Adoption Issues of Business-to-Business Internet Commerce in European SMEs

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Abstract

This article presents the preliminary findings from an explorative case study concerning barriers, benefits and use of SMEs adoption of business-to-business Internet commerce. The main findings were that SMEs embrace the Internet mainly just by chance (J-B-C); the government and public administration are seen as the main change agents in the adoption and diffusion of Internet commerce among SMEs; cost is not an important factor in the adoption decision; setting up an advanced home page with a shopping basket for buying and selling on the Internet is often seen as a minus rather than a plus for competitive advantage; complementary factors among which digital imaging technologies and spreading of English as a common business language have to be developed in order to increase the value of Internet commerce to small business.

1. Introduction

Small and medium size enterprises are an important sector of the economy as they contribute to economic growth, social cohesion, and employment as well as regional and local development. There is no generally accepted definition of SMEs. For our purposes, we adopt the European Parliament definition according to which SMEs are businesses with up to 500 employees [15]. The SME sector is characterized by a very high failure rate. Ballantine et al. [1] states that 11% of small and medium size enterprises created within one year and 80% of all new small businesses created within five years fail. SMEs “have little ability to influence market price by altering output; they have small market shares and are unable to erect barriers to entry to their industry; they cannot easily raise prices and tend to be heavily dependent on a small number of customers [1, pp. 241]”.

Globalization and rapid technological change bring new opportunities for SMEs, but also risks and problems.

Technological innovations such as information and communication technologies (ICTs) and electronic commerce are becoming more and more diffuse among SMEs as barriers are substantially lowered by the advent of lower cost, open standards, and more ubiquitous Internet-based technology. In particular, it is believed that electronic commerce could contribute to increasing the relative market power and competitiveness of SMEs for example through new kinds of specialized portals offering size hosting and promotion [16]. I adopt Zwass’ [24] definition of electronic commerce as the sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks.

According to Jeffcoat et al. [10] e-commerce activities can be classified into three main groups:
1. Business-to-business, where both customer and merchants are businesses.
2. Business-to-consumer, where the customer is a consumer and the merchant is a business.
3. Public sector, where the government may be either a customer or a merchant in the broadest sense and the other party may be either a business or a consumer.

The business-to-business segment accounts approximately 70-85% of the total electronic commerce [16].

This article presents the preliminary findings of a study conducted with the main purpose of addressing the research question: ”What are the problems and benefits encountered by SMEs in the adoption of business-to-business Internet commerce and how do they use it?”

The article is structured as follows. Section 1 presents the research problem and the research question, section 2 is a short literature review, section 3 describes the research design and the data collection, while a description of the companies interviewed follows in...
2. Literature review

Many studies exist concerning the diffusion of interorganizational systems (IOS) and EDI (e.g. [14, 21]), few of which have addressed the adoption and diffusion of IOS and EDI in SMEs (e.g. [8,19]). The research on Internet commerce adoption by SMEs, and especially on business-to-business electronic commerce is also limited, even though there is a need to address this issue from both a research and a policy point of view. This literature addresses different issues. Marshall et al. [11] looks at the impact of electronic commerce on car dealerships in Western Australia. They conclude that “The car industry in Western Australia thus remains only superficially affected by the technology and presence of Internet…Their (the car dealers) Internet site, detached from the energetic, everyday business of selling cars and making money, is the beginning and end of Internet-based commerce for the car dealerships (p.15)”.

Engsbo et al. [5] develop a framework of electronic commerce adoption in SMEs, that focuses on the relative power of the participants in a network and the type of product involved in the exchange. Fariselli et al. [6] look at the three interrelated issues of globalization, SMEs and electronic commerce concluding in the analysis that there are important synergies between virtual electronic commerce networks and real production networks. Urwin [23] discusses how Internet can help SMEs to get the right flow of information to their organization, while Jeffcoat et al. [10] interviewed 27 SMEs in the UK to understand their approach to electronic commerce in terms of the strategies adopted, the objectives sought, and the factors that they considered to be critical to their success in achieving these objectives. Chapman et al. [2] develop a methodology mainly based on software and hardware turnkey solutions and intensive training, to address the needs of small firms wanting to use Internet commerce to improve their competitiveness. Steinfield and Whitten [22] make an analysis of the impact of electronic commerce on local communities. They found out that while Internet commerce contributes to the SMEs’ internationalization process, it also contributes to strengthening the relationship between firms in local communities. Other studies have found out that SMEs are expecting to market and sell products and services from their web sites and that SMEs had limited knowledge of how computer technologies could contribute to the overall e-commerce strategy. The lack of knowledge had also been considered the main cause of the lack of integration between the external networks and the internal systems [17].

