

Strategic Orientations, Dynamic Capabilities, and Firm Performance: an Analysis for Knowledge Intensive Business Services

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Abstract The strategic orientations of a firm are considered crucial for enhancing firm performance and their impact can be even greater when associated with dynamic capabilities, particularly in complex and dynamic environments. This study empirically analyzes the relationship between market, entrepreneurial and learning orientations, dynamic capabilities, and performance using an integrative approach hitherto little explored. Using a sample of 209 knowledge intensive business service firms, this paper applies structural equation modeling to explore both direct effects of strategic orientations and the mediating role of dynamic capabilities on performance. The study demonstrates that learning orientation and one of the dimensions of entrepreneurial orientation have a direct positive effect on performance. On the other hand, dynamic capabilities mediate the relationships between some of the strategic orientations and firm performance. Overall, when dynamic capabilities are combined with the appropriate strategic orientations, they enhance firm performance. This paper contributes to a better understanding of the knowledge economy, given the important role knowledge intensive business services play in such a dynamic and pivotal sector.

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Introduction

Strategic orientations are the strategic directions implemented by a firm that creates the proper behaviors for the continuous superior firm performance (Narver and Slater 1990). Strategic orientations are generally associated with innovative and distinctive competencies. Most studies have found the different dimensions of strategic orientations of a firm to have a positive impact on firm performance, albeit to a varying degree.

Although the direct effects of strategic orientations on performance have been examined, especially in the earlier period of research in this field, many scholars argue that strategic orientations may not play out directly, but rather their impact is most felt when enacted in conjunction with the presence of other factors (e.g., Wales et al. 2013; Wiklund and Shepherd 2003). This vindicates the recommendation to pay attention to the *process* by which strategic orientations affect performance and to analyze the moderation or mediation of internal and external variables (Zhou et al. 2005). However, the studies involving moderator and mediator mechanisms provide mixed results with respect to the effects of strategic orientations and the selected variables on firm performance.

A more recent evolutionary perspective in this discussion combines strategic orientations with dynamic capabilities (hereafter referred to as DCs), assuming that in complex and dynamic environments strategic orientations are not sufficient to explain enhanced firm performance (Eisenhardt and Martin 2000). Dynamic capabilities emphasize “the capacity to sense and shape opportunities and threats, to seize opportunities, and to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise’s intangible and tangible assets” (Teece 2007, p. 1319).

A consistent finding that emerges from the studies on the link between different dimensions of strategic orientations, dynamic capabilities, and firm performance is that firm renewal is enhanced when DCs work in conjunction with some or all dimensions of strategic orientations (e.g., Makkonen et al. 2014; Santos-Vijande et al. 2013). Dynamic capabilities enable dealing with change, leading to positive outcomes in the changing environment due to sensing, seizing, and reconfiguring capabilities.

Despite a large number of studies on strategic orientations and DCs, extant literature has been negligent in at least four areas. *First*, the literature focuses on subgroups of strategic management practices and orientations, failing to observe and analyze several strategic orientations interlocking with DC to explain firm performance. Important elements have not yet been detailed in this stream of literature, which should be done in a multidisciplinary and integrative framework, such as the dynamic capabilities framework.

Second, the operationalization of the variables as well as some of the constructs involved has not yet reached a consensus, leading to difficulties in the comparison of the studies.

Third, most empirical analyses involving strategic orientations have been limited to the context of large firms, and with few exceptions, have rarely been conducted in the context of small and medium-sized enterprises or SMEs (Aragón-Sánchez and Sánchez-Marin 2005).

Fourth, with the service sector accounting for over 70 % of the gross domestic output of most advanced economies, the role of strategic orientations in the service sector assumes greater importance. In particular, with the increasing call for creating a knowledge economy, it is fundamental to study not only how firms intensive in knowledge deploy strategic orientations to impact performance but also what the role do the dynamic capabilities play in this. Moreover, there has been a call to investigate mediating mechanisms from new perspectives, namely dynamic capabilities and the knowledge-based view (Hoskisson et al. 2000).

Our study contributes to the extant literature in at least two ways. *First*, we analyze not only the direct effects of learning, market, and entrepreneurial orientation on firm performance but also the indirect effects via the firm's dynamic capabilities. This integrative approach which neither the strategic management literature nor the marketing or entrepreneurship literature have hitherto explored aims to deepen the knowledge of the relationship between strategic orientations, dynamic capabilities, and firm performance.

Second, ours is among the first analyses of how strategic orientations and dynamic capabilities interlock in knowledge intensive business services (KIBS). Toward this, our research adopts a performance measure that goes beyond common indicators like profits or sales and tries to capture some key aspects of a knowledge-based economy, such as customer value and corporate social responsibility. This is especially important for KIBS, where the mode of learning and innovation is determinant (Jensen et al. 2007), especially when it is reflected in the service itself and is perceptible to the client. This paper also provides insights for managers of knowledge intensive service firms in order to guide strategy making.

The paper is structured as follows. In the “[Theoretical Framework](#)” section, we present the key features of KIBS, while the “[Hypotheses](#)” section discussed dynamic capabilities and strategic orientations as predictors of firm performance, clarifying the constructs and the measures used to assess them. In this section, the hypotheses are advanced, considering both direct and mediating effects. In the “[Research Design and Methodology](#)” section, the research design and methodology are considered, while in the “[Data Analysis and Results](#)” section, the data analysis and results are presented. Finally, the “[Conclusions and Discussion](#)” section presents conclusions and discussion; in addition, directions for future research as well as research limitations are explained.

Theoretical Framework

Knowledge Intensive Business Services

The moniker KIBS has emerged to designate firms whose business is the creation, accumulation, and dissemination of knowledge, thus providing knowledge-intensive, intangible, and highly customized inputs to business processes of organizations; KIBS are usually identified as purchasers, providers, and transferors of knowledge or as facilitators, carriers, and sources of innovation (Hertog 2000; Miles et al. 1995).

