

## KNOWLEDGE MANAGEMENT PRACTICES AND THE ENHANCEMENT OF CUSTOMER CAPITAL: THE IMPORTANCE OF TIME

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### Resumen

Actualmente, los responsables de las pequeñas y medianas empresas (PYMES) debido al hecho de tener que vigilar continuamente sus empresas a la búsqueda de mejoras en las relaciones con sus clientes y trabajadores, están otorgando un papel cada vez más estratégico a las prácticas de gestión del conocimiento. No obstante, hay situaciones donde las organizaciones y sus miembros se enfrentan a entornos cada vez más inciertos, por lo que es necesario reconsiderar las prácticas de gestión del conocimiento que se han venido desarrollando en la empresa desde sus inicios. Estas prácticas, en forma de procesos y rutinas, pueden basarse tanto en conocimiento tácito como explícito y también necesitan ser continuamente reconsideradas de cara a la captación de nuevo conocimiento. En tales circunstancias, sería necesario modificar e incluso eliminar parte del conocimiento existente al objeto de asegurarnos de que los empleados tienen acceso a conocimientos lo suficientemente actualizados como para que mantengan o garanticen las relaciones que las PYMEs tienen con sus clientes. Nuestro trabajo examina el impacto que un contexto de “mentalidad abierta” (openminded) en la organización existente en un momento dado (T) tiene sobre las actuaciones que intentan reconsiderar los conocimientos organizativos en un momento posterior (T+1). Analizamos además la relaciones entre los procesos de aprendizaje/conocimiento explorativo y aplicado sobre el capital relacional. Se utiliza para ello evidencias empíricas procedentes de 107 PYMES del sector de las telecomunicaciones en España, utilizando la técnica PLS. **Palabras Clave:** Capital relacional, contexto de “mentalidad abierta”, procesos de conocimiento explorativo y aplicado, tiempo y PYMES.

### Abstract

Today, in small and medium-sized enterprises (SMEs), entrepreneurs must take a more strategic perspective that is evidenced by the need to, scan the enterprise to discover how they might improve customer relations as well as promote improved knowledge management (KM) practices. However, in situations where organizations and their members face rapidly changing environments it is necessary to challenge the KM practices which have been derived from the founding entrepreneurs. These practices which may be based on explicit knowledge or on tacit knowledge in the form of processes and routines need to be challenged prior to the adoption of new knowledge by the organization. In such situations, it will be necessary to modify or even delete some knowledge in order to ensure that employees have access to the up-to-date explorative and exploitative knowledge processes necessary to maintain or enhance customer relations. The study described below examines the impact of the existence of an ‘open-minded context’ in an organizations at time (T) on actions that concern the challenging of KM practices at time (T+1). We also examine the relationship between explorative and exploitation processes and customer relations. These relationships are examined through an empirical investigation of 107 SMEs from the Spanish Telecommunications industry, using Partial Least Squares (PLS). **Keywords:** Customer capital, open-mindedness, explorative and exploitative knowledge processes, time and SMEs.

## 1. INTRODUCTION

There is a growing body of literature, which focuses on how managers facilitate corporate growth through combining their skills and competencies with those of other members of the executive team (Ashworth, 2006). In the following study, we consider that the term 'customer capital' refers to the value, in terms of contributions to current and future revenues that derived from an organization's relationship with its customers (Duffy, 2000). Clearly customers provide direct revenues to a company through their purchase of products or services. In addition the acquisition of knowledge about the customer, the fostering of long term relationships and shared activities creates value through the creation of trust, reputation and an ability to better respond to present and future customer needs. The aforementioned components, among other, constitute what has been referred to as customer capital. It is important to note that knowledge about customers is inevitably subject to change. Customers change their characteristics, including physical location, business processes, behaviour and preferences. As these customer characteristics change, it may become necessary for the organization serving the customers not only to revise the knowledge of the customer that it has at its disposal but also revise the managers' basic beliefs and assumptions and any other explicit or explicit knowledge constituting 'customer capital' or knowledge which facilitates the creation of value utilizing 'customer capital' (Scarbrough, 2003; Akgün et al., 2007).

Small and medium-sized firms (SMEs) are initially founded by entrepreneurs who often remain managing the firm for some time as the firm grows. As is well recognized, the founders of SMEs play a central role in facilitating customer relations (Cegarra and Wensley, 2008). Therefore, one of the key tasks of the entrepreneur/founder of an SME is to establish different types of management practices that facilitate at least sustaining and at best improving customer relations through an enhancement of the components of customer capital. In order to do this, we argue in this paper that entrepreneurs/founders have to actively develop three different types of KM practices that are be associated with customer relationships and the enhancement of customer capital. These are processes that support creating and sustaining an 'open-minded context' within the organization and processes that facilitate knowledge exploration and, separately, knowledge exploitation.

Open-mindedness is an organizational value that measures receptivity to new and possibly different ideas. The presence of such an organizational value is a necessary but not sufficient condition for the presence of an 'open minded context' within the organization. The presence of open-minded contexts within an organization lead to the questioning of established organizational approaches to problem solving, organizational practices and beliefs even when these have led to successful outcomes in the past (Sinkula et al., 1997). Such open-minded contexts also encourage the sharing of information among decision-makers, including strategically relevant information (Day, 1994). The existence of an open-minded context, and the attendant open-mindedness of organizational members engenders a willingness to question current thinking and practice, a receptiveness to emerging possibilities, an a desire to share ideas and to consider differing perspectives (Cegarra and Cepeda, 2008).

