

IFKAD 2017

12th International Forum on Knowledge Asset Dynamics

7-9 June 2017

St. Petersburg - Russia

***Knowledge Management
in the 21st Century:
Resilience, Creativity and Co-creation***

Distribution IFKAD 2017 – St. Petersburg, Russia 7-9 June 2017
Institute of Knowledge Asset Management (IKAM)
Arts for Business Ltd
University of Basilicata
GSOM – St. Petersburg University

ISBN 978-88-96687-10-9
ISSN 2280-787X

Edited by JC Spender, Giovanni Schiuma, Tatiana Gavrilova

Design & Realization by Gabriela Jaroš

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Explaining e-business adoption and use in Mexican SME's. Development of a measurement model from the perspective of Knowledge Management

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Structured Abstract

Purpose –Small and Medium Enterprises (SMEs) are the backbone of the economy, and they significantly benefit from Knowledge Management (KM) to develop competitiveness through innovation, however the extant literature has little empirical support for this statement. Dating from the early 1990s, the increased use of technology has brought about numerous changes in the business world, and electronic business (e- business) has become a paramount innovation for business. This technology not only introduced a new way of doing business, but also has become a vital part of peoples' lives. The purpose of this paper is to develop a research model aimed to explain e- business adoption (EBA) at firm level, from the perspective of the Knowledge Management View (KMV).

Design/methodology/approach – Using the literature review this paper develops a theoretical construct aimed to explain EBA in SMEs. It initiates with an introduction to the study of KM, then, the relation is analyzed between KM and innovation and deepens into the relation between KM and EBA. Finally, a conceptual framework is constructed and research propositions are developed in order to establish EBA as a dependent variable that can be explained by KM.

Originality/value – Although studies on Internet adoption by businesses have proliferated in the last few years, this kind of research has, however, been limited or null in some developing countries like Mexico and only few studies have been developed to explain EBA in SMEs from the perspective of KM. The proposed model is part of a

theoretical-empirical research project aimed to explain e-business adoption in Mexican SMEs

Practical implications – Past studies have mainly focused on studying EBA from the innovations adoption theory perspective, using variables such as environmental, organization attributes as well as innovation's attributes. This study addresses the previous scarcity of literature on the relationship between KM processes and EBA. These results have implications for e-business managers in formulating policies and targeting appropriate organisational capabilities to ensure the effective adoption of e-business, nevertheless, the research model needs to be tested empirically to prove its real value.

Keywords – e-business, adoption, Knowledge Management.

Paper type – Academic Research Paper

1 Introduction

Small and Medium Enterprises (SMEs) are an important part of most economies, they provide employment, generate innovation, create wealth, reduce poverty, enhance standard of living and contribute to the society in which they operate. The strength of SMEs lies in motivation, internal networking, and tacit knowledge in unique skills, shorter informal communication, less bureaucracy and greater proximity to market (Desouza and Awazu, 2006). But SMEs face resource, finance and skills scarcity and managers -particularly in underdeveloped countries-, often do not have enough managerial expertise and organizational capabilities, which imply poor strategic business planning and human resource management (Balestrin et al., 2008; Cocca and Alberti, 2010). KM implementation is said to be the best way to overcome these problems and improve SMEs' ability in innovation and organizational performance (Asoh et al., 2007; Bierly and Daly, 2007; Brachos et al., 2007; Chang and Lee, 2008; Ho, 2008; Chen and Huang, 2009; Sáenz, 2009; Yang, 2009; and Zack et al., 2009). KM provides the means for SMEs to overcome poor business environment and to change the complex business environment to be manageable (Saini, 2015), thus, effective KM emerges in the literature as a method for improving the firm's innovation capacity. Other lines of research also illustrate a positive link between the acquisition of market knowledge or knowledge from employees, and innovation (e.g., Li & Calantone, 1998; Lynn, Reilly, & Akgun, 2000). Finally, there are also some studies specifically linking KM to EBA (e.g., Lin and Lee, 2005; Cegarra-Navarro and Martínez-Conesa, 2007; Chong, Ooi, and Lin, 2014), nevertheless, they are scarce, and most of them have been empirically tested in developed economies.

