lead to lack of awareness of criminal acts committed using electronic media (music, illegal software, etc.). In Europe, the generations of people with ICT skills have traditionally been divided into three categories:

- Those who learned to handle ICT for professional purposes or at a company where they worked.
- Those who learned it in their educational environments (universities, etc.)
- Those who have had (or have) access to a computer since childhood.

The first and second generations came across computers that were innovative for their time, which they then learned to live with and handle with greater or lesser skill. However, this generation learned many of these technological elements by dint of trial and error.

The fact is that from now on, the third generation of people with ICT knowledge will take hold of the information technology reins in society and business and will therefore act/react in line with the educational patterns they have learned in their basic education about ethics in technology. The problem arises, for instance, when our schools teach only the definition of robbery/theft and not "computer robbery/theft".

For example, people are taught not to cheat in exams, yet they can find "tricks" on the market to swiftly overcome problems (or protection systems) in digital games which are only described using other expressions such as "alternative routes", "backups", "cracks", etc.

Free access to the Internet and the ease of access to content lead to the belief that "all" information is and should be free. This is due to many factors, one of which is the widespread idea that "everything belongs to everyone" as the state protects us and guarantees us lots of things, including free information. Another would be that we are all equal, so we should have the same access to information. The truth is that individuals and legal entities alike need to protect their information.

It is now more than 25 years since the Computer Ethics Institute[5] in the United States of America held its first National Computer Ethics Conference in Washington DC in 1991. Nevertheless, the conference's central theme remains a concern today, which explains the major initiatives and projects to promote ethics and good behaviour in organisations existing nowadays. Back then, the conference focused on the Ten Commandments for computer use set out below:

- Thou shalt not use a computer to harm other people.
- Thou shalt not interfere with other people's computer work.
- Thou shalt not snoop around in other people's computer files.
- Thou shalt not use a computer to steal.
- Thou shalt think about the social consequences of the program you are writing or the system you are designing.

[5] http://www.infosectoday.com/Articles/Intro_Computer_Ethics.htm

- Thou shalt not use a computer to bear false witness.
- Thou shalt not use other people's computer resources without authorisation or proper compensation.
- Thou shalt not appropriate other people's intellectual output.
- Thou shalt not copy or use proprietary software for which you have not paid.
- Thou shalt always use a computer in ways that ensure consideration and respect for your fellow humans.

The National Conference on Computing and Values,[6] was held on the campus of Southern Connecticut State University in August 1991 and also put forward four primary values for computing, originally intended to serve as an ethical foundation or guidance for computer security. These foundations were devised based on a user's actions in creating, selling, supporting, using or relying on computing. In other words, this guidance sought to improve and stabilise computing and information to enable technology and systems to coexist and work productively for society:

"The four primary values state that we must strive to:

- Preserve public trust and confidence in computers.
- Enforce fair information practices.
- Protect the legitimate interests of the constituents of the system.
- Resist fraud, waste, and abuse".

Yet ***can we humans invent values?*** At the end of the nineteenth century, the issue of values gained importance due to the work of the German philosopher Friedrich Nietzsche. Afterwards, two conflicting subjectivist and objectivist schools of thought emerged about the reality of value whereby:

- Subjectivist positions (Nietzsche and Meinong) argue that nothing is valuable in itself and that there are no values in themselves either, but instead all values are created or invented by people.
- Objectivist positions aver that value is objective and independent of any subjective consideration. For advocates of these positions, to value is to discover values.

For M. Scheler and N. Hartmann, values are independent. Values are ideal, objective and absolute entities existing between and for themselves, and they have an essence and ideal existence. For Scheler, values are present in things or in properties and yet are independent of both of them.

In his book "Formalism in Ethics and Non-Formal (or Material) Ethics of Values", Max Scheler criticises Kantian formalism and offers as an alternative a material ethics of values. According to Scheler, Kant makes the same mistake as the empiricists in believing that we have only two types of faculties:

[6] http://www.infosectoday.com/Articles/Intro_Computer_Ethics.htm

- **Reason**, which is capable of universality and unconditionality but which a priori only provides forms, not content and not matter.
- **Sensibility**, which provides content, although this is always specific and conditioned knowledge, i.e. obtained a posteriori.