Argyris and Schön (1978) and Huber, (1991) have argued that the basic requirement for a real learning consists on abandoning previously valid or appropriate experiences, knowledge, beliefs and

paradigms that the organization has acquired over time. Such unlearning followed by renewed learning is argued to result in improved organizational performance. However there have been few, if any, studies providing any direct empirical evidence concerning either the direct effect of the unlearning/learning cycle on organizational performance or of the impact of factors that facilitate the unlearning/learning cycle. Clearly these relationships have important managerial implications for example, in the case of SMEs the failure of entrepreneurs/founders to modify their knowledge of customers may adversely affect the value of 'customer capital' and lead to an attenuation of their firm's customer. Specifically, an entrepreneur might be very confident that his or her company offers the lowest price available, but if he or she subsequently finds that many other companies offer the same item at a lower price, we would say her/his knowledge is not well calibrated, or simply false, and hence entrepreneurs may be emphasizing the wrong attributes in the product/service leading to reduced organizational performance. It may be further observed that in highly competitive facing dynamic environments the maintenance of excellent customer relations is a fundamental source of competitive advantage and hence of significant value to the organization. Hence, managers in general, and in the context that we investigate in this paper, entrepreneurs/founders of SMEs in particular, need to be able to implement appropriate KM practices that facilitate the learning/unlearning cycle.

This study aimed to examine the impact of the existence of an 'open-minded context' within an organization at time (T) on the nature and strength of knowledge exploitation and exploration processes at time (T+1). We also examine the nature and strength of the relationship between knowledge exploration and exploitation processes and customer relations. These KM practices are discussed in detail in the following section along with how practices supported or inhibited by entrepreneurs affect customer relations through time. Details of the survey which was used to collect appropriate data with which to test the models are presented in section 3. The results of testing the model are presented in section 4. The results are discussed in section 5 along with the possible managerial implications. The limitations of this research and opportunities for future research are described in section 6.

## **2. THEORETICAL FRAMEWORK**

Customer capital represents the value – in terms of contribution to current and future revenues – that results from an organization's relationship with its customers (St-Onge, 1996; Duffy, 2000). Customer capital has been regarded as a major source of competitive advantage in the 'knowledge economy' (Bontis, 1999; Chang and Tseng, 2005). Considered in this manner an organization's customer capital, and especially its competence in satisfying customer needs through effective and quick responses, is critical for sustained success (Jayachandran, 2004). As pointed out by Jaworski and Kohli, (1996), an organization can generate intelligence and disseminate it internally but very little is accomplished unless the organization actually makes purposive use of this knowledge to actively and proactively respond to customer needs. In this respect, KM researchers and managers have long argued that the KM function plays an important role in customer relations since it should be actively involved in creating an environment which facilitates the use of such knowledge and the recruitment and training of individuals who can take advantage of such environments in a active manner (e.g. Barney and Wright, 1998; Wright et al., 1994).

Following Wright, McMahan and McWilliams (1994), we focus on the characteristics of a company's people, including all of the knowledge, expertise, skills and commitment of an organization's members and their relationships with each other and with those outside the company. In this regard, explorative and exploitive knowledge processes have been recognized as very good management practices for managing the relationship with customers (e.g. Holmqvist, 2004). Thus, we propose that the shared values, beliefs, and the resulting trust and predictability that organizations have created through knowledge exploration and exploitation processes represent an important antecedent of to the creation and enhancement of customer capital. However we would also argue that very little is achieved if the entrepreneur does not update these processes to reflect new knowledge concerning the firm's customers and customer relationships. It is our further contention that the firm must possess what we refer to as an 'open-minded' context for this new knowledge of the customer and the customer relationship to be perceived and acknowledged by members of the organizational in the first place. Without the explicit recognition of such new knowledge, the knowledge exploration and exploitation will be conditioned on old values as beliefs which, along with trust and predictability between entrepreneurs and employees have been created through time (Rowley et al., 2000). In other words, these processes will be conditioned on old-fashioned norms as the ways of doing and interpreting created by entrepreneurs and other organizational members who are no longer valid and thus may lead to attenuation of organizational performance (March, 1991; Levinthal and March, 1993).

With this in mind, in this study we have considered three different types of KM practices that may be implemented by managers in general and entrepreneurs/founders in particular which address the creation and sustaining of customer capital:

### ***2.1 Knowledge exploration***

Knowledge exploration refers to a typically sequential series of activities including searching, validating, risk-taking, experimentation and innovation. Knowledge exploration typically results in the identification of knowledge and practices that are new to the firm. Entrepreneurs can encourage the process of knowledge exploration by implementing some combination of formal or informal meetings or by creating external communities of practice where customer and sellers interact and work together in order to achievement of a particular mutually beneficial objective(s) (Dewhurst and Cegarra, 2004). Through the development of relational trust, common language and confidence (Selnes and Sallis, 2003) sellers and customers are able to articulate, share and internalize such knowledge. While knowledge exploration retains the knowledge within the organization, knowledge exploitation releases the knowledge into the external environment.

