Internet Research

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Received 17 August 2011
Revised 30 December 2011
5 March 2012
Accepted 9 March 2012

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Abstract

Purpose – The purpose of this paper is to contribute to the discussion related to the antecedents of the extent of e-business use and the effect of this level on changing strategy, management and marketing.

Design/methodology/approach – The authors use data from 691 retailers in seven European countries. Information is obtained from the survey of the "e-Business W@tch". Data analysis was performed using biprobit estimation. The sample is divided into two groups depending on the level of e-commerce of the countries.

Findings – Results suggest that the e-business use implies changes in the firm's strategy, management and marketing in all the countries studied. Differences between the two groups of countries are minimal. The main factors that influence the level of e-business use are IT expertise and perceived benefits.

Research limitations/implications – The limitations are related to the nature of the data and concretely the main limitation lies in the consequences construct. The data provided are very general and it would be useful to specify what kind of change is generated.

Practical implications – Antecedents of the level of use are similar for all the countries, so there might be additional factors that explain why, in some countries, retailers have adopted a different level of e-business. Managers have to take into account that the adoption and use of a higher level of e-business requires changes in all the functional areas. The decision of adopting and using e-business should be taken seriously.

Originality/value – Most research has focused on analyzing the antecedents of e-business use in a single country. However, this paper presents some new evidence on the factors that influence the extent of e-business use for two groups of countries. Furthermore, previous research has suggested that changes might be necessary within the firm due to the e-business use but there is little empirical evidence on the internal impact of e-business use. This paper provides a first approximation to the general areas in which managers had to made changes.

Keywords Europe, Electronic commerce, Retail management, Organizational implications, E-business use, European retailers, Cross-country analysis

Paper type Research paper

1. Introduction

The potential of electronic business (e-business) to transform business models, organizational structures and processes and relationships with customers, suppliers and other business partners is now universally acknowledged (Zhu, 2004; Zhu *et al.*, 2006). E-business describes an integration of communication technologies with business processes and management practices via internet (Simpson and Doherty, 2004; Turban *et al.*, 2004). These web technologies help firms to understand customer

This research was supported by a project from GENERÉS S09 (Aragon Government and fondos FEDER) and from the Spanish Government (CICYT ECO 2008-04704 and ECO 2011-23027).

Internet Research
Vol. 22 No. 5, 2012
pp. 532-550

1066-2243
DOI 10.1108/10662241211271536

needs, to customize products, to adopt product-market solutions and to take customers' orders.

Much research has focused on analysing the antecedents of e-business adoption, its use (Teo and Pian, 2003; Lin and Lin, 2008; Ifinedo, 2011) and its impact on performance (Wu *et al.*, 2003; Martinez-López and Martinez-López, 2010; Weisberg *et al.*, 2011). E-business is considered to be a disruptive innovation that radically changes the traditional way of doing business (Lee, 2001). Companies have to be prepared to reorganize and restructure themselves continuously. However, the effective implementation of e-business technologies requires their integration into existing work processes. So, firms might need to change their business and work processes (Chu and Smithson, 2007). Although previous research has suggested that these changes might be necessary (Jackson and Harris, 2003), there is little empirical evidence on the internal impact of e-business use. (Yasin *et al.*, 2006). The few existing studies are theoretical, case studies or preliminary investigations.

The main purpose of this paper is to examine the organizational impact of conducting e-business. We want to examine if the level of e-business used causes changes in management, corporate strategy and marketing. Because recent research suggests that the study of the antecedents and consequences of e-business should be carried out holistically, in a single context (Wu *et al.*, 2003; Mishra *et al.*, 2007), we examine the organizational implications of the level of e-business use together with its antecedents in an integrated model. Our study focuses on analysing three aspects of restructuration: strategy, the management of the firm and marketing tactics.

The emphasis used to be restricted to analysing e-business among US firms. However, in the last decade, there has been an increasing interest in analysing e-business antecedents and the impact of e-business adoption in different countries. Nowadays, we find papers focused on Europe (Oliveira and Martins, 2010; Ho *et al.*, 2007). However, Hanafizadeh *et al.* (2009) found that, even in Europe, there are strong differences. In this paper, we propose a cross-country analysis differentiating between countries with a high level of e-commerce diffusion (percentage of individuals using the internet to order goods or services) and those with a low level.

This paper contributes to the empirical evidence about the organizational implications of the level of e-business used employing a sample of 696 European retailers. By developing a better understanding of the changes that e-business implementation involves, managers will be able to see its adoption as a strategic decision and take measures within the firm to maximize the effectiveness of this adoption.

This paper is organized as follows. First, we explain the organizational implications of conducting e-business. In the third section, we present the antecedents of its adoption. The fourth section explains the methodology used and in the fifth section, we present the results. We finish with a discussion of the results, the limitations of the paper and future lines of research.

2. Organizational implications of conducting e-business

Inter-organizational systems have an impact on value chain management and on the relationships within the value chain (Chatfield and Björn-Andersen, 1997). According to Porter (2001), internet technologies influence the cost and quality of all the activities of the value chain: logistics, operations, marketing and sales, after-sales services, human resources management, technology development and procurement. Every activity involves the creation, processing and communication of information and

internet has the ability to link these activities and make data widely available both within the company and to suppliers, channel partners and customers.

Different terminologies have been used to refer to e-business processes, such as "ICT-enabled organizational change" (Kling and Tillquist, 2000), "ICT-enabled business transformation" (Venkatraman, 1994) and "ICT-enabled business process reengineering (BPR)" (Davenport, 1993). All these terms emphasize the internal implications of the adoption of ICTs. Companies have to be prepared to reorganize and restructure themselves continuously.

We propose different kinds of organizational implications for conducting e-business: changes in corporate strategy, in management and in marketing. We will explain each of them in more detail.

2.1 Changes in corporate strategy

In the process of responding to new challenges, the firm has to adjust and modify its corporate strategy. A firm should analyse its industry forces and value chain activities, its resources and its core competencies. Managers must rethink their business strategy beyond building a web site (Lee, 2001). For example, developing e-commerce not only involves setting up a web presence, but also a web-based business model (Ghosh, 1998). The use of e-technologies and e-business creates a new marketplace. It has the power to influence not only markets, but also industry structures (Dans, 2004). Developing a strategy for the new marketplace is essential for the success of the firm (Chang *et al.*, 2003).

Electronic marketplaces reduce customers' search costs and increases access to new products in new channels (Bakos, 1997). A new business model has appeared with the use of internet and e-technologies: the organization as a network. This new business model requires the implementation of a more flexible and fluid corporate scope. One of the most important factors that the firm considers when implementing e-business is the modification of the existing business strategy (Yasin *et al.*, 2006).

Therefore, managers have to learn how to adapt their organizational and technological capabilities to their chosen business vision (Venkatraman, 1994). Thus, we propose:

H1. E-business use leads changes in corporate strategy.

2.2 Changes in management

Using or implementing e-business may also have an impact on the management of the firm. E-business is changing the basis of competition. The speed of reaction is changing, the marketplace is more dynamic and all the market information is available not only to customers but also to competitors. While a firm could compete in the offline market at local level, competition is now wider. Competitors are more numerous because the marketplace has no barriers and new entrants have access to a global market.

