

**Organizational, Environmental, and Technological Factors Relating to Benefits of WebSite
Adoption**

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ABSTRACT

This research in progress reports on the organizational, environmental, and technological factors relating to web site adoption by small and medium enterprises. As the Internet is playing an increasingly important role in marketing activities, and while the opportunities afforded by a web site seem readily apparent, there is still much debate about what impact it will have. A conceptual framework integrating these three perspectives was adopted and tested with a multiple-case study. Our findings provide preliminary support for the proposed research framework.

Keywords: Internet, web site, IT adoption, SME, benefits, success conditions

INTRODUCTION

Attracted by the opportunities offered by the Internet for prospection, market and communications diversification, small and medium enterprises (SMEs) adopt information technology (IT), hoping to better their performances. However, a presence on the Web is not without risk and not all experiences lead to success (Reix, 2003). This research aims at understanding the reasons for which SMEs adopt a Web site, and how the Web can bring them benefits.

This interrogation is important for three reasons. First, the knowledge of potential Web benefits and how to reap them to facilitate the adoption of information technologies (IT) by SMEs and how to contribute to increase performance. Second, for the site creation agencies to know the factors which influence the adoption of a Web site to help them to better segment their potential clients and adjust their marketing strategies. Third, at a macro level, SMEs play an important role at the level of the national economy. Increasing these enterprises performance through the adoption of Web sites will bring positive spin-offs to the growth of the economy.

LITTERATURE REVIEW AND THEORETICAL FOUNDATIONS

Studies about the adoption of information technologies in general are numerous, but not many of these are treated in the context of small and medium enterprises. In fact, SMEs present specific issues relating to their environment, their structure, their strategy, their business processes and their socio-economic context (Raymond, Bergeron & Blili, 2005). Concerning Internet

technologies, Seyal & AbdRahman (2003) observed that technological and managerial attributes are significant determinants of the adoption of electronic commerce. Lee & Cheung (2004) noted that financial and technological resources, perceived advantages and environmental factors influence the adoption of the Internet. Finally Raymond (2001) indicated that the use of a Web site is determined by the environment characteristics, and the organization and the technology characteristics. Relying on works on adoption of IT and the Internet by SMEs, this study proposes a conceptual framework (Figure 1) dealing with the adoption of a Web site from three perspectives: organizational, environmental, and technological.