KIBS classification enables us to distinguish some services from an amalgam of relatively undifferentiated services. Miles et al. (1995) held that there are two main types of business services—those performing physical functions (e.g., storage, transport, repair and maintenance) and those providing information and knowledge functions

(e.g., computer services, R&D, consultancies). They then proposed a definition distinguishing between “traditional professional services” (p-KIBS) and “new technology-based services” (t-KIBS), a distinction that we also follow in our study.

Services differ from other industries, especially because they imply an information-intensity and an interactivity of supplier-client relations (Miles 2001). KIBS were initially seen as mere transferors of specialized information to their clients but is now recognized that there is a co-production process which involves their clients and where innovation is based on non-technological factors (Muller and Doloreux 2009), strongly influenced by the firm’s innovative culture (Santos-Vijande et al. 2013) and organizational learning (Santos-Vijande et al. 2012), which impacts innovation rates and sustained performance in KIBS.

According to Horgos and Koch (2008), the central features of KIBS include the importance of knowledge (both tacit and codified) and the resulting innovative activities (knowledge intensity), the interactivity between services, and other organizations, as well as the importance of spatial proximity between KIBS firms and their providers and clients.

Despite the importance of KIBS in economic growth, there have been surprisingly few studies exploring the direct role of some or all of the strategic orientations in determining firm performance. Moreover, to the best of our knowledge, the mediating role of dynamic capabilities has been neglected in the discussions. This omission is relevant because one would expect that in fast changing knowledge environments, building new and leveraging existing capabilities could strongly influence the different strategic postures adopted.

Dynamic Capabilities and Strategic Orientations as Predictors of Firm Performance

Firm Performance

Although firm performance is one of the most researched dependent variables, multiple measures are generally used to assess performance, mostly objective measures such as profit margins and sales, as well as subjective ones such as the degree to which other goals are fulfilled (Kropp et al. 2006). Recent research has paid increasing attention to subjective measures of firm performance, partly because it is recognized that knowledge is an important source of competitive advantage and knowledge-based assets are not entirely captured by traditional financial and accounting measures. Moreover, researchers increasingly use perceptual measures due to the difficulty in obtaining objective performance data, especially for micro and small firms. It has been found that subjective measures can be consistent with objective measures, hence enhancing reliability and validity (Venkatraman and Ramanujam 1987), and at the same time, respondents tend to be more willing to provide firm data with subjective measures.

Besides traditional measures like profit, cash flow, sales, and company value, among others, we argue that the measurement of performance could be further enriched if one supplements with other measures such as market share, customer value, and corporate social responsibility in order to reflect the several concepts associated with performance. Indeed, in our work, we include a subjective measure of the degree to which these goals are fulfilled, as we explain later.

Strategic Orientations

One of the constructs that have received much attention in strategic management and marketing literature, especially over the last two decades, has been strategic orientation. Successful firms develop a systematic method of aligning their internal postures and strategic directions with their environment for the continuous superior performance (Narver and Slater 1990).

As mentioned earlier, a large consensus has emerged in the literature that firms possessing strategic orientations along one or different dimensions tend to have superior performance. However, there has been little consensus around this construct, with Morgan and Strong (1998) noting that the concept has been described variously as strategic fit, strategic predisposition, strategic thrust, and strategic choice.

On the other hand, the typologies used to conceptualize strategic orientations differ depending on the approach, namely, strategic management, strategic marketing, entrepreneurship, or organizational learning studies, just to mention a few. In what follows here, we detail the main strategic orientations found most frequently in extant research, market, entrepreneurial, and learning orientation strategies, which are also the constructs that we used for our study.

Market Orientation *Market orientation* is considered an aspect of corporate culture that gives particular importance to profitable customer value creation and maintenance (Narver and Slater 1990) and thus is regarded as a firm's attribute that remains relatively unchanged over time. Others conceptualize market orientation (MO) especially as a matter of choice and therefore relatively changeable (Ruekert 1992).

Although there have been many studies that view MO as the main determinant of firm performance, especially in the marketing literature, others suggest that MO is a necessary but not a sufficient condition for long-term success (Jaworski et al. 2000; Zahra 2008). Some argue that market-oriented firms are likely to create superior customer value, since they better understand customers' needs, trends, and competitor actions. Others suggest that strong market oriented firms tend to devote insufficient attention to detecting future trends (see for e.g., Slater and Narver 1999, and the relation between the expected and the augmented product, on one hand, and expressed and latent needs on the other).

Entrepreneurial Orientation The concept of *entrepreneurial orientation* first made its appearance in the strategic management literature and has since become a major construct both within strategic management as well as in the entrepreneurship literature. It was originally proposed by Miller (1983), who defined an entrepreneurial firm as one which “engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with ‘proactive’ innovations, beating competitors to the punch” (Miller 1983, p. 771).

Miller (1983) proposed the entrepreneurial orientation (EO) construct as consisting of the dimensions of *risk taking*, *innovativeness*, and *proactiveness*. Later, Lumpkin and Dess (1996) added two other dimensions to the construct, arguing that, besides a willingness to take risks, innovate and be proactive relative to marketplace opportunities, an entrepreneurial firm is one that has a propensity to act autonomously and a tendency to be aggressive toward competitors. These scholars suggest that the dimensions of EO are

positively correlated although firms can vary in their degree of each one, with firms not being equally entrepreneurial across all dimensions. Although several authors contend that EO possesses more than three dimensions, the three most commonly researched components of EO that remain are innovativeness, risk taking, and proactiveness, the dimensions we also used in our study.