ICTs help in the redesigning of a business process by facilitating changes to work practices and establishing innovative methods to link a company with customers, suppliers and internal stakeholders (Hammer and Champy, 1993). The implementation of new technologies implies new forms of work, work reallocation and different flow of work among other changes (Falk, 2005).

E-business has a significant impact on the management of inter-organizational processes (Croom, 2005). Thus, managers have to learn how to integrate web

technologies with the business processes and people to create a flow of information sharing (Buhman *et al.*, 2005). So, we propose that:

H2. E-business use leads changes in management.

2.3 Changes in marketing

In recent years, internet marketing has emerged as a new paradigm of marketing (Eid, 2005). New internet-based marketing techniques have been developed, creating a new world for marketing (Kalyanam and McIntyre, 2002). These new technologies have brought new marketing terms and tactics. The term e-marketing refers to the use of internet and e-technologies to conduct marketing activities. New terms have appeared and the traditional marketing plan has evolved into e-marketing plan (Krishnamurty, 2006). There are more than 30 e-marketing tools and terms, including viral marketing, usability, banner ads, pop over and pop under ads, e-coupons, chat rooms, user ratings and reviews (Kalyanam and McIntyre, 2002). In addition to the 4Ps, in the e-marketing mix, marketers should include elements such as site, personalization, security, privacy, community and customer support. Marketing programmes should be adapted to the new situation. To include these elements in marketing decisions, marketers should take into account that a deeper integration and coordination across elements is now expected than in the traditional marketing mix.

E-business may affect customer service. For example, relationships with customers are changing and firms could take advantages of e-commerce attributes and of some ICTs to build long-term relationships based on loyalty (Lee, 2001). Improving customer relationships entails organizing the business in order to treat customers individually. Marketers can benefit from creating and using network effects to build a customer base. Personalization is a general strategy followed by companies to increase customer satisfaction. Gao *et al.* (2010) described the theories and methodology used to personalize. The authors suggested that user profiling, content modelling and information filtering are the three parts for personalization. New technologies are instruments or interface systems that allow firms to get information from customers, to offer personalized products and to implement one-to-one marketing. Thus, we propose:

H3. E-business leads changes in marketing.

2.4 Control variables

Changes in strategy, management and marketing can be also influenced by external aspects such as the environment. Competitive pressure may force firms to adjust to the new situations and adapt their strategy. In this environment, flexible and creative strategies are required (Grant, 2003). Slater and Narver (1994) also found that uncertainty influences the effectiveness of marketing strategies. In environments with greater competition and with unpredictable demand, a strategy based on market orientation is more important and marketing tactics may change to be more effective.

We also include size as a control variable that may affect the decision to undertake business changes. Research suggests that size influences the probability of change (Kelly and Amburgey, 1991) and innovation (Hitt *et al.*, 1990). Larger companies are more reluctant to change their process and are less flexible. On the other hand, small firms are more flexible and active (Chen and Hambrick, 1995). These firms may have a

competitive advantage in volatile and uncertain environments (Fiegenbaum and Karnani, 1991).

3. Antecedents of the level of e-business adoption

Most research on ICTs has focused on analysing the antecedents of e-business (Zhu *et al.*, 2004; Dubelaar *et al.*, 2005; Bayo-Moriones and Lera-López, 2007; Lin and Lin, 2008; Chong *et al.*, 2009; Ifinedo, 2011). A new contextual framework called the technological, organizational and environmental (TOE) framework has emerged. This framework suggests that the drivers of e-business can be categorized into technological, organizational and environmental factors (Lin and Lin, 2008; Chong *et al.*, 2009; Ifinedo, 2011). In the organizational context, we include IT expertise and size; in the technological context, we include the expected benefits and, in the environmental context, we include stakeholder pressure and competitive pressure. Below, we will explain each of these factors in more detail.

3.1 IT expertise

Human resources are critical factors for the diffusion and level of use of technology (Chen *et al.*, 2003). The firm has to maintain qualified IT professionals and to increase the level of IT skills of its workers (Bresnahan *et al.*, 2002). The level of IT knowledge among employees is a key factor that drives the adoption of e-technologies (Mehrtens *et al.*, 2001). Firms that have e-business specialists are more likely to adopt IT innovations because they could develop their own web site or use specific technologies for a better management of the value chain (Lin and Lee, 2005). Firms without IT expertise may not appreciate the full potential of new technologies or may not want to take the risk of adopting them. According to Cragg and Zinatelli (1995) the lack of technical expertise is a key factor that hinders the implementation and evolution of information systems. Thus, we propose:

H4. IT expertise will positively influence the level of e-business adoption.

3.2 Firm size

The use and rate of adoption of new web technologies depends on the size of the firm. There is a greater likelihood of larger retailers adopting an active web site than smaller ones (Wu *et al.*, 2003). In the UK, the largest retailers are the ones at the forefront of e-technologies used and e-commerce implementation (Ellis-Chadwick *et al.*, 2002). This may be because larger retailers are more likely to have the required resources, skilled personnel and technical infrastructure to support e-business. On the other hand, other authors suggest that larger firms will not adopt these technologies because of their investment in established distribution relationships and that they have less flexibility (Auger and Gallaugher, 1997; Ghosh, 1998). Thus, we propose:

H5. Size will positively influence the level of e-business adoption.

3.3 Technological context

The perceived benefits of new technologies influence their adoption and use (Gunasekaran and Ngai, 2005; Ifinedo, 2011). In the literature, perceived benefits are related to the extent to which the new technology generates more benefits that the current technology. A firm is more likely to adopt a technology if the expected benefits are higher than the benefits of maintaining the current one (Moore and Benbasat, 1991).

Among the perceived benefits are costs savings or income generation, opportunities in new markets, new distribution channels and higher visibility (Poon and Swatman, 1999).

The advantages of adopting e-business are mainly the increase of sales (Barua *et al.*, 2004) and the reduction of costs (Garicano and Kaplan, 2001) but e-business also enables companies to expand internationally and reduce transaction costs (Currie, 2004). Other benefits are in terms of quality, customer services and product development (Brynjolfsson and Hitt, 1996). Thus, we propose:

H6. Perceived benefits will positively influence the level of e-business adoption.

3.4 Stakeholder pressure

Research has found that external pressure from customers or suppliers is important in the study of e-business adoption (Premkumar and Ramamurthy, 1995; Del Aguila and Padilla, 2008; Chong *et al.*, 2009). Suppliers and clients may exert great pressure because they know that the benefits and advantages of these technologies are maximized when more people use them (network effects) (Iacovou *et al.*, 1995). Furthermore, if suppliers and/or clients have already adopted these technologies, the firm will be under pressure to adapt its business processes and management if it wants to continue its relationship with them. Otherwise, the firm will take the risk of being isolated in the market (Chwelos *et al.*, 2001; Kuan and Chau, 2001). Thus, we propose:

H7. Pressure from customers and suppliers will positively influence the level of e-business adoption.