### ***2.2 Knowledge exploitation***

Exploitation of knowledge is the process of effective utilization of existing knowledge to create valuable and competitive business platforms, products and services (Holmqvist, 2004; March, 1991). Sub-activities involved in an instance of knowledge exploitation include targeting the output to a particular customer utilizing existing knowledge, producing the output by interpreting and transferring the output by packaging and delivering projections derived using existing knowledge that have been produced for customers in the environment (Holsapple and Singh, 2001). Bierly and Daly (2007) further propose that the main role for knowledge exploitation, which aims to increase the capacity of an SME to

create value based in existing resources and knowledge, is to foster commitment, implement training programs and focus on the use of what has already been learned within the company.

### ***2.3 Open-mindedness***

Open-mindedness for an individual may be considered to represent a willingness to consider ideas and opinions that are new or different. Thus, in the context of an organization, having an open-minded context refers to the fact that the organization provides an environment which values the questioning of assumptions, the seeking out of new knowledge, and openness to new ideas along with the flexibility to adopt new ideas where appropriate. According to Sinkula et al. (1997), the existence of an open-minded context is associated with the concept of unlearning through which managers encourage the creation of knowledge by practices such as the development of collaborative skills, the creation of a common language, the fostering of mutual adjustment, and the development of visionary leadership and communications skills (Akgün et al., 2007). The entrepreneur has a key role to play in creating and sustaining an open-minded context. Schindehutte et al. (2008) in suggesting that owners SMEs help develop and translate an organization's vision and ideas into action and change, implicitly recognize this idea. Schein (1993) also argues that change can only succeed in a permissive environment that allows individuals to attempt new skills and 'try out' new habits and even fail repeatedly. In addition to this, Stahle and Hong (2002) suggest that the SMEs entrepreneur has to support small changes, take risks and cooperate in responding to sudden contingencies again, activities that would contribute to the creation of an open-minded context since it would seem counter-intuitive for the entrepreneur to adopt an open-minded stance himself/herself but not foster the creation of an open-minded context within the organization.

### ***2.4 Linking KM practices through the time***

We have noted above that explorative and exploitative knowledge processes have been recognized as management tools for managing the relationship with customers and hence customer capital (Holmqvist, 2004). However, it is appropriate to observe that a firm may need both to explore new possibilities to ensure profits for tomorrow and exploit old certainties for profits for today. Thus is may be necessary for explorative knowledge processes and exploitative knowledge processes to occur simultaneously (He and Wong, 2004). A firm is regarded as ambidextrous if it has relatively equal emphasis on explorative and exploitive processes (He and Wong, 2004). Seen through this lens both explorative and exploitative processes are critical in gaining competitive advantage, improving customer relations and enhancing the value of customer capital (Ahuja and Lampert, 2000). While explorative processes pursue new knowledge and result in the development of new products and services for emerging customers (Nahapiet and Ghoshal, 1998), exploitative knowledge processes built upon current knowledge to more precisely meet the needs of existing customers hence increasing the value add of the firm's products/services for the existing customers (Benner and Tushman, 2003).

As noted above, there is clearly a need for management to provide support for explorative and exploitative knowledge (Vakola et al., 2007; Bierly and Daly, 2007). However, there is a potential problem with this support in that entrepreneurs can develop a unique 'knowledge lens' through which they interpret the outside world as a basis for decision making (Leibowitz, 2002). In this regard, Sinkula asserts that "marketing managers cling to routines, dominant logics, and mental models that are out of

date, which drives organizations to be lulled into complacency because individuals do not like change” (2002:258). Grant (1991) further suggests that information overload is not only costly in terms of storage and retrieval, but it has a negative effect on the behaviour of individuals and teams within an organization. Individual may absorb new knowledge by incorporating it into existing interpretative frameworks and not recognizing or being prepared to expend the necessary cognitive effort to learn appropriate new interpretative frameworks. For example, one of the most important problems that ‘El Corte Inglés’s had when it took over ‘Galerías Preciados’ were previous knowledge or habits staff members took for granted. As a result of the takeover, people had to learn new skills to work in novel positions (e.g. people who used to sell shoes had to learn to sell glasses). Although El Corte Inglés’s invested a considerable amount of money in training programs and courses for those people, when they had to deal with customers seeking optical products and services, they first looked at the feet of the customers and then their eyes. This means that although an individual can have access to new information as a consequence of exploration and exploitation processes, very little is done, if he/she does not change his/her previous ways of doing and interpreting things.

The above provides an illustration that, in order to strengthen customer relationships and thus positively influence customer capital, an entrepreneur must be flexible in configuring (combining) knowledge in a way that is appropriate for delivering value to the customer and be effective in capturing and disseminating the actual knowledge configuration that is successful (Taylor and McGraw, 2004; Widding, 2005). Otherwise, we may end up with entrepreneurs who often confuse the fact that they have accumulated considerable experience with believing that they always know better than anybody how a customer should be helped. In this regard, Slater and Narver (1995) argue that unlearning is critical in these chaotic times because so many of our hard-earned nuggets of knowledge, intuition, and just plain opinion depend on assumptions about the world that are simply no longer true. Becker (2008) further proposes that those with a breadth of knowledge and experience are more likely to be open to unlearning, however, in contrast those with a depth of expertise, particularly in the area requiring change, are more likely to resist unlearning. If this is so, the creation of an open-minded context could be considered the genesis of exploratory and exploitative processes (Sinkula, 2002). Thus, the creation of an open-minded context has, at its heart, an attempt to reorient organizational values, norms and/or behaviours by changing cognitive structures (Nystrom and Starbuck, 1984), mental models (Day and Nedungadi, 1994), dominant logics (Bettits and Prahalad, 1995), and core assumptions which guide behaviour (Shaw and Perkins, 1991).

