Industrial Marketing Management 40 (2011) 1294–1304

Contents lists available at SciVerse ScienceDirect

Industrial Marketing Management

Non-technical innovation: Organizational memory and learning capabilities as antecedent factors with effects on sustained competitive advantage☆

César Camisón [a], Ana Villar-López [a,*]

[a] Universitat de València, Spain

ARTICLE INFO

Article history:
Received 31 December 2010
Received in revised form 21 September 2011
Accepted 27 September 2011
Available online 20 October 2011

Keywords:
Organizational memory
Learning capabilities
Organizational innovation
Marketing innovation
Sustained competitive advantage

ABSTRACT

The aim of the present study is to analyze the role of organizational memory and learning capabilities as antecedents to non-technical innovation, comprising organizational and marketing innovation, and to examine their effect on sustained competitive advantage within a capabilities-based view (CBV) theoretical framework. For analysis of the proposed theoretical model, 159 industrial companies in Spain were sampled and a system of structural equations was modeled using partial least squares methodology. The results confirm that both organizational memory and learning capabilities favor the development of organizational innovation and marketing innovation. Furthermore, the paper shows that both types of non-technical innovation promote the achievement of sustained competitive advantage.

1. Introduction

Historically, research on innovation types has followed a technical focus (Damanpour & Aravind, in press 4). Consideration of non-technical innovation, which includes organizational (or management) and marketing innovation, is an emerging approach, as this was not recognized until the third edition of the Oslo Manual (OECD, 2005). Non-technical innovation is playing an increasingly important role in a better understanding of innovation and its impact on the competitiveness of firms (Armbruster et al., 2006: 5). However, the literature on non-technical innovation is diverse and scattered (Armbruster, Bikfalvi, Kinkel, & Lay, 2008: 645) and recent studies have encouraged research on the development of models and theories of non-technical innovation in organizations to extend and expand existing models and theories, which are mainly drawn from research on technical innovation (Damanpour & Aravind, in press: 5).

The objective of this study is to analyze both the antecedent role of two knowledge-based capabilities (organizational memory and organizational learning) in the development of non-technical innovation and its effect on achieving sustained competitive advantage (SCA) using a theoretical capabilities-based view (CBV) as a theoretical framework.

Thus, this study extends previous knowledge on three fronts. First, both theoretical and empirical research on organizational capabilities that lead to non-technical innovation is limited. The literature has focused on studying the effects of organizational capabilities such as learning (Chen, Lin, & Chang, 2009; Mavondo, Chimhanzi, & Stewart, 2005; Nasution & Mavondo, 2008; Weerawardena, 2003; Weerawardena, O'Cass, & Julian, 2006) and knowledge absorption (Chen, Lin, & Chang, 2009) on technical innovation or has considered different types of technical and non-technical innovation within the same latent variable (Weerawardena, 2003; Weerawardena & Sullivan-Mort, 2001; Weerawardena et al., 2006). Although this research is valuable, extension of this line of reasoning requires an examination of the effects that different organizational capabilities have on individual types of non-technical innovation. In our case, we analyze the effects of organizational memory and learning capabilities on organizational and marketing innovation. In the CBV literature, these two knowledge-based capabilities have been considered central to the generation of innovation, but their theoretical and empirical links with non-technical innovation need to be studied in greater detail (Armbruster et al., 2008; Fiedler & Welpe, 2010; Mol & Birkinshaw, 2009).

The second contribution is to provide further empirical evidence of the relationship between non-technical innovation and SCA; such evidence has been limited to date. On one hand, debate regarding the impact of organizational and marketing innovation on SCA is ongoing given the ambiguous empirical evidence (e.g., Mol & Birkinshaw, 2009 vs. Walker, Damanpour, & Devece, 2010). On the other hand, the relationship between marketing innovation and SCA has not been studied in detail. Although the effects of many individual innovations in

☆ This research was financially supported by research grants from the Spanish Ministry of Science and Innovation (ECO2009-12522) and Consellería de Educación de la Generalitat Valenciana (ACOMP/2010/233).

* Corresponding author at: Departamento de Dirección de Empresas. Juan José Renau Piqueras; Facultad de Economía; Edificio Departamental Oriental; Universitat de València; Av. Tarongers, s/n; C. P. 46022, Valencia, Spain.
E-mail address: Ana.Villar@uv.es (A. Villar-López).

0019-8501/$ – see front matter © 2011 Elsevier Inc. All rights reserved.
doi:10.1016/j.indmarman.2011.10.001

marketing (e.g., customer management relationship) on SCA have been examined, there has been little consideration of the global effect of marketing innovation on SCA.

The third contribution of this study is to simultaneously consider antecedents and consequences of non-technical innovation. Previous studies focused on only one of these aspects. Although this is logical in preliminary analyses, it needs to be extended to a more complete model that captures the complexity of the relationship between variables involved in the non-technical innovation process.

The remainder of the paper is structured as follows. Section 2 contains a literature review and presents theoretical foundations for the hypotheses proposed. The data and statistical methods used to test the hypotheses are described in Section 3. The results of the structural equation modeling are presented and discussed in Sections 4 and 5, respectively. The final section summarizes and concludes the article.

2. Theoretical framework and hypotheses

2.1. Capabilities-based view

CBV facilitates a clear analysis of the relationships between capabilities, innovation and SCA (Mol & Birkinshaw, 2009). CBV is based on the theory that SCA is only possible when a company possesses heterogeneous resources and capabilities (Amit & Schoemaker, 1993; Barney, 1986, 1991; Wernerfelt, 1984). Capabilities are associated with the individuals who possess them (dispersed knowledge) or with the firm as an organization (the savoir faire of the organization and its members) (Amit & Schoemaker, 1993; Grant, 1991).

In this paper, we focus on two knowledge-based capabilities as antecedent factors to non-technical innovation: organizational memory and learning capabilities. According to CBV, these are core knowledge-based capabilities (Nelson & Winter, 1982). Both organizational memory and organizational learning capabilities are a consequence of organization-specific or tacit knowledge (Polanyi, 1962) of a collective nature (Walsh & Ungson, 1991) that can favor innovation (Kamasak & Bulutlar, 2010; Storey & Kelly, 2002). At the same time, innovation is frequently acknowledged as the primary source of SCA (Day & Wensley, 1988; Hurley & Hult, 1998).

In its most basic sense, organizational memory refers to stored information from an organization's history that can be brought to bear on present decisions (Walsh & Ungson, 1991: 62). Organizational memory resides in the minds of employees and can be embedded in work processes or in lessons learned from past experiences (Walsh & Ungson, 1991). Organizational memory facilitates access to an organization's prior knowledge, such as information about the competitive environment, the present markets and clients and/or market factors (Camisón, Boronat, & Villar, 2010). This type of knowledge is especially difficult to transfer or imitate and is therefore a valuable asset for a firm (Ebbers & Wijnberg, 2009).

Organizational learning is defined as the capability of an organization to process knowledge—in other words, to create, acquire, transfer and integrate knowledge—and to modify its behavior to reflect new cognitive situations with a view to improving its performance (Jerez-Gómez, Céspedes-Lorente, & Valle-Cabrera, 2005: 716). This definition permits an understanding of learning capacity as a multidimensional construct that encompasses different subprocesses (Céspedes Lorente, Jerez Gómez, & Valle Cabrera, 2005; Goh & Richards, 1997; Jerez-Gómez et al., 2005; Slater & Naver, 1995). Jerez-Gómez et al. (2005) define the following dimensions:

- *Managerial commitment*: Management recognizes the importance of learning and ensures that employees understand its importance.
- *Systems perspective*: Members of the firm have a common identity; they have a clear view of the objectives and how they can contribute to achieving these.
- *Openness and experimentation*: The climate in the firm welcomes new ideas and points of view, both internal and external. The culture promotes creativity, agility and innovativeness as ways of improving the work process.
- *Knowledge transfer*[1]: Communication within the firm is fluid, and dialog and debate among the members of the organization are promoted.