3. Research design and data collection

The research was designed as an explorative case study [25]. This approach has been considered important in order to find new categories in addition to the ones that could be found in the literature. After having reviewed the literature on Internet commerce and SMEs, some semi-structured questions were developed. The questions addressed the following: SMEs’ use of Internet; problems and barriers encountered in the adoption stage; benefits derived; the changes in the business processes due to Internet adoption; eventual integration between the external system (mainly the Internet) and the internal information system; Internet contribution to internationalization.

The data collection and the analysis proceeded interactively with the first two interviews being less structured and the last ones being more structured and including themes and concepts that emerged from the previous interviews. Each interview was transcribed and qualitative content analysis was applied in order to categorize the answers into themes, some of which were already present in the question posed, others emerged through the interviewee answers’ to the questions asked. Among the advantages of the semi-structured questions is that the interviewee can freely talk about the subject, thus adding useful information from which it is possible to create new themes. The interviews have been conducted personally and have lasted between 1.5 and 3 hours each. In addition the company’s home page (when existing) has been visited. The size of the companies varies between companies with just 1 employee to a company with 300 employees. The companies interviewed are distributors, manufacturers and service companies.

The companies have been chosen on the basis of representativeness and accessibility following the criteria of having had an Internet-connection for a period of at least 3 years and having a maximum of 500 employees. This choice has been made because it is the paper intention to understand what are the de facto (realized) problems, benefits and ways of using Internet. All the companies interviewed had not used any other form of electronic commerce, besides the Internet. However, regarding issues such as the contribution of the Internet to internationalization, competitive advantage, etc. the answers were mainly based on perceptions since not much has happened yet. The case study was conducted in Southern Italy. The data were collected in spring 2001.
4. Companies description

The first company (F1) interviewed is a software house, offering consulting services to government, service sector such as banking, insurance, and to SMEs. They have 80 employees and are one of the first Internet providers of the region. Having been one of the first companies to offer software services in the area, they are considered to have a very good knowledge of the market. Only recently they have started implementing business-to-business electronic commerce solutions. At the time of the interview, they had implemented 5-6 b-to-b electronic commerce systems in the area. The clients had been mainly distributors. One of the systems they had implemented allowed the client company to customize the design of the product they wanted, to send the product specifications to the producer and then to pay the bill online from the web page. They have had a home page since the web was created.

The second company (F2) is a single employee consultancy, offering consulting services only to SMEs, and has been in business since 1990. He also has a very good understanding of the local situation, being in contact with SMEs attempting to get into electronic business on a daily basis. He does not have a home page himself, believing more on the personal contacts and word of mouth to attract new customers.

The third company (F3) is a distributor. It employees 15 people, and has a turnover of 5 millions dollars per year. This company imports products from the Middle East and resells them to 800 client companies all over Italy and abroad. In order to show the product sample to the clients, they have 5 business agents that cover different parts of Italy. This company has a home page connected with the inventory system. It is possible for the client to log in to the company’s system with a password, look at the daily inventories, choose the type of product, the quantity wanted and then submit the order through the web site. The company has had a static home page presenting the products for the last four years and has been using e-mail for communication purposes for many years. At the time of the interview it had offered the possibility to buy through the Web site for only four months, and already approximately 5% of the business was done through the Internet, but with already existing customers. This is because they have 3-4 buyers that buy from the home page. They have not seen an increase in the number of clients yet as a consequence of the development of the home page, even though they have spent approximately 25,000 dollars to advertise their home page at the football stadium. However, they have a client which through the Internet has increased sales by 50% last year. They believe that it is a problem of marketing the home page the right way to the right people. They are considering hiring a marketing bureau to outsource this function.

