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Leadership and dynamic capabilities: the role of HR systems

Leadership
and dynamic
capabilities

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Abstract

Purpose – The purpose of this paper is to analyze the antecedents of the development of dynamic capabilities from an HRM perspective, considering the leading role of leadership styles and their potential impact on the orientation of HR systems and a firm's capabilities.

Design/methodology/approach – The authors designed an empirical study of a sample of 107 Spanish industrial firms, asking HR, production and marketing managers to assess the CEO's leadership styles, the system of HRM practices applied in their organizations and dynamic capabilities. They applied multiple regressions and mediation analysis.

Findings – The authors' results suggest that both transactional and transformational leadership styles are positively associated with dynamic capabilities (sensing, seizing and reconfiguration), directly and indirectly, through their effects on HR systems.

Research limitations/implications – This paper approaches dynamic capabilities by using cross-sectional data. A longitudinal analysis would enrich this study. Also, the data aggregation in this paper does not allow to check different HR orientations from different departments. Finally, other HRM practices and strategic orientations could be assessed.

Practical implications – This paper highlights the need to develop CEOs who are able to combine leadership behaviors in such a way that they promote HR systems (skill-based development vs job-based development) and to use them as mediating mechanisms and in order to generate greater dynamic capabilities in the organization.

Originality/value – The authors are proposing that HRM can be applied to leverage a firm's competitive advantage, as HR systems mediate for obtaining different dynamic capabilities. Second, it could be concluded that any CEO should combine or display traits of both forms of leadership styles (transformational and transactional) in order to develop the full range of dynamic capabilities. Finally, this paper can provide some insights into the way dynamic capabilities can be measured and approached, through HRM microfoundations.

Keywords Quantitative, Leadership style, Competitive advantage,
Strategic human resource management (SHRM), Human resource management system

Paper type Research paper

Introduction

Over recent decades, the literature has associated organizational capabilities with competitive advantage as a consequence of the popularity gained by the resource-based view of the firm (Eisenhardt and Martin, 2000). Rapid changes in the environment and the needs of organizational agility shifted the focus to "dynamic capabilities," defined as the ability to sense opportunities, make investments to seize those opportunities and reconfigure the resource base and capabilities to adopt changes (Teece, 2007). These dynamic capabilities seem to be a source of a significant, sustainable competitive advantage (Wu, 2010). Nevertheless, research on the drivers of such capabilities has only begun to emerge and in this paper we adopt an HRM and strategic leadership perspective in order to see to what extent CEOs' leadership



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styles – transformational and transactional – and people management contribute to the development of dynamic capabilities.

The main objective of this paper is to analyze the antecedents to the development of dynamic capabilities from an HRM perspective, trying to find a nexus between both literatures. In doing so, we first study the role of strategic leadership – defined as the leadership style of CEOs' who have overall responsibility for an organization (Finkelstein *et al.*, 2009) – since CEOs' perceptions seem to play a relevant role in developing dynamic capabilities (Ambrosini *et al.*, 2009). Strategic leadership theory refers to the study of people at the top of the organization and it focuses on executive work as a strategic and a symbolic activity (Vera and Crossan, 2004). Strategic positions, such as CEO, are presented as key factors to recognize opportunities and make decisions that affect organizational processes (Ling *et al.*, 2008). CEOs play a critical role, as their actions and decisions create organizational contexts, influence middle manager responses and impact performance (Smith, 2014).

In this regard, the study of Bass's (1985) framework of transformational and transactional leadership styles is useful to analyze CEOs' influence on HR systems. Transformational and transactional leadership styles could be specific forms of strategic leadership focused on shaping organizational form and processes to obtain greater effectiveness (Pawar and Eastman, 1997). Transformational leaders are focused on the identification and development of new ideas and they are able to build, support and stimulate individuals involved in learning processes. On the other hand, transactional leaders contribute to the efficiency and the coordination of existing capabilities, which support the new capabilities. Therefore, we think that both could be needed to gain competitiveness but we wonder how each leadership style contributes to the dynamic capabilities of the firm. Specifically, our proposition is that such different strategic leadership styles will favor different dimensions of dynamic capabilities.

Second, we propose that HR systems are an effective vehicle that may be influenced by a CEO to develop dynamic capabilities. The choice of the system of HRM practices to be applied in a firm can be considered a consequence of strategic leadership, since a well-established line of research suggests that HRM practices ensure employee behaviors that sustain competitive advantage (Lengnick Hall *et al.*, 2009; Wright *et al.*, 1994). The second objective of this paper is, therefore, to assess the appropriate configuration of HRM practices in order to favor dynamic capabilities. As the CEO's strategic leadership style will influence the orientation of HRM practices, a mediating effect of such practices in the relationship between leadership and dynamic capabilities is expected, supposing that different systems of HRM practices will reinforce organizational dynamic capabilities.

We made an empirical study of a sample of 107 Spanish industrial firms. By means of different questionnaires, we asked HR, production and marketing managers to assess the CEO's leadership styles, the orientation given to the HRM practices applied in their organizations and how they contributed to organizational dynamic capabilities. The different hypotheses are tested by using multiple regressions and mediation analyses.

A literature review and data analyses are expected to contribute to the research on strategy, leadership and strategic human resource management by establishing links between these literatures. First, because this paper assesses the extent to which different HR systems are associated with sensing, seizing and reconfiguration dynamic capabilities and such practices are the means (mediating variable) by which leaders can enhance a firm's competitiveness. In this way, we are proposing that HRM can be applied to leverage a firm's competitive advantage. Second, since our analysis is going to show different benefits from both transformational and transactional leadership styles, it could be concluded that any CEO should combine or display traits of both forms of leadership in order to develop the full range of dynamic capabilities. Finally, this paper can provide some insights into the way dynamic capabilities can be measured and approached, especially by microfoundations, as we propose how different HR systems – designed to

impact on employee behaviors- contribute to dynamic capabilities. Due to their relevance in creating a sustainable competitive advantage, we believe the expected results will be valuable to both researchers and practitioners.

Theory and hypotheses

Leadership styles and dynamic capabilities

The theoretical background of this paper is based first on the literature on dynamic capabilities. When firms face unpredictable, shifting markets, the existence of an appropriate stock of resources and processes is insufficient to sustain competitive advantage (Eisenhardt and Martin, 2000; Teece *et al.*, 1997). The dynamic capabilities approach aims to understand and explain the competitive advantage of firms over time. Dynamic capabilities have been considered to be a firm's ability to change the resource base to address rapidly changing environments (Teece *et al.*, 1997). It has been argued that dynamic capabilities involve the ability to sustain successful change (Oxtoby *et al.*, 2002). Dynamic capabilities are path-dependent and embedded in the firm (Ambrosini *et al.*, 2009). They are, therefore, very difficult to observe and even more difficult for other organizations to replicate. For this reason, they have been linked to sustained competitive advantage, specifically in environments characterized by the change.