2.2. Definition of non-technical innovation

Innovation is defined as the implementation of a new or significantly improved product (good or service) or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations (OECD, 2005).[2] This broad definition of innovation encompasses four categories: product, process, organizational and marketing innovation. In this paper, we focus on the latter two, which are considered non-technical innovation (Damanpour, Szabat, & Evan, 1989).[3]

An organizational innovation[4] can be defined as implementation of a new organizational method in a firm's business practices, workplace organization or external relations (OECD, 2005). In particular, *organizational innovations in business practices* involve the implementation of new methods for organizing work routines and procedures. *Innovations in workplace organization* involve the implementation of new methods for distributing responsibilities and decision-making among employees for the division of work, as well as new concepts for the structuring of activities. Finally, *new organization methods in a firm's external relations* are defined as the implementation of new ways of organizing relations with other firms or public institutions.

A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD, 2005). Specifically, marketing innovation includes significant changes in *product design*, which include changes in product form and appearance that do not alter the product's functional characteristics. It also includes changes in the packaging of products. New marketing methods in *product placement* primarily involve the introduction of new sales channels. Innovations in *product promotion* involve the use of new concepts to promote a firm's goods and services. Finally, innovations in *pricing* involve the use of new pricing strategies to market the firm's goods or services.

2.3. Organizational memory and non-technical innovation

Previous studies provide empirical confirmation that what has already been learned and stored in organizational memory drives innovation (Hanvanich, Sivakumar, & Hult, 2006; Tsai, 2008). However, it

[1] The original conceptualization by Jerez-Gómez et al. (2005) defines this dimension as *Knowledge transfer and integration*, considering that integration is equal to organizational memory. In this paper, we follow the view of previous studies that consider organizational memory as a concept different from organizational learning (Ebbers & Wijnberg, 2009; Fiedler & Welpe, 2010; Hanvanich et al., 2006; Walsh & Ungson, 1991) and therefore we do not include it here.

[2] Innovation can be defined in two different but complementary ways: (1) innovation as the *implementation* of a product, technology or practice new to the adopting organization (Daft, 1978; Damanpour & Schneider, 2006; Damanpour & Wischnevsky, 2006; Kimberly & Evanisko, 1981); or (2) innovation as a *process* applied to how innovation is developed, commercialized, diffused or adopted (Klein & Sorra, 1996; Rogers, 1995). The OECD definition used in this study falls within the first case.

[3] We do not consider the case of technical innovation because its relationship with knowledge-based capabilities and SCA is well documented in the literature (Aragón-Correa et al., 2007; Calantone et al., 2002; Nasution et al., 2011).

[4] Some papers refer to this as *management innovation* (Hamel, 2006, 2009; Mol & Birkinshaw, 2009). However, in the present study, the terminology and definition proposed by ODCE are applied because these have a unifying character that encompasses the essence of both the traditional and more recent definitions. This definition and terminology have also been adopted in recent papers (Armbruster et al., 2008, 2006; Camisón & Villar-López, 2010).

is important to point out that these studies refer to the concept of innovation in terms of new products or processes developed, and exclude non-technical innovation.

Under the principles of CBV, organizational memory should also have a positive effect on non-technical innovation. In the case of organizational innovation, organizational memory is an internal source of knowledge that is a significant contributor to the introduction of organizational innovation (Mol & Birkinshaw, 2009). The knowledge available to a firm regarding clients or competitors can serve as inspiration for organizational innovation (Birkinshaw & Mol, 2006). Specifically, we consider that the positive effect of organizational memory on organizational innovation can be achieved via different channels. Organizational memory can favor the introduction of *new business practices* such as the generation of databases on best practices, lessons and other learned knowledge. In particular, organizational memory is a repository for information on the organizational history that can be considered in current decisions (Walsh & Ungson, 1991). Therefore, the availability of strong organizational memory can increase the probability of applying these types of business practices in the company and should help to preserve the knowledge acquired by the organization. Similarly, the introduction of *workplace innovations* will be favored by organizational memory. Walsh and Ungson (1991) consider that organizational memory is reflected in the organizational structure. Finally, organizational memory can also be a driving factor for the introduction of *new organizational methods* in relating to external corporations such as cooperation agreements and subcontracting. From CBV, innovative methods for relating to other corporations can only be established when the firm is unable to develop the assets or capabilities necessary on its own (Das & Teng, 2000; Eisenhardt & Schoonhoven, 1996) and they cannot be acquired through market exchange (Eisenhardt & Schoonhoven, 1996). Therefore, it is expected that knowledge about external agents stored in organizational memory can overcome fears associated with cooperation, and thus favor the establishment of innovative inter-organizational relationships.

Hence, we propose the first hypothesis:

H1a. The greater the organizational memory, the greater is organizational innovation.

Day (1994) argues that organizational memory provides firms with the ability to sense events and trends in their markets ahead of their competitors so that they can more accurately anticipate responses to retain or attract new customers or improve channel relations. These arguments suggest that organizational memory favors innovation in marketing practices. For example, prior knowledge that a firm possesses about clients and markets can lead to early identification of changes in consumer preferences and facilitate the introduction of novel marketing tools to distinguish the firm's products from those of its competitors. Similarly, knowledge stored in organizational memory about the best processes and systems for organization of work can facilitate the implementation of innovations in product distribution. In this sense, Weerawardena (2003) demonstrated that learning about consumer needs and supplier behavior favors innovative intensity. These results are particularly relevant because the concept of innovative intensity includes marketing innovation. Considering the concepts mentioned above under the CBV approach, organizational memory is a valuable input for marketing innovation.

These arguments are reflected in the following hypothesis:

H1b. The greater the organizational memory, the greater is marketing innovation.

2.4. Learning capabilities and non-technical innovation

Organizational learning is closely related to innovation (Calantone, Cavusgil, & Zhao, 2002). There is an extensive body of literature on the relationship between learning capabilities and technical innovation (Aragón-Correa, García-Morales, & Cordón-Pozo, 2007; Calantone et al., 2002; Chen, Lin, & Chang, 2009; Hurley & Hult, 1998; Nasution, Mavondo, Matanda, & Ndubisi, 2011; Weerawardena, 2003; Weerawardena et al., 2006). This previous research has demonstrated empirically that companies are motivated to engage in learning capabilities to improve technical innovation performance.

However, the impact of a firm's learning capacity on non-technical innovation has not been studied in detail. Exceptions are the studies by Weerawardena and Sullivan-Mort (2001), Weerawardena (2003) and Weerawardena et al. (2006), which show how internal, external and relational learning capacities favor non-technical innovative intensity in both industrial firms and non-profit organizations. These ideas lead to the concept that a firm's learning capability favors both organizational innovation and marketing innovation.

Specifically, we believe that learning capability can favor organizational innovation through different channels. First, learning can favor the development of organizational *innovation in business practices*, such as the development and retention of workers or the use of quality management systems. Previous work has shown that learning favors employee development (Garavan & McCarthy, 2008). In the same way, organizational learning and quality management practices are complementary tools (Dervitsiotis, 1998). Second, organizational learning can also facilitate the introduction of *workplace innovation*, such as employee empowerment or the use of work groups. Mavondo et al. (2005) find that learning orientation is positively associated with human resource practices that promote the organic character of an organizational structure. Finally, it is also expected that organizational learning will have a positive influence on the implementation of *new organizational methods for the establishment of relations with agents external* to the organization. Chen, Lee, and Lay (2009), using a sample of 363 strategic alliances among Taiwanese companies, demonstrated that organizational learning favors the establishment of external linkages.