The fourth company (F4) is a family-owned business. They are middlemen in the textile business. They mainly do business abroad. They import the raw materials and export the finished product, which is produced by local SMEs. They do not have a web site because they believe that they cannot implement one the way they want. They are not satisfied with the static web site that is a shopping window. They also showed concern about building a web site giving access to their product collection because they are afraid that the competitors can copy what they are doing. Therefore, they use the Internet daily for business-to-business operations such as receiving and fulfilling orders, sending digital images of their products, communicating with their clients, and Internet banking. The Internet has contributed to increase the number of buyers per each client company they have, with an increase in the final product sale.

The fifth company (F5) is a producer and seller of textiles. The company has approximately 300 employees with a turnover of 15 millions dollars per year. The company was found in 1996 by merging three different companies, which were owned by three brothers. They have been using the Internet since the company’s launch in 1996 and they are using it a lot both in the internal and external processes which are interconnected. They have had a home page since 1996, which provides basic information about the company. They don’t use the home page as a buying and selling tool because they are worried about decreasing their competitive advantage by giving away information about their collection of products to competitors. The company had started using the Internet at a time when none of their clients were using it. They have their own EDB department consisting of two full time engineers and do not believe in outsourcing, if the Internet has to be used to achieve competitive advantage.

Company number six (F6) is a distributor of car parts. They employee 19 people and have a turnover of approximately 7 millions dollars per year. They presently import from all over Italy and distribute and sell to the local small companies, mechanics and private individuals. After they started using Internet commerce they have been able to establish contacts with foreign companies. They are planning to start importing from abroad in the near future. They have a static home page, but they are planning to make an advanced one with an online catalog of their products in order to sell on the Internet. They have had an Internet connection for the last three years, but it is only one year and a half that they are really using it, because previously they did not know what to use it for. They have been mainly using
Internet for communication (e-mail) purposes, but recently also for sending and receiving orders. They use Internet mainly in connection with the suppliers. Their use is limited to 3-5 messages per day. They also have a permanent Internet connection with one subsidiary located in a nearby city. The characteristics of these companies are summarized in table 1 below.

<table>
<thead>
<tr>
<th>Company Number</th>
<th>Type of Business</th>
<th>No. Of Employees</th>
<th>Type of Internet Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>IT Consultants</td>
<td>80</td>
<td>Home Page and Permanent Internet</td>
</tr>
<tr>
<td>F2</td>
<td>IT Consultants</td>
<td>1 (family driven)</td>
<td>Telephone Access to Internet</td>
</tr>
<tr>
<td>F3</td>
<td>Distributor</td>
<td>15</td>
<td>Home Page and Permanent Internet</td>
</tr>
<tr>
<td>F4</td>
<td>Distributor (Business Agent in Textile Business)</td>
<td>2 (Family Driven)</td>
<td>Permanent Internet Connection, No Web Site</td>
</tr>
<tr>
<td>F5</td>
<td>Production and Commercialization of Textiles</td>
<td>300</td>
<td>Home Page and Permanent Access to Internet</td>
</tr>
<tr>
<td>F6</td>
<td>Distributor</td>
<td>19 (family driven)</td>
<td>Static Home Page and Permanent Access to Internet</td>
</tr>
</tbody>
</table>

Table 1. Companies description

5. SMEs and Internet commerce: some theoretical concepts

The themes that emerged in the interviews are classified according to the following major categories: adoption triggers, adoption inhibitors or barriers, Internet commerce benefits, Internet commerce use, change agents and complementary factors. The different theoretical concepts, supporting these categories are briefly presented in this paragraph, while the next presents the study’s results.

Adoption Triggers. Triggers are defined as the reasons that lead a small company to adopt Internet commerce. Rogers [20] identifies different reasons that might trigger an innovation, as for example a "performance gap" or “opportunistic surveillance by scanning the environment for new ideas that might be beneficial to the organization” [20, pp. 393]. Engsbo et al. [5] has identified four triggers that might initiate the adoption process of electronic commerce in SMEs: strategic opportunity, strategic necessity, forced decision and just-by-chance (JBC). Strategic opportunity finds the explanation of why companies might adopt electronic commerce in the active search for ways to improve their position on the market as, for example, to achieve competitive advantage or increase market share. In strategic necessity, the main explanation for electronic commerce adoption is found in the interest from the ICT industry to maximize the market share of electronic commerce technology and related services. In “forced decision” the assumption is that innovations are adopted based on the market needs namely that a company is required to adopt electronic commerce in order to be able to conduct trade with other corporations. The category Just-By-Chance (JBC) includes situations where SMEs, without any rational choice or process (e.g. due to government intervention or pilot research projects) find themselves dealing with the adoption of electronic commerce.