More recently, Barreto (2010, p. 270) expressed the lack of agreement about this concept trying to define dynamic capability as "the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base." Similarly, Teece (2007) found three dynamic capabilities: "(1) to sense and shape opportunities and threats (2) to seize opportunities and (3) to maintain competitiveness through enhancing, combining, protecting and, when necessary, reconfiguring the business enterprise's intangible and tangible assets" (p. 1319). Both definitions are closely connected and we are going to use them to conceptualize the notion of dynamic capability in this paper.

The first component of dynamic capability, sensing, means that the organization is agile in scanning the environment to identify new market opportunities. To do so, firms should continuously review the effects of environmental changes on customer needs and analyze its product portfolio in order to ensure its coherence with clients' demands (Pavlou and El Sawy, 2011). Second, seizing capability is needed in order to ensure that the firm is able to make the necessary investment to change existing routines. Therefore, firms should have protocols (internal procedures) for taking change-oriented decisions and even formal committees for managing the launch of new products. It is not surprising if an enterprise senses a business opportunity but fails to invest (Teece, 2007). Finally, reconfiguration capability demands efficiency in the implementation of the changes that drive new product development in order to integrate all existing processes with new ones without losing efficiency. Redeployment and reconfiguration (Capron *et al.*, 1998) may also involve business model redesign as well as asset realignment.

The question that arises is how such capabilities develop. We assume a key role of CEOs in this process (Salleh and Grunewald, 2013), depending on their leadership styles. Ambrosini *et al.* (2009) highlighted the relevant role of managerial perceptions of environmental dynamism in the definition of the response to changes. Managers' perceptions affect their behavior toward the renewal of their firm's resource base, as Helfat *et al.* (2007) pointed out, because it is necessary to consider what managers perceive and act upon in terms of their environment and resources. In other words, managerial behaviors and leadership styles are critical triggers for dynamic capabilities, and it could be said that the way in which top managers send messages will influence the policies and practices they are implementing in order to develop the capabilities they are interested in. In this sense, the way in which top managers (CEOs) act and the perception by their followers could be understood

using the transformational /transactional framework (Bass *et al.*, 2003) at the strategic level of the organization.

Transformational leadership has been suggested as a promoter of organizational change because it helps to achieve followers' identification with the organization's values, mission and visions (Bass *et al.*, 2003). The identification is critical because it makes followers understand the importance of the work and encourages them to look beyond their own interest (Yukl, 2006). In other words, "[...] transformational leadership is a specific form of strategic leadership that emphasizes the transformation of organizational members and alignment of individuals and collective interests" (Pawar and Eastman, 1997, p. 84). Under transformational leadership, the leader moves the follower beyond immediate self-interest. Transformational leadership emphasizes the importance of the leaders' relationships with followers (Cannella and Monroe, 1997). In doing so, transformational leadership exerts its influence through: charismatic behavior; providing inspirational motivation to the followers; providing intellectual stimulation; and finally providing individual consideration.

Little research is to be found on transactional leadership at the strategic level, with the exception of a recent study conducted by Ng and Sears (2012) suggesting that social values moderate the effect of transactional leadership on performance. Basically, transactional leadership has been studied at lower levels in the organization (Bass *et al.*, 2003) and it refers to the exchange relationship between the leader and the follower where leaders come to agreements with members of the organization regarding what the leader expects from them and how they will be rewarded. The way in which transactional leadership can influence subordinates can be summarized in three directions: contingent reward behavior; management by exception behavior; and laissez-faire behavior (Bass, 1995). In this sense, transactional leaders are focused on task and performance.

In general terms, the literature suggests that transformational leadership has greater performance outcomes (Epitropaki and Martin, 2005) than transactional leadership, but Bass and his colleagues (2003) showed that the establishment of clear standards, expectations, and trust in the leader that occur in effective transactional leadership are needed as a pre-requisite for transformational leadership. Since their appearance, a considerable amount of research has been conducted into the utility of these two styles of leadership (Vera and Crossan, 2004).

Leaders with transformational behaviors are often effective communicators and usually serve to engage individuals' self-concepts in the interest of the firm's mission (Jung *et al.*, 2003). By providing intellectual stimulation, transformational leadership encourages individuals to think further, to look at problems from different angles and to adopt generative thinking processes (Sosik *et al.*, 1997). Leaders with transformational behaviors also encourage innovation, creating a psychologically safe climate where innovative ideas are recognized. Taking into consideration the characteristics of transformational leadership leads us to think that transformational leaders could foster and inspire the behaviors needed for specific dynamic capabilities.

Managers must accumulate and then filter information from professional and social contacts to create a conjecture or a hypothesis about the likely evolution of technologies, customer needs and marketplace responses. This task involves scanning and monitoring internal and external technological developments and it is described in terms of search, risk-taking, experimentation and innovation (March, 1991; Teece, 2007). In this sense, transformational CEO leadership behaviors are expected to positively influence the sensing dynamic capability. Also, for seizing capability – related to the investment needed for the change of existing routines – managers need to make unbiased judgments under conditions of uncertainty about not just future demand and competitive responses associated with multiple growth trajectories, but also about the pay-offs from making interrelated investments in intangible assets (Teece, 2007). Therefore, a certain level of transformational

leadership and visionary behavior is needed to develop any investment capability. Our first hypothesis is proposed:

H1a. Transformational CEOs' leadership style is positively related to sensing and seizing capabilities.

In the case of transactional leadership behavior, it is expected that the leaders' focus on maintaining the status quo and the interaction between organization members and these leaders is based on exchanges whereby individuals are specifically rewarded and recognized for accomplishing objectives. In this regard, Vera and Crossan (2004, p. 224) noted that "[...] transactional leaders seek to strengthen an organization's culture, strategy and structure." In addition, leaders with transactional behaviors monitor individual and team performance to anticipate mistakes and take corrective action when needed (Howell and Avolio, 1993). Compared to transformational leadership, transactional leaders focus more on the efficiency of existing operations than on the acquisition of new capabilities.

Taking into consideration the fact that reconfiguration capacity involves refinement, production, efficiency and execution (resulting in increased efficiency and proficiency) (March, 1991), CEOs' transactional leadership can be expected to be positively related to these components of dynamic capabilities. According to Teece (2007), reconfiguration is needed to maintain evolutionary fitness and, if necessary, to try and escape from unfavorable path dependence. In short, success will breed some level of routine, as this is necessary for operational efficiency. Routines help sustain continuity until there is a shift in the environment. Changing routines is costly, so change will not be (and should not be) embraced instantaneously. These arguments would explain why transactional leadership would be appropriate for closing the dynamic capabilities cycle, as expressed in our next hypothesis:

H1b. Transactional CEOs' leadership style is positively related to reconfiguration capability.