Scheler argues that our spirit is not confined to the "reason–sensibility" pair, and therefore, there is no reason to identify what "is" a priori with the rational and the material with the sensible or a posteriori.

In short, we can conclude that values have "value", and so they attract and please us and are not a purely subjective creation. We believe things that are carriers of some type of value to be good, as is the case with a beautiful melody or a liberating proposal. And we consider them to be good because we discover in them a value and not because we inwardly decide to give it to them. However, for those values to come to the fore, humans capable of grasping them will have to intervene, and hence human creativity also shapes reality as it helps to bring to light values and ways of perceiving values. The acquisition of some values and not others will depend on the intervention of the human subject.

We also know that the field of values is somewhat elusive because values are hard to pin down. So examples have to be used. We all know more or less what an adjective is; it is a word that goes with a noun to describe or qualify it. Likewise, a value is something that always accompanies what is good and so we say that good things have value and bad things do not. Next comes the translation of that value, how it is made obvious or specified, which will lead to the rule for expressing the value. "Rules" are part of our lives precisely because we need values, and as values often slip away from us and we do not discern them when we see them, we need rules. Yet, every rule corresponds to a value to the point where a rule without a value is a valueless rule.

Technological security and legality cannot be resolved through the establishment of mandatory rules and codes. Instead, a broader ethical dimension is needed that is geared towards the future implications and consequences of results in all contexts and areas of action. Hence, the ethical stance of every business manager concerned about security should combine an ability to envision and perceive the impact of technological innovations with a more committed, consistent and responsible attitude towards humanity and its social values.

Technological changes and information proliferation have been the main tools for opening up borders worldwide. Due to globalisation, ethical and economic values have alternated with each other to end up being inversely proportional to what today's society most demands: transparency and appropriateness. Computer networks, technology and communication have come so far that ethical values have been neglected.

Cardinal Achille Silvestrini,[7] retired prefect of the Congregation for Eastern Churches, expressed this conviction when he addressed a Union of Industrialists of Rome conference on 20 May 2004 on the theme "Business, Ethics and Legality".

[7] http://www.zenit.org/en/articles/time-ripe-for-business-ethics-says-cardinal

The last two decades have certainly been ones of great economic development but also of great moral failures for the financial community. Legality is certainly an essential guide for economic activity and should be obvious for businessmen. In fact, businesses could not survive without the legal order since contracts, which govern the whole system, have no validity unless everyone respects the law.

> Consequently when a crime is committed in the business world the scandal is twofold: scandal because of moral failure and scandal because it is a suicide attack on the system itself.
>
> More freedom presupposes greater responsibility. Rules should not be seen as a restriction on freedom but rather from a truly social perspective as a guarantee for the rights of all.
>
> As human beings we are called to make our work into a means to achieve a harmonious life, in which we grow in full humanity. It would be a terrible contradiction and absurdity if our work ended up making us less human. Hence ethics should not be left at home when we go to work.

12.5 Technology and Trust

Mayer, Davis and Schoorman define trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (cf. Mayer et al. 1995:712). Although not made explicit in the model, this decision is a human decision and consequently trusting is a choice which we make after judging that there are grounds for it.

As can be seen in the Fig. 12.1, the authors identify a number of factors in the process of building trust. It is assumed that the act of trusting requires the presence of the agents involved: the trustor (the one who trusts) and the trustee (the person who is trusted). The model identifies the traits of the parties to be considered when

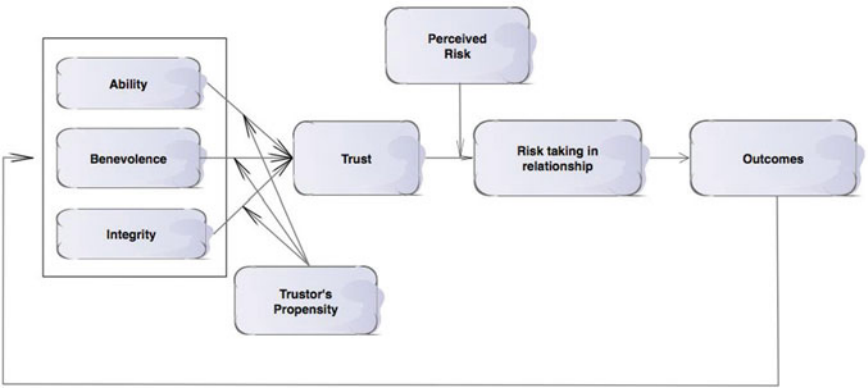

Fig. 12.1 Model of trust by Guillen et al. (2011); Mayer et al. (1995)

assessing whether or not trust is built, i.e. the factors in the trustor (trustor's propensity) and in the trustee (ability, benevolence and integrity) which give rise to trust. The model also identifies the concept of risk-taking as a result of trust, leading to the specific behaviour entailed by trusting. Along with the factors involved, the authors describe the process of building trust as a dynamic process.