3.5 Competitive pressure

In environments where rivalry is increasing with unpredictable actions from competitors and where products and technology change rapidly, the use of the new technologies has even more importance (Pavlou and El Sawy, 2010). Environmental uncertainty has been overlooked in e-technology adoption research (Larsen, 2003). Firms under environmental pressure to adopt e-business improve their performance (Coltman *et al.*, 2007). Intense rivalry encourages firms to keep an eye on their competitors' decisions (Gattignon and Robertson, 1989). In markets with strong competition, firms tend to obtain updated information to enhance their decisions and ICT innovations are seen as a requisite in order to compete (Premkumar and Ramamurthy, 1995). So, we expect that:

H8. Competitive pressure will positively influence the use of e-business.

Figure 1 shows the conceptual model.

4. Methodology

The data set used for this study comes from the August/October 2007 enterprise survey of the "e-Business W@tch" (www.ebusiness-watch.org). The key objective of the e-Business W@tch was to gather information about the use of ICTs and their application for e-business in companies in order to derive indicators in the industrial sector. The survey was carried out in different European countries (France, Sweden, the UK, the Netherlands, Spain, Italy and Poland) and was addressed to retailing firms. The final sample consisted of 691 valid answers. The e-business data were collected

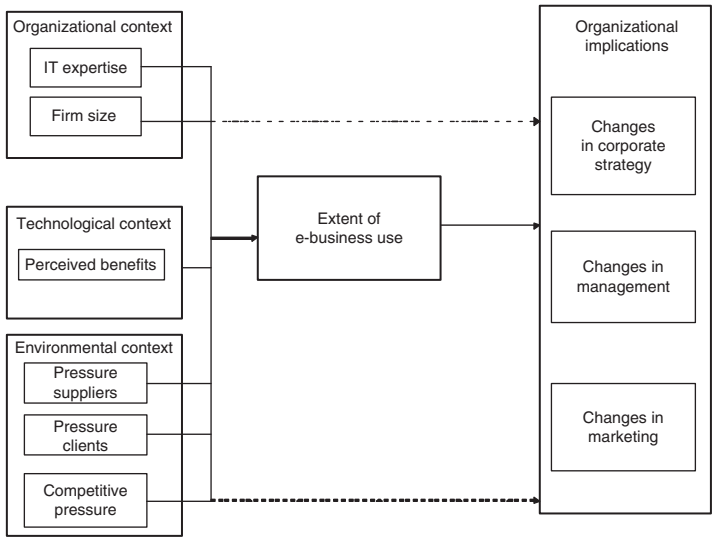

Figure 1.
Conceptual model

through CATI interviews, usually with an IT manager or a senior professional in the IT department. In the case of larger companies, the survey was answered by managers who takes decisions about e-business while, in micro and small enterprises, the respondent was someone at the level of managing director or the owner.

4.1 Variables

Our dependent variables are organizational implications in different areas of the firm. Firms were asked: "During the last year, has your company introduced major changes into its corporate strategy? Into its management techniques? Into its marketing concepts?". Answers were yes or no, so we have created a dummy variable that takes value 1 if the firm has made changes and 0 otherwise.

The other dependent variable is the level of e-business adoption. Firms were asked the following question about the intensity of their use of e-business: "Would you say that most (a good deal, some or none) of your business processes are conducted as e-business?" The categorical values were then used to generate a binary variable "conducting e-business" that takes value 1 if the firm conducts a good deal or most of its processes as e-business and 0 otherwise.

To measure perceived benefits, the firm was asked "Do you expect that ICTs will have a high (medium, low or no) impact on the following business functions in your company in the future? Management and control? Administration and accounting? Marketing and customer services? Logistics?" Categorical variables were created for each answer with a scale of 1-4, 4 for high impact and 1 for no impact.

One of the independent variables is firm size. The data set contains information about the number of employees in the firms. We can distinguish between large- and small- and medium-sized enterprises (SMEs). SMEs are non-subsidiary, independent firms which employ less than a given number of employees; this number varies across countries. The most frequent upper limit designating an SME in the European Union (EU) is 250 employees. Following the EU classification (OECD, 2005), we have created different groups according to the number of employees: micro (fewer than ten

employees), small enterprises (10-49 employees), medium-sized enterprises (50-249 employees) and large enterprises (more than 250 employees).

The survey also has some questions related to IT expertise. Firms were asked whether the company hires ICT practitioners to take care of the company infrastructure. With this question we have generated a dummy variable.

The variable related to external pressure is obtained from two questions, the first related to customer pressure to adopt e-technologies and the second to supplier pressure. The firm was asked "Has your company ever experienced pressure from customers to adopt e-commerce, which is the sale of products and services over the Internet?" and "Has your company experienced pressure from suppliers that your ICT solutions or data exchange formats should be adapted to comply with their requirements?" Dummy variables were created for each answer with value 1 for positive answers and 0 otherwise.

The following questions in the survey are related to competitive pressure: "Do you agree (yes) or disagree (no) to the following statement: Our market position is threatened by new entrants". A dummy variable was created taking value 1 for yes and 0 for no.

One of our aims is to understand the differences in e-business adoption across groups of countries. Based on the level of e-commerce adoption, we have decided to create two groups of countries, those whose level of e-commerce adoption is above the European mean, and those below the mean. The following table (Table I) shows the percentage of individuals using internet to order goods or services from 2004 to 2009. Our interest is focused on the year 2007, the year the interviews were carried out. One group of analysis covers Germany, Sweden, UK and France and the other group covers Spain, Italy and Poland. The results will be presented for each of the two groups.

In Table II, we compare the two groups of countries in terms of strategic, management and marketing changes, level of e-business use, level of IT expertise, the benefits perceived from the use of e-business and the customer and supplier pressure and the competitive pressure perceived by the firms. We use the *Z*-scores or the *t*-statistics depending on the nature of the data. Our results show some significant differences in terms of changes in management, the use of e-business, expected benefits in management and marketing, the level of IT employees and in the customer pressures.

	2004	2005	2006	2007	2008	2009
Germany	37	42	49	52	53	56
Sweden	43	50	55	53	53	63
UK	37	44	45	53	57	66
France	:	:	22	35	40	45
Spain	8	12	15	18	20	23
Italy	:	6	9	10	11	12
Poland	5	7	12	16	18	23
EU (27 countries)	20	24	26	30	32	37

Source: Eurostat: http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/data/main_tables

Table I.
Individuals using the internet to order goods or services (%)

Variable	Indicator	Low e-commerce	High e-commerce	Comparison
Organizational implications	Changes in strategy	21.14	23.07	$Z = -0.38$ ns
	Changes in management	23.50	22.25	$Z = 2.314$**
	Changes in marketing	26.40	28.46	$Z = 0.328$ ns
Extent of e-business use	Level of e-business use	29.76	16.79	$Z = 11.31$***
Firm size	Micro	10.07	11.87	$Z = -3.07$**
	Small	53.44	51.33	$Z = 5.88$***
	Medium	29.12	29.83	$Z = 0.22$ ns
	Large	7.35	6.96	$Z = 1.52$*
IT expertise	IT employees	25.77	21.70	$Z = 3.66$***
Perceived benefits	Expected benefits in management	3.80	3.53	$t = 7.48$***
	Expected benefits in accounting	3.94	3.90	$t = 1.03$ ns
	Expected benefits in marketing	3.81	3.62	$t = 5.27$***
	Expected benefits in logistics	3.76	3.71	$t = 1.13$ ns
External pressure	Pressure from customers	14.33	24.70	$Z = -6.343$***
	Pressure from suppliers	10.61	10.30	$Z = 0.724$ ns
Competitive pressure	Market position threatened by new entrants	51.92	46.25	$Z = 0.965$ ns