To summarize, taking the three different components of a dynamic capability into account, we consider that sensing and seizing will require a transformational leadership style, whilst reconfiguration will be more strongly associated with a transactional style of leadership.

Leadership styles and HR systems

From the above arguments, it seems reasonable to expect that CEO leadership styles leverage dynamic capabilities. Nevertheless, we wonder whether the contribution of leaders to dynamic capabilities is directly dependent on their management style (as stated above) or whether it is associated with a mediating effect model, where the mediating variable will be the orientation of HRM practices given by leaders, as such practices will shape the employee behavior needed for competitiveness (Wright *et al.*, 1994; Lengnick Hall *et al.*, 2009; López-Cabrales *et al.*, 2006). A CEO may not directly either design or implement HRM practices but he/she is providing the strategic orientation and philosophy that latter HR managers need to shape such practices.. CEOs' decisions and actions influence middle manager responses (Smith, 2014), such as HRM departments. Strategic leaders can influence the choice of HR systems by communicating a vision and a way of working. According to Elenkov *et al.* (2005), there are many ways in which strategic leaders can influence organizational processes: by seeing environmental trends that affect the organization's future and providing more effective communication to the rest of the organization, leading to higher levels of organizational innovation; through the creation of an exciting vision of the future; and through the selection, promotion and ongoing support of champions of change. Additionally, the literature also shows that leaders can affect the organizational culture when the latter is defined as "a system of shared values (that define what it is important) and norms that define appropriate attitudes and behaviors for organizational members (how to feel and behave)" (Taylor *et al.*, 2008, p. 504).

The organizational culture – influenced by the strategic leaders – addresses the processes of the way things are done in the organization. The key corporate decision makers could be the CEO alone or senior-level managers whose views determine the overall strategy of the firm and its general approach for the implementation of the strategy. In this sense, the CEO's perception of HRM orientation can be defined as the belief in which a firm should manage its employees, and in turn, how its top HR managers should design HR systems. In this sense, the CEO's leadership style will explain how HR managers should design HR systems. Since the two leadership styles differ in relation to the process by which the leader motivates and influences his/her subordinates, it is to be expected that the style of the strategic leader (CEO) may affect to the orientation of HRM systems in a different way (Podsakoff *et al.*, 1996).

An HR system is an internally aligned set of HRM practices with a specific purpose. Kang and Snell (2009) distinguished between “skill-based development system,” which focuses on developing valuable employees for the variety and versatility of their skills and knowledge, and “job or function-based development system,” whose main concern is to develop employees with skills and knowledge linked to their particular current jobs. Both HR systems are internally aligned, but differ in terms of purpose (focus on developing employee skills for the organization vs developing employee skills for the job).

There are several key differences between these systems. Skill-based development systems are person-based and concentrate on how objectives are met or how work is accomplished successfully whereas job or function-based development systems focus on the results, that is, on what is accomplished (Shippmann *et al.*, 2000). Firms focus on those skills that will enable long-term organizational adjustment to evolving conditions. Under function-based development systems, the concern is to achieve a short-term task match (Clardy, 2007). In addition, skill-based development systems allow behavioral traits to be integrated into HRM models and enable individual ex-ante assessment against requirements and responsibilities other than those currently held, while job or function-based systems are focused on current and technical skills and evaluate performance in the execution of specific tasks *ex post* (Catano, 1998).

Skill-based development systems – characterized by training and development of future skills, behavioral performance appraisal and skill-based pay – increase the opportunities and motivation for individuals to experience a wide variety of tasks (Lepak and Snell, 2002). These systems tend to use extensive training to focus on future skills requirements beyond current job requirements and improve employee potential and openness to learn new skills. The main objective is to encourage employees to learn new knowledge and ideas, tolerating error beyond their current jobs. Also, skill-based development systems allow employees to make decisions, set their own performance goals, and change the ways they carry out their jobs to deal with exceptional circumstances requiring creativity and initiative (Bae and Lawler, 2000). The objective is to establish a closer connection between individual performance and organizational success in a long-term perspective. Additionally, leaders focus on the development of multi-skilled people with a more versatile repertoire of capabilities that can be used across alternative situations. Their priority is employee potential and openness to learning new skills. In contrast, job or function-based development systems, characterized by training and the development of job-related skills, developmental performance appraisal and job-based pay, encourage employees to invest in particular functional areas and capitalize on the efficiency of their specialized knowledge. The HR systems have organized their efforts around job-related tasks and inferences about the knowledge and skills required in order to perform the job-related tasks (Catano, 1998). These systems use intensive training to improve current job-related skills (Lepak and Snell, 2002). Also, job or function-based development systems reinforce employees performance and effort in their current jobs, by focusing on prescribed procedures or specified results or both (Lepak and Snell, 2002) and on efficiency (Bae and Lawler, 2000). The quick connection

between the actions individuals take and the results they achieve is essential here, ensuring conformance to present standards, eliminating uncertainty, and increasing the predictability of individual behaviors at work (Kang and Snell, 2009). In these cases, leaders are focused on people with profound knowledge in a specific domain, who often have little willingness or ability to exchange and combine new knowledge outside their specialized area.

Transformational leaders build cultures that emphasize being proactive, empowered and innovative (Smith *et al.*, 2004). This emphasis on innovation will aim to design HR systems associated with the use of extensive training to focus on future skill requirements beyond current job requirements, seeking “skill-based development.” Furthermore, the use of skill-based performance appraisals and/or incentive systems can encourage individuals to acquire new knowledge and ideas beyond their immediate jobs (Guthrie, 2001) and focus training on future skills and skill-based pay. In contrast, transactional leadership, paying attention to the provision of contingent rewards, will tend to promote an HR system in which intensive training focuses on the improvement of current job-related skills (Guthrie, 2001), and will be closer to a “job or function-based development” HR system. The philosophy implied in transactional leadership uses appraisals and incentive systems focused on individual’s performance and effort in current jobs, as job-based HRM practices do. Transactional leaders operate within the existing system or culture, tend to avoid risks, and focus on time constraints, standards and efficiency (Bass, 1985). Organizational members interactions with these leaders are based on exchanges in which employees are specifically rewarded and recognized for accomplishing objectives. In addition, transactional leaders monitor individual and team performance to anticipate mistakes and take corrective actions when needed (Howell and Avolio, 1993). Compared to transformational leaders, transactional leaders focus more on the efficiency of existing operations than on acquiring new capabilities (Shamir *et al.*, 1993).

Based on the above arguments, we propose that strategic leadership is associated with the orientation of HRM practices, specifically:

H2a. Transformational leaders will promote “skill-based development” HR systems in their organizations.