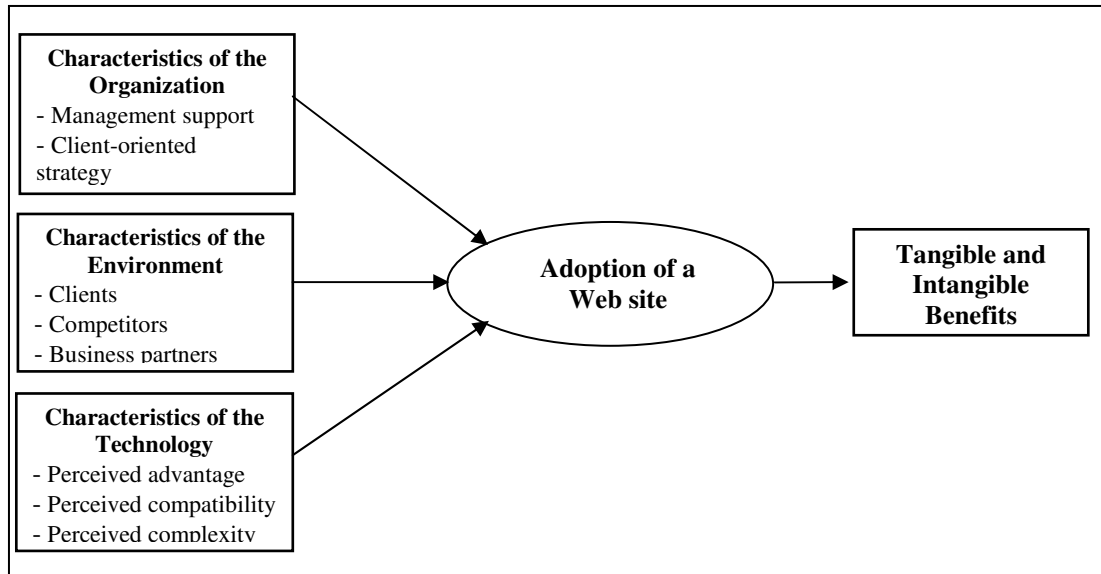


Figure 1 – Conceptual framework

Factors related to the organizational characteristics include management support, client-oriented strategy, and export strength or “intensity”. Factors related to the environmental characteristics include pressure from clients, competitors and business partners. Finally, factors linked to technological characteristics are the perceived advantage, compatibility, and complexity. The factors considered in this study were chosen because of their high significance in most of the empirical researches. Consequences of the adoption of the Web were added, in terms of tangible and intangible benefits.

Factors related to the organization characteristics

Three factors explain the adoption of a Web site: Management support, client-oriented strategy and intensity of export.

Management might stimulate change and allocate resources required to adopt new technologies.

Wu, Mahajan & Balasubramanian (2003) established that management support is determinant in

the adoption of the Internet for communication and electronic transactions (Lertwongsatien & Wongpinunwatana, 2003; Seyal & Noah Abd Rahman, 2003).

Client-oriented strategy refers to the capacity to understand clients in order to propose a value-added in a continuous way (Slater et Narver, 1994). Speed, interactivity, continuity and possibilities of customizing offered by the Internet allow to manage the customer-capital and increase the quality of service (Prasad, Ramamurthy et Naidu, 2001). Certain studies have verified empirically the effect of a client-oriented strategy on the adoption of Internet technologies (Wu, Mahajan & Balasubramanian, 2003); Lennon & Harris, 2002).

The intensity of export is defined by the extent and the level of development of the activities abroad. Several authors mentioned the existence of a positive relationship between the intensity of export and the adoption of technologies of the Internet (Kula and Tatoglu, 2003). Export activities justify SMEs to adopt a Web site considering the advantages offered, like facilitating information exchange, speed of communication and access to new markets.

Factors related to the characteristics of the environment

External pressures exerted by the competitors, the customers, the partners of businesses, the media and the large public can force the firms to adopt technological innovations (Scupola, 2003; Dholakia and Kshetri; 2004; Raymond, Bergeron and Blili, 2005). Scupola (2003) stressed that the competitors, the suppliers and the customers can exert direct or indirect pressures on SMEs to adopt the e-business.

Factors related to the characteristics of the technology

According to the theory of innovations diffusion, an individual forms an attitude based on his or her perception of the characteristics of the innovation, which determines the adoption or the

rejection. While analyzing more than 25 perceived characteristics, Tornatzky and Klein (1982) found that the perceived relative advantage, perceived compatibility and perceived complexity are the characteristics which explain best the behavior for adoption of innovations.

According to Rogers (1983), the relative advantage refers to the degree with which an innovation is perceived as getting important benefits compared to the existing practices; compatibility defines the degree with which an innovation is perceived as compatible with the values, needs, experiments and practices of potential adoption; finally complexity is defined by the degree of complexity of the adoption of a technology. Other work showed the relevance of these three characteristics as determinants for the adoption of the Internet (Lertwongsatien and Wongpinunwatana, 2003; Seyal and Noah Abd Rahman, 2003; Lee, 2004).

Anticipated benefits

The potential benefit related to the possession of a Web site can be of tangible nature (relevant to the growth of the company and the reduction of costs) and/or intangible (referring to the improvement of the communication, the image and the services offered to customers). Chaffey and Al (2000) mentioned that a Web site makes it possible for the company to grow by recruiting new customers and by securing the loyalty of existing customers. Teo and Pian (2003) added the possibility of developing new products. Harrison-Walker (2002) noted that the Web site can increase sale volumes by improving customer assistance and by proposing various methods of payment. The adoption of a Web site can reduce the costs associated with communication, distribution, transactions and the management of the client relationship, thanks to the reduction of sale administrative work, the reduction in human errors, the reduction of conflicts with customers and the transfer of certain functions to the consumer (Geyskens, Gielens and Dekimpe, 2003; Min, Song and Keebler, 2002).