The above considerations lead us to argue that it is essential that visionary and committed entrepreneurs actively work to create an organizational context which encourages the challenging of accepted assumptions, values, norms and strategies as a prior step to considering whether existing knowledge is utilized in explorational or exploitative processes. We would argue that this will have the effect of reducing the likelihood of retaining knowledge, perspective and mental models purely out of inertia (De Holan and Philps, 2004). These findings can be clarified by introducing the concept of time into our analysis (Cegarra and Cepeda, 2008). Time is signified by the age of a firm and is postulate to have an impact on its strategy and its ability to learn (and sometimes unlearn). It takes time to erase or forget unproductive habits and behaviours, particularly when such behaviours have become automatic and

essentially unconsciously performed. Time is a relevant consideration not only for activities that are readily observable and measurable, such as completing tasks, but also those that are not readily seen, such as thinking and reflecting on problems (Goddard, 2001). For Gist and Mitchell, (1992) individual's level of self-efficacy can be expected to change over time as new information and experience are acquired through direct experience with the task, performance feedback, and other factors. Thus the performance of actions may take time but time may also represent a dimension along which change takes place.

Crossan et al (2005) focus on three aspects of time: (a) Time as a trigger for change. As Gersick's (1991) work shows, groups with very different characteristics change their behaviour when approaching the middle of the span of time they have to perform a task; (b) Time acts as a coordination mechanism for change. Time creates a shared calendar for change and, thus, serves to schedule activities and to maximize their synchronization (Hedberg et al., 1976); and (c), Time as a resource for change. It provides a 'space' within which change can take place. One aspect of this 'space' is that through planning time allows for co-ordination to take place. It does so not by establishing deadlines on a case-by-case basis but by dictating the pace of the organization through the explication of its major change cycles (Eisenhardt and Brown, 1998). Time allows for reflection, persuasion and so on that may facilitate change and both unlearning and learning. Both learning and unlearning relate not simply to forgetting old knowledge and acquiring new knowledge they relate to changing behaviours and attitudes which may take time to develop and become stabilized.

Under the above assumptions, time provides entrepreneurs and organizational members with the temporal space they need to reflect on and conceive of unlearning (Tyre et al., 1996). In this way, because individuals adjust their behaviours over time, the longer the time that is available to unlearn, the more likely it will be that outdated behaviours are inhibited or forgotten, which in turn may affect the learning of new knowledge and, in the context of our overall argument, the creation of customer capital; this is because past knowledge inhibits new learning (Sinkula, 2002). For example, a sudden failure to produce expected outcomes at moment (T), may lead individuals to new interpretations of existing knowledge or result in the searching out of old knowledge by individuals (Nonaka and Takeuchi, 1995) since organizations themselves cannot forget (Jelinek, 1979; Spender, 1998). Thus, it is necessary for this updated knowledge to become embedded within organizational structures in order for it to become a component of the 'dominant design', which again requires time. We would also agree with the argument that new knowledge may be further 'consolidated' through the emergent understandings that are created by explorative processes, or by exploitive systems that may offer a better way of retrieving relevant information (Webster, 1992; Sinkula, 1994).

Therefore we propose the model shown in Figure 1 with the hypotheses:

*H<sub>1</sub>: The extent to a company achieves an open-minded context at moment (t<sub>0</sub>) will determine the extent to which knowledge exploration processes take place at moment (t<sub>1</sub>) which at the same time will support the creation of customer capital.*

*H<sub>2</sub>: The extent to a company achieves an open-minded context at moment (t<sub>0</sub>) will determine the extent to which knowledge exploitation processes take place at moment (t<sub>1</sub>) which at the same time will support the creation of customer capital.*

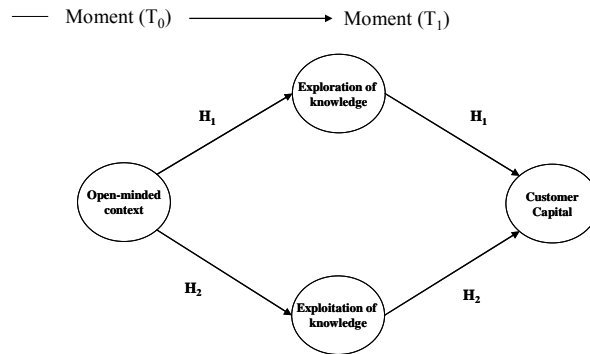


FIGURE 1: Linking human resources practices through the time

### 3. METHOD

The Spanish Telecommunications industry was the subject of our data collection. SMEs have been recognized as being fundamental players within the Spanish Telecommunications industry (Valle et al., 2001). The total market in Spain for ‘telecommunications’ products and services (including fixed and mobile and data communications with broadband internet access as a key means of transmission) represents 18 percent of the total European telecommunications market and nearly 4.7 percent of the Spanish gross domestic product (OECD, 2005). The Spanish Telecommunications industry was chosen for two main reasons. Firstly, SMEs in the telecommunication industry area are well known for their knowledge intensive products and services, with many of them having an existential dependency on the entrepreneur’s knowledge (e.g. skills that are in demand and are not easily obtained through other means). Secondly, the Spanish telecommunication sector began in 1997 with the approval of a raft of parliamentary laws (i.e. laws 12/97 and 20/97). This means that Spanish SMEs are still controlled by the first generation of founders or entrepreneurs. Therefore, the Spanish telecommunications industry is an appropriate setting for an investigation of the relationship between the existence of an open-minded context and explorative and exploitive knowledge processes since these companies have to compete in highly dynamic environments, face strong competition and are subject to rapid advances in technology that requires the intensive use and updating of entrepreneur’s knowledge (Cegarra and Wensley, 2008).