Learning Orientation A *learning orientation* is conceptualized as the degree to which an organization values knowledge, is open-minded, has a shared vision, and promotes receptivity to innovation (Hurley and Hult 1998; Sinkula et al. 1997). According to Cohen and Levinthal (1990), innovation depends upon learning and the organization's knowledge base, which implies that firms with strong LOs learn from their successes and mistakes and, thus, benefit from their experience.

Learning-oriented firms are more likely to assimilate new ideas and more willing to question established mental models, routines, assumptions, and beliefs; they are also more likely to engage in innovative activities, leading to greater productivity, for instance, the creation of more efficient organizational structures, the improved use of technology, more effective use of capital markets, more open channels of communication, and innovative training techniques, among others (Baker and Sinkula 1999a, b; Hurley and Hult 1998).

Dynamic Capabilities

The concept of dynamic capabilities (DCs) has emerged from the resource-based view of the firm. This has occurred partly because the original proposition that the firm's resources are a major source of competitive advantage has proved not to be valid for firms operating in turbulent environments (Wang and Ahmed 2007) or for high-technology industries such as semiconductors, information services, and software (Teece et al. 1997).

As these scholars put it, DCs are based on distinctive organizational processes, which derive from the firm's specific asset positions and are molded by its paths, where the firm's competencies are based on a collection of routines, skills, and complementary assets which are difficult to imitate or emulate; as such, distinctive capabilities cannot be acquired, but instead, they need to be built, framed by a firm level strategy that provides orientation (Teece et al. 1997).

Several studies have found that when some dimensions of strategic orientations (SOs) interlock with DCs, then there is a positive impact on firm performance (see for instance Lisboa et al. 2011; Makkonen et al. 2014). Our study extends this analysis to the case of KIBS.

Hypotheses

Both direct and the mediating effects are subjected to analysis in our study. Taking into account the current state of knowledge, as well as the recommendations that have been produced and gaps identified in the review of the literature, we propose to co-examine EO (which includes three dimensions, namely, innovativeness, proactiveness, and risk

taking) with MO and LO and investigate their links with dynamic capabilities and firm performance. While some scholars claim that each of the EO dimensions should be considered separately, others argue that aggregated measures of the construct are more useful. Here, we chose to consider the dimensions separately, considering that each may vary independently of each other.

One of the reasons for choosing services, and specifically *knowledge intensive business services* or *KIBS* as the subject of our study, is that although considerable research on KIBS has appeared recently, there still remain significant gaps in this field, especially with regard to the determinants of firm performance. The fact that over the last decades, KIBS have almost always shown growth rates that are higher than those of the economy as a whole, focusing on strategic orientations and capabilities assumes increasing importance. Figure 1, below, depicts the conceptual model which we use for testing our hypotheses. As depicted in Fig. 1, we hypothesize that there is a positive relationship between a firm’s strategic orientations and performance and that this relationship is mediated by dynamic capabilities.

Direct Effects

In the first place, we searched for direct relationships between strategy and performance as found in prior studies (e.g., Deshpandé and Farley 2004; Kropp et al. 2006). We explore the direct impact of the different constructs of SO on firm performance. In the fast changing environment that typifies businesses in general, and KIBS in particular, we would expect that firms which have their internal inclinations orientated toward the market, entrepreneurship, and learning would likely have a greater firm performance.

Our first hypothesis is therefore as follows:

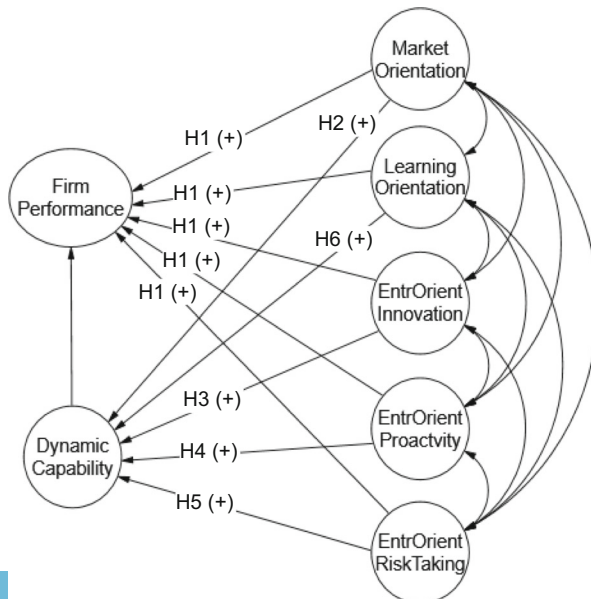


Fig. 1 Conceptual model

H1: *MO, EO (innovativeness, risk taking, and proactiveness), and LO each have a direct and positive effect on firm performance.*

Mediating Effects

Many scholars argue that the relationship between strategy and performance might not be direct, but rather moderated or mediated through internal or external variables. For instance, Zhou et al. (2005, p. 54) argue that “market orientation is a pivotal resource that affects a firm’s strategy and operation, but its potential value should be complemented with other firm capabilities” and that they follow the same line of reasoning claiming that “strategic orientations as firm capabilities do not automatically lead to better performance. Instead, they represent deeply rooted values and beliefs that bring about certain behaviors, which in turn affect firm performance.” Therefore, our attempt is to understand if DCs really have an important role to play in this process, leading to enhanced firm performance.

