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Abstract

Purpose – The purpose of this paper is to analyze the roles played by organizational learning (OL) and innovation in organizations immersed in the processes of adaptation and strategic fit in dynamic and turbulent environments. The authors analyze whether OL and innovation act as sources of strategic fit, and whether strategic fit positively affects performance.

Design/methodology/approach – The authors use data from a survey of a representative sample of 204 respondents from European firms active in high-technology sectors (response rate: 10.42 percent) and structural equation modeling (using the EQS 6.1 program) to undertake a transversal study.

Findings – The model confirms that OL and the capacity to innovate positively influence managers' decisions to adapt their organizations to changes in dynamic environments. The achievement of strategic fit, in turn, improves organizational performance. The authors propose considering the innovation climate as a facilitator of new product and process development, although the innovation climate is not a direct antecedent of fit.

Research limitations/implications – This study is limited by the fact that the analysis is cross-sectional and by the fact that all measures used are based on managers' perceptions.

Practical implications – Managers should create and support an entrepreneurial culture that stresses continuous learning. They should also foster programs aimed at developing abilities, and promote the development of capabilities that facilitate acceptance of organizational change. Investments in building certain capabilities, such as OL and the capacity to innovate, are strategically justified, especially in turbulent environments.

Originality/value – This study is one of the first to investigate the complex interactions among OL, innovation, strategic fit, and performance. The results improve our understanding of the links between strategic fit and performance.

Keywords Innovativeness, Strategic change, Organizational performance, Capacity to innovate, Strategic fit

Paper type Research paper

1. Introduction

The concept of strategic fit is a crucial issue in the organization and management literature (Drazin and Van de Ven, 1985; Venkatraman, 1989). The idea of strategic fit is rooted in contingency theory (Burns and Stalker, 1966), as it focusses on performance as a function of the alignment between an organization and its environment (contingency), its strategy, and its characteristics (Venkatraman, 1989; Peng-Cui *et al.*, 2014). Researchers have long debated whether the fit between an organization's strategy and its environment has an influence on the organization's end results (Ginsberg and Venkatraman, 1985; Venkatraman and Prescott, 1990; Siggelkow, 2001, 2002). More recent studies have analyzed the relationship between strategic fit and performance in relation to such factors as human resources (Hsieh and Chen, 2011), knowledge management (Murray *et al.*, 2009), new product development (NPD; Harmancioglu *et al.*, 2009), marketing strategy

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(Slater *et al.*, 2010), service operations (Lillis and Sweeney, 2013), and organizational alliances (Murray and Kotabe, 2005). These studies try to guide organizations in their attempts to adapt, cultivate, and enable strategic fit, and thereby create value and enhance firm performance.

Along these lines, organizational learning (OL) and innovation have often been analyzed as capabilities that can facilitate the achievement of competitive advantage and improve performance (Hung and Chou, 2013). In fact, nearly all firms that compete in dynamic environments view OL and innovation as fundamental organizational capabilities. However, the literature has not paid specific attention to the complex interactions among OL, innovation, and the strategic fit between the firm and its environment. Therefore, in-depth examinations of how OL and innovation can positively influence managers' decision-making when they face a need to adapt to dynamic environments are lacking. In particular, we are unaware of how such processes contribute to competitive advantages. OL and innovation may be key in terms of the resources and capabilities that companies must develop to ensure strategic fit and the mechanisms that enable such fit.

We seek to begin to fill this gap through an empirical study that analyzes the roles of OL and innovation as antecedents of strategic fit, and the influence of fit on organizational performance. In this study, strategic fit is defined in terms of a change that is needed and implemented. Innovation is defined as a two-phase process involving "openness to innovation" (Zaltman *et al.*, 1973, p. 64), or innovativeness, and the implementation of innovation (Hurley *et al.*, 2005), or the "capacity to innovate."

This study has two goals. First, we wish to extend the extant literature by exploring the relationship between strategic fit and performance, as we lack theoretical and empirical frameworks showing how strategic fit between the environment and the firm contributes to competitive advantage. Second, we aim to identify the capabilities and mechanisms that facilitate the achievement of strategic fit in organizations. To achieve these goals, we analyze OL and innovation, which we measure using two variables – innovativeness and capacity to innovate – as antecedents of strategic fit. We rely on data from a sample of 204 European firms active in high-technology sectors. Our results confirm the presence of positive relationships among OL, capacity to innovate, strategic fit, and organizational performance. However, we do not find evidence of a relationship between innovativeness and strategic fit.

This paper makes three key contributions to the extant literature. First, although the relationship between strategic fit and performance has received some attention from management researchers (Venkatraman and Prescott, 1990; Siggelkow, 2001), there has been little focus on perceptions of the strategic process. In this regard, we develop and test a perceptual measure of strategic fit in order to study the process of analyzing, planning, and implementing strategy in response to changes in the environment. Second, we contribute to contingency theory by analyzing OL, innovativeness, and the capacity to innovate as key tools for cultivating and building strategic fit, which in turn enhances organizational performance. This allows us to better understand the mechanisms that facilitate fit between the environment and the firm's strategy. Third, this paper contributes valuable empirical evidence to widely accepted theoretical frameworks, such as the dynamic capabilities view (see, e.g. Helfat and Peteraf, 2015; Teece, 2007). Our results point to organizational contexts that lead firms to sustained competitive advantages through a focus on strategic fit. In this regard, several key factors, such as OL, innovativeness, and capacity to innovate, can be viewed as antecedents of dynamic capabilities to respond to competitive environments, and as antecedents of a desirable alignment between external and internal forces.

The paper is structured as follows. In Section 2, we present an overview of the theory related to strategic fit, OL, and innovation. We then justify our hypotheses and research model. In Section 3, we present our methodology, after which we provide the results of the analysis in Section 4. Finally, we discuss the results, theoretical implications, conclusions, and implications for management, as well as the limitations of our study and opportunities for future research.