H2b. Transactional leaders will promote “job or function-based development” HR systems in their organizations.

Finally, it could be expected that each HR system affects different dimensions of dynamic capabilities. As Wright *et al.* (1994) pointed out, the basic premise here is that HRM practices will drive employee behavior in order to achieve strategic goals.

Therefore, we posit that HR systems act as a mediating mechanism between leadership styles and dynamic capabilities. A better understanding of workers’ roles in creating dynamic capabilities requires the examination of the connections between employee contributions, human resource management choices and the development of organizational capability routines. Considering Teece’s (2007) definitions, we argue that sensing and seizing capacities will require transformational leaders who promote innovative behavior in the personnel and such behavior may be strengthened by the development of future skill requirements beyond current job requirements, following a “skill-based development” orientation of HRM practices. Moreover, the use of behavioral performance appraisals and skill-based pay systems can encourage individuals to acquire new knowledge and ideas beyond their immediate jobs contributing to sensing and seizing capabilities too (Guthrie, 2001). Based on this, a third hypothesis is proposed:

H3a. Skill-based development HR systems will mediate in the relationships between transformational strategic leadership and sensing and seizing capabilities.

On the other hand, reconfiguration capacity will require transactional leaders whose aim is the improvement of current job-related skills through intensive training and the development of job-related skills (Guthrie, 2001), and developmental performance appraisal and job-related pay systems that focus on individuals' performance and effort in current jobs, practices included in the job or function-based development system of HRM practices. Thus, a last hypothesis is proposed:

H3b. Job or function-based development HR systems will mediate in the relationships between transactional strategic leadership and reconfiguration capability.

Therefore, our model of direct and mediating effects – depicted in Figure 1- proposes that the effect of leadership on the development of dynamic capabilities is mediated by the orientation of the HRM system used to manage employee contributions in terms of training, appraisals and compensation policies.

Methods

To test the hypothesis put forward, the population encompassed Spanish firms from the manufacturing industries according to the Spanish Statistical Institute. Most papers that have studied the relationships between dynamic capabilities and innovation focus on manufacturing firms (Teece, 2007; Eisenhardt and Martin, 2000). Specifically, this study spans the most innovative Spanish industries in recent years: machinery manufacturing; motor vehicle manufacturing; radio and TV manufacturing, telecommunications equipment; and the chemical industry.

Since dynamic capabilities are seen as proxies of sensing, seizing and reconfiguration capacities, this study focused on different organizational units – such as production and marketing departments – looking for diverse contributions from two units that are closely related to these capabilities. Firms were chosen with more than fifty employees, which increased the probability of finding firms with well-established production, marketing and HRM departments. The final population included 530 firms in these sectors.

The methodology chosen for contacting the firms was followed, first mailing the questionnaire, and then following up. The manager responsible for the units was identified in order to explain the study to him/her, request collaboration and discuss the mailing of the questionnaire. Each firm was sent three different questionnaires concerning its dynamic capabilities, strategic leadership and human resources management. Specifically, the human resources manager was asked to answer questions on strategic leadership and human resources management practices. The production and marketing managers were also asked to

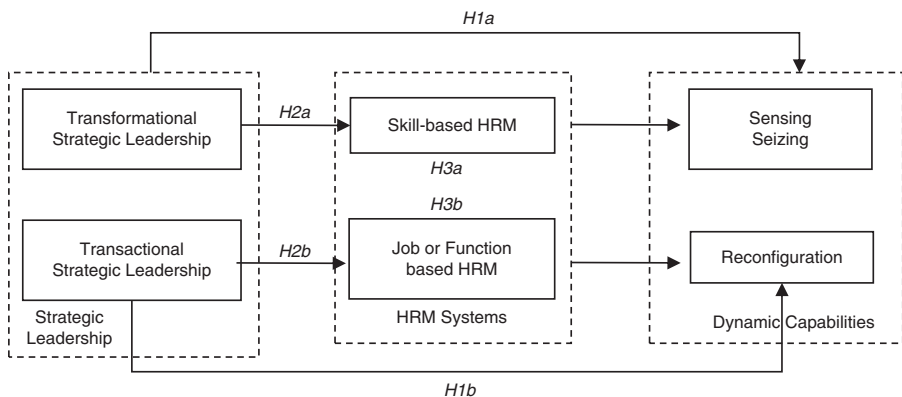


Figure 1.
A conceptual model based on the hypotheses

assess leadership and HRM practices, in addition to dynamic capabilities, since they manage departments that are closely related to sensing, seizing and reconfiguration activities in the firm. Obtaining answers from HR, production and marketing managers from each firm (three managers per firm) is a good strategy for avoiding the common-method bias. The final sample consisted of 107 firms that returned all three questionnaires completed by the HR, production and marketing managers. The response rate was 20.18 percent.

To check for non-response bias, we compared the respondents with the non-respondents, via mean difference, based on their general features (industry membership, number of employees and revenue), which were available in the Spanish SABI database. The *t*-test for equality of means for independent samples showed that the difference between the mean scores was not statistically significant. Therefore, a non-response bias related to industry, number of employees or revenue was not present in the data.

Measures

The instrument used to collect the required information was a questionnaire covering all the constructs analyzed in the paper. Responses for the different items were obtained using a seven-point Likert scale. To assess content validity, after a thorough review of the literature, a panel of academic experts was formed. Once their suggestions were incorporated into the questionnaire, the questionnaire was sent to each company's human resources, marketing and production manager.

Strategic CEO leadership. The measurements of leadership styles were adapted from those developed by Podsakoff *et al.* (1996). The items specifically used were those forming their transactional leadership style and their transformational system with respect to the chief executive officer (CEO). The leadership style scale consists of the 21-item Transformational Leadership Behavior Inventory (McKenzie *et al.*, 2001) that measures six dimensions, namely, articulating a vision, providing an appropriate model, fostering the acceptance of group goals, having high performance expectations, providing individualized support and providing intellectual stimulation. A four-item scale (contingent reward) was used to assess transactional leadership from the Leader Reward and Punishment Behavior Questionnaire (Podsakoff *et al.*, 1996). Contingent reward behavior incorporates the exchange notions fundamental to transactional leadership behavior and is the main behavior identified by Bass (1995) to represent this category. All of these items cover the extent to which a leader provides rewards in exchange for a follower's effort.