Adoption Barriers. In understanding Internet commerce adoption behavior of small businesses, a key aspect is to look at the factors that “inhibit” such adoption. By adopting a categorization used for EDI [3] we distinguish the factors that inhibit the adoption of Internet commerce into the following three categories:

- "Perceived costs”. These can be of three types: financial investment, administrative changes and the time it takes to put the system in place.
- “Organizational readiness”. It is the extent to which an organization feels “ready” to adopt electronic commerce. Among the factors that determine
organizational readiness there are skills and knowledge of the technology, internal IT support and support from external parties such as IT vendors.

- “External environment”. As in other types of inter-organizational systems also in the adoption of electronic commerce other stakeholders play an important role in the adoption decision of the single business such as government regulation, trading partners, etc (e.g. [7]).

**Adoption Benefits.** Benefits are distinguished into operational benefits and strategic benefits [3]. Operational benefits are related to the internal efficiency of an organization and include reduction of transaction errors, improvement in data accuracy, decrease transaction costs, speed-up application processes. Strategic benefits should contribute to tactical and competitive advantages and are related to the impact of electronic commerce on business processes and business relationships [3]. Strategic benefits can be, for example, seen in improvement in relationship management with customers or business partners. The discussion on benefits of adoption of electronic commerce or IOS often takes the starting point in the “perceived benefits” by the potential adopters during the adoption decision (e.g. [13]) or “perceived benefits” after the adoption [18]. Here we focus on “experienced benefits”, that is those benefits that have been realized either operationally or strategically since the company has started using Internet commerce.

**Internet Use.** This identifies the different tasks Internet commerce is used for. Traditionally Internet commerce has mainly been used for communication purposes [18], more recently also for other purposes as for example order taking and order fulfillment.

**Change Agent.** The literature on IT adoption has emphasized the importance of the “corporate champion”, often identified in the CIO or a manager in the adoption process [9, 18]. In this study, the importance of the change agent in the adoption of Internet commerce has been identified. The change agent is defined as an individual or an institution that “influences clients innovation-decisions in a direction deemed desirable by a change agency [20, pp. 335].”

**Complementary Factors.** The value that Internet-commerce adoption and diffusion can bring to a corporation might remain limited unless other complementary factors are adopted and implemented as well. Here complementary factors are defined in the economic sense according to which complementarities among different factors imply some mutual relationships whose exploration can lead to higher added value of each single factor to the company and ultimately to an increase in the company’s profitability [12].

**6. Analysis and results**

In this section, the themes on adoption of business-to-business Internet commerce emerged in the interviews are discussed according to the categories presented in section 5.

**Adoption Triggers.** Of the four adoption triggers identified by Engsbo et al. [5], there was a major consensus among the companies interviewed that the JBC (Just-By-Chance) factor is the main reason why most SMEs get acquainted with Internet commerce. Knowledge and the curiosity about this type of business are still generally lacking. According to F2, especially in the case of the family driven business the adoption and initial discovery of Internet commerce is completely casual. Often it is due to the son or nephew that starts playing with Internet or that goes to high school and learns a little about the Internet and HTML. So they decide to set up a home page or to get access to Internet often through an Internet provider. In our study, F3 and F4 have adopted Internet Just-by-Chance (JBC). F5 has been motivated by strategic opportunity. It had in fact been pioneering the adoption of Internet commerce in their sector. The firm had invested in Internet technology and started experimenting with it, even when not many other local competitors or customers were using it, believing that eventually Internet commerce would have brought a competitive advantage. F6 has adopted Internet commerce due to strategic necessity that is they had adopted it because other companies started having it, even though they could not really fully understand the potential. Only after experimenting with it, they realized the benefits. Forced decision seemed not to apply in our study. None of the companies was in the situation where a major supplier or customer had “forced” them to start Internet commerce. However, F3 said that if most of the clients or suppliers would use Internet commerce in the long run, then they could consider of not conducting business with the client companies that do not use their online catalog to make an order. In this case, those companies might be “forced” by F3 to adopt Internet commerce if they still want to keep doing business with this firm. These results that SMEs embrace Internet commerce mainly Just-By-Chance contrast with Marshall [11]’s findings. They [11] mention in fact that the car dealers “felt pressured by the car manufacturers to establish a web site” (“forced decision”) or adopted Internet due “to the fear of being left behind by competitors” (strategic necessity).