2 Knowledge Management

2.1 Origins and evolution

The study of the KM can be traced up to the origins of the Theory of the firm (TF), and the pioneering attempts of some of the different economic theories included in the TF that explain and predict the nature of the company, firm or corporation, including its existence, behaviour, structure and relation with the market. Nevertheless in the academic works of those pioneering times, little efforts are observed towards the comprehension of the managerial or organizational knowledge per se (Spender y Grant, 1996), the approach being more towards identifying the knowledge content, more than towards what knowledge had to be known or the way of acquiring it or understand it.

2.2 The knowledge theory

The knowledge-based theory of the firm considers knowledge as the more strategically significant resource of a company. His defenders argue that due to the fact that knowledge-based resources are generally difficult to imitate and socially complexes, the bases and heterogeneous knowledge capacities among companies are the principal determinants of a competitive supported advantage and a basis for superior corporative performance. This knowledge is incrustated and is carried out across multiple entities, including the organizational culture, the identity, policies, routines, documents, information systems and employees. This perspective is based on the RBV of the company initially promoted by Penrose (1959) and later extended by others (e.g., Wernerfelt 1984, Barney 1991, Conner 1991).

Though the RBV recognizes the important role of knowledge for the organizations to achieve competitive advantage, the defenders of the knowledge-based view (KBV) argue that the RBV does not go far enough. Specifically, the RBV treats knowledge as a generic resource, instead of having special characteristics. The KBV then, has its roots in the RBV of the firm, which focuses on strategic assets as the main source of competitive advantages (Amit & Schoemaker, 1993) but in contrast, under the KBV, knowledge is the main strategic resource, which, when properly managed, allows the firm to create value from its exploitation of production (DeCarolis & Deeds, 1999; Zack, McKeen, & Singh, 2009), therefore, companies must protect, develop and integrate organizational knowledge to create value.

2.3 Knowledge Management

KM is defined as "a cyclic process aimed to identify, transfer, store and spread knowledge in order to re-use it, to report, share and to learn this knowledge in the whole organization" (Wang, 2007, p. 30). Previous studies have proposed key dimensions for

KM that includes acquisition, dissemination and application of knowledge (Chen and Mohamed, 2006; Fahey, Srivastasa, Sharon and Smith, 2001; McAdam and Reid, 2001).

Nonaka (1991) raises that in the highly competitive climate of these days, where the only certain thing is uncertainty, knowledge is the main differentiator factor for business success and at present, is visualized by several authors as the core foundation for competitiveness (Davenport, 1998; Drucker, 1993; Hall, 1993; Nonaka, and Takeuchi, 1995; Stalk, Evans, and Shulman, 1992; Carlucci, Marr and Schiuma, 2004).

In the last past decades, the emphasis in knowledge resources and organizational competences, has helped to create to a great extent a wide recognition of the strategic role of the intangible resources for the managerial success. From this fact, there have been produced several theoretical and practical contributions, in which there is outlined the importance of knowledge and intangible resources for the improvement of firm performance (Schiuma, Lerro and Sanitate, 2008). As consequence of the recognition of knowledge as strategic resource on which the competitive success of the firm is based, a wide literature has developed in the last decade on KM. A review of this literature reveals numerous interpretations of KM due to a wide range of interests and perspectives (Carlucci and Schiuma, 2006).

The explosion of KM of literature of the last decade is notable for the mixing of his approach, so much practical as academician. The literature reports now two different generations to approach KM, and argument the entering into a third one (Firestone y McElroy 2003; Gorelick y Tantawy- Monso 2005; Metaxiotis, Ergazakis, y Psarras 2005; Scholl et al. 2004).

3 KM and Innovation

According to the literature as the management in the organizations becomes modern, the value of knowledge increases (Carneiro, 2000; du Plessis, 2007; Hung, Lok, Ya-Hui and Wu, 2008; Halawi, Aronson and McCarthy 2005). Carneiro (2000) affirms that knowledge becomes progressively more useful due to the fact that the administration has experienced before the value of creativity, on which depends the transformation of a form of knowledge into another one. Nonaka (1991) argues that "when the markets change, the technologies proliferate, the competitors multiply and the products become obsolete overnight, the successful companies are those that create knowledge in a consistent form and spread it at the whole length and width of the organization and incorporate rapidly new technologies and new products".