Considering the above arguments, we propose the following hypothesis:

H2a. The greater the learning capabilities, the greater is organizational innovation.

Learning capabilities can also favor marketing innovation. Organizational learning supports creativity, inspires new knowledge and ideas, and increases the ability to understand and apply them (Aragón-Correa et al., 2007). Firms that view learning as key to improvement and that are not constrained by current business models or practices are more likely to discover novel ways to better serve customers (Hanvanich et al., 2006; Sinkula, Baker, & Noordewier, 1997). Therefore, organizational learning can lead to the development of innovative marketing instruments to differentiate, distribute, promote or price a firm's products.

These arguments lead to the next hypothesis:

H2b. The greater the learning capabilities, the greater is marketing innovation.

2.5. Non-technical innovation and sustained competitive advantage

Barney (1991: 102) defines SCA as implementation by a firm of a value-creating strategy that is not simultaneously implemented by any current or potential competitor and for which such other firms cannot duplicate the benefits of this strategy. Barney (1991) also specifies that only resources that are valuable, rare, and difficult to imitate and substitute will guarantee firms SCA to ensure achievement of economic rents. It follows from this definition that SCA has two basic characteristics: (1) the superior marketplace position of a firm compared to its competitors; and (2) economic materialization

of SCA in terms of financial performance or achievement of economic rents.

Following CBV reasoning, we consider that innovation is an immediate source of SCA (Day & Wensley, 1988; Hurley & Hult, 1998). Within the CBV framework, the *dynamic capabilities-based view* (Eisenhardt & Martin, 2000; Teece, Pisano, & Schuen, 1997) holds that SCA depends on a firm's dynamic capabilities to innovate, which are understood as its ability to adapt and reconfigure its resources and capabilities.

Organizational innovations are specific to the system that generates them, which is normally a highly complex social system involving a wide array of participants and the relationships among them (Birkinshaw & Mol, 2006). In addition, organizational innovation is implicit by nature, more so than technical innovations (Birkinshaw & Mol, 2006). These basic characteristics mean that organizational innovation has a unique capacity to create long-term SCA (Hamel, 2009).

Previous studies offer little empirical evidence of the relationship between organizational innovation and SCA and do not reach a clear conclusion. Studies that analyze the relationship between organizational innovation and firm performance find results both favoring (Mazzanti, Pini, & Tortia, 2006; Mol & Birkinshaw, 2009) and opposing (Staw & Epstein, 2000; Walker et al., 2010) organizational innovation as a factor leading to superior performance. On the contrary, papers addressing the concept of SCA and examining the effect of organizational innovation on SCA, which usually consider organizational innovation as part of a wider latent construct that also includes product and process innovation, find that innovation is positively associated with SCA (Chen, Lin, & Chang, 2009; Weerawardena, 2003).

Based on the previous ideas, we postulate the following hypothesis:

H3a. The higher the organizational innovation, the greater is the sustained competitive advantage.

Marketing innovation is a continual process whereby managers establish a marketing system with stronger competitive capabilities than those of its competitors (Ren, Xie, & Krabbendam, 2010). Therefore, marketing innovation can be considered a primary source of a firm's SCA (Ren et al., 2010; Rust, Ambler, Carpenter, Kumar, & Srivastava, 2004) given its difficulty to imitate (Ren et al., 2010). Previous empirical evidence demonstrates the positive influence of marketing innovation on SCA. For example, a case study of Huawi Technologies by Ren et al. (2010) shows that marketing innovation is a valuable source of SCA. Similarly, Weerawardena (2003) demonstrate that there is a positive relationship between product, process, administrative and marketing innovations and SCA.

Thus, we postulate a final hypothesis:

H3b. The higher the marketing innovation, the greater is the sustained competitive advantage.

Fig. 1 shows the proposed conceptual model.

This paper follows the perspective of theorists who study the process of organizational learning by stressing the importance of organizational memory, which acts as a repository of knowledge as a result of learning by the company (Hedberg, 1981; Walsh & Ungson, 1991). Consequently, the proposed theoretical model includes the influence of learning capabilities on organizational memory.

3. Research methodology

3.1. Sample

The data used in this paper are taken from a study of the competitiveness of industrial companies in Spain. The sample comprises firms listed on the Sistema de Análisis de Balances Ibéricos (SABI) database. The population studied includes a range of Spanish industrial companies, but excludes the energy sector and micro-businesses (companies with fewer than ten workers). Further conditions for inclusion were the availability of complete contact details and firms with only one production plant. At the end of 2005, the SABI database included 2145 industrial companies in 30 industrial sectors (2-digit SIC) that met these conditions.

To gather the data, we submitted questionnaires to the firms. Before sending the questionnaire, we carried out a preliminary test of its design using seven companies. The questionnaire was subsequently revised to improve the clarity of its content. Fieldwork on the final questionnaire occurred during April–November 2006 and asked about data from 2005. The questionnaire was distributed by postal mail, with follow-up telephone calls to request participation.

Responses were obtained from 175 firms, of which 16 were eliminated from the sample owing to incomplete or incorrectly completed questionnaires. The final sample comprised 159 companies, with a sample error of 7.6%, where $p = q = 0.5$. The sample breakdown was 28.9% small firms (10–250 employees), 42.8% medium-sized firms (250–500 employees), and 28.3% large companies (>500 employees) in 19 industries.

3.2. Statistical techniques

Structural equation modeling was carried out using the partial least squares (PLS) approach (Chin, 1998a,b) in PLS-Graph 3.0 Build 1126 to test the proposed theoretical model. Considering the sample

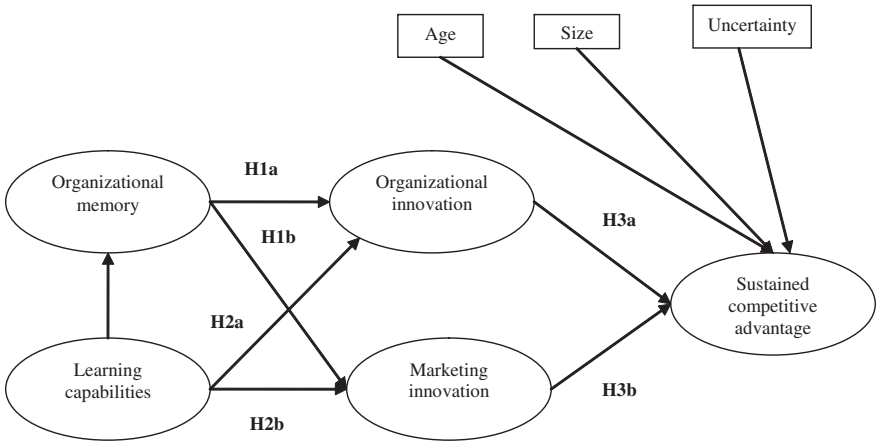

Fig. 1. Conceptual model.

properties and the structural model used, this technique offers certain advantages over covariance-based structural equation procedures. Specifically, PLS is particularly suitable for small samples and complex models; it can be used to estimate models that use both formative and reflective indicators; and it is a prediction-oriented method that does not require strong theory (Chin & Newsted, 1999; Falk & Miller, 1992).

3.3. Measurement variables

Organizational memory was measured using a seven-point Likert scale. It was defined as a latent variable formed by nine reflective items developed by Camisón et al. (2010) that measure valuable knowledge stored by a firm about the competitive business environment, markets and current clients and market factors. We did not consider one item from the original scale by Camisón et al. (2010) that refers to future market trends, and instead used the Walsh and Ungson (1991) definition of organizational memory, which refers only to prior knowledge accumulated by the firm.