**Adoption Barriers.** Barriers are very important in understanding adoption behavior of small businesses. In
In our study, the following barriers within the “organizational readiness” category [3], have been identified:

- Lack of education, information and knowledge. This was especially the opinion of the two consulting companies interviewed (F1 and F2) as they believe that SMEs neither have the competencies to understand the full potentials of electronic commerce nor they understand what competencies are required both to start and to use electronic commerce. Often SMEs believe that Internet commerce is limited to have the Home Page. This is a common theme in studies of technology adoption in SMEs (e.g. [10,17]).

- Not being used to using the Internet. This means that even though the companies have access to Internet, they do not use it in an effective and efficient way. Employees in the larger companies even forget to use it. For example the director of F5 states that: “The major barrier is the employees’ distraction...it can start going well only when it gets into the DNA of people”.

- Fear that putting the portfolio product on the Internet might decrease the firm’s competitiveness by giving away useful information to competitors. This finding contrasts the literature claiming that electronic commerce is a source of competitive advantage (e.g. [4]). Especially the two companies in the textile industry (F4 and F5) were reluctant to build an online catalog to sell the company’s products. They believe that the solution with password is not good and safe enough, therefore they still prefer to send a CD with the products information.

In our study the category cost was not relevant to small businesses. Contrary to the majority of the literature on adoption of Internet commerce, all the companies interviewed did not believe that cost was an issue in starting Internet commerce. They did not consider the start up and running costs of Internet commerce to be excessive. SMEs also believed that if a company was really interested due to an opportunity in term of competitive advantage, ease with which to conduct business or cost savings then they would be willing to make the investment required adopting Internet commerce.

The main environmental barriers [3] found in the study are:

- Poor communication between the IS consultants and the SMEs. This factor, also a classical theme in IT adoption literature, seems to have a major importance in the initial adoption of Internet commerce. F3, F4, F5 and F6 all experienced that the information technology consultants and the Internet providers cannot explain in simple terms, understandable to everybody, what Internet can be used for. This can cause uncertainty and delay the adoption and implementation phase, even when the company is interested in adopting Internet commerce and ready to make the investment. The consultants also acknowledge this problem, but they do not know how to solve it. For example, the director of F6 explicitly states that they would like to upgrade their IS system, their Internet home page, and start to use the Internet more, but it is difficult because “there is a little bit of confusion out there, it is difficult to obtain information you feel is right. If you ask to three different companies, you get three completely different solutions and prices. In this situation it is difficult to make a decision.”

- Lack of Critical Mass. Rogers [20] had acknowledged that the critical mass is very important for interactive technologies in order for such technology to be of any use to any single adopting unit. The critical mass occurs when enough individuals or organizations “have adopted an innovation so that the innovation’s further rate of adoption becomes self-sustaining [20, pp.313]”. Internet commerce as other types of inter-organizational systems requires reaching a critical mass among trading partners such as suppliers, customers and partners. The critical mass has been lacking so far, but recently it is getting better. For example, F5 explicitly states that even though they had been having the Internet since the beginning (1996), they were unable to use it for business because their clients did not have it. They have been using Internet commerce effectively only the last couple of years. The same was also explicitly stated by F4 especially regarding the clients located abroad.

**Benefits.** Among the operational benefits (see sect. 5) there was unanimous agreement regarding the following:

- Improved communication around the clock, which is important especially for international business and with the portable PCs much greater job flexibility.

- Administrative cost savings: majors cost savings have been realized especially in the telephone bills, fax and postal service.

- Time savings as things go much faster with the Internet.

- Increased efficiency and easiness to do business.