On the other hand, previous research has also pointed out that strategic orientations are a necessary but not a sufficient condition for long-term success (e.g., Jaworski et al. 2000). For instance, Zahra (2008, p. 137) concludes that “the processes that underlie a firm’s market orientation (e.g., intelligence generation and information dissemination) are important routines that generate dynamic capabilities, which will likely benefit firms operating in high entrepreneurial and market driven technology industries to achieve superior performance.” This rationale gave rise to the following hypotheses:

H2: *The MO—firm performance relationship is mediated by DC such that it is more positively related for firms with high DC than for firms with low DC.*

H3: *The EO (innovativeness)—firm performance relationship is mediated by DC such that it is more positively related for firms with high DC than for firms with low DC.*

H4: *The EO (proactiveness)—firm performance relationship is mediated by DC such that it is more positively related for firms with high DC than for firms with low DC.*

H5: *The EO (risk taking)—firm performance relationship is mediated by DC such that it is more positively related for firms with high DC than for firms with low DC.*

H6: *The LO—firm performance relationship is mediated by DC such that it is more positively related for firms with high DC than for firms with low DC.*

Research Design and Methodology

Study Sample

A total of 22,733 Portuguese firms operating as KIBS were identified from the BvDEP’s (Bureau van Dijk Electronic Publishing) SABI database. This database contains information about accounts, ratios, activities, ownership, and management for 1.1 million Spanish and 320,000 Portuguese firms. A random sample of 750 firms, stratified at the 4-digit sectorial level was selected, and their top managers were

questioned by e-mail. Only micro-, small-, and medium-sized KIBS were selected, based on the SME European definition adopted by the European Commission in its Recommendation of 6 May (2003/361/EC), that is, enterprises with less than 250 employees and with an annual turnover under 50 millions of Euros or with an annual balance sheet which does not exceed 43 million of Euros.

In order to decide on the sample size, we followed Field (2009) who suggested that the required sample size depends on the size of the effect and how much statistical power we want to detect for those effects. Field (2009, p. 223) illustrated using a graph that summarizes the required sample sizes to meet the mentioned criteria and to achieve a high level of power. When considering a large effect, our sample should have approximately 50 cases; with a medium effect, it should have approximately 90 cases; and if we expect to find a small effect, then our sample should have more than 600 cases. Considering this and taking into account a prudent basis, a random sample of 750 firms was drawn.

Our sample is detailed in the tables below (Tables 1 and 2).

Data Collection

We chose to rely on single informants in our data collection and targeted the firms' CEOs or managers since they are considered the persons most familiarized with their firms' strategies (Zahra 1996; Zahra and Covin 1995). In order to maximize the data accuracy and reliability, we followed Huber and Power's (1985) guidelines on how to get quality data from single informants.

Besides including questions for identification purposes, our questionnaire contains measures of market orientation, entrepreneurial orientation, learning orientation, dynamic capabilities, as well as performance metrics which were translated into Portuguese and then a back-translation procedure involving a native English speaker was used to ensure that the meanings of the item statements were not altered.

Altogether, 209 valid responses were received in the last trimester of 2009, resulting in a quite satisfactory response rate of 27.9 %. The response rate was slightly higher than that reported by other researchers on this subject (e.g., Barrett et al. 2000; Covin and Slevin 1989). Most of our respondents held senior positions in the firm, with 24.4 % holding the title of CEO, 31.6 % reporting to be top managers other than CEOs, 31.6 % reporting to be middle managers, and 11.5 % supervisors, while 0.9 % did not identify themselves.

Pre-Test and Validation of the Research Instrument

We performed several tasks related to the pre-test and validation of the research instrument. First, face validity of the constructs was assessed with the cooperation of academics belonging to the scientific area of economics and business management at the university of one of the authors. Then, a pilot test was conducted with ten firms of varying size in the KIBS sectors, where the new items developed for the present research were tested for accuracy and content validity. These ten firms were excluded from subsequent analyses.

During the pre-test of the research instrument, we received a suggestion to add an item reporting to the customer value, as well as an item reporting the social

Table 1 Characterization of p-KIBS considered in the study

NACE rev. 2	Description (NACE rev. 2)	No. of SMEs in SABI	No. of SMEs in the sample	Average No. of employees ^a	Average turnover (Euros) ^b	No. of responses
A—Agriculture, forestry and fishing						
2.40	Support services to forestry	189	6	16	3.561.432	2
M—Professional, scientific and technical activities						
69.10	Legal activities	37	1	7	728.535	1
69.20	Accounting, bookkeeping, and auditing activities; tax consultancy	6847	226	13	702.902	59
70.21	Public relation and communication activities	28	1	1	27.256	0
70.22	Business and other management consultancy activities	3963	131	10	971.695	34
72.20	Research and experimental development on social sciences and humanities	30	1	4	132.202	0
73.11	Advertising agencies	1541	51	6	639.265	20
73.12	Media representation services	249	8	6	770.222	2
73.20	Market research and public opinion polling	169	6	20	3.286.402	4
74.90	Other professional, scientific and technical activities n.e.c.	390	13	8	689.315	5
P—Education						
85.60	Educational support services	9	0	—	—	0
Total		13,452	444			127

Source: prepared by the authors

n.e.c. not elsewhere classified

^a Average number of employees of the firms pertaining to the sample

^b Average turnover of the firms pertaining to the sample

Table 2 Characterization of t-KIBS considered in the study

NACE rev. 2	Description (NACE rev. 2)	No. of SMEs in SABI	No. of SMEs in the sample	Average No. of employees ^a	Average turnover ^b	No. of responses
C—Manufacturing						
33.12	Repair of machinery	690	23	14	1.192.352	6
J—Information and communication						
58.11	Book publishing	222	7	15	2.195.954	2
58.12	Publishing of directories and mailing lists	1	0	—	—	0
58.13	Publishing of newspapers	186	6	17	1.194.650	2
58.14	Publishing of journals and periodicals	281	9	8	693.580	2
58.19	Other publishing activities	84	3	6	318.874	1
58.21	Publishing of computer games	1	0	—	—	0
58.29	Other software publishing	264	9	7	468.033	3
60.10	Radio broadcasting	83	3	22	1.289.336	1
60.20	Television programming and broadcasting activities	8	0	—	—	0
62.01	Computer programming activities	1063	35	13	599.538	10
62.02	Information technology consultancy activities	568	19	25	2.013.736	4
62.03	Computer facilities management activities	11	0	—	—	0
62.09	Other information technology service activities	475	16	7	526.942	6
63.11	Data processing, hosting and related activities	149	5	15	1.161.579	2
63.12	Web portals	8	0	—	—	0
71.11	Architectural activities	2017	67	6	625.435	14
71.12	Engineering activities and related technical consultancy	2666	88	15	1.081.430	21
71.20	Technical testing and analysis	343	11	8	484.633	4