2. Theoretical background, hypothesis, and model

2.1 Literature review

Strategic fit. Strategic fit is defined as "the degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component" (Nadler and Tushman, 1980, p. 40). When viewed as a link between the firm and its external environment, strategic fit indicates how the organization adapts, changes, and reconfigures itself to achieve a state of fit (Venkatraman, 1989). Errors in these actions can prevent the firm from responding appropriately to market changes (Zajac *et al.*, 2000; Carmeli and Sheaffer, 2008), thereby incurring risk and reducing performance. As the firm must continuously adapt to dynamic environments, the capability to adapt becomes a resource that permits the firm to create competitive advantages and helps ensure long-term growth (Murray *et al.*, 2009).

The concept of strategic fit is related to strategic change, as the latter involves modifying how firms perceive their position in terms of fit and internally alter that position to achieve the closest fit with the environment surrounding them (Bourgeois, 1980). Many studies agree that organizational success is based on the dynamic and evolutionary nature of the fit between an organization and its environment (Gabrielsson *et al.*, 2012; Zajac *et al.*, 2000). This perspective suggests that organizations should seek a means to achieve alignment with competitive, technological, and social changes (Kraatz and Zajac, 2001), especially in terms of adapting structures, policies, resources, and activities to environmental conditions (Weick, 1976).

Contingency variables can be external or internal. Research on strategic change and strategic fit distinguishes between two dimensions of fit – external fit (Venkatraman and Camillus, 1984; Venkatraman and Prescott, 1990), which reflects the fit between the organization's strategy and its environment; and internal fit (Porter, 1996; Vorhies *et al.*, 2003), which refers to the alignment between the organization and its strategy (Carmeli *et al.*, 2010). In this study, we analyze both aspects of fit by conceptualizing strategic change in terms of a set of organizational and environmental factors. In formulating our definition and given the extant literature, we understand the content of strategy (Porter, 1980) as the organization's products, services, target audience, abilities, capacities, and investments in innovation and technology (Doz *et al.*, 2000; Makadok, 2001). In addition, by analyzing the strategy process as the pattern that continually aligns organizational and environmental elements (Mintzberg, 1979; Chakravarthy, 1982), we base our argument on the model proposed by Zajac *et al.* (2000), in which perceptions of changes in environmental factors highlight a need for strategic changes within organizations. The differences between the strategic changes perceived as necessary, and those planned and implemented by managers relate to fit in the planning of strategy (external fit) and fit in the implementation of strategy (internal fit). Alignment between these two types of fit influences the strategic fit or lack thereof, with repercussions for the organization's performance (Tamayo-Torres *et al.*, 2012). Numerous studies stress the

important role played by managers' perceptions in adaptation and fit processes (Eisenhardt and Martin, 2000; Barrales-Molina *et al.*, 2010).

OL. OL may be defined as the extent to which an organization generates, disseminates, and retains knowledge about itself (King *et al.*, 2008). Such practices as training, access to open-learning centers, e-learning systems, job rotation, involvement in multi-disciplinary teams, and access to career-planning tools can interact synergistically to improve organizational performance (Di Millia and Birdi, 2010), regardless of whether the processes occur individually or collectively.

OL can be understood as a process in which organizational members are stimulated to continuously strive for new approaches of thinking, and to acquire and share knowledge (Argyris and Schön, 1978). It can involve knowledge acquisition, information distribution, storage of collective information, interpretation, and memorization (Templeton *et al.*, 2002). Some authors use the terms acquisition, refinement, creation, and implementation (Wang and Ahmed, 2003). OL is composed of the set of processes oriented toward generating both internal and external knowledge of the environment. Internal learning can arise through such methods as research and development, training, and production experience, whereas external learning occurs outside the organization's boundaries and is then integrated into the organization's internal knowledge base. This learning can occur individually or throughout the organization as a whole (Di Millia and Birdi, 2010).

Such knowledge creation, which facilitates adaptation, supports the proposition that OL contributes to the advancement of capabilities that can support the development of competitive advantages (Eisenhardt and Martin, 2000; Zollo and Winter, 2002). OL integrates, builds, and reconfigures strategic factors to enable the organization to address rapidly changing environments (Teece *et al.*, 1997). In other words, firms in today's ever-changing marketplace use OL to learn to respond to their customers' needs.

Innovation: innovativeness and capacity to innovate. By definition, innovation focusses on the development of new products, processes, and/or markets (Schumpeter, 1934). Innovation has been defined as the adoption of an idea or behavior that is new to the organization (Van de Ven, 1986), and may pertain to a product, service, method, device, system, policy, or program (Damanpour and Gopalakrishnan, 2001). Innovation can enable organizations to adapt to those changes in their environments that leave them only two alternatives: to innovate or to die. The introduction of products and processes into the organization enables the organization to develop a series of routines that facilitate its adaptation to changes in the dynamic environment (Dixon *et al.*, 2014). Innovation has been widely classified (Damanpour *et al.*, 2009) using binary systems that distinguish between radical and incremental, product and process, continuous and discontinuous, or technical and administrative. Furthermore, innovation is understood as a phenomenon with two different phases: initiation and implementation. The initiation phase entails "openness to innovation" (Zaltman *et al.*, 1973, p. 64), and depends on whether the people within the organization accept or resist innovation. Some authors refer to this stage as innovativeness or an innovative business culture (Hurley and Hult, 1998; Hult *et al.*, 2002), and it is commonly viewed as a variable that reflects the culture, values, and principles that guide the innovation-related behavior and decisions of the organization's members.

Hurley *et al.* (2005, p. 281) refer to the second phase using the term "capacity to innovate," which they define as the "degree of innovations actually adopted by the organization." This concept is connected to the decision-making capabilities and the

adoption of innovative behavior or, in other words, to the ability to successfully implement innovative ideas, processes, or products. This concept encompasses the materialization of ideas in decisions. In this paper, we understand "capacity to innovate" as referring to outcomes of technological innovation in products, services, and processes (Miller *et al.*, 2007). This concept is closely related to NPD, which is one of the most consolidated capabilities in firms (Eisenhardt and Martin, 2000; Ambrosini *et al.*, 2009; Schilke, 2014; Barrales-Molina *et al.*, 2015).