#### 3.1. Data collection and measures

Before conducting the surveys, Spanish telecommunication businesses were contacted and asked by our team to participate in the study. They were informed by telephone of our research objectives and they were assured of its strictly scientific and confidential character, as well as the global and anonymous treatment of the data. In total, 665 companies were solicited for participation in the study by telephone, and only 195 agreed. The data collection period spanned a one-year period between 2004 and 2005.

The first phase of data collection lasted over a month, from early May to June 2004. In total, 195 companies (companies which agreed participate in the study) were contacted and 130 surveys were completed. The second phase lasted for about two months, from early May to July 2005. In total, 130 companies (the companies that had completed the survey one-year early) were contacted and 107 surveys were completed, which gives a response rate of the 54.87% of the total, with a factor of error of 6.35% for  $p=q=50\%$  and a level of reliability of the 95.5%. According to Hair et al. (1999), the size of the sample was considered sufficient since it was ten times greater than the number of predictors from the indicators on the most complex formative construct or antecedent construct leading to an endogenous construct.



Based on a discussion of the literature in Section 2, a questionnaire that comprised 24 items (6 measuring the range of exploration of knowledge; 6 measuring the range of exploitation of knowledge; 6 measuring the extent to which an open-minded context was achieved and 6 relating to the strength and depth of customer capital) was designed. The initial questionnaire had been pre-tested and was distributed with covering letters or emails to the entrepreneurs of the SMEs. The questionnaire constructs comprised (see Appendix for a list of items):

- (a) The initial measures relating to the existence of knowledge exploration (ER) consisted of 6 items adapted from a scale designed by Kohli et al. (1993). Consistent with Kohli et al. (1993), items that tapped the knowledge exploration were interwoven with issues related to encourage individuals in the organization to track changing markets and share market intelligence with customers.
- (b) The existence of conditions necessary to support knowledge exploitation (ET) was measured using an adapted version of a scale designed by Kohli et al. (1993). They were focused on the utilization of knowledge about market intelligence to develop plans and the response implementation of such plans.
- (c) The initial measures relating to the existence of open-minded context consisted of 6 items adapted from a scale designed by Baker and Sinkula (1999). These items described the way employees face up to change, introducing it actively into the company through projects, collaborating with other members of the organization, and recognizing the value of new information or taking risks.
- (d) The strength of customer capital (CC) was measured using components proposed by Bueno (1998). Some components were based on factors relating to the existence of profitable customers, such as: repetition of purchases, satisfaction, loyalty, relationship, collaboration etc. In addition, questions focusing on characteristics of the company such as reputation and prestige, selling branded products or actions to capture new profitable customers were included in the questionnaire (Chang and Tseng, 2005).

### **3.2. Data analysis and results**

The chosen method for analysing the data was the analysis of structural equations using the Partial Least Squares (PLS) technique. This methodology, which uses the Ordinary Least Squares (OLS) algorithm, is designed to reflect the theoretical and empirical qualities of interest in the social and behavioural sciences, where there are usually situations with insufficiently-supported theories and little information available (Wold, 1979). This study uses PLS-Graph software version 03.00 Build 1058 (Chin, 2003). Using PLS involves following a two-stage or step approach (Barclay et al., 1995). The first step requires the assessment of the measurement model. This allows the relationships between the observable variables and theoretical concepts to be specified. This analysis is performed in relation to the attributes of individual item reliability, construct reliability, average variance extracted (AVE), and discriminant validity of the indicators of latent variables. For the second step, the structural model is evaluated. The objective of this is to confirm to what extent the causal relationships specified by the proposed model are consistent with the available data.

To analyse the relationships between the different constructs and their indicators, we have adopted the latent model perspective, in which the latent variable is understood to be the cause of the

indicators and, therefore, we speak of reflective indicators. All four constructs in the model are operationalized as reflective.

With regards to the measurement model, we began assessing the individual item reliability (Table 1). The indicators exceed the accepted threshold of .707 for each factor loading (Carmines and Zeller, 1979).

	Open-minded context	Exploration of knowledge	Exploitation of knowledge	Customer Capital
OM1	<b>0.89</b>	0.29	0.32	0.40
OM2	<b>0.84</b>	0.25	0.38	0.29
OM3	<b>0.76</b>	0.20	0.26	0.32
OM4	<b>0.90</b>	0.28	0.33	0.44
ER1	0.13	<b>0.77</b>	0.10	0.17
ER2	0.12	<b>0.76</b>	0.11	0.10
ER3	0.23	<b>0.73</b>	0.11	0.24
ER4	0.30	<b>0.77</b>	0.14	0.30
ER5	0.24	<b>0.72</b>	0.17	0.16
ET1	0.21	0.12	<b>0.73</b>	0.23
ET2	0.34	0.12	<b>0.75</b>	0.29
ET3	0.34	0.12	<b>0.81</b>	0.33
ET4	0.30	0.20	<b>0.88</b>	0.32
CC1	0.40	0.30	0.27	<b>0.74</b>
CC2	0.43	0.21	0.34	<b>0.87</b>
CC3	0.16	0.25	0.26	<b>0.73</b>
CC4	0.29	0.18	0.31	<b>0.86</b>
CC5	0.41	0.20	0.33	<b>0.87</b>
CC6	0.31	0.22	0.29	<b>0.72</b>