Table 2 (continued)

NACE rev. 2	Description (NACE rev. 2)	No. of SMEs in SABI	No. of SMEs in the sample	Average No. of employees ^a	Average turnover ^b	No. of responses
72.11	Research and experimental development on biotechnology	5	0	–	–	0
72.19	Other research and experimental development on natural sciences and engineering	59	2	3	50.832	2
95.11	Repair of computers and peripheral equipment	97	3	6	424.464	2
Total		9281	306			82

Source: prepared by the authors

^a Average number of employees of the firms pertaining to the sample

^b Average turnover of the firms pertaining to the sample

responsibility of the company as viewed by the external/internal audience. We also received a few comments about the scale and the numbering of the questions. These were then incorporated in our questionnaire.

To increase the participation rate, we offered respondents a summary report of the results and assured that their responses were totally confidential. In order to minimize social desirability bias in the measurement of the constructs, we emphasized in the cover letter that there were no right or wrong answers and that the responses would remain strictly confidential as suggested by Huber and Power (1985) and Zahra and Covin (1995). Respondents were asked to recall the situation in their firms during a recent period in order to avoid recollection errors.

Model Measures

Our questionnaire contains measures of market orientation, entrepreneurial orientation (disaggregated into three dimensions), learning orientation, dynamic capabilities, and performance metrics. Below we summarize each of these measures.

Measure of MO

Quite a few conceptualizations and operationalizations of MO are dominant in the marketing literature. Owing to the length of the scales involved, we decided to adopt the nine-item scale of Deshpandé et al. (1993), as being the most appropriate. In this scale, each respondent evaluates statements using a five-point Likert scale anchored by “strongly disagree” to “strongly agree.”

Although their scale can be seen as a measure of “customer orientation,” these scholars argue that customer and market orientations are synonymous, defining them as “the set of beliefs that puts the customer’s interest first, while not excluding those of all other stakeholders such as owners, managers, and employees, in order to develop a long-term profitable enterprise” (Deshpandé et al. 1993, p. 27).

Measure of EO

A review of the literature reveals several dimensions of EO. According to Miller (1983), the firm’s degree of entrepreneurship can be seen by the extent to which they take risks, innovate, and act proactively.

We decided to rely on the nine-item scale of Covin and Slevin (1989), which developed Miller’s scale, with respondents evaluating statements using a five-point Likert scale. Three items corresponded to each of the three dimensions of EO—*innovativeness*, *risk taking*, and *proactiveness*.

Measure of LO

Kropp et al. (2006) write that few scales operationalize this construct. According to Hult et al. (2000), LO is one of the dimensions of the learning organization construct, the others being team orientation, systems orientation, memory orientation, customer orientation, and relationship commitment. We focused only on LO for reasons of theoretical consistency and parsimony.

We adopted Hult et al. (2000) four-item scale, where each respondent evaluates statements using a five-point Likert scale anchored by strongly disagree to strongly agree.

Measure of DC

According to Wang and Ahmed (2007), DCs are a high order construct consisting of different dimensions, namely, absorptive, adaptive, and innovative capability. We focused on the innovative dimension of dynamic capabilities, which allows a firm to develop new products, processes, and organizational and marketing innovations. This is in line with some researchers who emphasize that innovation management can be seen as a dynamic capability (e.g., Lawson and Samson 2001).

Following Jantunen et al. (2005), we relied on the renewal activities listed in the Community Innovation Surveys (CIS) of the European Union. We used a scale where each respondent evaluates statements using a seven-item five-point rating scale anchored by “succeeded poorly” to “succeeded well,” also allowing the option of ‘not implemented’.

Measure of Firm Performance

The conceptualization and operationalization of the performance construct are much debated in the literature. While traditional financial measures were quite common some years ago, in an economy dominated by tangible assets, firms increasingly make use of other kinds of measures.

Objective performance data including financial performance are also extremely difficult to collect, especially for micro and small firms, and thus many studies use self-reported measures. Because previous studies have demonstrated statistically significant correlations between perceptual measures and their corresponding objective measures of performance (e.g., Robinson and Pearce 1988; Venkatraman and Ramanujam 1987), perceptual measures can be considered reliable to assess performance.

For our study, we relied on Wiklund and Shepherd (2003), who used a five-point rating scale ranging from “much worse” to “much better,” where the respondents are asked if during the past 3 years, their firm has been better, worse, or equal to other firms in their industry. Since all the items are measured comparing the firm to its competitors, it reflects a firm’s relative advantage. To these items, we added questions about market share (that allowed us to capture the firm’s ability to compete in terms of sales), customer value, and corporate social responsibility in order to reflect the several emerging concepts associated with performance. Dess et al. (2003) argue that stakeholder perspectives should be incorporated in the assessment of this construct to reflect the increasing importance of social, human, and intellectual capital in creating competitive advantages and superior firm performance.

The average of the items (net profit, growth of the company’s value, cash flow, development of sales, market share, customer value, and corporate social responsibility as viewed by the external/internal audience) was used as the firm performance measure.

To validate our questionnaire, that is, to assess the reliability of our scales, we relied on Cronbach’s alpha. In summary, the results of our reliability statistics are presented in Table 3.

