



## Innovation, organizational learning, and performance

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### ABSTRACT

Literature examines the relationship between innovation and performance and asserts a positive relationship between organizational learning and both performance and innovation. However, few empirical studies analyze these relationships together. This article explores those relationships using SEM with data from 451 Spanish firms. The findings show that both variables – organizational learning and innovation – contribute positively to business performance, and that organizational learning affects innovation. Another finding of this study is that size and age of the firm, industry and environmental turbulence moderate these relations.

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The literature on management emphasizes the key role that both innovation (Baker and Sinkula, 2002; Balkin et al., 2000; Darroch and McNaughton, 2002; Lyon and Ferrier, 2002; Utterback, 1994; Vrakking, 1990; Wolfe, 1994), and organizational learning (Brockmand and Morgan, 2003; Dodgson, 1993; Fiol and Lyles, 1985; Garvin, 1993; Gnyawali et al., 1997; Nevis et al., 1995; Stata, 1989) play in enhancing a firm's competitive advantage.

Some studies suggest that organizational learning and its output, organizational knowledge, are antecedents of innovation (Baker and Sinkula, 1999; Cohen and Levinthal, 1990; Coombs and Hull, 1998; Darroch and McNaughton, 2002; Hage, 1999; Kogut and Zander, 1992; Leonard-Barton, 1999; Nonaka and Takeuchi, 1995; Nooteboom, 1999; Sørensen and Stuart, 2000; Stata, 1989). The basic assumption is that learning plays a key role in enabling companies to achieve speed and flexibility within the innovation process (Brown and Eisenhard, 1995; Miles and Snow, 1978; Weerd-Nederhof et al., 2002).

Organizational learning, innovation and performance relate positively to each other. However, research that studies the interrelationships between the three concepts simultaneously is still scarce. Previous studies usually focus on the innovativeness of the firm, which is to say, on the degree to which the organizational culture promotes and supports innovation (Keskin, 2006; Lee and Tsai, 2005) or analyzes only one type of innovation, mainly product innovation (Salavou and Lioukas, 2003). Thus, previous research provides a partial explanation only of the phenomenon of innovation.

Similarly, most studies of organizational learning adopt a cultural perspective for measuring this concept. Very few studies (Darroch and McNaughton, 2003; Tippins and Sohi, 2003) analyzes the process of organizational learning. Since culture values are more difficult to change than specific actions, focusing on the process may be more helpful for practitioners. This study attempts to address the weaknesses of the preceding literature and analyzes the relationships between organizational learning, innovation and performance together in a single model. This study focuses on the organizational learning process and uses a complete measure of innovation. In addition, this paper analyzes the likely moderating effect of firm size and age, industry and environmental turbulence on the relationships between organizational learning, innovation and performance.

The article starts with a review of the literature on these topics and a description of the model proposals. Then, the article presents the design of the study to test the model and the findings of this study. In the last section, the article discusses the managerial and academic implications of the study, its limitations and recommendations for future research.

### 1. Innovation and performance

Literature conceptualizes innovation in a variety of ways in the literature, as a process, and outcome of both (Damanpour and Gopalakrishnan, 1998; Damanpour et al., 1989; Knight, 1967; North et al., 2001; Rogers, 1995; Thompson, 1965; Wolfe, 1994). However, most of the definitions of innovation share the idea that innovation implies the adoption of a new idea or behavior.

Literature also distinguishes different types of innovation. The classification most extended and accepted is the one Damanpour (1991) proposes. He distinguishes between technical and administrative innovations. Whereas technical innovations include a new

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process and new products or services, administrative innovations refer to new procedures, policies and organizational forms (Dewar and Dutton, 1986; Evan, 1966; Hage, 1980; Normann, 1971; Tushman and Nadler, 1986; Utterback and Abernathy, 1975).

Since the purpose of this article is to analyze how organizational learning influences the whole innovation activity of the firm, the present study adopts a broad concept of innovation that includes the adoption of any new product, process and administrative innovation.

Innovation helps the company to deal with the turbulence of external environment and, therefore, is one of the key drivers of long-term success in business, particularly in dynamic markets (Baker and Sinkula, 2002; Balkin et al., 2000; Darroch and McNaughton, 2002; Lyon and Ferrier, 2002; Scherer, 1992; Utterback, 1994; Vrakking, 1990; Wolfe, 1994). To survive in Schumpeterian environments organizations must be able to cope with increasing complexity and high-speed change (Brown and Eisenhard, 1995). In these contexts, companies with the capacity to innovate will be able to respond to challenges faster and to exploit new products and market opportunities better than non-innovative companies (Brown and Eisenhard, 1995; Miles and Snow, 1978).

Most of the broad empirical studies on the relation between innovation and performance provide evidence that this relation is positive (Bierly and Chakrabarti, 1996; Brown and Eisenhard, 1995; Caves and Ghemawat, 1992; e.g. Damanpour, 1991; e.g. Damanpour and Evan, 1984; Damanpour et al., 1989; Hansen et al., 1999; Roberts, 1999; Schulz and Jobe, 2001; Thornhill, 2006; Weerawardena et al., 2006; Wheelwright and Clark, 1992). However, as Simpson et al. (2006) point out, innovation is an expensive and risky activity, with positive outcomes on firm performances but also with negative outcomes, such as increased exposure to market risk, increased costs, employee dissatisfaction or unwarranted changes. In addition, some studies arrive at conflicting conclusions. For instance, Wright et al. (2005), using a sample of small businesses, find that product innovation does not affect performance in benign environments, but has a positive effect on performance in hostile environments.