Knowledge produced innovations are understood as the creation, development, exchange and application of new ideas into products and services adapted for sale, which leads to the success of the organization, the vitality of the economy and to the progress of the company. This way, for a modern organization, which is in constant fight against the rest of the competitors and that struggle to distinguish itself in a market saturated of

innovations, its difference in relation to his competitors depends mainly on the utilization of knowledge-based assets, as well as knowledge per se, the management of innovation and its integration into practice (Sedziuviene y Vveinhardt, 2010). The aptitude to develop organizational learning and KM strategies has been considered to be an effective and efficient way for successful technological innovation (Gilbert and Cordey-Hayes, 1996; Raymond and Blili, 2000; Martin and Matlay, 2003).

4 KM and EBA

The today business world is characterized by phenomena as electronic commerce (EC), globalization, highest degrees of competitiveness, rapid evolution of the new technologies, rapid change of the consumers demand, as well as changeable economic and political structures (Marr, Schiuma and Neely, 2004). In this new context, companies need to develop clearly definite strategies that give them a competitive advantage (Porter, 2001; Barney, 1991). For it, organizations have to deal which are the necessary aptitudes to obtain and support competitive advantage (Barney, 1991, Prahalad and Hamel, 1990). In this context, TI can play an important role in KBV, since IS can be used for synthetize, and improve the management of the large-scale knowledge among companies and inter-companies (Alavi and Leidner, 2001). Many organizations are trying to be competitive trough the application of IT (Cegarra-Navarro and Martínez-Conesa, 2007). Nevertheless, there arise several e-business related problems that in turn demand the companies to generate different knowledge in order to face to the challenges and decisions in relation with EBA in the organizational activities (Chong, Ooi, Bao and Lin, 2014).

In most of previous studies there is a strong predisposition to study the EBA based on the theory of diffusion and adoption of innovations of Rogers (1995), or thru the TOE model by Tornatzky and Fleischer (1990); some others using the technology acceptance model (TAM), by Davis, Bagozzi and Warshaw (1989). Regardless, e-business with its constant change of business nature and its immense links with knowledge, has made the paradigm of KM a source of an important deliberation on its impact in the adoption of technology (Lin and Lee, 2005), therefore, KM has been included as one of the factors of EBA (Gloet and Terziovski, 2004). In spite of the fact that even if e-business provide many opportunities for SMEs, an important number of them has not capitalized these new technologies (Fillis, Johansson, and Wagner, 2004). This resistance to implement e-business technologies can be related to questions of uncertainty, confidence and lack of knowledge that disable the pace to which SMEs adopt e-business (Fillis, Johansson, and Wagner 2003). This is especially true if the executives of the SME have never used before any electronic way of communication with business purposes (Nath et al., 1998).

Even so, there is an important lack of studies on the impact KM in EBA (Lin and Lee, 2005), only a few studies have been published trying to explain EBA from the KM perspective (e.g., Lin and Lee, 2005; Cegarra-Navarro and Martínez-Conesa, 2007;

Chong, Ooi, Bao y Lin, 2014;) in spite of the fact that the barriers to the change from the traditional business operations towards e-business is every time less related to technological perspectives as the availability of suitable IS; and more dependent on a suitable KM in the company. The reason for which SMEs are reluctant to EBA is increasingly linked to the question of the lack of knowledge (Fillis et al., 2003; Wang and Lin, 2009).

5 Development of the research model

This work considers e-business systems in terms of technological innovation (Jackson and Harris, 2003), and examines the factors of KM (organizational learning, knowledge acquisition, knowledge storing, knowledge sharing and knowledge use and re-use) that influence EBA. Figure 1 shows the proposed theoretical research construct, it hypothesizes that several organizational learning factors as well as KM processes influence the adoption and use of e-business technologies. The development of the theoretical model and the hypotheses are discussed to detail in the next paragraphs.