- External and Internal Integration. F5, F3 and F1 had the Internet connected with their internal system. They did not feel threatened by having the two systems connected, even though the other
companies interviewed showed a major concern about connecting the two systems and preferred to keep the internal information systems (very simple, limited to inventories management and budget purposes) separated from the external Internet connection. This was because of security reasons, or the fear that outsiders could access sensible information internal to the company. Among the strategic benefits (see sect 5), the most important ones mentioned are:

- Increased company visibility as the web can be seen as a place where the home page is a shopping window.
- Increased market potential. It is already starting happening that potential partners are contacting companies through the Internet. For example F4 explicitly said that the number of buyers for each small business they represent has been increasing with the use of Internet commerce, thus increasing the total number of client companies.
- Faster access to other companies, both suppliers and buyers as well as competitors. This can be done through the search engines.
- Positive contribution of Internet commerce to internationalization. All the companies agreed that the Internet is definitely contributing to an internationalization of their business, and they are already starting using it to explore the international market both in terms of suppliers and buyers. For example F6 states before they adopted the internet, they only did business with Italian suppliers, recently they have also established contacts with some German companies.

Most of the Internet commerce benefits found in this study are similar to those found in other studies (e.g. [17, 18, 22]). However in this study we found stronger evidence of internal-external IT integration and a stronger influence of Internet commerce on international business.

**Use.** Our study as other studies on the use of electronic commerce by SMEs (e.g. [17, 18]) shows that Internet commerce is mainly used as a communication medium to exchange information. However it is becoming more and more common in business-to-business electronic transactions, such as:

- Taking and confirm orders.
- Sending the information relative to the inventory.
- Sending the digital images of the products, either through a digital camera or with the use of the scanner.
- Sending invoices.
- Internet Banking.
- Market research to find suppliers of products and customers through search engines. This is especially done when the product is new and new suppliers outside of the established network of partners have to be found (F5).

**Change Agent.** It is a person or an institution that might contribute to an increase in the adoption and diffusion of Internet commerce among SMEs [20] (See sect. 5). The majority of the companies agreed that the government and public administration could play the role of a catalyst to increase the diffusion of Internet commerce among SMEs. This could be achieved for example by starting using the Internet regularly for their operations (taxes, citizen and companies information and services, etc.) both with the individual citizen and the small enterprises. Hardware and software turnkey solutions and intensive training seem to be suitable to address the electronic commerce needs of SMEs [2]. A need for a better screening of the companies applying for state support for the electronic system and training is also considered necessary. This in order to channel the funds towards the companies that are seriously motivated to adopt electronic commerce. The government can contribute to the diffusion of Internet commerce through education and information campaigns and state support programs. These programs have to be carefully targeted in order to have a positive effect.

**Complementary Factors.** These are factors that contribute to an increase of the added value that Internet can bring to a corporation, especially regarding competitive advantage and internationalization (see sect. 5). Among the complementary factors user-friendly technologies such as digital imaging have been mentioned, and for international business the implementation of the EURO in Europe, the diffusion of English as the common business language and lower airfares (F5). For example F3 describes how even though they have had the Internet since 1996, they could not use it to put the available inventories on the web catalog due to the lack of other technologies such as the scanner and the digital camera. They had first to take the sample products to the photographer, wait for the picture to be ready, then go with the pictures to the service provider who scanned them into the web. Until this process was completed it took two weeks, and the product whose picture had just been put on the web was likely already sold. Later they bought one of the first digital cameras (very expensive, approximately 8,000 dollars) and things started going better. However it was not easy to use. Recently they bought a new camera, cheap and very user-friendly, and things are starting finally going well.

**7. Discussion of results**

In this study some findings, especially regarding benefits and barriers, are similar to those found in studies...
conducted in different geographical regions. However, new results and differences have also been found. For example the analysis has showed that the major reason why SMEs adopt Internet commerce is casualty. This is true especially for the small family driven firms, which get acquainted with the Internet and Internet commerce often due to a family member or some friends that either study informatics at school and therefore make a little homepage for the company or that they themselves have Internet commerce. Other reasons are strategic necessity and strategic opportunity.

Many studies on adoption of Internet commerce have pointed out that cost is a major barrier. In our study we found that "cost" is not a major factor preventing SMEs from adopting Internet commerce. Companies are in general willing to make the investment necessary to adopt and implement electronic commerce if they can understand what are the operational and strategic benefits they can gain from this expenditure. This was explained by the fact that they perceived Internet commerce relatively easy to conduct and relatively cheap to implement. However, all the companies interviewed, except F5, did not consider their Internet business to be so huge that it could justify the allocation of a human resource specifically to conduct e-business. On the other hand, if the amount of the transactions was going to be big enough in the future they would be willing to do so. The major problem of the companies interviewed was how to use the Internet and the Web to improve competitiveness while putting as little information as possible on the Web. Incentives such as state support programs in terms of money and training are important, but not a major issue in deciding to adopt Internet commerce. If the company is really interested then they get it in any case. As a matter of fact, the companies that decide to start using Internet commerce only because there is the state support, often do not finish the project when the money runs out, or even though they finish it they might not use it in a proper way.