Table II.
Descriptive results

Notes: ns, non-significant; ***,**,*significant at 0.01, 0.05, and 0.1 levels, respectively

5. Results

Related to the methodology, we have used a seemingly unrelated bivariate probit estimation. Recently, there has been an increasing interest for decision process models, some of them more complex such as a fuzzy model (Sánchez *et al.*, 2009) and others more simple such as a two-stage choice process (Nicolau and Mas, 2006; Ruiz-Moreno *et al.*, 2007). However, in order to opt for a type of methodology, the nature and type of variables is an important aspect to account for. In our case, all the variables are dummy, with values 0 or 1 and for simplicity, the seemingly unrelated bivariate probit model is suitable for our research. Tables III and IV present the factors that influence the level of e-business use and its impact on three types of organizational implications: strategy, management and marketing.

Analysing the factors that explain organizational implications the results are quite robust across countries. A higher level of e-business use involves changes in management, strategy and marketing. So, *H1*, *H2*, *H3* are supported for both groups of countries. In terms of competitive pressure, the threat of losing market position has a different impact on each group. For countries with a high level of e-commerce, competitive pressure implies changes in management while, for countries with a low level of e-commerce, it is related to strategic changes. Finally, the impact of size varies across groups and the type of organizational implication analysed. Medium firms are more likely to carry out strategic changes. Large firms also have a greater likelihood of making strategic changes in countries with a low level of e-commerce diffusion. For these countries, small firms are less likely to carry out changes in marketing.

With respect to the factors that influence the decision to conduct e-business, human resources, size, the perceived benefits of this decision and environmental factors are important.

Hypotheses			Coefficients Change in management	Change in strategy	Change in marketing
H1, H2, H3	Accepted	Level of e-business use	1.639***	1.824**	1.979***
			(0.23)	(0.245)	(0.14)
		Market Position	0.1957*	0.037	−0.093
		threatened	(0.10)	(0.11)	(0.10)
		1-9 employees	−0.1402	−0.080	0.109
			(0.14)	(0.15)	(0.13)
		50-249 employees	−0.137	0.164***	0.071
			(0.146)	(0.14)	(0.13)
		+ 250 employees	0.095	0.100	−0.237
			(0.23)	(0.23)	(0.22)
		Constant	−1.03***	−1.116***	−0.769***
			(0.12)	(0.12)	(0.11)
		Level of e-business use			
H4	Accepted	IT employees	0.4587***	0.409***	0.496***
			(0.14)	(0.14)	(0.14)
H5	Rejected	1-9 employees	−0.056	−0.083	−0.097
			(0.16)	(0.16)	(0.16)
		50-249 employees	−0.169	−0.139	−0.117
			(0.16)	(0.16)	(0.16)
		+ 250 employees	0.096	0.047	0.192
			(0.27)	(0.27)	(0.25)
H6	Partially accepted	Expected benefits management	0.202***	0.163***	0.101
			(0.07)	(0.07)	(0.07)
		Expected benefits marketing	0.089	0.137**	0.256***
			(0.070)	(0.06)	(0.06)
		Expected benefits logistics	0.232**	0.244***	0.149**
			(0.07)	(0.07)	(0.06)
		Expected benefits accounting	−0.0413	−0.043	−0.0168
			(0.088)	(0.08)	(0.07)
H7	Rejected	Pressure customers	0.176	0.174	0.162
			(0.16)	(0.16)	(0.15)
		Pressure suppliers	0.099	−0.067	0.187
			(0.18)	(0.19)	(0.16)
H8	Rejected	Market position threatened	0.087	0.055	0.074
			(0.13)	(0.13)	(0.13)
		Constant	−3.93***	−2.975***	−2.978***
			(0.38)	(0.38)	(0.36)
		ρ	−0.707***	−0.768***	−0.886***
			(0.13)	(0.13)	(0.08)
		Log likelihood	−505.677***	−499.38***	−549.67***
		Number of observations	560	562	558
		AIC	1,055.274	1,040.759	1,144.637

Notes: ***,**,*Significant at 0.01, 0.05, and 0.1 levels, respectively

Table III.
Results for the countries with a high level of e-commerce (France, Germany, UK, Sweden)

The results show that hiring specialized IT personnel in the firm is an important factor that helps firms to increase their level of use of e-business in all the cases analysed. So, as we expected, the level of IT knowledge available in the firm has a strong influence on conducting e-business, which supports *H4* in both groups.

Hypotheses			Coefficients Change in management	Change in strategy	Change in marketing
H1, H2, H3	Accepted	Level of e-business use	1.37***	1.345***	1.403***
			(0.20)	(0.20)	(0.23)
		Market position threatened	0.213	0.241*	0.139
			(0.14)	(0.14)	(0.14)
		1-9 employees	−0.344	−0.132	−0.459**
			(0.19)	(0.19)	(0.19)
		50-249 employees	0.168	0.422**	0.069
			(0.17)	(0.18)	(0.17)
		+ 250 employees	−0.073	0.541*	0.275
			(0.29)	(0.28)	(0.29)
		Constant	−1.13***	−1.40***	−1.03***
			(0.16)	(0.17)	(0.16)
		Level of e-business use			
H4	Accepted	IT employees	0.988***	1.025***	0.866***
			(0.17)	(0.16)	(0.17)
H5	Rejected	1-9 employees	0.418**	0.468**	0.491**
			(0.20)	(0.20)	(0.20)
		50-249 employees	−0.161	−0.052	−0.046
			(0.19)	(0.19)	(0.19)
		+ 250 employees	−0.135	−0.198	−0.0117
			(0.33)	(0.33)	(0.34)
H6	Partially accepted	Expected benefits management	0.208**	0.160*	0.157*
			(0.01)	(0.09)	(0.08)
		Expected benefits marketing	0.096	0.098	0.203**
			(0.010)	(0.10)	(0.09)
		Expected benefits logistics	0.162**	0.171*	0.143
			(0.09)	(0.09)	(0.09)
		Expected benefits accounting	0.056	0.065	0.035
			(0.09)	(0.09)	(0.09)
H7	Rejected	Pressure customers	0.169	0.164	−0.076
			(0.25)	(0.23)	(0.24)
		Pressure suppliers	0.209	0.186	0.282
			(0.20)	(0.19)	(0.19)
H8	Rejected	Market position threatened	−0.471***	−0.384**	−0.408**
			(0.15)	(0.15)	(0.15)
		Constant	−2.580***	−2.582***	−2.733***
			(0.43)	(0.44)	(0.44)
		ρ	−0.653***	−0.737***	−0.648***
			(0.12)	(0.11)	(0.16)
		Log likelihood	−362.04***	−352.157***	−368.73***
		Number of observations	341	341	340
		AIC	763.3688	741.9069	775.6377

Notes: ***,**,*Significant at 0.01, 0.05, and 0.1 levels, respectively

Table IV.
Results for the countries with a low level of e-commerce (Spain, Italy and Poland)

Furthermore, this influence is greater in countries with a low level of e-commerce that have coefficients double those obtained in the other group.