In this study, the leadership scale is treated as unidimensional by combining the scores of all dimensions belonging to the respective key styles, as in other studies (Podsakoff, Niehoff, MacKenzie and Williams, 1993; Podsakoff *et al.*, 1996). The reason leadership is treated as unidimensional is to achieve a construct that best differentiates the leadership style. Exploratory factor analysis (EFA) was also conducted and showed the intended 2-factor structure with each item loading on its intended factor, showing $\alpha = 0.93$ for transformational style, and $\alpha = 0.88$ for transactional. We used the principal component analysis which estimates linear combinations of the underlying variables. The first principal component is estimated to explain the highest possible fraction of the total variance, the second principal component to explain the highest possible fraction of the variance which is not explained by the first principal component, etc. An economic interpretation of the sets of factor loading (factors) from the factor analysis is that the "usual" pattern is one in which some of the above-mentioned factors play a major role. The factors were then rotated using orthogonal varimax rotation. This operation widens the initial (non-rotated) factors, so that the factors become more different. Table I shows factor loadings for transformational and transactional strategic leadership. As we can observe, of the first 21 items, 18 items played a major role in Factor 1 (transformational leadership), leaving

		Factor 1	Factor 2		
Leadership style				Factor 1	Factor 2
Transformational_1	Is always seeking new opportunities for the unit/department	0.640	0.036		
Transformational_2	Paints an interest picture of the future of our group	0.641	0.229		
Transformational_3	Has a clear understanding where we are going	0.676	0.293		
Transformational_4	Inspires other with his/her plans for the future	0.741	0.351		
Transformational_5	Is able to get others committed to his/her dream of the future	0.746	0.245		
Transformational_6	Fosters collaboration among work groups	0.517	0.515		
Transformational_7	Encourages employees to be "team players"	0.661	0.361		
Transformational_8	Gets the group to work together for the same goal	0.682	0.102		
Transformational_9	Develops a team attitude and spirit among his/her employees	0.643	0.275		
Transformational_10	Acts without considering my feelings	0.842	0.220		
Transformational_11	Shows respect for my personal feelings	0.798	0.349		
Transformational_12	Behaves in a manner that is thoughtful of my personal needs	0.722	0.357		
Transformational_13	Treats me without considering my personal feeling	0.607	0.318		
Transformational_14	Shows us that he/she expects a lot of from us	0.243	0.357		
Transformational_15	Insists on only the best performance	0.316	0.296		
Transformational_16	Will no settle for second best	0.539	0.292		
Transformational_17	Leads by "doing" rather than simply "telling"	0.632	0.106		
Transformational_18	Provides a good model to follow	0.624	0.259		
Transformational_19	Leads by example	0.660	0.120		
Transformational_20	Has provided me with new ways of looking at things which used to be a puzzle for me	0.643	0.196		
Transformational_21	Has ideas that have forced me to rethink some of my own ideas I have never questioned before	0.656	0.319		
Transactional_1	Always give me a positive feedback when I perform well	0.055	0.695		
Transactional_2	Give me special recognition when my work is very good	-0.012	0.682		
Transactional_3	Commends me when I do better than average work	0.010	0.746		
Transactional_4	Personally complements me when I do understanding work	0.353	0.689		
Eigenvalues		1.858	1.195		
% of variation		12.256	2.790		
Cronbach's α		0.93	0.88		
Dynamic capabilities		Factor 1	Factor 2	Factor 3	
Sensing_1	We often review our product development efforts to ensure they are in line with what the customers want	0.217	-0.148	0.761	
Sensing_2	We devote a lot of time implementing ideas for new products and improving our existing products	0.276	0.354	0.732	
Sensing_3	We frequently scan the environment to identify new business opportunities	0.184	0.255	0.805	
Seizing_1	We are effective in transforming existing information into new knowledge	0.684	0.151	0.402	
Seizing_2	We are effective in utilizing knowledge into new products	0.701	0.059	0.410	
Seizing_3	We carefully interrelate our actions to each other to meet changing conditions	0.826	0.292	0.115	
Seizing_4	We are effective in developing new knowledge that has the potential to influence product development	0.386	0.359	0.110	
Reconfiguration_1	We have effective routines to identify, value, and import new information and knowledge	0.213	0.808	0.238	
Reconfiguration_2	We can successfully reconfigure our resources to come up with new productive assets	0.214	0.788	0.037	
Reconfiguration_3	We often engage in resource recombination to better match our product-market areas and our assets	0.569	0.401	0.297	
Reconfiguration_4	We ensure that the output of our work is synchronized with the work of others	0.317	0.654	-0.051	

Table I.
Exploratory factor analysis (EFA)

(continued)

Reconfiguration_5	We ensure and appropriate allocation of resources within our group	0.217	0.426	0.118
Eigenvalues		1.808	1.126	1.046
% of variation		25.824	16.092	14.939
Cronbach's α		0.85	0.75	0.83
HRM systems			Factor 1	Factor 2
Job-based system_1	We have a job-based pay system. That is, factors within the job are key determinants of the amount of pay received by incumbents		0.798	0.220
Job-based system_2	The job is a more important factor than an incumbent's ability or performance in the determination of pay rates in this organization		0.749	0.197
Job-based system_3	Heavy emphasis is placed on job evaluation procedures to determine pay levels		0.564	0.185
Job-based system_4	Performance appraisal is based on objective quantifiable results		0.774	0.178
Job-based system_5	Performance appraisal focuses on their contribution to our strategic objectives		0.774	0.212
Job-based system_6	Our training activities emphasize improving current job performance		0.514	0.248
Job-based system_7	Our training activities seek to increase short-term productivity		0.771	0.217
Skill-based system_1	We have a skill-based pay system. That is, individuals are rewarded in part on their mastery of job skills	0.318	0.676	
Skill-based system_2	The skills are a more important factor than the incumbent's job	0.067	0.660	
Skill-based system_3	Heavy emphasis is placed on skill evaluation procedures to determine pay levels	0.319	0.750	
Skill-based system_4	Performance appraisal is based on an assessment of the quality of output	0.227	0.788	
Skill-based system_5	Performance appraisal for these employees emphasized employee learning	0.277	0.786	
Skill-based system_6	Performance appraisal for these employees include developmental feedback	0.243	0.704	
Skill-based system_7	Our training activities seek to increase long-term productivity	0.127	0.283	
Skill-based system_8	Our training activities strive to develop department-specific skills and knowledge	0.196	0.572	
Eigenvalues		1.029	1.938	
% of variation		14.696	13.404	
Cronbach's α		0.70	0.72	

Table I.

three items with no specific role in Factor 1 or 2. From the last four items, we can observe that all of them play major roles in Factor 2 (transactional leadership). In both cases, the items were all positive and of similar size (almost all factor loadings ranging from 0.6 to 0.7). The results were consistent with the theoretical approach used for transformational and transactional leadership style.