Organizational learning capability was measured using a multi-item scale developed by Jerez-Gómez et al. (2005). Previous scales for measurement of learning capabilities, such as those proposed by Goh and Richards (1997) and Hult and Ferrell (1997), served as inspiration. This molecular second-order factor[5] is defined using four dimensions: managerial commitment to learning, systems perspective, openness and experimentation, and knowledge transfer.[6] The scale was adjusted for the study characteristics by eliminating four items. Specifically, items overlapping the organizational innovation scale and related to the use of work groups, decentralized decision-making and instruments such as databases of best practices, lessons and other knowledge were excluded. The scale therefore comprises 12 items measured on a seven-point Likert scale. Studies such as those by Calantone et al. (2002) and Céspedes Lorente et al. (2005) use similar scales to measure learning capabilities.

Organizational innovation was measured using the OECD (2005) definition and a multi-item seven-point Likert scale. The scale measures organizational innovation from an *output* point of view. The variable was defined as a molar second-order factor. This implies that the dimensions are defined as formative. The scale distinguishes between three dimensions: organizational innovations in business practices, innovations in workplace organization, and new organization methods in a firm's external relations, each of which is measured using three reflective items. The scale has been validated by Camisón and Villar-López (2010).

Existing scales for marketing innovation are very limited and are not suitable for the objectives of our study. To develop a new measurement tool for marketing innovation, we used the OECD (2005) definition to construct a multi-item scale to analyze the implementation of new marketing methods involving significant changes in product design or packaging, placement, promotion or pricing. This construct was defined as a latent first-order variable with a formative character, comprising four items measured on a seven-point Likert scale. A similar measurement scale was used by Lin, Chen, and Chiu (2010).

Since SCA itself is unobservable, much of the existing research uses superior financial performance as an indicator (*proxy*) of SCA (Weerawardena, 2003: 413). Nevertheless, this line of research has attracted criticism from an important stream of strategic marketing literature, which argues that financial indicators need to be complemented with indicators of market advantages (Chen, Lin, & Chang, 2009; Day & Wensley, 1988; Ren et al., 2010; Weerawardena, 2003). In this paper, we follow recommendations by Day and Wensley (1988) and Weerawardena (2003) to measure SCA in terms of strengthening financial indicators with comprehensive indicators of market advantages. Therefore, we developed a multi-item scale that operationalizes SCA as a molecular second-order factor with two dimensions: economic performance and satisfaction performance. The two dimensions considered are defined as reflective and were measured using five and four reflective items, respectively, on a seven-point Likert scale. Economic performance includes factors such as profitability, sales growth and market share. Items included in satisfaction performance are related to stakeholder satisfaction, labor productivity and strength of the competitive position. To generate the indicators making up the measurement scale, we referred to work by Camisón (1999) and Weerawardena (2003). These indicators were measured on a subjective evaluation scale and were subsequently used in studies by Nahm, Vonderembse, and Koufteros (2003), among others.

Authors such as Conant, Mokwa, and Varadarajan (1990) have warned of possible implicit deviation in managerial perceptions of firm performance. Caution is therefore required when evaluating the risk of common variance for results when the data for variables all come from the same source. To test for such bias in our study, we assessed the convergent validity of the performance measure using correlation coefficients for self-evaluation of objective measures exogenous to the firm. This process was applied to two indicators (economic profitability and mean sales profitability) for which external data were available from the database. Because these exogenous indicators were not available for all the sample firms, the analysis was limited to 105 and 112 companies, respectively. Correlations between the objective and subjective performance indicators are statistically significant ($p<0.01$), confirming the convergent validity of the measures. To mitigate the problem of common variance or the effect of autocorrelation, we followed the procedure suggested by Williams, Cote, and Buckley (1989) and Podsakoff and Organ (1986). In this method the dependent variables are placed after the independent variables in the questionnaire in an attempt to reduce any implicit effect on respondents.

3.4. Control variables

We controlled for three contextual variables that might potentially confound the results: organization size and age and environmental uncertainty. Previous studies have shown that organization size, age and environmental uncertainty influence SCA (Camisón, Lapiedra, Segarra, & Boronat, 2004). Organizational size was measured as the logarithm of the number of employees. Firm age was defined as the number of years since foundation. Finally, to measure environmental uncertainty we used the dimensions identified by Dess and Beard (1984): dynamism, munificence and complexity. This variable was measured using a subjective scale developed by Camisón (2004). The scale has 18 items measured on a seven-point Likert scale, where 1 represents *very low level* and 7 *very high level*. The variable was included in the model as the average of the items that form each dimension.

Table 1 lists the descriptive statistics for all variables, together with the correlation matrix.

4. Results

Two stages should be used when analyzing a PLS model: (1) assessment of the measurement model; and (2) testing of the structural model.

[5] Whereas the molar approach represents an emergent construct formed from first-order factors, in the molecular approach it is hypothesized that an overall latent construct exists and is indicated and reflected by first-order factors (Chin & Gopal, 1995). The decision depends on whether the first-order factors or dimensions are viewed as causes or indicators of the second-order factors (Chin, 1998b). If a change in one of the dimensions necessarily results in similar changes in other dimensions, then a molecular model is appropriate. Otherwise, a molar model is suitable (Chin & Gopal, 1995).

[6] As noted in Section 2.2, we adapted this dimension to the study objective, without including the concept of organizational memory.

Table 1
Mean and standard deviation values and correlations among study variables.

	Variable	Mean	SD	1	2	3	4	5	6	7
1	Organizational memory	5.257	0.979	1.000						
2	Learning capabilities	4.939	1.071	0.754**	1.000					
3	Organizational innovation	4.920	0.871	0.737**	0.852**	1.000				
4	Marketing innovation	5.062	1.051	0.603**	0.574**	0.798**	1.000			
5	SCA	4.908	0.869	0.553**	0.578**	0.610**	0.508**	1.000		
6	Age	36.642	30.370	0.095	0.049	0.111	0.078	0.018*	1.000	
7	Size	4.668	1.331	0.315**	0.090	0.119	0.045	00.21**	0.210**	1.000
8	Environmental complexity	4.022	0.531	0.089	0.046	0.028	0.010	−0.049	0.017	0.050

** Statistically significant at 0.01.
* Statistically significant at 0.05.

4.1. Measurement model

The individual reliability of the items was evaluated using factor loadings. Carmines and Zeller (1979) recommend factor loadings of ≥0.707. Table 3 shows that factor loadings for all the constructs in the theoretical model exceed this minimum value. For variables measured using formative constructs (organizational innovation and marketing innovation), the loadings are misleading because the intraset correlations for each block were not taken into account in the estimation process. Therefore, interpretation of the reliability should be based on the weights (Chin, 1998a). The weights provide information about how each indicator contributes to the construct and a minimum level is not required (Table 2). However, potential multicollinearity among the items is of concern for formative measures (Diamantopoulus & Winklhofer, 2001). If there is high collinearity among indicators, unstable estimates can arise and it would be difficult to separate the different effects of individual indicators on the construct. We therefore carried out a collinearity test using SPSS 15.0 for Windows. The results showed minimal collinearity with the variance inflation factor (VIF) for all items, since they are much less than the common threshold of 5–10 (Kleinbaum, Kupper, & Muller, 1988), as shown in Table 2.

We also evaluated construct reliability by analyzing joint reliability. Nunnally (1978) recommends a value of 0.8 as a suitable level for this indicator. Values of this index exceed the minimum for all the constructs (Table 2).

To evaluate convergent validity, the average variance extracted (AVE) is analyzed. Fornell and Larcker (1981) recommend that AVE should be ≥0.5. Table 2 shows that the AVE exceeds this minimum for all the constructs.