Firm size is a key factor that influences the level of e-business use only in countries with a low level of e-commerce adoption. However, contrary to what we expected,

micro and small firms have a greater probability of conducting e-business than other sized firms. Although large firms show a positive influence on the level of e-business use, this effect is not significant. So, *H5* is rejected for both groups.

The expected benefits of the new technology are another important factor in explaining the level of e-business use. The results about this factor are similar in both groups. According to our findings, not all the expected benefits have the same influence. The expected benefits in management, marketing and logistics are the main reasons for using e-business. The benefits related to the accounting process are not significant in any of the regressions. So, *H6* is only partially supported.

Neither customer pressure nor supplier pressure affect the level of e-business use. So, *H7* is rejected in both groups. Finally, competitive pressure has a different impact depending on the group analysed. While, for the countries with a high level of e-commerce, it is positive but not significant, for countries with low level of e-commerce, it has a negative and significant impact. This means that competitive pressure has a negative impact on the decision to use e-business. So, *H8* is rejected in both groups.

6. Discussion

The aim of this research is to provide new evidence of the antecedents of conducting e-business and its organizational implications within the firm. Research has suggested that conducting e-business implies making some changes in management, strategy and marketing. However, little empirical research has supported this idea. We have used a data set of 691 retailers from seven European countries to test our hypotheses. We have created two groups depending on the level of adoption of e-commerce in each country. One of them contains countries with a high level of e-commerce adoption, and the other, countries with a low level of e-commerce adoption.

The model we have tested seems to fit the group of countries with a low level of e-commerce adoption better. This result suggests that firms have adopted e-business even though only a small proportion of their customers order products or services online. We expected the opposite, namely, that firms operating in countries with a high level of e-commerce adoption would adopt e-business to a greater extent. So, firms in Spain, Poland and Italy seem to be ahead of the evolution and diffusion of the technologies in their countries.

Our research finds that the hypotheses about the organizational implications of e-business use are fully confirmed. This result confirms previous research that suggests that the adoption and use of e-business involves a strategic change (Yasin *et al.*, 2006; Venkatraman, 1994), a management change (Croom, 2005) and a change in marketing tactics (Kalyanam and McIntyre, 2002). No matter the countries analysed, this result is robust. A higher level of e-business use has a greater impact on strategy, management and marketing in countries with a high level of e-commerce adoption.

Our results show that the environment puts pressure on firms to adapt their strategy and management, which confirms previous studies (Grant, 2003). Firms with a greater perceived competitive pressure are more likely to change their strategy and management. However, firm characteristics such as size do not influence the undertaking of organizational changes. The only exception is medium-sized firms that do carry out changes in their strategy. This result supports previous research (Chen and Hambrick, 1995). In countries with low e-commerce adoption, large firms have a greater likelihood of undertaking changes in their strategy and small firms have a lower likelihood of undertaking changes in marketing. The effect of size not only

depends on the kind of change analysed, but also on the countries. So, more research is needed to have a better understanding of this variable.

We have included the study of the antecedents of using e-business in our analyses. Our findings also offer insights into how the effects may vary across different environments.

Organizational aspects are factors with a strong and clear impact on the decision to conduct e-business. This confirms previous studies that suggest that these are the main factors in the adoption of e-technologies and e-business (Srinivasan *et al.*, 2002; Del Aguila and Padilla, 2008) and that they are strongly related to e-business value (Zhu *et al.*, 2004). As previous research suggested, IT expertise is an important resource that increases the likelihood of conducting e-business. Size is another factor included in the analysis of e-business adoption. Its impact depends on the group of countries analysed. For countries with a high level of e-commerce adoption, size is not significant. However, for the other group, our findings suggest that micro and small firms are more likely to conduct e-business. These results are contrary to those of some research that suggests that large firms adopt and use e-business to a greater extent. However, this finding is in line with previous research that suggests that small firms are more flexible (Auger and Gallaugher, 1997; Ghosh, 1998) and e-technologies help these firms to compete with large firms (Zhu *et al.*, 2004). This leads small firms to undertake more innovations. Because, in countries with a low level of e-business use, perceived competitive pressure seems to be greater, smaller firms may benefit from their flexibility.

Our technological factor measures the expected benefits of using the e-business. Previous research found a significant effect of this factor (Dubelaar *et al.*, 2005; Grandon and Pearson, 2004; Ifinedo, 2011). These authors used reflective constructs, so they can only measure the impact of the whole factor. Some firms find benefits in certain functions but not in all of them. In our study, we analyse the impact of the benefits obtained in each of the functions of the firm. Our results confirm that the expected benefits are important drivers for explaining the level of e-business use, but not all the benefits have the same importance. Although firms may benefit from reducing the costs of accounting and administration, this is not a reason for increasing the level of e-business use. The expected impact of ICTs on management, marketing and customer services and logistics are the main reasons for using these technologies.

Environmental factors have little influence on the level of e-business use. Our findings suggest that supplier and customer pressure has no influence on the level of e-business use. This is contrary to previous results (Premkumar and Ramamurthy, 1995; Kuan and Chau, 2001; Chong *et al.*, 2009). A contradictory result is found with the non-significant influence of customers in countries with a high level of e-commerce adoption. We expected customers in these countries to have an influence and to put pressure on the firms to adopt e-commerce. As the sector analysed is retailing, we expected a strategic response to the customers' needs. Perceived competitive pressure is only important in countries with a low level of e-commerce adoption. The explanation for this result could be that, in some situations, competition increases uncertainty, which may inhibit the decision to innovate (Fuentelsaz *et al.*, 2003). The risk is greater than the expected benefits, so firms wait for a move from their competitors.

6.1 Contributions and implications to research

Our research contributes new evidence to the marketing and e-technologies literature confirming that conducting e-business is an integrated decision that influences all the

aspects of the business. Some research has suggested that e-business leads to changes in marketing strategy. However, most of these studies are theoretical or case studies. Our paper contributes to previous research with empirical evidence about the impact of e-business on different aspects: management, marketing and customer service and firm strategy. Our results suggest that the level of e-technology use impacts all of them in the same way. So, managers should take into account that, if they conduct e-business in most of their business processes, this will affect the whole firm and provoke a restructuration and reorganization of the business and a change in its strategy.

A second contribution of this research is an extension of the existing literature on the organizational adoption of innovations. When we compare our results about the importance of internal capabilities to those of external pressures, it seems that firms proactively seek technologies of their own volition. Analysing both the internal and external factors in conducting e-business allows us to study an integrated model of technology adoption.

Finally, this research provides a cross-country analysis, showing some differences in the level of e-business use across European countries. Previous research has shown some evidence of these differences (Koellinger, 2008; Oliveira and Martins, 2010). Our contribution in this field is twofold: first, we present some new evidence on the factors that influence the extent of e-business use; and second, we offer empirical evidence of the consequences of e-business use across countries.