6.1 Organizational learning factors

Kim (1998) argues that the organizational learning can be divided in two different types: conceptual and operational. On one hand, conceptual learning has to do with the thinking on why the things are like as they are or why are they done, often challenging the same nature of the existence of the prevailing conditions, procedures or conceptions, directing potentially towards new mental models and new forms of comprehension of the phenomena. Across conceptual learning, individuals develop cognitive maps (Huff, 1990), of the different domains in those who operate. Distinctively, operational learning refers basically to learning how to do something. It relates to learning how to complete the necessary steps to carry out a specific task. E-business systems shape the processes of technological innovation, its successful adoption needs adjustments in the business processes, and also needs that the company modifies and dominates the technical aspects of the technology (Attewell, 1992), therefore, a successful adoption of e-business technologies in a company, needs both conceptual learning and operational learning. In this study, speaking about the factors that affect operational learning in order to adopt e-business technologies, both types of learning are born in mind. Thus, there four factors that can be hypothesized to influence organizational learning with purpose of EBA: learning across an activated network of information, technical training, technical experience, and the IT level of knowledge of the employees of the company.

6.1.1. An activated network of learning

The firm environment and more specifically, the social network of the company, acts as a source of ideas, information and knowledge (Aldrich and Zimmer, 1986; Christensen

and Peterson, 1990; Hills et al., 1997). Innovative companies use systematically his social network to generate ideas and to obtain information that allows them to recognize business enterprising opportunities (Birley, 1985; Moss Kanter, 1988; Smeltzer et to., 1991; Singh, Hills, Hybels and Lumpkin, 1999; De Koning, 1999; Singh, 2000). Moss Kanter (1988) emphasizes the importance of the contacts with those that observe the problems from different perspectives not only to be aware of needs but also to construct new ways of attending these needs to facilitate the emphasis in innovation. The collaboration with other companies provides new business ideas, collaboration can be the way of acceding to technological knowledge and in addition, an opportunity to learn new technological competences and of market insights (Tidd et al., 1997).

The ability to use external knowledge resources widens the base of resources of the company (Christensen, 1990; Anand, Glick and Manz, 2002). Modern companies every time prosecute relations more and more intensive and interactive with his clients, suppliers and partners (Raymond, 2001; McIvor et al., 2003; Simmons et al., 2007). Raymond (2001) indicates that the use of technological based initiatives (TBI's) has enabled the companies and their business partners to improve their commercial transactions and relations. Companies -including SMEs- answer to competitive pressures adopting TBI's and related technologies (Poon and Swatman, 1997; Grover and Malhotra, 1997; Raymond, 2001). More importantly still, Chong and Pervan (2007) found that competitive pressure influences in a significant way the degree of deployment of e-business strategies in the Australian SME's. A company can be pressed into adopting e-business technologies on having obtained knowledge of consumers, partners and competitors (Raymond, 2011; Poon y Swatman, 1999; Hart y Saunders, 1998; Gatignon y Robertson, 1989; Grover y Malhotra, 1997). Al-Qirim determined in 2007 that EBA is also influenced for technology sellers, therefore, they can be considered to be an important source of IT knowledge and external experience and a significant determinant of the EBA in SME's (Thong et al., 1997). In brief, the skills of a company to use his external network as a source of ideas, information and knowledge; acts as a positive precedent for EBA. It is possible to affirm then, that the companies that rely on a activated network of information, obtain e-business related knowledge and its utility, from the information obtained of the different participants in his business network. The previous discussion allows the development of the following hypothesis:

H₁. An activated network of information and knowledge affects positively EBA in SME's

6.1.2. Technical training

The successful adoption of complex technologies needs adjustments in the business processes, it also needs that the company modifies and dominates the technical aspects of the technology (Attewell, 1992). In spite of the omnipresence of the information systems