Table 3 Summary of reliability statistics

Scale	Cronbach's alpha
Entrepreneurial orientation (modified) ^a	0.68
Entrepreneurial orientation—innovativeness	0.43
Entrepreneurial orientation—proactiveness	0.53
Entrepreneurial orientation—risk-taking	0.69
Market orientation	0.77
Learning orientation	0.90
Dynamic capabilities	0.86
Firm performance	0.93

^a We decided to suppress items 2.1.a and 2.2.f from the scale (because they have “Cronbach's alpha if item deleted” higher than 0.67 and item-total correlations lower than 0.30). Items 2.1.a, 2.1.b, and 2.1.c regard to the innovativeness dimension of EO; 2.2.d, 2.2.e, and 2.2.f the proactiveness dimension of EO; and 2.3.g, 2.3.h, and 2.3.i regard to the risk-taking dimension of EO. In a research study that makes use of the same scale as we use here, Naldi et al. (2007) also report problems with these same two items, which similarly resulted in being dropped from the scale

Data Analysis and Results

Measurement Model

The model of firm performance based on orientation facets and dynamic capabilities was tested with structural equation modeling (SEM). SEM is appropriate for modeling theoretically supported causal relations between variables when predictors, or latent constructs, which are measured with error, as is the case of strategic orientations and dynamic capabilities.

The two-step modeling strategy suggested by Jöreskog and Sörbom (1993, p. 113) was followed. In the first step, the goodness-of-fit of measurement model for the latent constructs was evaluated against reference values for chi-square model statistic over degrees of freedom (χ^2/df), comparative fit index (CFI), goodness-of-fit index (GFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA) with 90 % confidence interval. Reference values taken as indicative of acceptable fit were those proposed by Byrne (2010) χ^2/df less than 3, CFI, TLI, and GFI greater than or equal to 0.9 and RMSEA lower than 0.08 with the 90 % upper confidence limit below 0.1. To improve the fit of the measurement model, modification indices (MI), estimated by the Lagrange method, were evaluated. Items for which the modification indices suggested high statistical significance correlations ($MI > 11$; $p < .001$) between item's specific errors with errors from different factors (Maroco 2014) were dropped from the analysis to prevent misfit factor structures as well as multicollinearity problems in the structural model.

In the second step, a structural model was built and tested. This model evaluated the significance of both direct effects of MO, LO, and EO (each of its dimensions of innovativeness, proactiveness, and risk taking) on firm performance, and these predictors' indirect effects on firm performance as mediated by the firm's dynamic capabilities. Since no direct effects of age of firm, size, and product diversification over firm performance

were observed in a series of linear regressions, we did not include these covariates in the structural model (Fig. 1). Structural weights were probed for statistical significance for $p < .05$ with Z tests and percentage of variance explained. The goodness-of-fit for the structural model, after accounting for the goodness of fit of the measurement model, was evaluated by the relative normed fit index (NFI) as proposed by Mulaik et al. (1989). Values of RNFI greater than or equal to 0.8 were indicative of good fit. SEM analysis was performed with SPSS AMOS (v. 21; SPSS, an IBM Company, Chicago, IL).

Results

The analysis of the goodness-of-fit indices for the measurement model of the firm’s orientation and DC, after removal of items with cross-loaded errors inter-factors, revealed a good fit of the proposed factors to the variance-covariance of the retained items ($\chi^2/df = 2.2$; GFI = 0.88; CFI = 0.92; TLI = 0.90; RMSEA = 0.08; 90 % CI[0.06, 0.09]). Thereafter, a structural model of the firm’s performance on the firm’s orientation facets (MO; EO-innovativeness, EO-proactiveness, and EO-risk taking; LO) and DC was fitted to the data. Both direct effects and mediated effects through DC, of the firm’s orientation over the firm performance, were tested and were able to explain 56 % of the firms’ performance variance.

The structural model showed an acceptable fit ($\chi^2/df = 2.1$; GFI = 0.87; CFI = 0.91; TLI = 0.89; RMSEA = 0.08; 90 % CI[0.07, 0.09]; RFNI = 0.89). The model, depicted in Fig. 2, explains 59 % of the variance of the firms’ performance. There were only statistical significant direct effects of LO ($b = 0.26$; $p = .09$), EO-innovativeness ($b = -.29$; $p = .003$), and DC ($b = .36$; $p < .001$) over the firms’ performance. Thus, MO showed only a statistically significant indirect effect, mediated by DC ($b = .196$; $p = .003$) on firm performance. EO-innovativeness also presented a statistical significant indirect effect ($b = .113$; $p = .002$), mediated by DC, on firm performance.

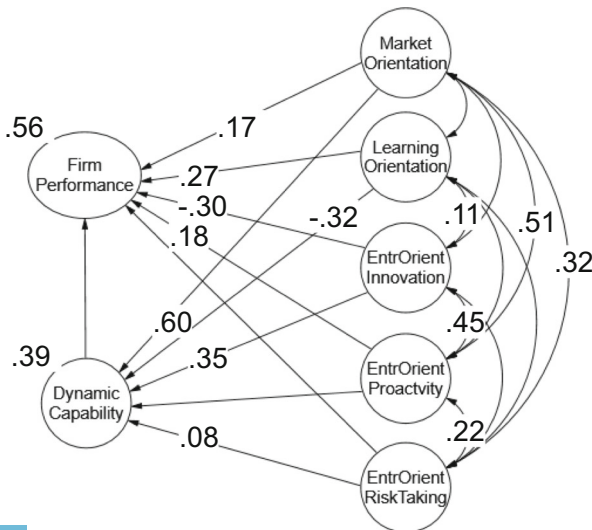


Fig. 2 Structural model of firm performance on strategic orientations (MO; EO—innovation, proactivity, and risk taking; LO) with DC as a mediator

The R^2 for firm performance is 56 %. Bold trajectories are statistically significant for $p < .05$. Non-statistical significant trajectories are shown in gray ($\chi^2/df = 2.1$; GFI = 0.87; CFI = 0.91; TLI = 0.89; RMSEA = 0.08; 90 % CI]0.07, 0.09]; RFNI = 0.89).