6.2 Limitations and future research

The main limitations of this study lie in the nature of the information and data used. First, we have used a general question to know the level of use of e-business. However, the adoption and use of each type of ICT is different. Previous research suggested that the adoption and use of e-business is a dynamic process and that firms follow certain steps. So, the level of conducting e-business could vary considerably between firms. Future research could address this issue, analysing the decision as a process with different steps.

Second, and related to the previous limitation, the data are cross-sectional. We have no information about the evolution of the organizational strategies analysed in this paper. Future research should be aimed at conducting a dynamic analysis of these strategies.

The third and last limitation is that the data contain information from different countries which may have different e-business adoption rates. We have split the data into two groups but, in future research, we could analyse each European country separately to see whether there are any difference among them.

Future research should be aimed at incorporating performance measures into the model and, in that way, link the type of changes made within the firm with some economic results. Previous research has analysed the effect of e-business use on performance, but successful firms would be those that are able to restructure and reorganize themselves efficiently in order to maximize the benefits of e-business use. Finally, the research is based on the effects of the e-business in companies that have already taken that decision. However, a future research should analyse the decision process of implementing e-business. In that case a more complex methodology could be applied following Sánchez *et al*'s. (2009) methodology to evaluate the suitability of installing e-business.

7. Conclusion

This study has attempted to contribute to the discussion about the level of e-business use among retailers in Europe and to what extent changes in some functional areas are

explained by the level of e-business. The study's findings indicated that the perceived benefits and the IT knowledge were the most important predictors of e-business use. Pressure from suppliers and customers were found to be insignificant. In Spain, Portugal and Poland, size and the threat of losing the market position showed a contrary effect. Finally, the study suggested that firm's changes in management, strategy and marketing were mainly explained by the extent of e-business use rather than by the competitive environment. Our findings have enriched the discourse about the use of e-business in Europe and its organizational implications. It also lends support to previous findings regarding factors influencing the acceptance and use of internet technologies and it complements past research with the consequences of conducting e-business.

References

Auger, P. and Gallaugher, J. (1997), "Factors affecting the adoption of internet-based sales presence for small businesses", *The Information Society*, Vol. 13 No. 1, pp. 55-74.

Bakos, Y.J. (1997), "Reducing buyer search costs: implications for electronic marketplaces", *Management Science*, Vol. 43 No. 12, pp. 1676-708.

Barua, A., Konana, P., Whinston, A.B. and Yin, F. (2004), "Assessing internet enabled business value: an exploratory investigation", *MIS Quarterly*, Vol. 28 No. 4, pp. 585-620.

Bayo-Moriones, A. and Lera-López, F. (2007), "A firm-level analysis of determinants of ICT adoption in Spain", *Technovation*, Vol. 27 No. 6, pp. 352-66.

Bresnahan, T., Brynjolfsson, E. and Hitt, L. (2002), "Information technology, workplace organization, and the demand for skilled labor: firm-level evidence", *The Quarterly Journal of Economics*, Vol. 117 No. 1, pp. 339-76.

Brynjolfsson, E. and Hitt, L. (1996), "Paradox lost? Firm-level evidence on the returns to information technology systems spending", *Management Science*, Vol. 42 No. 4, pp. 541-58.

Buhman, C., Kekre, S. and Singhal, J. (2005), "Interdisciplinary and interorganizational research: establishing the science of enterprise networks", *Production & Operations Management*, Vol. 14 No. 4, pp. 493-513.

Chang, K., Jackson, J. and Grover, V. (2003), "E-commerce and corporate strategy: an executive perspective", *Information & Management*, Vol. 40 No. 7, pp. 663-75.

Chatfield, A.T. and Björn-Andersen, N. (1997), "The impact of IOS-enabled business process change on business outcomes: transformation of the value chain of Japan Airlines", *Journal of Management Information Systems*, Vol. 14 No. 1, pp. 13-40.

Chen, L., Haney, S., Pandzik, A., Spigarelli, J. and Jesseman, C. (2003), "Small business internet commerce: a case study", *Information Resources Management Journal*, Vol. 16 No. 3, pp. 17-41.

Chen, M.J. and Hambrick, D.C. (1995), "Speed, stealth and selective attack: how small firms differ from large firms in competitive behaviour", *The Academy of Management Journal*, Vol. 38 No. 2, pp. 453-82.

Chong, A.Y-L., Ooi, K-B., Lin, B. and Tang, S.Y. (2009), "Influence of interorganizational relationships on SMEs' e-business adoption", *Internet Research*, Vol. 19 No. 3, pp. 313-31.

Chu, C. and Smithson (2007), "E-business and organizational change: a structurational approach", *Information Systems Journal*, Vol. 17 No. 4, pp. 369-89.

Chwelos, P., Benbasat, I. and Dexter, A.S. (2001), "Empirical test of an EDI adoption model", *Information Systems Research*, Vol. 12 No. 3, pp. 304-21.

Coltman, T.R., Devinney, T.M. and Midgley, D.F. (2007), "E-Business strategy and firm performance: a latent class assessment of the drivers and impediments to success", *Journal of Information Technology*, Vol. 22 No. 2, pp. 87-101.

Cragg, P.B. and Zinatelli, N. (1995), "The evolution of information systems in small firms", *Information and Management*, Vol. 29 No. 1, pp. 1-8.

Croom, S.R. (2005), "The impact of e-business on supply chain management: an empirical study of key developments", *International Journal of Operations & Production Management*, Vol. 25 No. 1, pp. 55-73.

Currie, W.L. (2004), *Value Creation from E-Business Models*, Butterworth- Heinemann, Oxford.

Dans, E. (2004), "IT does matter", *European Business Forum (EBF)*, Vol. 16, available at: http://profesores.ie.edu/enrique-dans

Davenport, T.H. (1993), *Process Innovation: Reengineering Work Through Information Technology*, Harvard Business School Press, Boston, MA.

Del Aguila, A. and Padilla, A. (2008), "Organizational factors affecting internet technology adoption", *Internet Research*, Vol. 16 No. 1, pp. 94-110.

Dubelaar, C., Sohal, A. and Savic, V. (2005), "Benefits, impediments and critical success factors in B2C e-business adoption", *Technovation*, Vol. 25 No. 11, pp. 1251-62.

Eid, R. (2005), "International internet marketing: a triangulation study of drivers and barriers in the business-to-business context in the United Kingdom", *Marketing Intelligence & Planning*, Vol. 23 No. 3, pp. 266-80.

Ellis-Chadwick, F., Doherty, N. and Hart, C. (2002), "Signs of change? A longitudinal study of internet adoption in the UK retail sector", *Journal of Retailing and Consumer Services*, Vol. 9 No. 2, pp. 71-80.

Falk, M. (2005), "ICT-linked firm reorganisation and productivity gains", *Technovation*, Vol. 25 No. 11, pp. 1229-50.

Fiegenbaum, A. and Karnani, A. (1991), "Output flexibility. A competitive advantage for small firms", *Strategic Management Journal*, Vol. 12 No. 2, pp. 101-14.

Fuentelsaz, L., Gómez, J. and Polo, Y. (2003), "Intrafirm diffusion of new technologies: an empirical application", *Research Policy*, Vol. 32 No. 4, pp. 533-51.