We analyze innovation from the perspective of both dimensions – innovativeness and capacity to innovate – in an attempt to generate contributions of greater value to the literature.

2.2 Hypotheses

OL and innovation. OL inspires new knowledge and ideas, thereby increasing the organization's potential to understand and apply knowledge and ideas (García-Morales *et al.*, 2007). It assists in the development of organizational intelligence and enhances receptivity to new ideas among members, as it usually involves a participatory decision-making process. This procedure reinforces the organization's involvement in and commitment to innovating, to supporting creativity, and to enhancing the organization's innovative culture (Hurley and Hult, 1998). The greater the participation in decision making, the less resistance there will be to change and the greater the willingness to adopt new technologies.

Innovation requires the transformation and exploitation of existing knowledge (Shahin and Zeinali, 2010), which is combined with knowledge acquired from outside the organization and disseminated among organizational members, usually through the exchange of knowledge and information. This process of knowledge dissemination permits the organization and its members to learn from others' experiences in order to create new ideas. Therefore, a good climate for learning, a good work environment, and managerial support of learning foster an environment favorable for the acceptance of new work processes, as well as new ways of thinking and acting (Martins and Terblanche, 2003).

An organization that wishes to create a climate favorable for innovation should encourage learning among its members. Such learning can be achieved by analyzing the environment and products of competitors, or by developing training programs for workers. Along these lines, various studies have analyzed the positive relationship between learning and a culture of innovation (Calantone *et al.*, 2002; Jimenez-Jimenez and Sanz-Valle, 2011). We therefore formulate the following hypothesis:

H1a. OL is positively related to innovativeness.

OL depends on the extent to which an organization is capable of absorbing existing knowledge (Cohen and Levinthal, 1990). The stronger a firm's capabilities in this area, the greater its ability to create added value in its processes, thereby improving its ability to successfully undertake new projects. Information is fundamental to innovation. Firms that wish to innovate should be able to identify valuable information that can be assimilated and used in developing new ideas. Tacit knowledge exchange between workers oriented toward transforming assets generates the capacity to execute new ideas and create new products, services, or processes (Santos Vijande *et al.*, 2010). Furthermore, we assume that an organization committed to learning enjoys more state-of-the-art technologies (Calantone *et al.*, 2002; García-Morales *et al.*, 2007), which

enhance the organization's innovation capability in terms of implementing new ideas, products, and processes.

Innovation and OL are closely linked. The positive relationship between learning and innovation capability has been widely studied in the academic literature (Calantone *et al.*, 2002; Hurley and Hult, 1998; Hult *et al.*, 2004; Ju *et al.*, 2006; Santos Vijande *et al.*, 2010; Wang and Wang, 2012). We thus propose the following hypothesis:

H1b. OL is positively related to the capacity to innovate.

OL, innovation, and strategic fit. To the best of our knowledge, no empirical studies exist that focus on whether OL and innovation facilitate strategic fit. In dynamic environments, a learning organization "improves continually by rapidly creating and refining the capabilities needed for future successes" (Wick and Leon, 1995, p. 299). For this reason, OL has been accepted in the past decade as an important source of competitive advantage. It justifies the emergence of different capabilities and changes in structures and routines by posing questions about the existing knowledge in the organization. Tippins and Sohi (2003) suggest that organizations that learn the most and that best renew their knowledge can identify and respond to market changes faster and more cheaply than the competition for two reasons. First, they are better able to understand competitors' strengths and weaknesses, and they learn from their competitors' successes and failures. Second, they use this knowledge to understand and anticipate customer needs (Calantone *et al.*, 2002).

The more an organization learns, the more knowledge and capabilities it will have to perceive market needs (Alegre and Chiva, 2008). It will also be better able to understand the effects of environmental changes, and to respond to them more quickly and effectively than the competitors (Tippins and Sohi, 2003), thereby achieving strategic fit through the process of change. OL promotes the constant evolution and adaptation of the organization's members, facilitating dissemination of those firm values that foster the desire to change (Rhee *et al.*, 2010). For these reasons, we formulate the following hypothesis:

H2. OL is positively related to strategic fit.

Although the importance of the innovation climate has been analyzed in the literature, its influence on the process of strategic fit has not been sufficiently studied on the empirical level (Burton *et al.*, 2004). Managerial support for innovative initiatives, and its acceptance of possible errors or failures during the innovation process are determining factors in the emergence of an innovative culture. Vigoda-Gadot *et al.* (2005) highlight creativity, risk taking, openness to change, future orientation, and proactiveness as dimensions of innovativeness. An organization that wishes to act proactively and attempts to respond to market changes should facilitate cognitive processes for perceiving, planning, and implementing change-oriented decisions, thereby encouraging the strategic-fit process. Innovativeness has thus been identified as a key factor in organizations' long-term success (Baker and Sinkula, 2002). In this regard, Tuominen *et al.* (2004) report a positive relationship between adaptability and innovativeness in industrial manufacturing companies. On the basis of this discussion, we formulate the following hypothesis:

H3a. Innovativeness is positively related to strategic fit.

The capacity to innovate has become a key element in strategic planning in organizations interested in new technologies, products, and processes (Shahin and

Zeinali, 2010). It permits organizations to respond to market demands by introducing new products or using new technologies. Thus, although the capacity to innovate is related to the number of innovations implemented, it is also a component of innovation that measures the firm's adaptation capacity. It can be viewed as an input, whereas the firm's competitive advantage is the output (Hult *et al.*, 2004). Firms with greater innovation capacity develop new abilities that respond better to changes in the environment and that can lead them to competitive advantages (Hurley and Hult, 1998).