The Web site can play the part of advertising executive at the national level as well as the international level, making it possible to develop the notoriety of the company and publicise its products and services (Dahlén, Rasch and Rosengren, 2003). Leong, Ewing and Pitt (2003), after carried out a longitudinal study, have found that the Web site is perceived as a means which facilitates the access to information, of improving the communication and of creating an interactive and bidirectional relation with the customers. The Web site can also be used to develop service and improve client relationships (Duncan, 2000). Zeithaml, Parasuraman and Malhotra (2002) stress that the quality of service delivered via Web sites can contribute to a better customer satisfaction. O' Leary, Rao and Perry (2004) found that the use of Internet improves management efficiency of the client relationship and the quality of service returned.

Finally, a Web site can improve knowledge of an enterprise's customers (Costes, 2000). The information gathered on the customers can be used for to offer an improved product and a personalized offer. In an empirical research, Ab Hamid and Kassim (2004) found that the use of the Internet has a significant effect on comprehension of the behavior of consumer, the personalization of the delivered service and the fidelity of the customers.

MÉTHODOLOGY

According to Yin (2003), a case study is an empirical investigation which studies a contemporary phenomenon in its context, especially when the borders between phenomenon and context are not obvious. The case studies are particularly recommended when new and complex fields are approached, where the theoretical developments are weak, and where taking context into account is important (Yin, 2003). The case study method was used in several studies about

the adoption and the use of the Internet by SMEs (ex: Scupola, 2003; Chen Lei-da and Al, 2003; Lee and Cheung, 2004).

The unit of analysis is the small and medium-size company (less than 250 employees but more than 10) using a Web site for at least three (3) years, situated in a same geographical area and pertaining to the industrial sector. We chose to use four techniques of collection: non-structured interview, semi-directed interview, questionnaire and consultation of the Web sites.

ANALYSIS AND RESULTS

Management Support (Owner-Manager)

For company (A), the manager played a determining role in the adoption of a Web site. From the start, he visited the agency often to develop the site design and contents. Now, he modifies and improves the site himself. In the same way, the manager of company (B) was the instigator of the adoption of a Web site for his company. He went several times to the agency to supervise work progress. "The developers do not know the company, its products... sometimes they do not include/understand what I want... My ideas made it possible to build this site" (Manager, Enterprise (B)). For company (C), management decided to have a commercial Web site. This company was one of the first ones in Tunisia in the field of the e-business.

Client Orientation

In the case of company (A), the Web site was adopted to better know the customers and to propose a better product with an acceptable price. "Starting from a survey on our Web site, we can find out who wants our product because of its price or durability and from the results, we try to add and/or to improve our products and to adjust our prices" (Director assistant, Enterprise

(A)). In the same way, company (B) seeks to give more information to the current/prospective customers and to inform on its products and services; hence a Web site: “Our goal is to gain the confidence of our customers, by presenting a product of higher quality” (Web site, undertaken B). The motivations for the presence on the Web by Company C were to improve service, to create value and to aim at the satisfaction of its customers.

Export intensity

At the time of the study, company (A) was not exporting. However, thanks to its site, it was contacted by various foreign customers. Today, the enterprise is studying the possibilities of exporting to some countries. For company (C), its exporting activities and opening on the international market encouraged it to have a Web site. As for company (B), it exports on an uneven basis and considers that a Web site can help conquer new international markets. “With the international exhibitions, the Web site will be the best address, the easiest one. It represents the company, its products...” (Manager, company (B)).

Environment characteristics

The example of company (A) shows that a Web site was adopted not to be outdistanced by competition. With company (B), customers seem to exert a certain pressure on the company to be present on the Web. On the other hand, competition seems to play an important role since the site was adopted to be different from the competitors and to improve positioning of the company on its market. In both cases (Company (A) and (B)), partners who are, mainly, local and/or foreign suppliers do not insist for a company Web site. As for company (C), the enterprise was among the first to have a trader site. For this reason the pressure exerted by the local customers was not very important. But foreign customers played a more significant part. Company (C) has

a network of representatives abroad in various countries as business partners. These representatives insisted on a presence on the Web to give more information to foreign customers.