Finally, to check the discriminant validity we compared the AVE for all latent constructs with reflective indicators. For discriminant validity to exist, the square root of the AVE must be greater than correlations between the constructs. Table 3 shows that this condition is met in all cases.

4.2. Structural model

Table 4 summarizes the results for the path models. The t-values in Table 4 were calculated using a bootstrap resampling procedure with 500 subsamples (Chin, 2001). The R^2 values for the endogenous constructs largely exceed the minimum of 0.1 recommended by Falk and Miller (1992: 80). Moreover, R^2 for the *Performance* variable indicates that the theoretical model proposed explains 47.7% of the variance of the construct, which is a very satisfactory level of predictability.

The PLS technique does not require traditional goodness-of-fit measures (Hulland, 1999). However, inevitable comparison between PLS techniques and other, more traditional methods for modeling systems of equations, such as EQS or LISREL, has prompted *a posteriori* development of an adjustment criterion. The GoF index (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005) varies between values of 0 and 1 and a value >0.31 is recommended. In our case the GoF index is 0.596, which confirms the quality of the model adjustment.

To assess the strength of the relationships between constructs, their path coefficients (β) and significance levels must be analyzed, which together enable the hypotheses to be tested. As observed in Table 4, organizational memory has a significant effect on organizational innovation (β = 0.183, t = 2.891) and marketing innovation (β = 0.416, t = 3.772), supporting H1a and H1b. Learning capabilities have a significant effect on organizational innovation (β=0.748, t = 13.743) and marketing innovation (β=0.296, t = 2.598), supporting H2a and H2b. The effects of organizational innovation (β=0.449, t = 5.662) and marketing innovation (β=0.278, t = 3.178) on SCA are also significant, giving support to H3a and H3b3b, respectively. The effect of learning capabilities and organizational memory is also significant (β = 0.759, t = 16.914). With regard to the control variables, size was significant (β = 0.137, t = 2.003), whereas environmental uncertainty (β = −0.073, t = 1.086) and age (β = 0.019, t = 0.489) were not.

5. Discussion

The empirical results support the proposed conceptual model. First, the results suggest that organizational memory and learning capabilities have positive effects on organizational and marketing innovation. Hence, this research indicates that knowledge-based capabilities are crucial for the development of non-technical innovation. Second, the results demonstrate that the greater the non-technical innovation, the better is the SCA of a firm. This confirms the main assumption of CBV, which argues that the competitive superiority of some firms depends on the possession of certain strategic assets that confer SCA. This is the case for non-technical innovation: its context specificity and difficult imitation make it a valuable asset for generating SCA.

Finally, the strong effect of organizational learning on organizational memory supports theorists who highlight the importance of organizational memory as a repository of knowledge derived from organizational learning (Hedberg, 1981; Walsh & Ungson, 1991).

5.1. Implications for theory

Previous research on capabilities, innovation and SCA has focused mainly on the case of technical innovation. This paper contributes to knowledge about non-technical innovation and its relationship with capabilities and SCA in several ways. First, the study confirms that capabilities are important drivers for non-technical innovation. Specifically, organizational memory and learning capability are two positive determinants for both organizational and marketing innovation. These results are relevant because they expand current knowledge on capabilities that drive non-technical innovation (Weerawardena, 2003; Weerawardena et al., 2006) and reveal the specific effect of these on each type of non-technical innovation. The findings also contribute to the literature on organizational memory and answer a recent call for further empirical

Table 2
Measurement model results[a].

Factors	VIF	Weight	SL	SE	t-value [b]	CR	AVE[c]
Organizational memory (reflective)						0.929	0.623
OM1			0.744****	0.076	9.787		
OM2			0.724****	0.074	9.672		
OM3			0.759****	0.062	12.176		
OM5			0.758****	0.040	18.833		
OM6			0.852****	0.022	38.440		
OM7			0.841****	0.029	29.022		
OM8			0.799****	0.035	22.795		
OM9			0.825****	0.026	30.914		
Learning capabilities (molecular 2nd-order factor)						0.953	0.835
Managerial commitment			0.915****	0.016	58.608		
Systems perspective			0.908****	0.016	55.474		
Openness and experimentation			0.935****	0.099	94.666		
Knowledge transfer			0.897****	0.019	45.448		
Organizational innovation (molar 2nd-order factor)						n.a.	n.a.
Innovation in business practices	2.806	0.504****		0.080	5.876		
Innovation in the workplace	2.620	0.390****		0.082	4.754		
Innovation in external relations	1.401	0.259****		0.051	4.980		
Marketing innovation (formative)						n.a.	n.a.
MI1	1.408	0.688****		0.130	5.297		
MI2	1.581	0.103*		0.145	0.710		
MI3	1.706	0.182***		0.122	1.497		
MI4	1.180	0.305**		0.119	2.564		
SCA (molecular 2nd-order factor)						0.853	0.745
Economic performance			0.806****	0.049	16.599		
Satisfaction performance			0.915****	0.015	62.654		
Size			1.000	0.000	0.000	1.000	1.000
Age			1.000	0.000	0.000	1.000	1.000
Uncertainty			1.000	0.000	0.000	1.000	1.000

Notes: SL, standardized loading; SE, standard error; CR, composite reliability; VIF, variance inflation factor; n.a., not applicable.
**** $p<0.001$.
*** $p<0.01$.
** $p<0.05$.
* $p<0.1$.
[a] See the Appendix for item descriptions.
[b] Absolute t-values greater than 1.645 are one-tailed significant at 5%.
[c] Percentage of item variance explained by the latent variable.

evidence (Fiedler & Welpe, 2010). Furthermore, consideration of learning capabilities in the model extends our knowledge of the relationship between learning capabilities and innovation. Learning capabilities not only favor technical innovation (Calantone et al., 2002; Chen, Lin, & Chang, 2009; Mavondo et al., 2005), but are also an important antecedent for non-technical innovation.

Second, the study confirms that non-technical innovation favors SCA. Specifically, the results contribute to the current debate on organizational innovation and SCA and support the view that they are positively related (Hamel, 2009). The paper also emphasizes the importance of innovation in marketing practices for SCA, for which research has been much more limited than for organizational innovation and SCA. These results show that non-technical innovation plays an important role in achieving SCA and they provide quantitative evidence supporting previous theoretical (Rust et al., 2004) and case (Ren et al., 2010) studies.

Table 3
Comparison of the AVE square root and correlations between reflective constructs.

		1	2	3	4	5
1	Organizational memory	(0.789)				
2	Learning capabilities	0.759	(0.914)			
3	SCA	0.595	0.618	(0.863)		
4	Age	0.024	−0.074	0.009	(1.000)	
5	Size	0.208	0.084	0.179	0.047	(1.000)
6	Uncertainty	0.056	−0.050	−0.065	0.047	0.259

Note: Diagonal elements (values in parentheses) are the AVE square root. Off-diagonal elements are the correlations among constructs.

Third, non-technical innovation was analyzed by simultaneously considering the role of certain precedent factors and of its consequences, with differentiation between non-technical innovation categories. To date, the literature has mostly addressed independent analysis of factors that precede non-technical innovation (e.g., Birkinshaw & Mol, 2006) or its consequences for company results (Ren et al., 2010; Staw & Epstein, 2000). The model proposed in the present study provides a more complete view of the process of non-technical innovation by simultaneously considering the effect of certain learning-based capabilities on the development of non-technical innovation and the consequences for SCA, in addition to distinguishing between the types of non-technical innovation identified by the OECD (2005).