(IS) in the modern places of work, every time there are more proofs that companies do not realize completely of the organizational efficiency that can be developed thanks to e-business adoption and use, due to the low acceptance of employees of new IT (Johnson, 1997). The availability of technical knowledge and the high-level IT training have been identified as a necessary and indispensable component in the adoption of new IT (Venkatesh y Speier, 2000; Robey et al., 2002). The availability or access to training refers to the quantity of the available education to the users or adopters of technology. Attewell (1992) holds that learning the technical knowledge necessary to use complex innovations is a challenge to adopt innovations. In agreement with this, the training level of the employees in companies that use ERP systems relates positively to the success of implementation (Bradford y Florin, 2003). Venkatesh and Speier (2000) found that availability of training correlates positively to the intention of use of technology. Training in e-business technologies can be, therefore, necessary to successful EBA. Therefore, therefore, the following hypothesis is formulated:

H₂. Technical training availability in a company affects positively EBA.

6.1.3. Technical experience

Technical experience (TE) refers at the level of specialized technical experience of the company employees. The companies are mainly biased to adopt innovations when they have TE and therefore, the TE can increase the level of technological adoptions in a company (McGowan y Madey, 1998; Thong, 1999). Cragg and Zinatelli (1995) identified the lack of technical experience as a key factor that disables the evolution and sophistication of managerial IT. Even more, Tiessen Wright, and Turner (2001) state that technical experience facilitates the adoption of EC technologies at firm level. Besides previous knowledge, there exists an effect of previous experience in the learning and knowledge acquisition, (Cohen and Levinthal, 1990; Van de Ven et al., 1999). Therefore, the following hypothesis can be formulated:

H₃. Technical experience of a company positively affects EBA.

6.1.3. IT knowledge Level

Knowledge level (KL) refers to the familiarity of the employees with a given technology. If the employees of a company possess knowledge related to a technology in specific, it is more probable that they are capable of facing the problematic of its adoption. McGowan and Madey (1998) found that the level of knowledge on electronic data exchange (EDI) influences positively its level of managerial implementation, consistently, if the employees of a company possess knowledge related to e-business, it is more probable than the company adopt e-business technologies. Mehrtens et al. (2001) found indications of the presence of organizational members with specific IT that can

support the recognition of e-business opportunities; therefore, it is possible to formulate the following hypothesis:

H₄. The IT knowledge level that a company possesses, influences positively EBA.

6.2 KM processes

KM has emerged as an important concept and it is often mentioned as a precedent to innovation (Nonaka and Takeuchi, 1995; Darroch and McNaughton, 2002). Increasingly companies are starting KM initiatives to benefit from the dynamic effects of the interactive processes. In addition, recent studies underline that, in the current context of rapid technological innovation, the companies examine the capacity of organization across the accumulation, combination and diffusion of knowledge (Grant, 1996). Thus, KM efficient processes, such as the acquisition, storage, application and shared use of knowledge, are important for adoption of new technologies.

6.2.1. Knowledge acquisition and capturing

Knowledge acquisition (KA), is defined by Lin and Reads, (2005) as "the processes of business that capture knowledge". Gilbert and Codey-Hayes (2006), define it as the initial step of the KM, and indicate that it includes the processes that manage and use the existing knowledge by the members of the company, as well as the capture and assimilation of new knowledge. Martenson (200) argues that KA is the method that companies use to acquire the knowledge that resides in them. Drucker, (1993) raises that administrative and technical innovations need of a concentrated effort and experience to recognize and to capture new knowledge. Darroch and McNaughton (2002) examined the relation between KM practices and the types of innovation and found that the probability of a managerial innovation to be effective increases with KA degree. The infrastructure of e-business systems involves not only EC initiatives; it also is stimulated by technical skills and KA (Moodley, 2003). Gilbert and Codey-Hayes (1996) mention that one of the factors of success in technological innovation is KA, whereas Darroch and McNaughton (2002) affirm that innovation in an organization increases as KA increases. Therefore, KA is an important managerial asset, especially in the important decisions that are based on experience and information shared informally. Consistently, e-business infrastructure not only incorporates technological initiatives, but acquisition of skills and knowledge as the principal driving forces of the adoption (Lin y Lee, 2005). Therefore, the association between KA and EBA, can be expected to be positive:

H₅. The processes of KA influence positively EBA.