Innovation occurs when organizations develop external focus and visioning capabilities. Innovative companies can address challenges emerging in the environment faster and better than other firms, thereby achieving strategic fit. Harmancioglu *et al.* (2009) find a positive relationship between NPD and technical and marketing fit. Similarly, Barrales-Molina *et al.* (2015) find that NPD allows organizations to develop superior managerial capabilities to match the required and realized adaptations to the environment. Schilke (2014) shows that NPD is closely related to competitive advantage given intermediate levels of environmental dynamism. On the basis of the foregoing, we formulate the following hypothesis:

H3b. The capacity to innovate is positively related to strategic fit.

Strategic fit and organizational performance. The literature on strategic management contains several studies of the relationship between strategic fit and performance. Strategic fit is an important determinant of firm performance, as it gives rise to the capacities to create competitive advantages and generate long-term growth in organizations. Such capacities usually imply an improvement in performance (Vorhies *et al.*, 2003; Tuominen, *et al.*, 2004). Firms that achieve fit with the environment in which they compete improve their performance, whereas those that fail to achieve fit tend to struggle (Zajac *et al.*, 2000).

To the extent that fit and performance are positively related, the capacity to introduce changes perceived as necessary to achieve fit and the ability to put those changes into practice are desirable elements in organizations. Recent studies offer solid support for a positive relationship between strategic fit and organizational performance (Slater *et al.*, 2010). For example, Zajac *et al.* (2000) contrast the positive relationship of strategic fit and organizational performance. In an attempt to address the risk of using one-dimensional measures for performance, Carmeli *et al.* (2010) analyze the positive relationship between strategic fit and economic performance, relationship (process) performance, and product performance. In all cases, the results of their analyses show a positive and significant relationship. This leads us to the following hypothesis:

H4. Strategic fit is positively related to organizational performance.

The hypothesized relationships among these variables are presented in Figure 1.

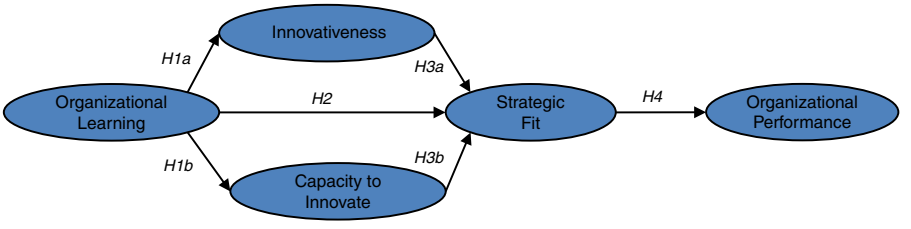


Figure 1.
Model of antecedents and consequences of strategic fit in decision-making processes related to strategic change

2.3 Research model

The relationships hypothesized among these variables are shown in Figure 1, which presents a model relating several capabilities to strategic fit, and the relationship between strategic fit and financial performance. *H1* and *H2* propose a positive, direct effect of OL on innovativeness, the capacity to innovate, and strategic fit. *H3* posits that innovativeness and capacity to innovate have a positive effect on strategic fit. Finally, *H4* proposes a positive influence of strategic fit on organizational performance.

3. Research methodology

3.1 Target population and survey procedure

The data used in this study come from a cross-sectional study focussed on high-technology sectors in the European Union. To obtain the data, we used the following ISIC rev. 4 codes: 26 – manufacturing of computers, electronics, and optical products; 27 – manufacturing of electrical equipment; 29 – manufacturing of motor vehicles, trailers, and semi-trailers; and 61 – telecommunications. This choice was motivated by the importance of learning, innovation, and strategic fit in these sectors due to their high reliance on modern technologies. These sectors are also identified as high-velocity industries (Fines, 1998).

We obtained information on the firms in the study population from the Amadeus database. After identifying the sectors, we reduced the list of organizations through simple random sampling to a total of 1,950. The data were collected using a questionnaire developed through a review of the literature related to the focal variables. After designing the questionnaire, we pre-tested it with randomly selected plants from the list. This testing allowed us to clarify possible ambiguities and correct any mistakes. The final questionnaire was then sent to CEOs of the 1,950 firms in our final sample. A second copy of the questionnaire was sent to firms that did not respond in the first round. We obtained 204 valid responses, which gives a response rate of 10.42 percent.

To check for possible sample bias, we used the data available in the Amadeus database on the number of employees and turnover. We first performed a Kolmogorov-Smirnov test (Kleinbaum *et al.*, 1989), and found that neither the number of employees ($p = 0.486$) nor turnover ($p = 0.615$) differed significantly between respondents and non-respondents. Second, we checked for differences in the characteristics observed between early and late respondents. We did not find differences in the type of business. Finally, as all measurements were included in the same data-collection system, we used Harman's one-factor test (Konrad and Linnehan, 1995; Scott and Bruce, 1994) to test for common method bias. The results of the principal components analysis of the items showed the existence of five factors, all of which had eigenvalues greater than 1.0. Taken together, the five factors explained 72 percent of the total variance. As the first factor was not associated with the majority of the variance (18 percent), a significant amount of common method variance does not seem to exist in this study (Podsakoff and Organ, 1986).

3.2 Sample demographics

The sample's distribution by the firm's country of origin was as follows: 62 from Spain (30.39 percent), 37 from Sweden (18.13 percent), 33 from the UK (16.17 percent), 21 from the Netherlands (10.29 percent), 20 from Italy (9.80 percent), 18 from Germany (8.82 percent), and 13 from France (6.37 percent). We also analyzed the organizations' size using the number of employees and annual sales. The results showed that 21.73 percent of the firms had 50 or fewer employees, while 32.84 percent had

51-250 employees, 20.09 percent had 251-1,000 employees, and 25 percent had more than 1,000 employees. In terms of annual sales, 25 percent reported sales of less than EUR 10 million, 32.84 percent reported annual sales of EUR 10-50 million, and 42.15 percent reported annual sales of more than EUR 50 million.