Focusing on a sample of US business service firms, Mansury and Love (2008) also find that the presence and extent of service innovation have a positive effect on the growth of a firm but no effect on productivity. Finally, Damanpour et al. (2009) find that adopting a specific type of innovation every year (service, technological process, and administrative) in public service organizations in the UK is detrimental, consistency in adopting the same pattern of types of innovation over the years has no effect, and divergence from the industry norm in adopting types of innovation positively affects performance. These results show that the relationship between innovation and performance is complex and requires more research.

Despite the likely detrimental effects resulting to an innovation orientation and some conflicting evidence, theory and most of the empirical studies suggest a positive relationship between innovative activity and firm performance.

**H1.** Organizational innovation relates positively to firm performance.

## 2. Organizational learning and performance

The literature on organizational learning has grown exponentially in recent years (Bontis et al., 2002; Dodgson, 1993; Fiol and Lyles, 1985; Huber, 1991; Nonaka and Takeuchi, 1995; Senge, 1990; Slater and Narver, 1995).

Organizational learning is the process by which the firm develops new knowledge and insights from the common experiences of people in the organization, and has the potential to influence behaviors and improve the firm's capabilities (Fiol and Lyles, 1985; Huber, 1991; Senge, 1990; Slater and Narver, 1995). Following Huber (1991), this process comprises four subprocesses (Baker and Sinkula, 1999; Sinkula, 1994; Slater and Narver, 1995; Weerd-Nederhof et al.,

2002). The first is knowledge acquisition, which is the process the company uses for obtaining new information and knowledge. The second is knowledge distribution, the process by which employees share information within the firm. The third is knowledge interpretation, which happens when individuals give meaning and transform information into new common knowledge. Finally, organizational memory, is the process of storing the information and knowledge for future use.

Organizational learning is a basis for gaining a sustainable competitive advantage and a key variable in the enhancement of organizational performance (Brockmand and Morgan, 2003; Dodgson, 1993; Fiol and Lyles, 1985; Garvin, 1993; Gnyawali et al., 1997; Nevis et al., 1995; Stata, 1989). Firms that are able to learn stand a better chance of sensing events and trends in the marketplace (Day, 1994; Sinkula, 1994; Tippins and Sohi, 2003). As a consequence, learning organizations are usually more flexible and faster to respond to new challenges than competitors (Day, 1994; Slater and Narver, 1995), which enables firms to maintain long-term competitive advantages (Dickson, 1996).

Some studies provide evidence of a positive relationship between organizational learning and firm performance. For instance, Baker and Sinkula (1999) find that learning orientation has a direct effect on organizational performance. Other studies, which also use a culture measure of learning, have found similar results (Keskin, 2006; Ussahawanitchakit, 2008). Bontis et al. (2002) also provide evidence of a positive relationship between organizational learning and performance, but they focus on the stocks of learning at three levels: individual, group and organization.

Only a few studies focus on the organizational learning process. Tippins and Sohi (2003) show that the five stages they distinguish within the organizational learning process (information acquisition, information dissemination, shared interpretation, declarative memory and procedural memory) have a positive effect on firm performance. Darroch and McNaughton (2003) provide evidence that the whole process of organizational learning produces better performance. Finally, Zheng et al. (2010) found that knowledge management plays a mediating role in the relationship between organizational culture, structure, strategy, and organizational effectiveness.

In sum, empirical findings are consistent with theory and provide evidence that supports the positive relationship between organizational learning and performance. However, these conclusions are not conclusive, since their samples and measures for both organizational learning and performance are very different. Therefore, more research would be of interest. The second hypothesis takes into account the theoretical arguments and the findings of empirical research.

**H2.** Organizational learning relates positively to performance.

## 3. Organizational learning and innovation

The literature does not only suggest a positive effect of organizational learning on performance but also argues that innovation mediates this relation. In particular, some articles suggest that organizational learning allows the company to develop capabilities that enhance innovation and that innovation is what positively affects performance (Baker and Sinkula, 1999, 2002; Han et al., 1998; Hurley and Hult, 1998).

Literature proposes several models for explaining the relationship between organizational learning and innovation (Cohen and Levinthal, 1990; Coombs and Hull, 1998; Hage, 1999; Hall and Andriani, 2003; Kogut and Zander, 1992; Leonard-Barton, 1999; Nonaka, 1991; Nonaka and Takeuchi, 1995; Nooteboom, 1999; Sørensen and Stuart, 2000; Stata, 1989). According to the literature, innovation requires that individuals acquire existing knowledge and that they share this knowledge within the organization.

The acquisition of knowledge depends upon the organization's knowledge base (Salavou and Lioukas, 2003) as well as on the

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