Conclusions and Discussion

This study investigated the dimensions of strategic orientation to see how they directly influence firm performance in KIBS, as well as the mediating role of dynamic capabilities. Overall, our structural equation model explained 56 % of the variance observed of firm performance for the 209 KIBS evaluated in this study. We found no significant relation between the risk taking and proactivity dimensions of entrepreneurial orientation and firm performance, neither directly nor mediated through dynamic capabilities. There were, however, significant direct effects of learning and entrepreneurial orientations (innovativeness) on firm performance which partially supports our H1. The results also confirm both H2 and H3: market orientation and entrepreneurial orientation facets of the enterprise orientation effects on firm performance are mediated by the firms' dynamic capability. On the other hand, H4, H5, and H6 were not confirmed by our results.

Our study revealed that possessing market orientation has a significant and positive impact on firm performance but only when mediated by dynamic capabilities. The direct effect of market orientation on firm performance ($\beta = 0.19$), on the other hand, was not statistically significant. This non-significance of market orientation as a direct predictor of firm performance can be explained by the specificity of KIBS, which have a higher degree of connectivity and interactivity with their providers and clients, as stated by Horgos and Koch (2008) and Miles (2001). Market orientation only assumes relevance in the dynamic environments characterized by KIBS, when these firms possess dynamic capabilities. For this reason, we can expect that organizational routines that enable the firm to identify the changes in the markets, as well as information dissemination within the firm, and responsiveness to the market, can be crucial for enhancing performance, but merely having a market orientation in KIBS is not enough; firms need to possess dynamic capabilities as well.

Our research also revealed that for KIBS, learning orientation only has a direct effect on a firm's performance and that dynamic capabilities do not mediate the learning orientation. As Horgos and Koch (2008) state, one of the central features of KIBS is the importance that knowledge (both tacit and codified) assumes and its link to innovation activities. Learning-oriented firms base their difference relative to competitors in the possession and use of knowledge, because they can more easily question assumptions and carry out innovative activities that impact namely productivity of employees, as stated by Baker and Sinkula (1999a, b). Our study demonstrates that possessing dynamic capabilities does not alter this impact on performance for learning oriented firms.

Entrepreneurial firms engaging in innovative activities, in the form of firm-level processes, practices, or other renewals, achieve a higher performance in KIBS. As our research reveals, however, not all dimensions of entrepreneurial orientation contribute equally to firm performance, with innovativeness the most important predictor of performance, while proactiveness and risk taking do not make significant contributions.

This innovation dimension of entrepreneurial orientation has both significant direct and mediated effects, through dynamic capabilities, on firm performance, although it only exerts a positive influence when combined with dynamic capabilities. These results suggest that, when dynamic capabilities are present, along with the innovativeness dimension of entrepreneurial orientation, they have a positive impact on the firm's performance. Dynamic capabilities are very important for entrepreneurially oriented innovative firms; otherwise, they may actually hinder performance. This interactivity is therefore crucial.

The possession of dynamic capabilities thus reveals an important feature in explaining firm performance, and this was expected in a dynamic environment characterizing KIBS. Ownership of certain organizational processes to create fit and/or market change is a crucial element in the creation of value for firms that compete in dynamic markets. There are at least two important managerial implications that emerge from our study. First, dynamic capabilities when combined with market orientation and the innovative facets of entrepreneurial orientation enhance firm performance. Market-oriented and entrepreneurial firms possessing the willingness to engage in innovative activities and at the same time possessing dynamic capabilities pay off in terms of higher firm performance. Second, managers should design strategies that create and develop organizational processes to fit and create market change in order to create value for firms that compete in dynamic markets. For KIBS, possessing a learning orientation directly impacts performance, although possessing dynamic capabilities does not alter this impact on performance.

Future research could build on this integrative approach and expand both geographically as well as try to obtain multiple responses from within an organization to overcome the use of self-reported measures from only one individual in each organization. The adoption of a longitudinal design would additionally allow understanding the studied effects on firm performance over time. Future research could also replicate the use of our firm performance measure to validate if it also enriches the understanding of the origins of success in distinct contexts. Moreover, other strategic orientations could be tested in conjunction with dynamic capabilities, namely, employee orientation, and possible distinct results between p-KIBS and t-KIBS should be investigated. Given the important role that KIBS play in the knowledge economy, it is worthwhile to investigate these variables further and perhaps also conduct a macro study of how they affect KIBS and in turn the implications for economic growth. While the importance of KIBS at a macro and locational level has been undertaken (e.g., Ferreira et al. 2015; Ženka et al. 2015), the interlinkages of orientations, capabilities, KIBS, and the economic impact have yet to be studied.

This study has research limitations, namely, the cross-sectional approach adopted that does not reveal the effects of the relationships over time. However, it has been argued that since strategic orientations do not change easily or often, a cross-sectional design may remain appropriate (Deshpandé et al. 2012, p. 642). The external validity of the results is also limited due to the geographically focused nature of the study sample (Portugal). Another limitation relates to the use of self-reported measures from only one individual in each organization. Responses from multiple informants would allow us to crosscheck data accuracy.