3.3 Measures

OL. We measured OL using the first two items from the scale developed by Kale *et al.* (2000) and used by García-Morales *et al.* (2006), as those items are closely related to our research. We also adapted two additional items found in Edmondson (1999). We asked managers to indicate whether their organizations had learned or acquired new and important knowledge in the preceding seven years; whether their organizations had improved or had been influenced by newly acquired knowledge during that period of time; whether organizational members had learned or acquired an essential ability in the same period; and whether the organization was a learning organization. Respondents used a seven-point Likert-type scale (1 = totally disagree, 7 = totally agree), which was validated using a confirmatory factor analysis (CFA). The CFA showed that the scale was one-dimensional with a high level of reliability ($\alpha = 0.857$).

Innovativeness. We measured innovativeness using a four-item scale advanced by Koys and DeCotiis (1991), similar to that used by Chander *et al.* (2000). We asked managers to consider the preceding seven years and indicate whether they had been willing to try new ways of working; whether they had encouraged improvements in their ways of working; whether they had discussed new ways of approaching and solving problems; and whether they had helped develop new ideas. Respondents used a seven-point Likert-type scale (1 = totally disagree, 7 = totally agree). We validated the scale using a CFA, which showed that the scale was one-dimensional with a high level of reliability ($\alpha = 0.867$).

Capacity to innovate. To measure the capacity to innovate, we used a four-item scale (Verdú *et al.*, 2012). The measure focussed on process, product and service innovations, and the use of resources dedicated to the capacity to innovate. We asked managers to reflect on the preceding seven years and indicate whether they had seen growth in new products or services; improvements in new products or services; and changes in the organization in terms of production techniques or service provision. Respondents were also asked to indicate whether the organization was more innovative than its competitors. Respondents used a seven-point Likert-type scale (1 = totally disagree, 7 = totally agree) to provide their answers. We validated our scale using a CRA, which showed that the scale was one-dimensional with a high level of reliability ($\alpha = 0.880$).

Strategic fit. We drew on the conceptualization of strategic fit (Zajac *et al.*, 2000) that divides the process into three stages: perception of the need for change, planning, and implementation (Bourgeois, 1980). Fit occurs when the perceived necessary change coincides with the programmed change and the programmed change coincides with the implemented change. We based our work on the scales developed by Doz *et al.* (2000) and Makadok (2001). More specifically, we designed a seven-point Likert-type scale composed of four items addressed to the CEO and focussed on the stages of fit in the change process in the preceding seven years (1 = totally disagree, 7 = totally agree). These items relate to the product and services lines, the target audience, abilities and capacities, and investments in innovation and technology. We measured whether the perceived necessary strategic change matched the change programmed by the managers (fit in planning of strategy) and whether the strategic change programmed by the managers

matched the change that was actually implemented (fit in strategy implementation). The sum of the two scales was used as the measurement of strategic fit, as when a change perceived as necessary is the change that the managers really plan and implement, then strategic fit occurs. These measures cover the external and internal views of fit, respectively. We validated our strategic-fit scale using a CFA, which confirmed that the item loadings were as proposed and significant ($p < 0.01$). This analysis also offered evidence of convergent validity and high reliability ($\alpha = 0.882$).

Organizational performance. Organizational performance was measured using a seven-point Likert-type scale composed of five items based on the proposal developed by Murray (1998). We asked firm managers to evaluate items relative to key competitors (1 = much worse than our competitors, 7 = much better than our competitors) over the preceding seven years. Managers were asked about ROA, ROE, ROS, market share, and sales growth, as using both financial and non-financial indicators creates a more accurate performance-measurement system. We validated our scale using a CFA. After deleting some items, loadings were significant ($p < 0.01$), which serves as evidence of convergent validity and high reliability ($\alpha = 0.910$).

Tests for reliability and validity. The scales used in our study were tested in several ways in order to determine their reliability, one-dimensionality, and validity. To analyze reliability, we calculated the Cronbach's α for each scale used (Table I). The results for all scales showed Cronbach's α values greater than the recommended value of 0.7 (Nunally, 1994). Second, we analyzed the scales' one-dimensionality by performing exploratory factor analyses using the statistical program SPSS 15.0. The results showed that the items in each scale belonged to a single factor.

The next step consisted of a CFA using the EQS 6.1 program. According to Hulland (1999), this analysis must fulfill three conditions to confirm convergent validity: significant factor loadings ($t > 1.96$; $p < 0.05$), factor loadings greater than 0.4, and individual reliability (R^2) greater than 0.5. Figure 2 includes the values of the factor loadings, *t*-values, and individual reliability, which fulfill the minimum values required in all cases.

To conclude our analysis of validity, we tested for discriminant validity. In line with Szulanski (1996), we compared the correlation values obtained in the CFA with the correlation values calculated for a case of perfect correlation. To guarantee discriminant validity, the calculated correlation value must be greater than that of the observed correlation. This was true in our case, which confirms discriminant validity.