Human resource systems. We identify two different HR systems called the skill-based development system and the job or function-based development system. Skill-based development systems focus on workers' potential or aptitudes, including HRM training and development practices for future skills, behavioral performance appraisal and skill-based pay whereas job or function-based development systems are concerned about the match between jobs and current workers and also include HRM practices for training in and development of job-related skills, developmental performance appraisal and job-based pay. The HR system scales were developed and based on studies by Kang and Snell (2009) and Gomez-Mejia (1992). The literature points out that training and development, performance appraisal and compensation were the most relevant HR practices in previous research (Schuler and Jackson, 2005).

As we can see in Table I, EFA showed the intended 2-factor structure. The sets of factor loadings for each factor are reported in Table I, which shows the pattern followed by factor loadings for skill-based HRM systems and job-based HRM systems. Accordingly, to explain HR systems and find a pattern in our items, we interpret Factor 1 as “HR skill-based system” and Factor 2 as “HR job-based system.” In this case, all the item loadings were also positive, ranging from 0.5 to 0.7, with all factors having eigenvalues greater than one. Finally, we constructed two human resource systems, HR skill-based system ($\alpha = 0.72$) which contains eight items, and HR job-based system ($\alpha = 0.70$) including seven items.

Dynamic capabilities. After conducting a comprehensive review of the literature on the dimensions of dynamic capabilities, we considered those proposed by Teece (2007): sensing, seizing and reconfiguration, which have already been defined above. In order to develop the items, we took into account the scales proposed by Pavlou and El Sawy (2011), due to the theoretical nature of Teece’s paper. The final measurement consisted of three items for sensing capability, four items for seizing and five items for reconfiguration, with Cronbach’s α values of 0.85, 0.75 and 0.83, respectively. Examples of items are: “my organization is scanning the environment to identify new market opportunities” (for sensing), “my organization invests in new products” (for seizing), and “my organization is efficient in coordinating tasks for new products” (for reconfiguration). EFA (Table I) showed the intended three-factor structure with the items loading on their intended factor and all factors having eigenvalues greater than one. Specifically, we detected and interpreted Factor 1 (sensing capability) with three items, Factor 2 (seizing capability) with three items loading in this factor and one item with no specific role, and finally Factor 3 (reconfiguration capability) with four items clearly loading and one item with no specific role played for this factor.

All the variables were measured using responses graded on a seven-point Likert scale. With regard to convergent validity, as common strategy for all the variables, an EFA due to dimensionality purposes was performed separately for each construct using the principal axis factoring method, which is the most appropriate for identifying latent variables and those factors with eigenvalues greater than 1 were selected. Some items were eliminated given their low factor loadings on the factor (i.e. Leadership Transformational scale consists of 18 items instead of the “original” 21 items). All measures showed the dimensionality expected. Table I shows the results for factor loadings for measure dimensionality.

Regarding to the discriminant validity among the analyzed variables, EFA was conducted on indicators of the constructs, applying a varimax rotation. Seven factors were identified and the eigenvalues, percent of variation, percent of accumulative variation, and Cronbach’s α are shown in Table II.

	Factor 1	Factor loading Factor 2	Factor 3
Sensing	0.871	0.130	-0.031
Seizing	0.850	0.238	0.167
Reconfiguration	0.830	0.292	0.176
Transformational	0.437	0.068	0.565
Transactional	0.022	0.156	0.923
Skill-based system	0.285	0.895	0.140
Job-based system	0.167	0.935	0.103
Eigenvalues	2.569	1.863	1.261
% of variation	36.705	26.613	18.010
% of acum. variation	36.705	63.318	81.328

Table II.
EFA indicators
of constructs

Finally, regarding to reliability, Cronbach's α exceeded the minimum value of 0.7 recommended by Nunnally and Bernstein (1995) in all the measurement scales.

Control variables. Research has demonstrated that a company's size may be related to a greater or lesser tendency to innovate. Some scholars have established that an increase in the organization's size implies more resources and greater potential for innovation, while other scholars have argued that small organizations can be more innovative because they are more flexible, have greater ability to adapt and less difficulty in accepting and implementing changes (Damanpour, 1991). Following these arguments, we assume that the firm's size has an influence on an organization's innovative activity. We measure the firm size variable by the number of employees in the firm. As wide dispersion is expected, we use a Napierian logarithm to estimate the number of workers in the department in order to avoid the scale effect. We also control for different industries. Sector is a dummy variable used to control the effect of different industries. For sector, the CNAE industry classification was used. We identified five different industries in this study: machinery manufacturing; motor vehicle manufacturing; radio and TV manufacturing; telecommunications equipment; and the chemical industry.

We labeled these five different activity sectors and chose machinery manufacturing as the reference category, which is not included in the analysis. The other sectors are introduced as four dummy variables in analyses.

Inter-group agreement

The study called for three managers per firm to respond to the questions. Specifically, we asked production, marketing and human resources managers to respond to strategic leadership style and HR system questions. The questions related to dynamic capabilities were addressed to production and marketing managers because they have more accurate knowledge about the subject than human resources managers. Therefore, we obtained two responses per firm related to dynamic capabilities and three responses per firm about strategic leadership and human resource systems. Under the assumption that the scores obtained reflect a shared reality within each firm, we predicted that the scores obtained from each manager at the firm would be similar. These arguments can be measured by the inter-rater agreement coefficient (r_{wg}) (Bliese and Halverson, 1998). These expectations were confirmed by measuring the r_{wg} , which has been used for aggregating data purposes (James *et al.*, 1984). The average values for r_{wg} are shown in Table III.

Results

Table IV provides descriptive statistics and correlations. All the relationships considered in the study are significant at the correlational level.

In order to test the hypotheses, multiple and hierarchical regression analysis was used, always introducing the control variables at the first stage. Different models were run in the regressions, identifying the dependent variable used in each case. Specifically, with regard to the relationship between strategic leadership and dynamic capabilities, three different

		Median
Strategic Leadership Dynamic Capabilities	Transformational	0.84
	Transactional	0.76
	Sensing	0.81
	Seizing	0.78
	Reconfiguration	0.78
Human resource systems	HR skill-based system	0.71
	HR job-based system	0.77

Table III.
Values of r_{wg} for variables in the study

Table IV.
Statistic descriptive
and correlations

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Sector	-	-	1								
2. Size	5.61	5.52	-0.154	1							
3. Sensing	5.55	0.65	-0.133	-0.014	(0.85)						
4. Seizing	5.33	0.66	-0.027	0.037	0.670**	(0.75)					
5. Reconfiguration	5.23	0.63	-0.029	0.040	0.643**	0.668**	(0.83)				
6. Transformational	5.6	0.59	-0.156	0.022	0.405**	0.456**	0.475**	(0.93)			
7. Transactional	5.07	0.89	0.202*	0.141	0.086	0.247*	0.248*	0.333**	(0.88)		
8. Skill-based HR	5.53	0.48	-0.147	-0.088	0.381**	0.447**	0.498**	0.302**	0.275**	(0.72)	
9. Job-based HR	5.5	0.47	-0.126	0.008	0.258**	0.378**	0.416**	0.274**	0.212*	0.611**	(0.70)

Notes: $n = 107$. When appropriate, Cronbach's α coefficients are reported in parenthesis on the diagonal. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.10$

models were run (Table V- Models 1, 2 and 3). The first and second models refer to the regression for transformational leadership and sensing and seizing (*H1a*) capabilities. The result showed positive and statistical significance in both cases ($\beta = 0.402$ and $\beta = 0.424$, respectively). The third model, with reconfiguration as the dependent variable, showed a positive and significant relationship (*H1b*) with transformational leadership but not with transactional leadership. The results fully support *H1a*, but not *H1b*.