Gao, M., Liu, K. and Wu, Z. (2010), "Personalisation in web computing and informatics: theories, techniques, applications and future research", *Journal of Information Frontiers*, Vol. 12 No. 5, pp. 607-29.

Garicano, L. and Kaplan, N. (2001), "The effects of business-to-business e-commerce on transaction costs", *Journal of Industrial Economics*, Vol. 49 No. 4, pp. 1-23.

Gattignon, H. and Robertson, T.S. (1989), "Technology diffusion: an empirical test of competitive effects", *Journal of Marketing*, Vol. 53 No. 1, pp. 35-49.

Ghosh, S. (1998), "Making business sense of the internet", *Harvard Business Review*, March-April, pp.126-35.

Grandon, E.E. and Pearson, J.M. (2004), "Electronic commerce adoption: an empirical study of small and medium US businesses", *Information & Management*, Vol. 42 No. 1, pp. 197-216.

Grant, R.M. (2003), "Strategic planning in turbulent environment: evidence from the oil majors", *Strategic Management Journal*, Vol. 24 No. 6, pp. 491-517.

Gunasekaran, A. and Ngai, E.W.T. (2005), "E-commerce in Hong Kong: an empirical perspective and analysis", *Internet Research*, Vol. 15 No. 2, pp. 141-59.

Hammer, M. and Champy, J. (1993), *Reengineering the Corporation*, Harper Business, New York, NY.

Hanafizadeh, M.R., Saghaei, A. and Hanafizadeh, P. (2009), "An index for cross-country analysis of ICT infrastructure and access", *Telecomunications Policy*, Vol. 33 No. 7, pp. 385-405.

Hitt, M.A., Hoskisson, R.E. and Ireland, R.D. (1990), "Mergers and acquisitions and managerial commitment to innovation in M-form firms", *Strategic Management Journal*, Vol. 11, Special Issue, pp. 29-47.

Ho, S., Kauffman, R. and Liang, T. (2007), "A growth theory perspective on B2C e-commerce growth in Europe: an exploratory study", *Electronic Commerce Research and Applications*, Vol. 6 No. 3, pp. 237-59.

Iacovou, C.L., Benbasat, I. and Dexter, A.S. (1995), "Electronic data interchange and small organization: adoption and impact of technology", *MIS Quarterly*, Vol. 19 No. 4, pp. 465-85.

Ifinedo, P. (2011), "Internet/e-business technologies acceptance in Canada's SMEs: an exploratory investigation", *Internet Research*, Vol. 21 No. 3, pp. 255-81.

Jackson, P. and Harris, L. (2003), "E-business and organizational change", *Journal of Organizational Change Management*, Vol. 16 No. 5, pp. 497-511.

Kalyanam, K. and Mcintyre, S. (2002), "The e-marketing mix: a contribution of the e-tailing wars", *Journal of the Academy of Marketing Science*, Vol. 30 No. 4, pp. 489-99.

Kelly, D. and Amburgey, T. (1991), "Organizational inertia and momentum: a dynamic model of strategic change", *Academy of Management Journal*, Vol. 34 No. 3, pp. 591-612.

Kling, R. and Tillquist, J. (2000), "Conceiving IT-enabled organizational change", CSI working paper No. 98-02, CSI, Indiana University, Bloomington, IN.

Koellinger, P. (2008), "The relationship between technology, innovation and firm performance. Empirical evidence from e-business in Europe", *Research Policy*, Vol. 37 No. 8, pp. 1317-28.

Krishnamurty, S. (2006), "Introducing E-MARKPLAN: a practical methodology to plan e-marketing activities", *Business Horizons*, Vol. 49 No. 1, pp. 51-60.

Kuan, K.K.Y. and Chau, P.Y.K. (2001), "A perception-based model for EDI adoption in small business using a technology – organization – environment framework", *Information & Management*, Vol. 38 No. 8, pp. 507-12.

Larsen, K.T. (2003), "A taxonomy of antecedents of information systems success: variable analysis studies", *Journal of Management of Information Systems*, Vol. 20 No. 2, pp. 169-246.

Lee, C-S. (2001), "An analytical framework for evaluating e-commerce business models and strategies", *Internet Research*, Vol. 11 No. 4, pp. 349-59.

Lin, H.F. and Lee, G.G. (2005), "Impact of organizational learning and knowledge management factors on e-business adoption", *Management Decision*, Vol. 43 No. 2, pp. 171-88.

Lin, H-F. and Lin, S.M. (2008), "Determinants of e-business diffusion: a test of the technology diffusion perspective", *Technovation*, Vol. 28 No. 3, pp. 135-45.

Martinez-López, L. and Martinez-López, F.J. (2010), "Intelligent e-services and multi-agent systems for B2C e-commerce", *Internet Research*, Vol. 20 No. 3.

Mehrtens, J., Cragg, P.B. and Mills, A.M. (2001), "A model of internet adoption by SMEs", *Information and Management*, Vol. 39 No. 3, pp. 165-76.

Mishra, A.N., Konana, P. and Barua, A. (2007), "Antecedents and consequences of internet use in procurement: an empirical investigation of US manufacturing firms", *Information Systems*, Vol. 18 No. 1, pp. 103-20.

Moore, G.C. and Benbasat, I. (1991), "Development of an instrument to measure the perceptions of adopting an information technology innovation", *Information Systems Research*, Vol. 2 No. 3, pp. 192-222.

Nicolau, J.L. and Mas, F.J. (2006), "The influence of decision process on the choice of tourist destinations: the moderating role of motivations", *Tourism Management*, Vol. 27 No. 5, pp. 982-96.

OECD (2005), *OECD SME and Entrepreneurship Outlook*, OECD, Paris, p. 17.

Oliveira, T. and Martins, M.F. (2010), "Firm patterns of e-business adoption: evidence for the European Union-27", *Electronic Journal of Information Systems*, Vol. 13 No. 1, pp. 47-56.

Pavlou, P.A. and El Sawy, O.A. (2010), "The 'Third Hand': IT-enabled competitive advantage in turbulence through improvisational capabilities", *Information System Research*, Vol. 21 No. 3, pp. 443-71.

Poon, S. and Swatman, P. (1999), "An exploratory study of small business internet commerce issues", *Information Management*, Vol. 35 No. 1, pp. 9-18.

Porter, M.E. (2001), "Strategy and the internet", *Harvard Business Review*, Vol. 79 No. 2, pp. 63-78.

Premkumar, G. and Ramamurthy, K. (1995), "The role of interorganizational and organizational factors on the decision mode for adoption of interorganizational systems", *Decision Sciences*, Vol. 26 No. 3, pp. 303-36.

Ruiz-Moreno, F., Mas-Ruiz, F.J. and Nicolau-Gonzálbez, J.L. (2007), "Two-stage process of FDI: ownership structure and diversification mode", *Journal of Business Research*, Vol. 60 No. 7, pp. 795-805.

Sánchez, P.J., Martínez, L., García-Martínez, C., Herrera, F. and Herrera-Viedma, E. (2009), "A fuzzy model to evaluate the suitability of installing an enterprise resource planning system", *Information Science*, Vol. 179 No. 14, pp. 2333-41.