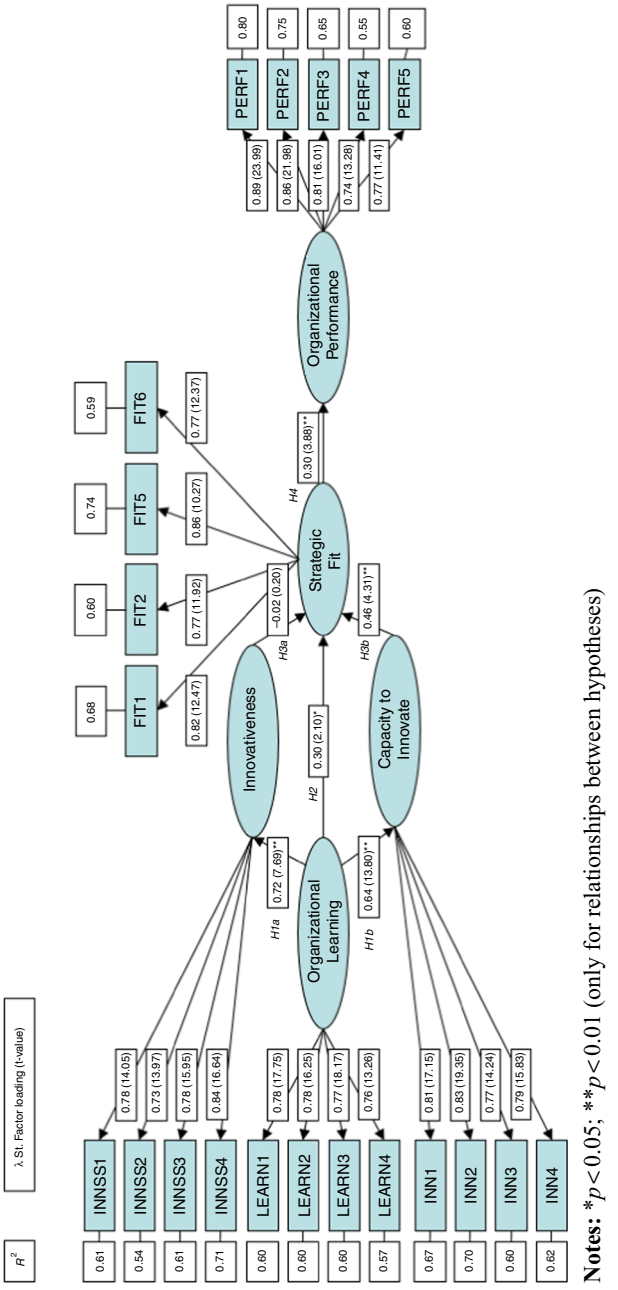
4. Results

This section includes the results obtained after analyzing the relationships proposed, using structural equation modeling (SEM). Thus, path coefficients, associated *t*-values,

Variable	Cronbach's α	Mean	SD	Correlations				
Organizational learning (OL)	0.857	5.49	1.00	1				
Innovativeness (INNV)	0.867	5.41	1.00	0.611*	1			
Capacity to innovate (CINN)	0.880	4.96	1.16	0.542*	0.476*	1		
Strategic fit (SFIT)	0.882	9.53	2.33	0.505*	0.562*	0.380*	1	
Organizational performance (OP)	0.910	4.59	1.06	0.421*	0.387*	0.379*	0.266*	1

Table I.
Descriptive statistics

Note: *Correlations are significant at the 0.05 level (two-tailed)



Notes: $*p<0.05$; $**p<0.01$ (only for relationships between hypotheses)

Figure 2.
Structural equation modeling

and the fit values of the model are analyzed. Previously, in addition to the Cronbach's α values, Table I includes the descriptive statistics (means, standard deviations, and correlations) of the variables.

4.1 SEM

To analyze our five hypotheses, we undertook SEM using the EQS 6.1 program. Prior to investigating the relationships, we discounted the possibility of multicollinearity between the variables by calculating the variance inflation factors and the condition index. In both cases, the results showed values below the established maximums (Kleinbaum *et al.*, 1989), which indicates that multicollinearity is not a problem in our data set.

The results for the relationships uncovered with SEM are presented in Figure 2. Each relationship is shown together with the corresponding hypothesis, estimated path coefficients, and *t*-values (*t*-values for path coefficients greater than 1.96 are significant at $p < 0.05$; *t*-values for path coefficients greater than 2.58 are significant at $p < 0.01$).

Table II summarizes the results for the various hypotheses. We find a positive and significant relationship between OL and innovativeness ($t = 7.69$, $p < 0.01$), between OL and capacity to innovate ($t = 13.80$, $p < 0.01$), and between OL and strategic fit ($t = 2.10$, $p < 0.05$). These results support *H1a*, *H1b*, and *H2*. The relationship between innovativeness and strategic fit is not significant ($t = 0.20$), which leaves *H3a* unsupported. However, we observe a positive and significant relationship between capacity to innovate and strategic fit ($t = 4.31$, $p < 0.01$), which indicates support for *H3b*. We also find a positive and significant relationship between strategic fit and organizational performance ($t = 3.88$, $p < 0.01$). This supports *H4*.

Finally, we confirmed the values for model fit by analyzing several indicators according to type of fit (Table III). For the measures of absolute fit, we observe the root mean square error of approximation (RMSEA) and the goodness of fit index (GFI). The RMSEA of 0.055 is lower than the recommended maximum of 0.08. The GFI of 0.88 is

Table II. Results of hypotheses tests

	Result obtained
H1a	Supported
H1b	Supported
H2	Supported
H3a	Not supported
H3b	Supported
H4	Supported

Table III. Goodness of fit statistics for the structural model

Types of fit	Measures	Acceptance levels	Model results
Absolute	χ^2 (sig.)		318.467
	df		198
	Goodness of fit index (GFI)	> 0.9	0.880
	Root mean square error of approximation (RMSEA)	< 0.08	0.055
Incremental	Comparative fit index (CFI)	> 0.9	0.955
	Incremental fit index (IFI)	> 0.9	0.956
	Normed fit index (NFI)	> 0.9	0.901
	Non-normed fit index (NNFI)	> 0.9	0.948
Parsimony	Normed χ^2 (χ^2/df)	< 3.0	1.608

slightly lower than the recommended minimum of 0.9. However, as in other studies (e.g. Foote *et al.*, 2005), this slight difference may be due to the "artifact of the large degrees of freedom relative to sample size and the relatively small number of estimated parameters" (Foote *et al.*, 2005, p. 213). All of the values for incremental fit are higher than the recommended minimum of 0.9, thereby affirming the presence of incremental fit. Finally, we assessed parsimony fit using the normed χ^2. The value of 1.608 is lower than the recommended maximum of 3.0, indicating that the fit is good. On the basis of these results, we can affirm that the global fit of the model is good.

Additionally, to test the fit of our model, alternative models were run and analyzed (four, three, two, and one-factor models). All these alternative models showed worst fit indexes, under the acceptance level. These results corroborate that the five-factor model represents the best fit to the data.