5.2. Implications for practice

Managers must be aware of the importance of non-technical innovation in terms of organizational and marketing innovation. Capabilities play a key role in the occurrence of non-technical innovation. Specifically, managers should pay special attention to organizational memory and learning-based capabilities, given that they are determinants of both organizational and marketing innovation. Thus, both static and dynamic knowledge capabilities need to be considered when non-technical innovation is desired. Non-technical innovation is also an important source of SCA. This study has shown that both organizational and marketing innovations strongly favor the development of SCA. Therefore, given the empirical evidence presented here, managers should strive to understand innovation not only from a technical perspective, but also from a non-technical point of view.

Table 4
Structural equation model results.

	Standardized coefficient	t-value	Conclusion
Hypothesized links			
Organizational memory → organizational innovation	0.183***	2.891	H1a supported
Organizational memory → marketing innovation	0.416****	3.772	H1b supported
Learning capabilities → organizational innovation	0.748****	13.743	H2a supported
Learning capabilities → marketing innovation	0.296****	2.598	H2b supported
Organizational innovation → SCA	0.449****	5.662	H3a supported
Marketing innovation → SCA	0.278***	3.178	H3b supported
Non-hypothesized links			
Organizational learning → organizational memory	0.759****	16.914	
Size → SCA	0.137**	2.003	
Age → SCA	0.019 n.s	0.489	
Uncertainty → SCA	−0.073n.s	1.086	
Goodness-of-fit statistics			
R^2	0.477*		
GoF	0.596		

n.sNon significant.
**** $p<0.001$.
*** $p<0.01$.
** $p<0.05$.
* $p<0.1$.

5.3. Study limitations

The study has several limitations. First, the conceptualization of marketing innovation used in this study is somewhat narrow. Although we follow the OECD (2005) guidelines, the implementation of other innovative practices regarding, for example, the brand, reputation or image of a company is not considered. This is a limitation of our study given that these may have a major influence on SCA. Second, given the complexity of the proposed causal model and the number of hypotheses, we have not considered the potential mediating role that non-technical innovation can play in the relationship between knowledge-based capabilities and SCA. The statistical results reveal that organizational memory and learning have an indirect effect on SCA via non-technical innovation. Therefore, future empirical studies should analyze this issue in greater detail to clarify whether the effect of capabilities on SCA is direct or is mediated by other variables such as non-technical innovation. Third, the cross-sectional nature of the data prevents full consideration of the dynamic character of learning capabilities and innovation and does not allow conclusions about the causality between constructs. Future studies should use longitudinal data for a more accurate evaluation of causality in the relationships among knowledge- and learning-based capabilities, non-technical innovation and SCA and consideration of dynamic components. Finally, the scant theoretical treatments of non-technical innovation prompted us to use a statistical technique with an exploratory instead of a confirmatory nature. This study can be considered as a first step towards a more complete understanding of the effect of capabilities on non-technical innovation and subsequently on SCA.

6. Conclusion

Building on CBV, this study demonstrates that organizational memory and learning capabilities are important antecedent factors in organizational and marketing innovation, both of which positively affect achievement of SCA.

Additional efforts in strategic and marketing research are required to gain a better understanding of the phenomenon of non-technical innovation, which can offer SCA, as technical innovation does. Such efforts are especially required for marketing innovation. Recent advances in the study of organizational innovation with regard to its conceptualization (Armbruster et al., 2008; Birkinshaw & Mol, 2006; Hamel, 2006) and driving factors (Camisón & Villar-López, 2010; Mol & Birkinshaw, 2009) need to be achieved for marketing innovation at the same level.

There are many lines of research that could extend knowledge gained in this study about the relationship among knowledge-based capabilities, non-technical capabilities and SCA. First, it would be interesting to investigate if there are differences in model results depending on the type of industry in which a firm operates. For example, a multi-group analysis would help to reveal if non-technical innovation is more prevalent in service firms than in manufacturing firms. Second, future research should examine the moderating role of organizational age in the proposed conceptual model. Are younger firms more innovative in spite of being less developed than older firms in terms of organizational memory and learning capability? Third, it would be especially relevant to compare the potential of organizational memory and learning capability as drivers of both technical and non-technical innovation and to identify which leads to greater SCA. Finally, future studies should focus on the role of other important organizational capabilities that drive non-technical innovation, such as absorptive capacity and knowledge management capability.

Appendix. Scales and items

Organizational memory

Evaluate your firm's organizational memory compared to the average for your competitors on a scale from 1 to 7, where 1 denotes *Much worse* and 7 denotes *Much better*.

OM1	My firm possesses valuable knowledge about current clients and markets
OM2	My firm knows the best clients by profitability and size, as well as their consumer profiles
OM3	My firm possesses valuable knowledge about current and potential competitors
OM4	My firm has valuable knowledge available in advance about future trends in the business*
OM5	My firm has valuable financial knowledge available in its accounting and computer systems
OM6	My firm possesses valuable knowledge about the best processes and systems for organization of labor
OM7	In my firm, employees accumulate valuable implicit knowledge
OM8	The knowledge available in my firm is diverse
OM9	My firm has experience in technological fields and businesses prioritized by strategy, which enables it to remain at the technological frontier of the business

Notes: *Item not included in comparison of the structural model.

Learning capabilities

Evaluate your firm's learning capabilities compared to the average for your competitors on a scale from 1 to 7, where 1 denotes *Much worse* and 7 denotes *Much better*.

Item	Description
	Dimension 1: Managerial commitment (MC)
LC1	The firm's management looks favorably on carrying out changes in any area to adapt to and/or keep ahead of new environmental situations
LC2	Employee learning capability is considered a key factor in the firm
LC3	Innovative ideas that work are rewarded by the firm
	Dimension 2: Systems perspective (SP)
LC4	All employees have generalized knowledge regarding the firm's objectives
LC5	All parts that make up the firm (departments, sections, work teams and individuals) are well aware of how they contribute to achieving the overall objectives
LC6	All parts that make up the firm are interconnected and work together in a coordinated fashion
	Dimension 3: Openness and experimentation (OE)
LC7	The firm promotes experimentation and innovation as a way of improving the work process
LC8	The firm follows up what other firms in the sector are doing and adopts practices and techniques it believes to be useful and interesting
LC9	Experiences and ideas provided by external sources (advisors, customers, training firms, etc.) are considered a useful instrument for firm learning
LC10	Part of the firm's culture is that employees can express their opinions and make suggestions regarding procedures and methods in place for carrying out tasks
	Dimension 4: Knowledge transfer (TR)
LC11	Errors and failures are always discussed and analyzed by the firm at all levels
LC12	Employees have the chance to talk among themselves about new ideas, programs and activities that might be of use to the firm

Organizational innovation

Indicate the extent to which your company has recently used the following organizational instruments for the first time on a scale from 1 to 7, where 1 denotes *Never* and 7 denotes *Very often*.

Item	Description
Dimension 1: Organizational innovations in business practices	
OI1	Use of databases of best practices, lessons and other knowledge
OI2	Implementation of practices for employee development and improving worker retention
OI3	Use of quality management systems
Dimension 2: Innovations in workplace organization	
OI4	Decentralization in decision-making
O15	Use of interfunctional working groups
OI6	Flexible job responsibilities
Dimension 3: New organizational methods for external relations	
OI7	Collaboration with customers
OI8	Use of methods for integration with suppliers
OI9	Outsourcing of business activities

Marketing innovation

Indicate the extent to which your company has recently used marketing methods that involve significant changes in the following aspects for the first time, using a scale from 1 to 7, where 1 denotes *Never* and 7 denotes *Very often*.

Item	Description
IM1	Differentiation of the product by design
IM2	Distribution of the product
IM3	Publicity, promotion and public relations for the product
IM4	Price policies

Sustained competitive advantage

Evaluate your firm's sustained competitive advantage compared to the average for your competitors on a scale from 1 to 7, where 1 denotes *Much worse* and 7 denotes *Much better*.