**TABLE 1: Factor Loadings of reflective constructs**

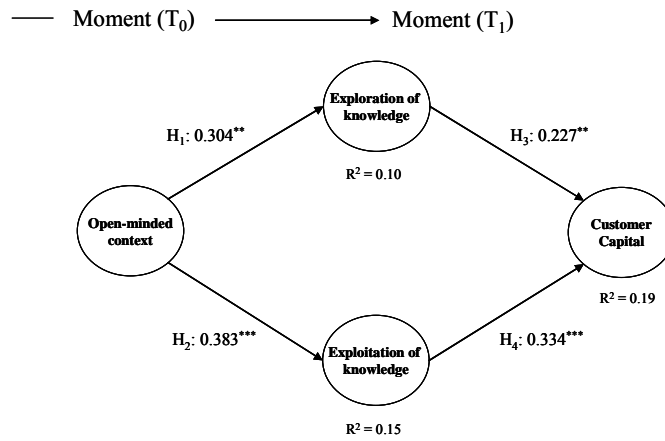
From an examination of the results shown in Table 2, we can state that all of the constructs are reliable as they present values both for Cronbach's alpha coefficient and for composite reliability greater than the value of .7 as required in the early stages of research, and the stricter value of .8 for basic research (Nunnally, 1978). The AVE should be greater than .5 meaning that 50% or more variance of the indicators should be accounted for (Fornell and Larcker, 1981). All constructs of our model exceed this condition (Table 2). For discriminant validity, we have compared the square root of the AVE (i.e., the diagonals in Table 2) with the correlations among constructs (i.e., the off-diagonal elements in Table 2). On average, each construct relates more strongly to its own measures than to others.

	Mean <sup>a</sup>	SD	CA	CR	AVE	1	2	3	4
1. Open-minded context	5.51	1.56	0.86	0.91	0.72	<b>0.85</b>			
2. Exploration of knowledge	5.29	1.39	0.81	0.87	0.56	0.30	<b>0.75</b>		
3. Exploitation of knowledge	5.47	1.62	0.80	0.87	0.63	0.38	0.18	<b>0.79</b>	
4. Customer Capital	5.45	1.48	0.87	0.91	0.64	0.42	0.29	0.37	<b>0.80</b>

Notes: <sup>a</sup> Mean = the average score for all of the items included in this measure; S.D. = Standard Deviation; CA = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted; n.a. = not applicable. The bold numbers on the diagonal are the square root of the Average Variance Extracted. Off-diagonal elements are correlations among constructs.

TABLE 2: Descriptive Statistics and Correlation Matrix

The structural model resulting from the PLS analysis is summarized in Fig. 2, where the explained variance of endogenous variables ( $R^2$ ) and the standardized path coefficients ( $\beta$ ) are shown. As is observed, all hypotheses presented are significant, and therefore, have been verified. Since PLS makes no distributional assumptions in its parameter estimation, traditional parameter-based techniques for significance testing and model evaluation are considered to be inappropriate (Chin, 1998). One consequence of the comparison between covariance structure analysis modelling approaches and PLS is that no proper overall goodness-of-fit measures exist for models using the latter (Hulland, 1999). Thus, the structural model is evaluated examining the  $R^2$  values and the size of the structural path coefficients.



\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (based on  $t_{(499)}$ , two-tailed test)

FIGURE 2: Estimated casual relationships in the structural model

The stability of the estimates is examined by using the t-statistics obtained from a bootstrap test with 500 resamples. Table 3 sets out the proposed hypotheses, the path coefficients and the t values observed with the level of significance achieved from the bootstrap test. With regards to the relationship expressed by hypothesis H1, which represents the link between the nature and existence of an open-minded context at time (T) and exploration of knowledge at time (T+1), and the path between exploration of knowledge and customer capital, both links has been demonstrated ( $\beta=.304$ ,  $p < .01$ ;  $\beta=.227$ ,  $p < .01$ ). With respect to the relationship of open-minded context at time (T) and exploitation of knowledge at time (T+1) with customer capital, in accordance with hypothesis H2, the influence of an open-minded context in the past on the exploitation behaviour is obvious ( $\beta =.383$ ,  $p < .001$ ) and the effects on customer capital are fully verified, ( $\beta=.334$ ,  $p < .001$ ). Hence, this analysis provides full support for H1 and H2. The theoretical and managerial implications of the bi-directional relationships observed across these constructs are discussed in further detail in the following section.

Hypotheses	Path coefficients	T values
H <sub>1</sub> : Open-minded context → Exploration of knowledge	0.304 <sup>**</sup>	2.79
H <sub>1</sub> : Exploration of knowledge → Customer Capital	0.227 <sup>**</sup>	2.62
H <sub>2</sub> : Open-minded context → Exploitation of knowledge	0.383 <sup>***</sup>	4.02
H <sub>2</sub> : Exploitation of knowledge → Customer Capital	0.334 <sup>***</sup>	3.43

\*\*\*p <.001, \*\*p <.01, \*p <.05, ns=not significant (based on a Student t (499) distribution with two tails). t(.001,499)=3.310124157, t(.01,499)=2.585711627, t(.05,499)=1.964726835.  
TABLE 3: Hypotheses statistics