The decision to trust others or not is influenced by a number of factors, but what these authors emphasise is that trust depends both on the people who are going to be trusted and on the people who trust. People who trust (trustors) influence the process of building trust through their "propensity to trust", i.e. their willingness to take risks or not. If a group of people do not take any risks, they will not trust anything or anyone. This factor would be a necessary, but not sufficient, condition to start a trust relationship between two groups of people. One of the greatest contributions of Mayer et al. (1995) consists of the identification of the "trustor's propensity" as a mediating variable in trust.

Additionally, trustees (the people who are going to be trusted) play a crucial role. The trustor has to judge whether the trustee is worthy of their trust. Here they refer to the "trustworthiness" of the trustee, which is the set of features of the trustee that indicate whether they generate trust in others or not. The trustor evaluates the trustee's trustworthiness by assessing three factors or features: their ability, benevolence and integrity. Mayer et al. (1995) argue that in addition to influencing a judgement about the trustworthiness of the trustee, these three factors are the antecedents of trust, in other words the decision to trust someone else or not will be taken based on these three features.

"Ability" is a trust antecedent that refers to the competencies and abilities of the trustee in terms of knowledge of performance and the professional, technical and legal aspects of the relationship. It is a situational element inasmuch as someone has the ability to adequately perform a certain activity, which means it should be assessed within the context or situation in which the action unfolds. For example, if you are considering the possibility of trusting in a transaction on eBay by advancing payment to the seller, this person needs to demonstrate some knowledge of the contents of the sale and international transactions (based on positive feedback from previous relationships) for you to trust them. And while they may be trustworthy for this action, they may not be for other activities such as sending them a product for repair. Ability highlights the situational nature of organisational trust. As the authors put it, "The question 'Do you trust them?' must be qualified: 'trust them to do what?'" (cf. Mayer et al. 1995:729).

"Benevolence" as a trust antecedent refers to the motives and intentions pursued by the trustee in a particular action. What is assessed here is whether the trustee seeks the good of the trustor and is not merely self-serving in their customary actions, so the ethics on showing their performance (for instance the demonstration of commitments previously met with excellence, the guarantee of demonstrated behaviour, etc.) are essential for their positive weighting (nobody wants to enter into a transactional relationship without having a prior perception through direct or indirect communication, or at least the possibility of it, which makes it possible to perceive benevolence).

Finally, "integrity" is the antecedent of the trusting process which refers to the principles governing the trustee's behaviour. Before beginning to trust, the trustor assesses whether or not they share these principles with the trustee (which will gradually come to establish their reputation).

The authors argue that although the antecedents of trust can be divided into three types, all of them have to be present for it to exist. Once the trustor has assessed the trustee's ability to generate trust, they then have to decide whether to make themselves vulnerable or not. This is reflected in the model by the "risk taking in relationship" variable, which is the demonstration in the trustor's behaviour that they are willing to trust, in other words the decision to take a risk or not. The authors note that the risk taken depends both on the "trustworthiness" generated and the "perceived risk" that is to be taken. This relationship shows how the trust the trustee has to generate should be proportional to the degree of vulnerability accepted by the trustor. For instance, deciding whether to hand over a small sum of money to someone is not the same as deciding whether to hand over the findings of research in which you have invested considerable time and effort, since the degree of vulnerability accepted and the potentially negative consequences of the two actions do not have the same impact. The trustee's trustworthiness should be consistent with the perceived risk in each situation.

Since a relationship/transaction using technological means is more likely in an environment of trust, the importance of trust as, for example, a key facilitator of e-commerce is increasingly recognised by the academic and professional communities (Bhattacherjee 2002; Gefen, 2003; Flavián and Guinalíu, 2006).