Item	Description
Dimension 1: Economic performance	
OP1	Mean economic profitability (pre-interest and pre-tax profits/total net assets)
OP2	Mean financial profitability (after-tax profits/own funds)
OP3	Mean sales profitability (pre-interest and pre-tax profits/sales)
OP4	Annual sales growth
OP5	Market share gain
Dimension 2: Satisfaction performance	
OP6	Labor productivity
OP7	Customer satisfaction
OP8	Others stakeholders' satisfaction
OP9	Strength of competitive position

Environmental uncertainty

When responding to the following items, consider uncertainty in the firm's national environment. Evaluate each item on a scale from 1 to 7, where 1 denotes *Very low* and 7 denotes *Very high*.

Items	Description
Dimension 1: Dynamism	
E1	Frequency of change in the most relevant areas of the environment
E2	Instability of demand
E3	The degree of radical change in market structure
E4	Frequency of product innovation
E5	Customer pressure shown through radical changes in attitude
E6	Unpredictability of challenges presented by changes in the environment
E7	Degree of radical change in technology
E8	Degree of social, political and cultural changes that influence environmental turbulence
Dimension 2: Munificence	
E9	Resource abundance
E10	Growth of sales in the industry
E11	Implicit risk in the activity
E12	Degree of environmental hostility
Dimension 3: Complexity	
E14	Number of competitors in the industry
E15	Diversity of consumers in terms of their purchasing habits
E16	Diversity of suppliers
E17	Extent of the presence of differentiated products within the industry
E18	Technological diversity

References

Amit, R., & Schoemaker, P. J. H. (1993). Strategic assets and organizational rent. *Strategic Management Journal*, *14*, 33–46.

Aragón-Correa, J. A., García-Morales, V., & Cordón-Pozo, E. (2007). Leadership and organizational learning's role on innovation and performance: Lessons from Spain. *Industrial Marketing Management*, *36*, 349–359.

Armbruster, H., Bikfalvi, A., Kinkel, S., & Lay, G. (2008). Organizational innovation: The challenge of measuring non-technical innovation in large-scale surveys. *Technovation*, *28*, 644–657.

Armbruster, H., Kirner, E., Lay, G., Szwejczewski, M., Corita, B., Leguehennec, C., et al. (2006). *Patterns of organisational change in European industry (PORCH). Ways to strengthen the empirical basis of research and policy*Kalrsuhe: Fraunhofer Institute of Systems and Innovation Research.

Barney, J. (1986). Strategic factor markets: Expectations, luck and business strategy. *Management Science*, *32*(10), 1231–1241.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*, 99–120.

Birkinshaw, J., & Mol, M. (2006). How management innovation happens. *MIT Sloan Review*, *47*(4), 81–88.

Calantone, R. J., Cavusgil, S. T., & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management*, *31*, 515–524.

Camisón, C. (1999). La medición de los resultados empresariales desde una óptica estratégica: Construcción de un instrumento a partir de un estudio delphi y aplicación a la empresa industrial española en el período 1983–96. *Estudios Financieros*, *62*, 201–265.

Camisón, C. (2004). On how to measure managerial and organizational capabilities. *Management Research*, *3*, 27–48.

Camisón, C., Boronat, M., & Villar, A. (2010). Technical strategic alliances and performances: The mediating effect of knowledge-based competencies. *Journal of Strategic Management Education*, *6*, 1–22.

Camisón, C., Lapiedra, R., Segarra, M., & Boronat, M. (2004). A meta-analysis of innovation and organizational size. *Organization Studies*, *25*(3), 331–361.

Camisón, C., & Villar-López, A. (2010). An examination of the relationship between manufacturing flexibility and firm performance: The mediating role of innovation. *International Journal of Operations and Production Management*, *30*, 853–878.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment.* Newbury Park, CA: Sage Publications.

Céspedes Lorente, J. J., Jerez Gómez, P., & Valle Cabrera, R. (2005). Las prácticas de recursos humanos de alto rendimiento y la capacidad de aprendizaje organizativo. Incidencia e implicaciones. *Cuadernos de Economía y Dirección de la Empresa*, *24*, 29–56.

Chen, H. H., Lee, P. Y., & Lay, T. J. (2009). Drivers of dynamic learning and dynamic competitive capabilities in international strategic alliances. *Journal of Business Research*, *62*, 1289.

Chen, Y. S., Lin, M. J. J., & Chang, C. H. (2009). The positive effects of relationship learning and absorptive capacity on innovation performance and competitive advantage in industrial marketing. *Industrial Marketing Management*, *38*, 152–158.

Chin, W. W. (1998). The partial least squares approach to structural equation modelling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Mahwah, NJ: Lawrence Erlbaum Associates.

Chin, W. W. (1998). Issues and opinion on structural equation modelling. *MIS Quarterly*, *22*(1) xvii–xv.

Chin, W. W. (2001). *PLS-graph User's Guide. Version 3.0.* Houston, TX: University of Houston.

Chin, W. W., & Gopal, A. (1995). Adoption intention in GSS: Relative importance of beliefs. *Database Advances*, *26*, 42–64.

Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partial least squares. In R. Hoyle (Ed.), *Statistical strategies for small samples research* (pp. 307–341). Newbury Park, CA: Sage Publications.

Conant, J. S., Mokwa, M., & Varadarajan, R. P. (1990). Strategic types, distinctive marketing competencies and organizational performance: A multiple measures-based study. *Strategic Management Journal*, *11*, 365–374.

Daft, R. L. (1978). A dual-core model of organizational innovation. *Academy of Management Journal*, *21*, 193–210.

Damanpour, F., & Aravind, D. (*in press*). Managerial innovation: Conceptions, processes, and antecedents. *Management and Organization Review,* doi: 10.1111/j.1740-8784.2011.00233.x.

Damanpour, F., & Schneider, M. (2006). Phases of the adoption of innovation in organizations: Effects of environment, organization, and top managers. *British Journal of Management*, *17*, 215–236.

Damanpour, F., Szabat, K. A., & Evan, W. M. (1989). The relationship between types of innovation and organizational performance. *Journal of Management Studies*, *26*(6), 587–602.

Damanpour, F., & Wischnevsky, J. D. (2006). Research on organizational innovation: Distinguishing innovation-generating from innovation-adopting organizations. *Journal of Engineering and Technology Management*, *23*, 269–291.

Das, T. K., & Teng, B. (2000). A resource-based theory of strategic alliances. *Journal of Management*, *26*(1), 31–61.

Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, *58*(4), 37–43.

Day, G. S., & Wensley, R. (1988). Assessing advantage: A framework for diagnosing competitive superiority. *Journal of Marketing*, *52*(April), 1–20.

Dervitsiotis, K. N. (1998). The challenge of managing organizational change: Exploring the relationship of re-engineering, developing learning organizations and total quality management. *Total Quality Management*, *9*, 109–122.

Dess, G. G., & Beard, D. W. (1984). Dimensions of organizational task environments. *Administrative Science Quarterly*, *29*, 52–73.

Diamantopoulus, A., & Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research*, *38*, 269–277.

Ebbers, J. J., & Wijnberg, N. W. (2009). Organizational memory: From expectations memory to procedural memory. *British Journal of Management*, *20*, 478–490.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, *21*, 1105–1121.

Eisenhardt, K. M., & Schoonhoven, C. B. (1996). Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms. *Organization Science*, *7*, 136–150.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modelling.* Akron, OH: The University of Akron.

Fiedler, M., & Welpe, I. (2010). How do organizations remember? The influence of organizational structure on organizational memory. *Organization Studies*, *31*, 381–407.

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39–50.