6.2.2. Knowledge storage

Harveston (2005), through a series of case studies and qualitative interviews, found that Knowledge Management Systems (KMS) can lower costs by increasing

communication and eliminating unnecessary steps in SMEs. Establishing internal KMS for organizational memory created opportunities to minimize knowledge isolation in functional departments and created a greater base for tacit learning to be leveraged. Menkhoff et al. (2004) suggested that as economies and businesses shifted towards a new world configuration of digital information and knowledge-based work, SME owners need to take on this challenge and find out how KMS solutions can assist them. The findings described that by locating and capturing innovative ideas and other types of strategically important KM practices used by technicians to solve maintenance problems, SMEs can improve innovativeness, service quality and response time. The documentation of 'war stories', yellow pages and data mining are useful KMS tools for locating, capturing and storage knowledge. Feng et al. (2004) analysed the impact of KMS on the firms that adopted KS with the data extracted from the Compustat. They discussed that KS improves organizational performance by significantly reducing administrative costs and increasing productivity. Therefore, the following hypothesis can be formulated:

H₆. The processes of KS influence positively EBA.

6.2.3. Orientation to customers and suppliers

Effective innovation stems from an active conscience about the changeable needs of consumers and sometimes of direct demands or solutions proposed by them (Moss Kanter, 1988; Rothwell, 1992; Tidd, Bessant and Pavitt, 1997). Shane (2000) demonstrated that previous knowledge of markets, the ways of serving these markets and of attending consumer's problems promote the discovery of opportunities. Focusing on markets and consumers increases the probability of visualizing enterprising opportunities (Christensen and Peterson, 1990; Hills and Shrader, 1998; Singh, 2000; Of Koning and Brown, 2001). Orientation to markets is defined commonly as 'the business culture that creates in a more effective and efficient form, top value for the consumers' (Narver and Slater, 1990: p. 20). Narver and Slater (1990) divide the orientation to markets in three sub-constructs: Orientation to consumers, orientation to competitors and inter-functional coordination. The orientation consumers and competitors include specifically all the activities involved in acquiring information and knowledge brings about of the buyers and the competitors on the market (Narver and Slater, 1990).

Literature indicates that KM is better when relies on more varied interpretations coming from the different individuals that form part of the firm. For example, Huber (1991) affirms that one of the principal factors that influence the achievement of generating multiple interpretations is the collaboration with other organizations. Taking a count Huber's contributions, it is possible to raise that the orientation of a company to his suppliers (SO) and orientation to his consumers (CO) becomes an ideal platform to learn and explore new possibilities. Langerak (2003) affirms that resources are scanty in SMEs and for it, "to have a KM manager does not justify itself in the majority of them. Thus, in

most of the SMEs, is more probable that knowledge is obtained from secondary information (for example, business magazines, conferences or congresses) or across personal contacts". Dewhurst and Cegarra (2004) suggest that due to this situation of shortage of resources and the fact that any practice to acquire knowledge will be generally costlier than stimulating contacts with suppliers and consumers, it is more probable that the source of information and knowledge on technological innovation, should come from them. Koh and Maguire (2004), argue that one of the principal impellers of the emergent trend in SMEs to implement e-business technologies is the pressure of his consumers. Carmichael et al. (2000), suggest that a key impeller in the SME to innovate is the feedback and exigency of the consumers. Kula and Tatoglu, (2003) found that the majority of SME's innovate only when they feel pressed for his consumers. The communication and collaboration with clients and suppliers provides a 'face-to-face' interaction of such form that facilitates the exchange of knowledge. Nevertheless, in this stage, knowledge is individual more than social (Soothsayer, 1991), and tacit more than explicit (Nonaka, 1994). Therefore, it is necessary that this knowledge be absorbed in the structures of organizational memory before it turns into a component of the 'dominant design' (Cegarra-Navarro y Martínez-Conesa, 2007). A disadvantage exists with the previous arguments in the sense that the information provided by consumers or suppliers is a thing, and the knowledge that uses the company, is another, that is to say, the knowledge created by the area of sales or the area of supplies, is not formulated or created by the direction of the company, but it is created constant across the consumers and lost as the employees leave the company, the workgroups are dissolved or diminish the applications, therefore, in order that knowledge proceeding from consumers and suppliers is applied, it is needed 'to transmit the knowledge' to the rest of the members of the company. In these companies, it has been demonstrated that to satisfy the expectations of suppliers by means of the delivery of a major level of electronic services and a better communication, is one of the impellers of IT adoption such as the Internet based commerce (Caldeira y Ward, 2003; Mehrtens et al., 2001; Riemenschneider et al., 2003). The pressure exercised by suppliers and consumers towards e-business use also was verified as a determinant of EBA by Barua et al. (2004), and Oliveira and Martins (2010). From the point of view of this work, then, in order that a company applies the knowledge that obtains from his suppliers and consumers there is needed for the company to work cooperatively with other organizations for the development of new products and/or managerial processes, to better satisfy consumers or to create market innovations.