The literature on adoption of IT emphasises the role of the project champion as very central in the adoption decision. A new factor found in this study is the role of the government and public administration as change agents in the diffusion of Internet commerce. SMEs believe that the government and especially the public administration should take the role of the change agent by being early adopters of Internet commerce and by providing information targeted to SMEs about its potential benefits. This could be done with ad-hoc advertising campaigns, or seminars specifically targeted to the SMEs local reality and business needs. Public administration could provide the good example through adopting Internet commerce first and then requiring SMEs to use the Internet in order to conduct business with the public administration. This implies that the diffusion of electronic commerce in the public sector is seen almost as a precondition for Internet commerce diffusion among small businesses.

Another major result of the study is that Internet commerce is definitely contributing to the internationalization of the local enterprises, but it cannot be considered in isolation. Other complementary factors are considered very important such as the adoption of complementary technologies, the diffusion of the English language and the adoption of the EURO as common valuta in the European Union. Another important complementary factor is the decrease of airfares for both passengers and goods. Many small businesses, in fact, prefer to meet in a face-to-face meeting after the first contact has been established through the Internet, but sometimes this can be difficult due both to language difficulties and high airfares, that can be a big expense especially for family driven businesses.

Another important result of the study is the evidence (even though weak) of external and internal systems integration as three out of the six companies interviewed had some sort of connection between the Internet and their IS system. However, the other three companies involved in the study stated that either they or their clients were still afraid of connecting the internal and the external systems mainly due to security problems.

Finally, traces in the changes of business processes as a consequence of the adoption of Internet commerce have been found, but the companies interviewed could not really understand the question in order to answer to it. Some evidence has been found indirectly in the answers given to questions not explicitly related to business processes. For example F5 has restructured the sewing operations as a consequence of Internet commerce adoption. They, in fact, have automated the all operation department and new software can be installed on the sewing machines online. Errors can also be detected and corrected on-line. This has had big implications for the way that the company runs its business, including savings in the personnel. In addition, F3 has experimented some changes in the business processes especially in the way they provided the pictures of their products to the clients. After Internet commerce adoption, it had become cheaper and quicker, and involved fewer people and fewer steps, with a consequent increase in efficiency.
8. Implications, conclusions and limitations

The major contribution of this study is in understanding what are the benefits, usage and barriers in the adoption of Internet commerce among European (specifically Italian) SMEs. The research has been conducted as an exploratory case study.

The main implications of the study are at policy level. It is important to have pilot programs in terms of economic support to increase the diffusion of Internet commerce among small businesses in specific geographical regions. These programs, though, should be carefully targeted to the right companies to avoid a waste of funds by involving companies with not much interest in e-commerce and that will either drop the project when the state support runs out or will not use Internet commerce properly when it is implemented. Moreover, public authorities and the public administration can contribute to the diffusion of Internet commerce by functioning as change agents. This can be done in two main ways: 1) by adopting Internet commerce first and 2) by slowly educating the citizens and SMEs to the use of the Internet through informational and educational campaigns, by requiring them to use electronic commerce for tax purposes, information exchange with the public administration, etc. Furthermore, in order to foster international business and favor the globalization of small businesses it is important not only to foster the adoption of Internet commerce, but also to increase their knowledge of the English language.

The main limitations of the study are to be found in the small number of companies interviewed and in the small geographical region taken into consideration. The study gives some empirically interesting insights on adoption of Internet commerce in European SMEs. Further research is necessary to better understand the status quo of the Internet adoption among SMEs in Europe. For example an extensive survey involving much more companies in the same region could be conducted to see if the majority of the companies share these preliminary findings. This survey could include several sectors or could be sector specific to see if there are similarities and differences among different industrial sectors. Furthermore, it could be interesting to replicate the study in one or more different European countries, e.g. in northern Europe, in order to compare the results.

References