Technological characteristics

For company (A), the Web site is advantageous from a publicity, communication and prospection point of view. It is compatible with the way of working of the company since it makes it possible to better inform the customers and better to answer their requests/inquires. However, the fact that the Web site is sub-contracted brings a certain complexity. Moreover, the Director assistant stressed that the formation received in connection with the Internet remains insufficient. For company (B), the Web site has the advantage of being a permanent advertising means at the national and international level. "The site is always there, unlike other media" (Manager, Enterprise (B)). For the manager, the site is a practical means to give information on the company and its products. "During displacements abroad, it is enough to give a business card where the address of the site is written. The interested customers can consult it and then contact us" (Manager, company (B)). For company (C), the Web site has a notable advantage, especially for export. It is compatible with the values of the company and the aspirations of the direction which is interested by the introduction of new technologies of information and communication to modernize the business management. It should be noted that the trader site presents, for company (C) a certain degree of complexity. However, resorting to a specialized external agency, which is near the company (C), made it possible to attenuate the importance of this factor.

Benefits, conditions of success and handicaps : enterprises point of view

The benefit, conditions of success, and handicaps created by the Web site, as seen by the companies, are summarized in Table 1.

Enterprise A		
Benefits	Conditions of success	Handicaps
<ul style="list-style-type: none"> • Increase in the number of contacts, specially from foreign customers • Development of new products • Decrease in publicity costs and costs of getting new customers • Improvement on the company image • Better information to clients/prospects • Incitation to export 	<ul style="list-style-type: none"> • Regular evaluation of the benefits of the Web site • Frequent updates including every time there is something new • Modifications (techniques and design) to improve the efficiency of the Web site • The Web site is well advertized offline (press, posters, company documents, product packaging ...) and online 	<ul style="list-style-type: none"> • The Director assistant is responsible for the site, but sometimes does not have time to take care of it. • The site administrator considers that her formation was not sufficient about the use of the Internet. The site administrator does not have enough information on business on the Internet and about electronic commerce • Limited coordination between marketing activities and the Web site management • Lack of a well established strategy for the Web site
Enterprise B		
<ul style="list-style-type: none"> • Contacts (from abroad, especially after expositions) • Decrease costs of communication with the clients (increased visibility) • Good image • Improvement in the positioning with the competitors • Better communications with clients and prospects 	<ul style="list-style-type: none"> • The company used a lot of publicity to advertize the site (Displays, Internet, company documents, product packaging) • Information requests from the site are adequately treated by the manager 	<ul style="list-style-type: none"> • The Web site is not well integrated in the marketing activities of the enterprise • The enterprise has no strategy for its Web site, nor plans to improve it • The information published on the site is not revised or updated • Since its creation no modifications were made to the site (form or contents) • The enterprise invoicing responsible was not involved in the site development
Enterprise C		
<ul style="list-style-type: none"> • Contribution to export sales (B2C) • Increase in foreign customers • Identification of new partners (sale reps and foreign agents) • More information about products for customers, prospects and partners • Possibility of publicity at the national and international level • Better knowledge of the customers and their needs 	<ul style="list-style-type: none"> • Good referencing (among the 3 or 4 first ones in a research on Google) • Periodical updates (add new products, modify prices, etc.) • The Web site is relatively well integrated with the marketing activities • Periodical evaluations of results from the Web site • Periodical update of form and contents • The Web site is sufficiently known 	<ul style="list-style-type: none"> • Logistic problems (transportation costs, delivery delays, etc.) • Technological problems (connexion throughput, security of payments, etc.) • Site management problems (contents updates, answers to e-mails, etc.) • Administrative and regulation problems (regulation texts, custom procedures, paperwork, etc.) • Interconnection problems with the enterprise internal information system (interconnection with the computer systems for stock management, production, billing, accounting, etc.)