Under this premise, the sellers and buyers or the persons that are 'windows of contact' acquire knowledge based on their direct experiences and on their observations, which store in their reports like knowledge, beliefs and values (Selnes and Sallis, 2003). Davenport et al. (2001) call this knowledge 'human information or human knowledge' due to the fact that it is captured and used principally by employees who interact with

consumers and suppliers or observing and interpreting the behavior of their colleagues. From the previous discussion, two hypotheses can be formulated as follows:

H₇. SO improves KT.

H₈. CO improves KT

6.2.4. Transmission and dissemination of knowledge

Knowledge transmission (KT), is defined by Lin and Lee (2005) as the processes of business that distribute knowledge among the individuals who take part in the activities of these processes. Egbu et al. (2005), define dissemination of knowledge (KD) as the process of sharing and transferring knowledge. Therefore, the approach of KD has to do with KT processes that take part in these specific business processes (Molapo, 2007). According to Almond (2001), KD is the form in which knowledge passes of and towards the individuals inside his place of work. Chua (2003, p. 118), indicates that "KT is the process by means of which the individuals collective and interactively refine a thought, an idea or a suggestion in the light of the experience".

Sinkula Baker, and Noordewier (1997), propose that the impartiality, it is to say, the disposition to consider openly ideas and opinions that are different of ours is associated with the concept of learning across which the executives favour the distribution of knowledge by means of the social processes among groups and individuals. The result of this outsourcing and process combination turns into 'explicit shared knowledge' stored in the organizational memory. The aim of this social learning is that all the members of the organization are aware of wherefrom it is that reside complementary useful skills (for example, who does know that? who can help with this? who can take advantage of this new information?) (Soothsayer, 1991). Lin y Lee (2005) affirms that one of the factors that improve the performance of e-business is KT. Even more, Darroch and McNaughton's (2002), studied the relation between KM practices and the types of innovation, and found that KD and innovation have a direct relation. Since the adoption of technology often generate innovations, it is reasonable to affirm that the KD will have an impact in EBA (Carneino, 2000). Damodaran and Olpher (2000) emphasize that a culture of KT is the principal organizational condition for successful KM and his development. Therefore, the process of KT and KD are expected to be associated positively with EBA, and is possible to formulate the following hypothesis:

H₉. The processes of transmission and dissemination of knowledge influence positively the process of EBA.

6.2.5. Knowledge application and use

Lin y Lee (2005), define knowledge application (KA_p) as "the business processes by means of which the effective storage and the mechanisms of recovery, allow to a company to accede of easy form to the knowledge", whereas Bhatt (2001) defines it as