With regard to the relationship between strategic leadership styles and HR systems, two different models were also run, taking the HR skill-based system (Table V-Model 4) and HR job-based system (Table V-Model 5) as dependent variables. As can be observed in Table V, both leadership styles are positively and significantly related to HR systems regardless of the specific HR system (skill-based or job-based), partially supporting hypotheses *H2a* and *H2b*.

To test the mediation relationship established in the theory (*H3a* and *H3b*), this study followed the traditional perspective provided by Baron and Kenny (1986) and Preacher and Hayes's (2008) bootstrapping method. Specifically, Baron and Kenny's procedures state that three models must be used in order to demonstrate a mediation effect and four conditions must be given: in Equations (1) and (2), independent variables (β_{11} , β_{21}) must be significant; in (Equation (3)), mediator variables (β_{32} Me) must be significant; in Equation (3), independent variables (β_{31}) should be lower (in absolute terms) than in (Equation (1)).

Table V.
Results for
regressions *H1a*,
H1b, *H2a* and *H2b*

	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β
<i>Control V</i>					
Sector 1	0.251	-0.204	-0.115	0.173	0.204
Sector 2	0.307	-0.038	0.066	0.192	0.130
Sector 3	0.158	-0.048	0.026	0.011	0.121
Sector 4	-0.160	-0.049	-0.021	0.049	0.053
Size	-0.000	0.076	0.021	-0.147	-0.027
<i>Main V</i>					
Transformational	0.410*	0.376**	0.406**	0.206*	0.192*
Transactional	-0.076	0.051	0.122	0.258**	0.177*
R^2	0.092	0.121	0.229	0.193	0.127
ΔF	3.12*	4.84*	13.30**	8.50**	4.97**

Notes: $n = 107$. Dependent Variable for Models 1, 2, 3, 4 and 5: sensing, seizing, reconfiguration, skill-based development HR system and job-based development HR system, respectively. * $p < 0.05$; ** $p < 0.01$

This study considered the three sets of equations, with sensing, seizing and reconfiguration being taken as dependent variables (see Table VI) in three different models. The specification of the models used to follow Baron and Kenny's procedures is as follows:

Model 1:

$$Y_{(\text{Sensing})} = \beta_{10} + \beta_{11}(\text{Transformational Leadership}) + \varepsilon_1 \quad (1)$$

$$Me_{(\text{Skill-based HR})} = \beta_{20} + \beta_{21}(\text{Transformational Leadership}) + \varepsilon_2 \quad (2)$$

$$Y_{(\text{Sensing})} = \beta_{30} + \beta_{31}(\text{Transformational Leadership}) + \beta_{32}Me_{(\text{Skill-based HR})} + \varepsilon_3 \quad (3)$$

Model 2:

$$Y_{(\text{Seizing})} = \beta_{10} + \beta_{11}(\text{Transformational Leadership}) + \varepsilon_1 \quad (1)$$

$$Me_{(\text{Skill-based HR})} = \beta_{20} + \beta_{21}(\text{Transformational Leadership}) + \varepsilon_2 \quad (2)$$

$$Y_{(\text{Seizing})} = \beta_{30} + \beta_{31}(\text{Transformational Leadership}) + \beta_{32}Me_{(\text{Skill-based HR})} + \varepsilon_3 \quad (3)$$

Model 3:

$$Y_{(\text{Reconfiguration})} = \beta_{10} + \beta_{11}(\text{Transactional Leadership}) + \varepsilon_1 \quad (1)$$

$$Me_{(\text{Job-based HR})} = \beta_{20} + \beta_{21}(\text{Transactional Leadership}) + \varepsilon_2 \quad (2)$$

$$Y_{(\text{Reconfiguration})} = \beta_{30} + \beta_{31}(\text{Transactional Leadership}) + \beta_{32}Me_{(\text{Job-based HR})} + \varepsilon_3 \quad (3)$$

The results of these regressions are shown in Table VI. Our data support the conditions required to demonstrate a mediating effect.

Table VI shows the results for regressions corresponding to the consideration of independent variables and mediators together. Again, we formed three sets of models due to the different dependent variables. The pattern for different coefficients related to leadership styles, dynamic capabilities and HR systems fulfills all the proposed conditions for a mediator effect (Baron and Kenny, 1986; Judd and Kenny, 1981). Therefore, the results initially support the mediating effect of HR skill and job-based systems in relation to both leadership styles, as was predicted theoretically.

To examine whether the indirect effect of transformational and transactional leadership is significant, we ran the bootstrap resampling method with replacements to generate 5,000 samples of the entire data set. We followed Preacher and Hayes's (2008) method using SPSS Macro, version 22. The bootstrap results for indirect effects are shown in Table VII. Since the confidence intervals did not include zero in all cases, the mediation relationships were statistically significant. These results support *H3a* and *H3b*.

With regard to control variables, we did not find any significant role in our regressions in any case.

Discussion and conclusions

This paper makes a contribution to the literature and is useful to practitioners. Due to the turbulence of the current environment, firms must develop dynamic capabilities that help them to maintain their competitive advantages. Nowadays, organizations search not only

Table VI.
Results for mediation
test (*H3a* and *H3b*)

	Model 1 (DV: sensing)		Model 2 (DV: seizing)		Model 3 (DV: reconfiguration)	
	Equation (1) β	Equation (2) β	Equation (1) β	Equation (2) β	Equation (1) β	Equation (2) β
Sector 1	0.077	0.125	-0.077	0.125	-0.122	0.239*
Sector 2	0.070	0.165	-0.067	0.165	-0.128	0.149
Sector 3	0.054	0.004	-0.136	0.004	-0.137	0.145
Sector 4	0.054	0.092	0.070	0.092	0.036	0.041
Size	-0.015	-0.103	0.035	-0.103	0.073	-0.036
Transformational style	0.397**	0.298**	0.474**	0.364**	0.365**	0.249*
Transactional style					0.256*	0.158
HR Skill-based		0.293**			0.367**	0.395**
HR Job-based	0.171	0.140	0.234	0.083	0.077	0.095
R^2	18.48**	9.98**	14.83**	10.56**	25.33**	6.27*
ΔF			28.46**		6.49*	12.61**