5. Discussion

The main goal of this study was to analyze the roles played by OL and innovation in organizations immersed in processes of adaptation and strategic change in sectors facing dynamic and turbulent environments. To achieve this aim, we used a sample of 204 European high-technology firms to develop a perceptual measure of strategic fit, and to propose a model in which innovation and OL act as antecedents of achieving strategic fit in organizations and, thereby, improve performance.

Our results suggest that OL is an antecedent of innovation in both phases: innovativeness and capacity to innovate. In line with the extant literature, our empirical evidence shows that OL enhances receptivity to new ideas and innovation, which are parts of an organization's innovation culture (Keskin, 2006). Innovation depends on the organization's ability to acquire and absorb new internal and external knowledge, and on the existence of a virtuous cycle that generates learning (Wang and Wang, 2012). Our research also confirms that firms can easily innovate in dynamic environments if they develop a capability to learn efficiently from their resources, which in turn increases their competences and capabilities (Calantone *et al.*, 2002; García-Morales *et al.*, 2007; Jiménez-Jiménez and Sanz-Valle, 2011). Through these practices, learning organizations can perceive their own strengths and weaknesses more easily than others, and they can learn from their errors and their experiences. In turn, they can develop a greater capacity to generate new ideas, products, services, and processes (Calantone *et al.*, 2002). These findings support theoretical arguments that capability development requires in OL (Zollo and Winter, 2002; Barrales-Molina *et al.*, 2010), which suggests that OL is an antecedent of the capacity to innovate.

In addition, our empirical findings confirm OL's role as an antecedent of strategic fit. A learning organization encompasses implicit processes of change that reside in the cognition of managers and workers (Tanriverdi and Zehir, 2006). Learning firms that renew their knowledge are able to better understand the consequences of change in their environments and to respond faster to such change than competitors (Tippins and Sohi, 2003). Moreover, an organization committed to learning possesses the knowledge necessary to perceive customers' needs and to respond to them (Santos-Vijande *et al.*, 2010). Therefore, an organizational climate favorable for learning and for behaving as a market-driven organization facilitates adaptations to changes in the environment.

Our research also confirms that innovation can play a crucial role in processes of adaptation and fit. Organizations with better climates for innovation and greater capabilities to implement innovation-oriented decisions are more likely to successfully navigate the strategic management process. Our empirical analysis shows a direct

relationship between innovative capacity and strategic fit. This finding is consistent with theoretical contributions proposing that product innovation promotes the renewal and reconfiguration of a firm's resources (Eisenhardt and Martin, 2000; Ambrosini *et al.*, 2009; Schilke, 2014; Barrales-Molina *et al.*, 2015). Our findings also suggest that innovation facilitates continuous adaptation to the environment, which corresponds to the goal of achieving strategic change through fit. However, we do not find support for a direct effect of innovativeness on strategic fit. This may be because managers overvalue their organizational environment for innovation (Burton *et al.*, 2004). In other words, the organizational context plays an important role in resource exchange, which might distort managers' perceptions of their organizations' climate for innovation.

The literature on strategic change and strategic fit, which began to expand rapidly in the 1980s and 1990s, has adopted different perspectives on how organizations should face changes in the environment, adapt according to those changes, change radically when facing a declining organizational situation, or address contingencies in the environment that will determine their survival or disappearance. Executives in dynamic industries need "to rely on patterns of attention and decision that keep up with the rapid changes in demand" (Chiaburu, 2010, p. 472). As such, the empirical literature recognizes the importance of managerial cognition in the process of change (Finkelstein *et al.*, 2009; Kaplan *et al.*, 2003). When managers perceive changes in the market, they assume a need to adapt, as they are aware of the importance of the change (Ginsberg, 1988; Zajac and Shortell, 1989). In fact, the ability to direct attention to shifts in the organization's environment and its competitive position has been identified as a key capability in organizations (Ocasio, 2011; Plambeck and Weber, 2010). By attending to decision-making processes through our measure of strategic fit, we can include both the external and internal views of fit. We do so by measuring how the organization matches its capabilities and operation strategies to the demands of the external environment in which it competes (Stepanovich and Mueller, 2002). The results of this study are consistent with the prior research indicating a positive influence of strategic fit on organizational performance (Venkatraman and Prescott, 1990; Zajac *et al.*, 2000; Carmeli *et al.*, 2010) and, therefore, support our initial idea that appropriately adapting to the environment grants competitive advantages that improve organizational performance.

6. Theoretical contributions

This study makes three significant contributions to the literature. First, we contribute to the literature on strategic change and strategic fit, which continually focusses on uncovering mechanisms, resources, and capabilities that facilitate the development of fit in organizations. Although the alignment between organization and environment, and its impact on performance have previously been explored in the management literature (Venkatraman and Camillus, 1984; Venkatraman and Prescott, 1990), this study goes further by developing and testing a perceptual measure of strategic fit that focusses on the cognitive process of analysis and the implementation of strategy based on the needs of the environment. To the extent that strategic fit occurs between the perception of a need for change and the planning and implementation of that change, the firm will achieve a competitive advantage and improve its organizational performance. Our model of strategic fit is dynamic, as it measures the change that has occurred in the last seven years; multidimensional, as it measures external and internal fit; and normative (Zajac *et al.*, 2000), as it offers a distinct analytical approach that contributes conceptually and empirically to the literature on strategic fit and strategic change. In our research, we analyze how the various aspects of an organization's

strategy – the product and service lines, the target audience, the organization's abilities and capacities, and investments in innovation and technology – can be changed to achieve fit with the organization's environmental and organizational context.