"to do knowledge more effective in order to obtain more value". The latter definition incorporates the integration of the knowledge generated in the levels of acquisition (Cagarra-Navarro y Martinez-Conesa, 2007) and the knowledge that is applied in the routine business activities for performance improvement. The principal elements to the development of technological capacities are the transfer, transmission and practical application of knowledge from a technological perspective (Zahra Neubaum, y Larranetta 2007; Ho y Kuo, 2013). Cagarra-Navarro y Martinez-Conesa, (2007) found that the companies that are more inclined to implement e-business systems are those that constantly improve the organizational KAp, which is coherent with the concept that KAp can be a facilitator to assure a successful technological innovation (Zahra Neubaum, y Larranetta 2007; Ho y Kuo, 2013). From the perspective of technological innovation, it is possible to indicate then that the transfer of knowledge, the integration of knowledge and the practical application of knowledge are the principal elements for the development of technological capacities (Gilbert y Cordey-Hayes, 1996; Sveiby, 1997; Johannessen, Olsen, y Olaisen, 1999) and that firms that stimulate and improve the organizational application of knowledge are more likely to adopt new IT, therefore, the following hypothesis can be proposed:

H₁₀. KAP positively influences EBA.

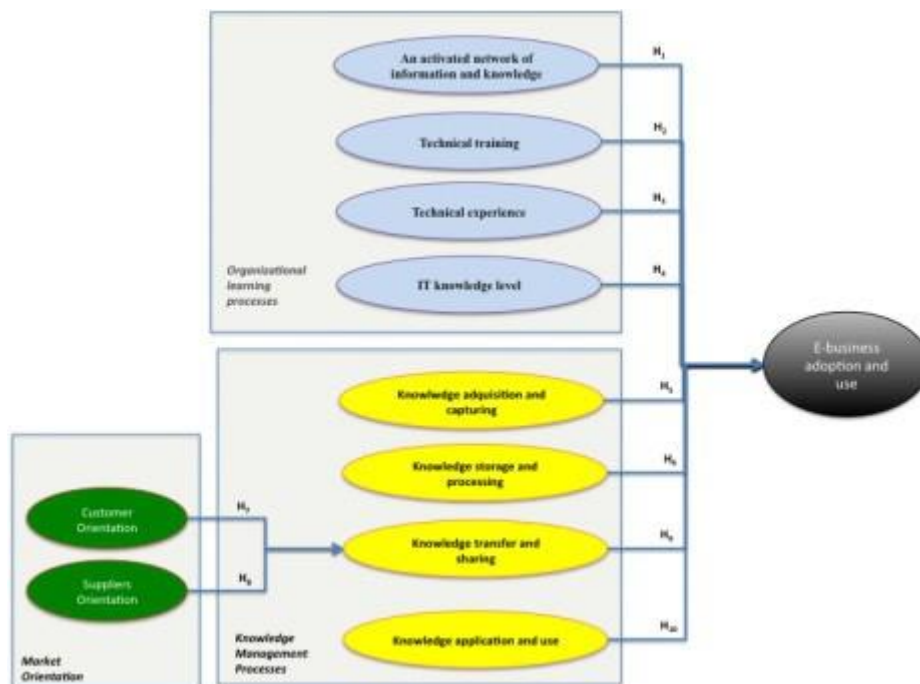


Fig. 1. Proposed research model

7 Conclusions

This paper developed a theoretical model of research based on organizational capacities and the existing literature on learning organisational and KM to examine the influence of four factors of organizational learning and of four KM processes in the adoption and use of e-business technologies. It proposes that the adoption and use of e- business technologies is influenced by the following factors: 1) AN activated network of information and knowledge, 2) Technical training, 3) Technical experience, 4) IT knowledge level, 5) Knowledge acquisition and capturing, 6) Knowledge storage and processing, 7) Knowledge transmission and sharing, and 8) Knowledge application.

The results of this study have implications for the managerial adoption of e-business systems. From this dissertation it can be achieved a better understanding of the importance of OL and KM strategies in SMEs and his utility in the process of EBA. The study has also implications for researchers; across the analysis of the literature interesting questions have arisen that can be born in mind in future investigations, for example, researchers might try to reach a better comprehension of the impacts in the level of EBA derived from the factors investigated in this study by means of other techniques of research such as executives structured interviews and other qualitative approaches.

Among the most important limitations of the study, it stands out its purely theoretical nature. There is needed an empirical research that validates the offers developed in the theoretical construct.

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