Table 1 – Benefits, conditions of success and handicaps related to the adoption of a Web site

DISCUSSION OF RESULTS

The results showed that management support (owner-manager in our case) is a big factor to decide or not to adopt a Web site. The degree of customer-oriented services of the companies has a certain influence on the decision of adoption. The results showed that the companies are motivated to adopt a Web site because of the increased knowledge about customers/prospects and the possibility to offer a better service (Flexibility, interactivity and the ease of information and contact). That confirms the results of other studies about the effect of customer-oriented services on the integration of the Internet (Prasad, Ramamurthy and Naidu, 2001) and on the adoption of electronic business (Wu, Mahajan and Balasubramanian, 2003).

The factor “intensity of export” appears particularly interesting. The more the activities of export of the company are developed and diversified, the more it tends to adopt a site more easily and more quickly. This is coherent with the results of Kula and Tatoglu (2003) which found that the resources allocated to the development of the activities of export and the experience of the company internationally influence the level of adoption of the Internet. Other organizational characteristics emerged as significant factors of adoption: financial problems, the influence of the manager partners and the role of the State. These elements were underlined in some work (ex: Scupola, 2003) and should, maybe, be integrated in future research.

The pressures exerted by competitors and customers appear important in connection with the characteristics of the environment. The studied companies often evoke differentiation compared to competition or the fact of not being handicapped with respect to its rivals as factors which influence the decision of adoption. In the same way, a Web site allows a company to reassure customers, to convey the image of an innovating company and to meet the informational needs of customers. Other studies in

the field of the adoption of the Internet and the e-business by SMEs arrived at the same conclusions (Raymond, 2001; Scupola, 2003; Dholakia and Kshetri, 2004).

Concerning the influence of the business partners, it does not seem as important as the pressures exerted by the competitors and the customers. This confirms the results of Raymond, Bergeron and Blili (2005) who found that the business partners do not influence the adoption of the Internet for informational and/or communication use.

In connection with the technological characteristics, the perceived advantage relative of a Web site on other media (international public, presence 24 hours a day and 7 days a week, interactivity...) and perceived compatibility (ex: coherence with the managers aspirations) are significant elements capable of influencing the adoption. This result confirms the conclusions of several authors (ex: Seyal and AbdRahman, 2003; Lee, 2004; Lee and Cheung, 2004)

On the other hand, perceived complexity, though only present to a certain extent, does not seem to significantly influence the adoption or not of a Web site. This complexity is, generally, diverted by using subcontracting and formation. The use of the Internet applications does not appear, today, as a very complex task for the habitual users of computer tools.

About the benefits of a Web site, it is important to note that the companies studied do not have measurement indicators allowing them to evaluate objectively the spin-offs of such an investment. Therefore, the evaluation was based on the experience of the persons in charge and their subjective appreciations of the results. Poon (2000) already noticed that the small companies do not have statistics to evaluate the contributions of Internet.

CONCLUSION

The thematic analysis of the contents showed that Tunisian SMEs adopt a Web site either by conviction (proactive way) and in this case the characteristics related to the organization play a paramount role, or by obligation (reactive way) and in this case the characteristics of the environment are more determining. The technological characteristics seem significant in both cases, but they appear particularly important for the “me-too” companies. Moreover, the results showed that the contributions of a Web site are evaluated in terms of tangible and intangible benefits. The analysis also showed that the Web site is a special technological application and that the simple possession does not necessarily carry out the anticipated profits. Certain conditions must, nevertheless, be present to be able to benefit. Several conditions must be concurrent: the update of the contents, the promotion of the site in the traditional media and on the Internet, a good referencing, good care of the site, the integration of the site in the marketing activities, and the interconnection of the site with the internal information system of the company.

However, this study is limited. The undertaken study includes only a few companies and industries. Future studies could include more SMEs and diversify the branches of industry. And only SMEs which adopted a site were considered. Other studies could include companies not having a Web site and thus examine the literal and theoretical replication. Finally, only the Tunisian context is examined. It would be judicious to undertake the same study in other contexts and other countries to test the external validity of the research.

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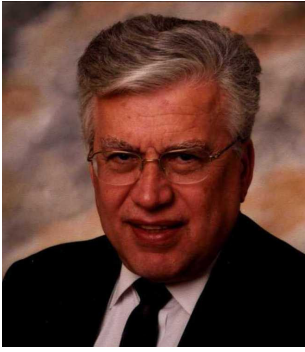
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