#### 4. DISCUSSION

Despite significant attention to the role of entrepreneurs as a key factor leading to corporate success in the future, there has been limited empirical research to examine the management practices that may be associated with new organizations and the creation and sustaining of customer capital. The primary purpose of this study was to examine the potential mechanisms through which three KM practices (the creation of an open-minded context, the exploration of knowledge and the exploitation of knowledge) interact among themselves and affect customer capital over time. As hypothesized, our results showed that both explorative knowledge processes and exploitative knowledge processes had a positive effect on customer capital. At the same time, the existence of an open-minded context was significantly related to both knowledge exploration and exploitation practices. This means that unlearning through time prevents explorative and exploitative processes from becoming too rigid, which in turn affect the learning of new knowledge and the creation of customer capital. An explanation for this could be that outdated knowledge creates perceptual filters that keep experts (e.g. entrepreneurs) from noticing social and technical changes, which can negatively affect customer relations by: 1) narrowing the cognitive process of individuals; 2) hindering their ability to plan, reason, and understand the situation effectively; 3) fostering a sense of inadequacy of the combination of unexpected linkages between variables, such as people and processes; and 4) limiting individuals' prior knowledge on the potential interactions between new processes and their consequences.

Our results support the proposition that the existence of an open-minded context at time (T) is a significant positive predictor of the impact of two management practices (knowledge exploration and exploitation) on customer capital at a later time (T+1). These findings highlight the significance of time, a factor often overlooked in management research. In the present study, the time necessary to create an open-minded context is one factor that is important in determining the relative impact of outdated knowledge. A possible explanation for this may be related to the fact that it takes time for individuals to forget (to put something learned out of the mind, or "unlearn") outdated knowledge. As we have noted unlearning may not be as simple as forgetting specific item of knowledge it may involve unlearning particular interpretative frameworks and associated behaviours which may have become habitual and hence essentially automatic and unconscious. Furthermore, it has been suggested that those considered to be experts in a particular field may be the worst at forgetting as they have devoted a lot of time and resources to their current knowledge and therefore may have quite entrenched beliefs (Becker, 2008). Another possible explanation would be the fact that outdated knowledge also creates a tension between assimilating new knowledge (exploring) and using or exploiting what has already been learned (Crossan et al., 2005). Starbuck (1992), for instance, highlights that experts tend to overlook relevant events just outside their domain because to recognize such events and attempt to take them into account may threaten their reputation and careers. Therefore, the establishment of an open-minded context may need some time to have an impact on other KM practices (Crossan et al., 2005).

Our findings also support the proposition that the influence of the existence of an open-minded context on customer capital is significant when it is mediated by explorative and exploitative processes.

This addresses the concerns expressed by authors such as Humphreys et al. (2005) when they assert that if employees are going to challenge their deepest held meanings in a workplace context, the learning context needs to change as well. Entrepreneurs may attempt to update information on employee skills, expertise and knowledge through the creation of an open-minded context, but employees may be reluctant to forget a complete personal profile for a variety of reasons. In such situations open-mindedness is either supported or inhibited by organizational context. For example, some of the employee's outdated knowledge could be essentially useless if the employee is transferred to another position where the outdated knowledge cannot be applied (Mueller and Dyerson, 1999). Lack of use of this knowledge may lead to its being forgotten over time. Alternatively, some of the outdated knowledge might be combined with new knowledge and there transformed into new knowledge due to the passage of time. Under this interpretation, the employee may either forget the knowledge or decides not to keep this knowledge up to date. We would further argue that an open-minded context may be further 'consolidated' through the emergent understandings that are created by group members when they interact, or by exploitive processes (e.g. using organizational memory) that may offer a better way to deliver information (Schein, 1993).

Note that our results also highlight that in order to create customer capital SMEs need to provide and support both explorative and exploitative knowledge processes simultaneously. In this regard, March (March, 1991) suggested that maintaining an appropriate balance between exploration and exploitation is critical for firm survival and prosperity. Similarly, Levinthal and March argued "the basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, to develop enough energy for exploration to ensure its future viability" (Levinthal and March, 1993:105). Therefore, the potential contribution of an open-minded context is related to its contribution to preparing the ground for new learning to occur. Under this framework, an open-minded context can help organizations to define a collective culture of the organization toward the simultaneous pursuit of alignment and adaptability through the implementation of explorative and exploitative knowledge processes. In addition, these findings support the views of organizational learning strategy literature, which argue that learning-oriented organizations are able to quickly reconfigure their architecture and reallocate their resources to focus on emergent opportunities or threats (Slater and Narver, 1995), which in turn improve customer relations (Chang and Tseng, 2005). Consequently, since customer capital is a result of interaction between an organization and its customers, organizations create customer capital from explorative processes (e.g. creating external communities of practice, where customers and employees are interacting and working together interdependently for the achievement of particular objectives), or from the exploitative processes (e.g. using the company's memory or the experiences of employees to improve services).