Notes: $n = 107$. * $p < 0.05$; ** $p < 0.01$. Dependent variables for Equations (1) and (3) in Models 1, 2 and 3: sensing, seizing and reconfiguration, respectively; dependent variable for Equations (2) in Models 1 and 2: HR skill-based; for Model 3: HR job-based

for operational but also dynamic capabilities since the latter help managers to reconfigure existing core capabilities into new ones that better match the environment (Pavlou and El Sawy, 2011). In this regard, the ability to seize new opportunities, integrate new and existing knowledge, and reconfigure internal and external competences (Teece *et al.*, 1997, Teece, 2007) have become fundamental components in the competitive advantage of firms. However, the role played by CEOs' leadership style in this process has been ignored, with some exceptions (Ambrosini *et al.*, 2009), and the way in which employees are managed in order to adapt the resource base to the changing environment also demands further clarification.

Accordingly, this paper considers that the primary agent who can positively influence the dynamic capabilities of a firm is the CEO, by means of his/her strategic leadership. Assessing the degree of transactional and transformational leadership, these results suggest that only transformational leaders are able to impact dynamic capabilities directly. They are able to promote the full range of sensing, seizing and reconfiguration capabilities. However, contrary to expectations, transactional leaders do not directly enhance any reconfiguration capability, although this result changes when a CEO's managerial style is supported by the orientation given to HRM practices. To some extent, this paper goes beyond previous research as it highlights the need to develop CEOs who are able to combine transactional and transformational leadership behaviors, whilst also underscoring the importance of different configurations of HRM practices that are coherent with leadership styles. Therefore, transformational leadership could be said to be positive because it inspires followers and gives meaning to their work, but it is most effective when delivered in collaboration with transactional leadership behaviors and supported by skill-based HRM practices.

Emphasizing this last remark, this paper also demonstrates how HRM practices are a valid vehicle for acquiring dynamic capabilities, as leadership styles may facilitate different orientations of HR systems (skill-based or job-based), leading the organization to obtain the full range of dynamic capabilities. As the hypotheses put forward suggest, skill-based HRM mediates between transformational leadership and sensing and seizing capabilities, suggesting that visionary leaders should provide their employees with training, appraisals and compensation practices that ensure continuous refreshment of knowledge, as a way of involving these employees in the different processes associated with dynamic capabilities. Conversely, transactional leaders -who want to reinforce reconfiguration capability- are worried about employees' results and efficiency, so a job-based orientation of HRM practices is a coherent way of achieving that aim. Previous results suggested that such leaders cannot impact reconfiguration capability directly.

These findings also offer some practical implications for HR managers. The different mediation paths of HRM practices in the relationship between leadership styles and dynamic capabilities suggest that different HR systems can be applied by managers in order to leverage employees' behaviors that give rise to different dynamic capabilities. In this way, HR managers can better understand the strategic contribution of their department, as they

	Bias corrected and accelerated	Confidence intervals	
		Bias corrected	Percentile
Skill-based HR system mediating for sensing	(0.025, 0.241)	(0.017, 0.222)	(0.007, 0.203)
Skill-based HR system mediating for seizing	(0.037, 0.273)	(0.029, 0.245)	(0.014, 0.227)
Job-based HR system mediating for reconfiguration	(0.008, 0.149)	(0.006, 0.142)	(0.002, 0.134)

Table VII.
Bootstrap results for
indirect effects
(H3a and H3b)

should define and implement the appropriate HRM system in order to develop desirable dynamic capabilities that feed into competitive advantage and business success.

These findings also seem to demonstrate how CEOs need to take into account HR professionals or to implement skill-based/job-based HR practices. Firms looking to increase their sensing and seizing capabilities should develop skill-based practices, and their HR managers would be happy to collaborate with transformational CEOs. Conversely, and interestingly, transactional CEOs cannot do anything to increase dynamic capability if they are able to work alongside and commit HR professionals who design and implement job-based HR practices. Hence, this paper helps to further understanding and to reinforce the strategic role of the HRM function, from a practical point of view.

Certain limitations emerge from this study. First, it approaches dynamic capabilities by using cross-sectional data. If it could be applied, a longitudinal analysis would enrich the study of evolving processes associated with sensing, seizing and reconfiguration activities. Second, although three different managers analyzed the organizational variables involved (strategic leadership, HR system and dynamic capabilities) and they came from HR, production and marketing departments – ensuring that they were very familiar with the variables in question – it could be argued that different departments could contribute to the firm's competitiveness in different ways. The data aggregation in this paper does not allow this to be checked. As for the control variables used, they did not play a significant role in the sample. All the firms included in the sample came from innovative sectors, which could make them quite similar with regard to dynamic capabilities. In this regard, future studies might use firms from different sectors (mixing more and less innovative ones). Along these same lines, the size variable was treated using the Napierian logarithm to avoid the scale effect, which could reduce the variability of this metric, affecting its significance. Finally, other HRM practices and strategic orientations could be assessed. This paper looked at skills-based vs job-based HR as an appealing dichotomy to test due to their relationship with further human capital development (Kang and Snell, 2009), but future researchers could study other practices.

Future research should explore new variables involved in the development of dynamic capabilities that could enrich this model. One new question that could be addressed is how a firm can combine both HR systems at the same time in order to take advantage of the full range of dynamic capabilities. One potential answer to this concern might be provided by the structural approach to ambidexterity (see Kang and Snell, 2009), that is, the management of different units or teams of employees by different HR systems. In this respect, another future research strand should study the effectiveness of designing units dedicated exclusively to searching for new opportunities, while other areas focus on exploiting current capacities. More studies based on different organizational units – such as production and marketing departments are, for example – will enrich knowledge about the ambidextrous character and dynamic capabilities of firms. In that case, additional research about the mechanics of coordination between organizational departments should be also developed. Finally, given the importance of knowledge at different levels for developing dynamic capabilities, another potential field of contribution would be the nexus between different HR systems and intellectual capital and learning. In other words, what type of human, social capital and learning is reinforced by skill-based/job-based HR practices? Again, an application and refinement of exploration/exploitation architectures proposed by Kang and Snell (2009) would be helpful for such research purposes.

In conclusion, it would be promising to apply a structural approach to ambidexterity in which different units – specialising in specific types of knowledge, HR Systems and learning work – together in order to contribute to dynamic capabilities. This study is an attempt to address this issue and, therefore, to refine and extend comprehension of the relationship between strategic leadership, HRM and dynamic capabilities, a fundamental field in the future of strategic human resources management.

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