Second, we contribute to contingency theory, as we analyze mechanisms that facilitate alignment between the organization and its environment. That alignment, in turn, enhances performance. This study of the complex interactions among OL, innovation, and strategic fit constitutes a valuable and original contribution to this stream of literature, as it improves our understanding of the effect of these variables on strategic fit. The findings confirm that strategic fit can mediate the relationships between OL and performance, and between innovation and performance. In addition, our results show that OL acts as an antecedent of innovation (Calantone *et al.*, 2002; Yalabik *et al.*, 2012), and thereby also facilitates strategic fit. This finding is in line with theoretical proposals that OL permits the generation of knowledge that can facilitate the firm's changes and adaptations to its environment (Eisenhardt and Martin, 2000; Teece, 2012). We also observe that the "capacity to innovate" is directly related to strategic fit, which confirms that innovation facilitates improvements in the organization's fit with its environment. These findings are consistent with other theoretical contributions suggesting that innovation permits firms to better respond to changes in the environment (Hurley and Hult, 1998). Moreover, the results confirm innovation as an important firm resource that can improve organizational performance through strategic fit. Innovativeness, which focusses on values, culture, and attitudes (Hurley and Hult, 1998; Hult *et al.*, 2002), occurs prior to the development of new products and processes, even if such development does not materialize. We therefore propose considering the "innovativeness" dimension as a facilitator of new product and process development, but not treating it as a capability that directly influences strategic fit.

Lastly, our findings contribute to key theoretical frameworks in strategic management, such as the dynamic capabilities view (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2015; Teece, 2007). In this regard, our results highlight internal contexts that enable firms to continually respond to competitive environments. OL, innovativeness, and the capacity to innovate allow firms to sense changes, seize opportunities, and reconfigure internal competences. We have demonstrated that these processes underlie dynamic capabilities (Teece, 2007). Consequently, our paper supports extant studies in the field (Danneels, 2002) that argue that an innovative context enhances firms' abilities to achieve alignment between internal and external forces.

7. Implications for practice

The results of this study have several implications for managers. First, our findings suggest that survival and competitiveness in dynamic environments require capabilities to renew the organization, to change, to overcome inertia, and to adapt, which can be identified as the essence of strategy. Thus, strategic management converges with the management of change. In turbulent environments, organizations wishing to be adaptable and dynamic should become learning organizations, as learning permits them to enjoy a constant state of renewal. To achieve this goal, managers should support an entrepreneurial culture that stresses continuous learning, foster programs to develop abilities, and promote the development of capabilities that facilitate acceptance of organizational changes. They should also focus on creating the abilities needed to generate core competences and contribute to learning.

Second, our research indicates that OL contributes to innovation in firms. Learning organizations learn by introducing new models of business development. As a constant

exchange of information with workers strengthens learning processes, the organizational culture will be more innovative if workers are motivated to learn and exchange new ideas. Managers can purposely manage relevant tasks and the individual qualifications required to perform them in order to achieve a better climate for innovation. The sharing of training and development, reward systems, information-dissemination systems, job appraisals, exploratory dialogues, information bulletins, experimental initiatives, and informal discussions with employees will promote a strong commitment to teamwork and, thereby, enhance innovativeness in the firm. The same is true for ensuring the absence of a blame culture. Furthermore, if managers wish to promote learning that encourages innovation in their organizations, they should introduce resources and activities that develop the competences needed to achieve that goal, such as technology, training, continuous learning, and teamwork. In other words, organizations must promote a culture oriented toward learning and promoting people, which will foster employees' efforts to learn and encourage them to develop new skills that will enhance the organization's capacity to innovate.

Third, our study suggests that investments in building capacities, such as technical-innovation or product-development capabilities, are strategically justified for organizations wishing to achieve strategic fit, especially in turbulent environments. Managers should promote the development of new and improved products or services, as well as changes in the organization related to production techniques or the provision of services. Therefore, analysis and exploration are fundamental tools for individuals in charge of strategy. Such individuals should attempt to learn from their environment in order to understand its behavior and better predict market tendencies, particularly if markets are dynamic and turbulent. In their attempts to alter the organization's position to achieve the closest fit with its environment, managers should promote the development of factors that help the firm adapt to changes in the environment. In this regard, innovation facilitates the achievement of strategic fit with the environment because it focusses on developing new products and services, attending to new target audiences, developing new abilities and capacities, and investing in further innovation and new technologies. In addition, CEOs can manage their organizations as portfolios of strategic assets that can be aggregated, disaggregated, or reconfigured more rapidly and efficiently than those of their competitors. This management strategy should support them in understanding how changes in fit might positively affect their business performance, and in identifying the strategic content that is fundamental for achieving competitive advantages.

8. Limitations

As a whole, the conclusions presented in this study are subject to several limitations. First, as our analysis is cross-sectional, the uncovered relationships should be treated with some caution. Although our study is not longitudinal, we have attempted to offset this limitation to some extent by taking the temporal dimension into account in the scales for strategic change and performance. Second, all measures in our study are subjective, as they are based on managers' perceptions. Therefore, they do not demonstrate the exact relationships among the variables. Despite this limitation, our cognitive model requires that we ground our research in managers' opinions. As numerous similar studies have shown, this is the only way to determine managers' mental decision-making processes. Third, the perceptions estimated for each firm were determined using a single person, which may affect the measurement of some variables. This limitation, which usually occurs when attempting to achieve external

validity of the sample for the whole population, led us to focus on many sample units instead of a large quantity of responses from a small number of firms. Finally, we suggest caution when generalizing from the results presented here, as we have only analyzed a selection of high-technology sectors. The results could differ for other industries. We suggest that future research should focus on longitudinal studies aimed at measuring the strategic change process and strategic fit in relation to different dynamic capabilities, environmental factors, and dimensions of strategic change that enable the achievement of strategic fit.

9. Conclusions

This paper presents practical evidence of the positive influence of strategic fit on organizational performance. On the basis of the cognitive process of analysis and the implementation of strategy according to the needs of the environment, this study explores and develops a perceptual measure of strategic fit that shows the positive influence of fit on organizational performance. Moreover, this study's combination of a double measurement of innovation based on innovativeness and the capacity to innovate, with the perceptual measure of strategic fit, constitutes an original contribution to the extant literature. The findings shed light on the importance of generating the capabilities that organizations need in order to adapt to dynamic and turbulent environments. Continuous learning and innovation in terms of new products, services, technologies, or processes help improve capabilities related to adaptation and change, and can lead to improved performance (Zollo and Winter, 2002; Helfat and Peteraf, 2015).

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