In SMEs, as in big global corporations, organizations need appropriate and up-to-date knowledge (Chen et al., 2005). Our findings support the proposition that it is important for entrepreneurs to become more aware of the need to create an open-minded context as a prior step to support explorative and exploitive knowledge processes. Otherwise, entrepreneurs may end up following rules and programmed plans based on outdated knowledge, assumptions, beliefs or behaviours. In this regard, not many entrepreneurs test the validity of their beliefs about the cause and effect relationships that guide their

behaviour. In many cases, learned routines are so inculcated that only in a time of crisis will entrepreneurs begin to question them. Overcoming these assumptions and presumptions, that may become inflexible as a result of long standing relationships with customers and may hinder explorative and exploitive processes, is the essence of open-mindedness. Such open-mindedness is fostered by an open minded context and it includes actions such as: refocusing a business competitively; making major changes in marketing or distribution; redirecting product development; and reshaping operations (Nory et al., 2003). In other words, the entrepreneur has to induce self-renewal by facilitating the critical appraisal of problems and suggesting new solutions as well as allowing experts to observe and intervene in discussions (Earl and Scott, 1999). These findings support the views of Wong (2005) that organizations need someone to provide critical input to the process of knowledge creation. The results also indicate that the establishment of open-mindedness mental stance in the workforce through the creation of an open-minded context at time (T) has an indirect effect on customer capital at a later time, namely (T+1) by providing support through the use of knowledge which has been learnt and by changing the way individuals interact or come to interpret things. However, as indicated above, it is important to note that managers should not expect instant results and that an "incubation" period is necessary for the development of open-mindedness in individuals and an open-minded context within the organizations. These are not over-night phenomena.

## **5. CONCLUSIONS**

This study has examined, through an empirical study of 107 telecommunications SMEs, how the nature and existence of an open-minded context is linked to the nature and existence of knowledge exploration and exploitation processes enacted by the workforce of an organization. Further, we have explored how the existence of these practices contributes to the creation of customer capital. The study found that the effects of the existence of an open-minded context at time (T) on customer capital at a moment (T+1) are mediated through the existence of knowledge exploration and exploitation processes at time (T+1). This means that managers should consider incorporating processes that support unlearning (an open-minded context) among their management tools. We further suggest that all unlearning efforts should be centre around people in the organization who are actually performing the jobs where knowledge sharing and use takes place. Since the employees are dealing with customers to fulfil their requirements, it is important for them to be given a substantial amount of autonomy for them to decide solutions for their clients. This will definitely prevent the wastage of time and effort when the employees explore, discuss and decide on the clients' needs.

The study is not without limitations. Firstly, we are able to provide only a snapshot of ongoing processes and therefore we have not been able to explore the dynamics of the processes over time. Secondly, although the constructs have been defined as precisely as possible by drawing on relevant literature, and validated by practitioners, they can realistically only be thought of as proxies for underlying latent phenomena that themselves are not fully measurable. Thirdly, the presented model in this study was general and did not capture the possible moderating effects of environmental turbulence and uncertainty. Prior research has shown that the effect of cognitive factors on individual, group and organizational performance can vary substantially with environmental conditions. For instance, under turbulent conditions, the existence of an open-minded context might result in improved team

performance. Moreover, other factors, which have not been included in this study, are also likely to affect the constructs that have been addressed in this study.

Taking into account the above limitations this study points to the need for a variety of new avenues for subsequent research. Firstly, we consider that the use of additional items might help to capture a greater proportion of the richness of the constructs that have been addressed in this research. Secondly, another possible research direction would examine the life-cycle effects of an open-minded context. As organizational evolve and grow does the importance and/or impact of an open minded context vary? Thirdly, this paper suggests that a cross-national research may be needed to examine the relationships between the existence and nature of an open-minded context and customer capital. Finally, SMEs must also understand that creating an open-minded context is not about a one-time investment; the nurturing of such a context requires constant attention and investment over a substantial period of time even after it begins to deliver results. Finally, from an academic standpoint more research is needed in identifying time path of benefits of an open minded context and the nature, effectiveness and optimal timing of context sustaining investments.

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## Appendix 1. Questionnaire items

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Open-minded context: indicate the degree of agreement or disagreement (1= high disagreement and 7= high agreement) with respect to your employees.

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OP1: Employees identify problems

OP2: The company is prepared to change working practices

OP3: New and novel approaches are considered

OP4: Employees recognize the value of new information, assimilate it, and apply it

OP5: Employees are prone to collaborate with members of the organization and to solve problems together

OP6: Employees takes risks

Knowledge exploration: indicate the degree of agreement or disagreement (1= high disagreement and 7= high agreement) with respect to your organization.

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ER1: Co-operation agreements with other companies, universities, technical colleges, etc. are fomented

ER2: The company is in touch with professionals and expert technicians

ER3: The organization encourages its employees to join formal or informal nets made up by people from outside the organization

ER4: The employees attend fairs and exhibitions regularly

ER5: Your employees maintain frequently collaboration with customers to accomplish and/or improve products and services

ER6: Your employees maintain frequently work meetings with customers

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Knowledge exploitation: indicate the degree of agreement or disagreement (1= high disagreement and 7= high agreement) with respect to your organization.

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ET1: All the members of the organization share the same aim to which they feel committed

ET2: Employees share knowledge and experience by talking to each other

ET3: Teamwork is a very common practice in the company

ET4: The company develops internal rotation programs so as to facilitate the shift of the employees from one department or function to another

ET5: The company offers other opportunities to learn (visits to other parts of the organization, internal training programs, etc.) so as to make individuals aware of other people or departments' duties

ET6: Employees do not conceal their mistakes

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Customer Capital: with respect to their competitors indicate the degree in which your company reached the following objectives (1= strong down and 7= strong up).

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CC1: Increase of market quota

CC2: Improvement of the quality

CC3: Knowing the changes in your clients' needs and habits

CC4: Repetition of purchases

CC5: Satisfaction of the clients

CC6: Good reputation and prestige

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