Garavan, T. N., & McCarthy, A. (2008). Collective learning processes and human resource development. *Advances in Developing Human Resources*, *10*, 451.

Goh, S., & Richards, G. (1997). Benchmarking the learning capability of organizations. *European Management Journal*, *15*, 575–583.

Grant, R. M. (1991). The resource-based theory of sustained competitive advantage: Implications for strategy formulation. *California Management Review*, *33*, 114–135.

Hamel, G. (2006). The why, what and how of management innovation. *Harvard Business Review*, 72–84 February.

Hamel, G. (2009). Management innovation. *Leadership Excellence*, *26*(5), 5.

Hanvanich, S., Sivakumar, K., & Hult, G. T. M. (2006). The relationship of learning and memory with organizational performance: The moderating role of turbulence. *Journal of the Academy of Marketing Science*, *34*, 600–612.

Hedberg, B. (1981). How organizations learn and unlearn. In P. Nystrom, & W. Starbuck (Eds.), *Handbook of organizational design*, *Vol. 1*. (pp. 3–27)Oxford: Oxford University Press.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*, 195–204.

Hult, G. T. M., & Ferrell, O. C. (1997). Global organizational learning capacity in purchasing: Construct and measurement. *Journal of Business Research*, *40*, 97–111.

Hurley, R., & Hult, T. M. (1998). Innovation, market orientation, and organizational learning: An integration and empirical examination. *Journal of Marketing*, *62*, 42–54.

Jerez-Gómez, P., Céspedes-Lorente, J., & Valle-Cabrera, R. (2005). Organizational learning capability: A proposal of measurement. *Journal of Business Research*, *58*, 715–725.

Kamasak, R., & Bulutlar, F. (2010). The influence of knowledge sharing on innovation. *European Business Review*, *22*, 306–317.

Kimberly, J. R., & Evanisko, M. (1981). Organizational innovation: The influence of individual, organizational and contextual factors on hospital adoption of technological and administrative innovations. *Academy of Management Journal*, *24*, 689–713.

Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Journal*, *21*, 1055–1080.

Kleinbaum, D. G., Kupper, L. L., & Muller, K. E. (1988). *Applied regression analysis and other multivariate analysis methods.* Boston, MA: PWS-Kent Publishing Company.

Lin, R. J., Chen, R. H., & Chiu, K. K. S. (2010). Customer relationship management and innovation capability: An empirical study. *Industrial Management & Data*, *110*, 111–113.

Mavondo, F. T., Chimhanzi, J., & Stewart, J. (2005). Learning orientation and market orientation. Relationship with innovation, human resource practices and performance. *European Journal of Marketing*, *39*, 1235–1263.

Mazzanti, M., Pini, P., & Tortia, E. (2006). Organizational innovations, human resources and firm performance. The Emilia–Romagna food sector. *The Journal of Socio-Economics*, *35*, 123–141.

Mol, M. J., & Birkinshaw, J. (2009). The sources of management innovation: When firms introduce new management practices. *Journal of Business Research*, *62*, 1269–1280.

Nahm, A. Y., Vonderembse, M. A., & Koufteros, X. A. (2003). The impact of organizational structure on time-based manufacturing and performance. *Journal of Operations Management*, *21*, 281–306.

Nasution, H. N., & Mavondo, F. T. (2008). Organisational capabilities: Antecedents and implications for customer value. *European Journal of Marketing*, *42*, 477–501.

Nasution, H. N., Mavondo, F. T., Matanda, M. J., & Ndubisi, N. O. (2011). Entrepreneurship: Its relationship with market orientation and learning orientation and as antecedents to innovation and customer value. *Industrial Marketing Management*, *40*, 336–345.

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change.* Cambridge, MA: Belknap Press.

Nunnally, J. (1978). *Psychometric theory.* New York: McGraw-Hill.

OECD (2005). *Oslo manual. Guidelines for collecting and interpreting innovation data* (3 rd ed.). Paris: OECD EUROSTAT.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational. Research: Problems and prospects. *Journal of Management*, *12*, 531–544.

Polanyi, M. (1962). *Personal knowledge: Towards a post-critical philosophy* (corrected edition). Chicago, IL: The University of Chicago Press.

Ren, L., Xie, G., & Krabbendam, K. (2010). Sustainable competitive advantage and marketing innovation within firms. A pragmatic approach for Chinese firms. *Management Research Review*, *33*, 79–89.

Rogers, E. M. (1995). *Diffusion of innovations.* New York: The Free Press.

Rust, R. T., Ambler, T., Carpenter, G. S., Kumar, V., & Srivastava, R. K. (2004). Measuring marketing productivity: Current knowledge and future directions. *Journal of Marketing*, *68*, 76–89.

Sinkula, J. M., Baker, W. E., & Noordewier, T. (1997). A framework for market-based organizational learning: linking values, knowledge, and behaviour. *Academy of Marketing Science*, *25*, 305–319.

Slater, S. F., & Naver, J. C. (1995). Market orientation and the learning organization. *Journal of Marketing*, *59*(3), 63–75.

Staw, B. M., & Epstein, L. S. (2000). What bandwagons bring: Effects of popular management techniques on corporate performance, reputation, and CEO pay. *Administrative Science Quarterly*, *45*, 523–556.

Storey, C., & Kelly, D. (2002). Innovation in services: The need for knowledge management. *Australasian Marketing Journal*, *10*, 59–70.

Teece, D. J., Pisano, G., & Schuen, A. (1997). Dynamic capabilities a strategic management. *Strategic Management Journal*, *18*(7), 509–533.

Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., & Lauro, C. (2005). PLS path modelling. *Computational Statistics and Data Analysis*, *48*, 159–205.

Tsai, H. M. T. (2008). The influences of organizational memory and market information on product innovation. *Proceedings of the 4th IEEE International Conference on Management of Innovation and Technology* (pp. 397–401)., doi:10.1109/ICMIT.2008.4654397.

Walker, R. M., Damanpour, F., & Devece, C. A. (2010). Management innovation and organizational performance: The mediating effect of performance management. *Journal of Public Administration Research and Theory*, *21*, 367–387.

Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, *16*, 57–91.
Weerawardena, J. (2003). Exploring the role of market learning capability in competitive strategy. *European Journal of Marketing*, *37*, 407–429.
Weerawardena, J., O'Cass, A., & Julian, C. (2006). Does industry matter? Examining the role of industry structure and organizational learning in innovation and brand performance. *Journal of Business Research*, *59*, 37–45.
Weerawardena, J., & Sullivan-Mort, G. (2001). Learning, innovation and competitive advantage in not-for-profit age care marketing: A conceptual model and research propositions. *Journal of Nonprofit & Public Sector Marketing*, *9*(3), 53–73.
Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*, 171–180.
Williams, L., Cote, J., & Buckley, M. R. (1989). Lack of method variance in self-reported affect and perceptions at work: Reality or artefact? *Journal of Applied Psychology*, *74*, 462–468.

César Camisón is Senior Lecturer in Strategic Management at Valencia University, Valencia, Spain. His main research interest lies in strategic management, especially competitiveness, size and SMEs, internationalization and innovation strategies, strategic alliances and quality management. He has published in academic journals such as *Organization Studies*, *Environment and Planning A*, *Journal of Business Research*, *International Marketing Review*, *Journal of Small Business Management*, *Scandinavian Management Journal* and *British Journal of Management*.

Ana Villar-López is Assistant Professor (PhD) in Strategic Management at Valencia University, Valencia, Spain. She holds a PhD in Business Management. Her main research interests are organizational forms, innovation strategies, internationalization, and SMEs. She has published in scientific journals such as *International Marketing Review*, *Journal of Small Business Management*, *International Journal of Operations & Production Management*, *Universia Business Review* and *British Journal of Management*.