Trust in interconnected information systems is generated by positive interactions by the exchange parties (Jarvenpaa et al. 2000). For instance, when consumers feel comfortable interacting with a Website in online transactions, they are prone to develop trust in that Website and trust becomes the key strategy for dealing with uncertainty and fear (Hoffman et al. 1999; Jarvenpaa et al. 1999). In these situations of uncertainty, consumer perceptions, the accuracy of the information on a Website, its ability and willingness to customise and the degree of fit between words and actions all contribute to trusting the Website (Koufaris and Hampton-Sosa 2004) and therefore to its positive growth.

12.6 Security and Trust

Since personal and financial information can be intercepted and used for fraudulent purposes, investment in security technology is a major factor of concern in interconnected systems. This is because users need a sense of security when conducting transactions of any kind with sensitive information, and whether it is put in place or not remains one of the main obstacles to the growth of e-business (Wang et al. 1998; Furnell and Karweni 1999; Jarvenpaa et al. 1999; Gefen 2000; Lee and Turban 2002).

The perception of insecurity can be defined as a threat which creates a circumstance, condition or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, modification of data, denial of service, and/or fraud, waste and abuse (Kalakota and Whinston 1997, p. 853).

Security in using technological advances such as cryptography, digital signatures and certificates to protect users against fraud, phishing or other hazards will unquestionably has a positive and necessary impact on the propensity, for example to shop online (Ranganathan and Ganapathy 2002; Yousafzai et al. 2003; Kim et al. 2008; Lian and Lin 2008). However, more significant is not so much the security of the electronic channel as a means of transaction as the subjective perception of the risk involved in the transaction (Klang 2001; Grabner-Kräuter and Kaluscha 2003). Hence, implementing security mechanisms is directly related to perception, belief and "trust" in secure online relationships. Trusting in beliefs determines user's attitudes towards enterprises with online information systems.

12.7 Conclusions

Ethics may be defined as the moral construction that guides the attitudes and behaviour of professionals towards achieving professional aims based on the twin aspects of recognising human beings in their entirety and respect for social values. By contrast, legal rules belong to the domain of the law which determines the legality of actions and consequently the legal standing of professional activities.

The best starting point for understanding the harmony between ethics and the law is to revisit the conception of common sense which sees justice as the essence of law, or rather in keeping with the conceptions of Aristotle and the Roman jurists, law as what is just, the object of justice.[8] We are overly used to identifying law with a system of rules that should at most be at the service of justice but only as a technical tool that is completely neutral in itself.

Justice thus defined has numerous dimensions including ethics and law. From a moral standpoint, justice like every virtue refers to the behaviour of the person in view of their ultimate good: the unjust primarily damages itself. The legal viewpoint, by contrast, considers the objective interpersonal relationship, inasmuch as the rights of others have actually been enforced or respected, with all the problems entailed by the external realisation of justice in each historical period. Hence, ethics cannot replace or abolish the law but rather only enrich and add to it and vice versa.

[8] The applicability of this conception was evidenced from various standpoints in the 20th century including Michel Villey and Javier Hervada. Cf. M. VILLEY, *Compendio de filosofía del derecho*, Spanish translation, 2 vol. EUNSA, Pamplona 1979-1981; J. HERVADA, *Introducción crítica al derecho natural*, 6th ed., EUNSA, Pamplona 1990.

Michael E. Porter argues that "a company's competitiveness is measured by the things it can do better than any of its competitors". However, since we are looking at sustainable or lasting competitiveness, this should be achieved with an eye to the future, in other words based on the fact that being at the cutting edge also includes the ethical and moral dimension.

Competitiveness involves managing information, and information management poses complex moral and ethical dilemmas which managers have to meet head-on. Seeking to do this only from a technological or legal standpoint leads to lower levels of security and efficiency as well as higher financial costs.

Technological and legal security as well as trust in and the ethical reputation of an organisation interact in an integrated and holistic system; they are strategic assets for any organisation with interconnected technological information systems.

Trust and reputation are the outcomes of years of transparent and faultless performance. Building trust is a strategic variable and a long-term job; there are no methods for gaining instant trust. However, trust and therefore reputation can be destroyed or seriously damaged by events or mismanagement, by irregularities and by unethical actions.

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