Simpson, M. and Doherty, A.J. (2004), "E-commerce adoption support and advice for UK SMEs", *Journal of Small Business and Enterprise Development*, Vol. 11 No. 3, pp. 315-28.

Slater, S.F. and Narver, J.C. (1994), "Does competitive environment moderate the market orientation-performance relationship?", *The Journal of Marketing*, Vol. 58 No. 1, pp. 46-55.

Srinivasan, R., Lilien, G.L. and Rangaswamy, A. (2002), "Technological opportunism and radical technology adoption: an application to e-business", *Journal of Marketing*, Vol. 66 No. 3, pp. 47-60.

Teo, T.S.H. and Pian, Y. (2003), "A contingency perspective on internet adoption and competitive advantage", *European Journal of Information Systems*, Vol. 12 No. 2, pp. 78-92.

Turban, E., King, D., Lee, J. and Viehland, D. (2004), *Electronic Commerce A Managerial Perspective*, Prentice Hall, Upper Saddle River, NJ.

Venkatraman, N. (1994), "IT-enabled business transformation; from automation to business scope redefinition", *Sloan Management Review*, Vol. 35 No. 2, pp. 73-87.

Weisberg, J., Te'eni, D. and Arman, L. (2011), "Past purchase and intention to purchase in e-commerce: the mediation of social presence and trust", *Internet Research*, Vol. 21 No. 1, pp. 82-96.

Wu, F., Mahajan, V. and Balasubramanian, S. (2003), "An analysis of e-business adoption and its impact on business performance", *Journal of the Academy of Marketing Science*, Vol. 31 No. 4, pp. 425-47.

Yasin, M.M., Czuchry, A.J., Gonzales, M. and Bayes, P.E. (2006), "E-commerce implementation challenges: small to medium-sized versus large organizations", *International Journal of Business Information Systems*, Vol. 1 No. 3, pp. 256-75.

Zhu, K. (2004), "Information transparency of business-to-business electronic markets: a game-theoretic analysis", *Management Science*, Vol. 50 No. 5, pp. 670-85.

Zhu, K., Kraemer, K.L. and Xu, S. (2006), "The process of innovation assimilation by firms in different countries: a technology diffusion perspective on e-business", *Management Science*, Vol. 52 No. 10, pp. 1557-76.

Zhu, K., Kraemer, K.L., Xu, S. and Dedrick, J. (2004), "Information technology payoff in e-business environments: an international perspective on value creation of e-business in the financial services industry", *Journal of Management Information Systems*, Vol. 21 No. 1, pp. 17-54.

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6. Simona Popa, Pedro Soto-Acosta, Daniel Perez-Gonzalez. 2016. An investigation of the effect of electronic business on financial performance of Spanish manufacturing SMEs. *Technological Forecasting and Social Change* . [Crossref]
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9. Manish Kacker, Rozenn Perrigot. 2016. Retailer use of a professional social media network: Insights from franchising. *Journal of Retailing and Consumer Services* **30**, 222-233. [Crossref]
10. Prodromos Chatzoglou, Dimitrios Chatzoudes. 2016. Factors affecting e-business adoption in SMEs: an empirical research. *Journal of Enterprise Information Management* **29**:3, 327-358. [Abstract] [Full Text] [PDF]
11. Simona Popa, Pedro Soto-Acosta, Euripidis Loukis. 2016. Analyzing the complementarity of web infrastructure and eInnovation for business value generation. *Program* **50**:1, 118-134. [Abstract] [Full Text] [PDF]
12. Seng Chee Lim, Ahmad Suhaimi Baharudin, Rong Quan Low. An Evaluation of Factors Influencing Small Medium Enterprises (SMEs) in Malaysia to Adopt E-commerce 651-662. [Crossref]
13. Estrella Díaz, David Martín-Consuegra, Águeda Esteban. 2015. Is ICT good for employees? An analysis of its effects on sales agents' perceptions of service cannibalization. *Computers in Human Behavior* **51**, 263-271. [Crossref]
14. Hanna Keinänen, Olli Kuivalainen. 2015. Antecedents of social media B2B use in industrial marketing context: customers' view. *Journal of Business & Industrial Marketing* **30**:6, 711-722. [Abstract] [Full Text] [PDF]
15. Ibrahim Arpaci, Yasemin Yardimci Cetin, Ozgur Turetken. 2015. A Cross-Cultural Analysis of Smartphone Adoption by Canadian and Turkish Organizations. *Journal of Global Information Technology Management* **18**:3, 214-238. [Crossref]

16. Abdul Rahim Abu Bakar, Zafar U. Ahmed. 2015. Technology Motivation in E-Marketing Adoption Among Malaysian Manufacturers. *Journal of Transnational Management* **20**:2, 126-152. [Crossref]
17. Daniel Palacios-Marqués, Pedro Soto-Acosta, José M. Merigó. 2015. Analyzing the effects of technological, organizational and competition factors on Web knowledge exchange in SMEs. *Telematics and Informatics* **32**:1, 23-32. [Crossref]
18. Dimitrios Maditinos, Dimitrios Chatzoudes, Lazaros Sarigiannidis. 2014. Factors affecting e-business successful implementation. *International Journal of Commerce and Management* **24**:4, 300-320. [Abstract] [Full Text] [PDF]
19. Pedro Soto-Acosta, Daniel Perez-Gonzalez, Simona Popa. 2014. Determinants of Web 2.0 technologies for knowledge sharing in SMEs. *Service Business* **8**:3, 425-438. [Crossref]
20. Blanca Hernandez-Ortega, Carlos Serrano-Cinca, Fabio Gomez-Meneses. 2014. The firm's continuance intentions to use inter-organizational ICTs: The influence of contingency factors and perceptions. *Information & Management* **51**:6, 747-761. [Crossref]
21. Wang Fang, Vaughan Liwen. 2014. Firm web visibility and its business value. *Internet Research* **24**:3, 292-312. [Abstract] [Full Text] [PDF]
22. Lucia-Palacios Laura, Bordonaba-Juste Victoria, Polo-Redondo Yolanda, Grünhagen Marko. 2014. E-business implementation and performance: analysis of mediating factors. *Internet Research* **24**:2, 223-245. [Abstract] [Full Text] [PDF]
23. Pedro Soto-Acosta, Ricardo Colomo-Palacios, Simona Popa. 2014. Web knowledge sharing and its effect on innovation: an empirical investigation in SMEs. *Knowledge Management Research & Practice* **12**:1, 103-113. [Crossref]
24. Waleed Noori Hussein, Rosnafisah Sulaiman, Abdulniser Khald Hamzah. E-business and cloud computing awareness for Malaysian SMEs: A recommendation from academic and industry perspectives 180-185. [Crossref]
25. Tsui-Chuan Hsieh, Keng-Chieh Yang, Conna Yang, Chyan Yang. 2013. Urban and rural differences. *Internet Research* **23**:2, 204-228. [Abstract] [Full Text] [PDF]
26. Kijpokin Kasemsap. The Role of E-Business Adoption in the Business World 51-63. [Crossref]
27. Pedro Soto-Acosta, Simona Popa. Antecedents and Consequences of Adopting Social Networking Technologies for Knowledge Sharing in Small Firms: 207-227. [Crossref]