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References

- Aragón-Sánchez, A., & Sánchez-Marín, G. (2005). “Strategic orientation, management characteristics, and performance: a study of Spanish SMEs”. *Journal of Small Business Management*, 43(3), 287–308. doi:10.1111/j.1540-627X.2005.00138.x.
- Baker, W. E., & Sinkula, J. M. (1999a). Learning orientation, market orientation, and innovation: integrating and extending models of organizational performance. *Journal of Market-Focused Management*, 4(4), 295–308. doi:10.1023/A:1009830402395.
- Baker, W. E., & Sinkula, J. M. (1999b). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the Academy of Marketing Science*, 27, 411–427. doi:10.1177/0092070399274002.
- Barrett, H., Balloun, J. L., & Weinstein, A. (2000). Marketing mix factors as moderators of the corporate entrepreneurship-business performance relationship—a multistage, multivariate analysis. *Journal of Marketing Theory and Practice*, 8, 50–62.
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. New York: Routledge.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128–152. doi:10.2307/2393553.
- Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10, 75–87. doi:10.1002/smj.4250100107.
- Deshpandé, R., & Farley, J. U. (2004). Organizational culture, market orientation, innovativeness, and firm performance: an international research odyssey. *International Journal of Research in Marketing*, 21, 3–22. doi:10.1016/j.ijresmar.2003.04.002.
- Deshpandé, R., Farley, J. U., & Webster, F. E., Jr. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis. *Journal of Marketing*, 57(1), 23–37. doi:10.2307/1252055.
- Deshpandé, R., Grinstein, A., & Ofek, E. (2012). Strategic orientations in a competitive context: the role of strategic orientation differentiation. *Marketing Letters*, 23, 629–643. doi:10.1007/s11002-012-9167-4.
- Dess, G. G., Ireland, R. D., Zahra, S. A., Floyd, S. W., Janney, J. J., & Lane, P. J. (2003). Emerging issues in corporate entrepreneurship. *Journal of Management*, 29, 351–378. doi:10.1016/S0149-2063_03_00015-1.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21, 1105–1121. doi:10.1002/1097-0266(200010/11).
- Ferreira, J. J., Fernandes, C. I., & Raposo, M. L. (2015). The effects of location on firm innovation capacity. *Journal of the Knowledge Economy*, 1–20.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage.
- Hertog, P. (2000). Knowledge-intensive business services as co-producers of innovation. *International Journal of Innovation Management*, 4(4), 491–528. doi:10.1142/S136391960000024X.
- Horgos, D., & Koch, A. (2008). The internal differentiation of the KIBS sector: empirical evidence from cluster analysis. *International Journal of Services, Technology and Management*, 10(2/3/4), 190–210. doi:10.1504/IJSTM.2008.022119.
- Hoskisson, R., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal*, 43, 249–267. doi:10.2307/1556394.
- Huber, G. P., & Power, D. J. (1985). Retrospective reports of strategic-level managers: guidelines for increasing their accuracy. *Strategic Management Journal*, 6, 171–180. doi:10.1002/smj.4250060206.
- Hult, G. T. M., Nichols, E. L., Jr., Giunipero, L. C., & Hurley, R. F. (2000). Global organizational learning in the supply chain: a low versus high learning study. *Journal of International Marketing*, 8(3), 61–83.
- Hurley, R. F., & Hult, G. T. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. *Journal of Marketing*, 62(3), 42–54. doi:10.2307/1251742.
- Jantunen, A., Puimalainen, K., Saarenketo, S., & Kyläheiko, K. (2005). Entrepreneurial orientation, dynamic capabilities and international performance. *Journal of International Entrepreneurship*, 3, 223–243. doi:10.1007/s10843-005-1133-2.

- Jaworski, B. J., Kohli, A. A., & Sahay, A. (2000). Market-driven versus driving markets. *Journal of the Academy of Marketing Science*, 28, 45–54. doi:10.1177/0092070300281005.
- Jensen, M. B., Johnson, B., Lorenz, E., & Lundvall, B. A. (2007). Forms of knowledge and modes of innovation. *Research Policy*, 36, 680–693. doi:10.1016/j.respol.2007.01.006.
- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8 [computer software]*. Chicago: Scientific Software International, Inc.
- Kropp, F., Lindsay, N. J., & Shoham, A. (2006). Entrepreneurial, market, and learning orientations and international entrepreneurial business venture performance in South African firms. *International Marketing Review*, 23, 504–523. doi:10.1108/02651330610703427.
- Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: a dynamic capabilities approach. *International Journal of Innovation Management*, 5(3), 377–400. doi:10.1142/S1363919601000427.
- Lisboa, A., Skarmeas, D., & Lages, C. (2011). Innovative capabilities: their drivers and effects on current and future performance. *Journal of Business Research*, 64, 1157–1161. doi:10.1016/j.jbusres.2011.06.015.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21, 135–172. doi:10.5465/AMR.1996.9602161568.
- Makkonen, H., Pohjola, M., Olkkonen, R., & Koponen, A. (2014). Dynamic capabilities and firm performance in a financial crisis. *Journal of Business Research*, 67, 2707–2719. doi:10.1016/j.jbusres.2013.03.020.
- Maroco, J. (2014). *Análise de Equações Estruturais: Fundamentos teóricos, Software & Aplicações [Structural equation modelling: theory, software & applications]* (2nd ed.). ReportNumber. Pêro Pinheiro.
- Miles, I. (2001). Services innovation: A reconfiguration of innovation studies. *PREST Discussion Paper Series – The University of Manchester*, 1–39.
- Miles, I., Kastrinos, N., Flanagan, K., Bilderbeek, R., Hertog, P., Huntink, W., & Bouman, M. (1995). *Knowledge-Intensive Business Services: users, carriers and sources of innovation (European Innovation Monitoring System Publication No. 15)*. Luxembourg: EIMS.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29, 770–791. doi:10.1287/mnsc.29.7.770.
- Morgan, R. E., & Strong, C. A. (1998). Market orientation and dimensions of strategic orientation. *European Journal of Marketing*, 32(11/12), 1051–1073. doi:10.1108/03090569810243712.
- Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, 105, 430–445. doi:10.1037//0033-2909.105.3.430.
- Muller, E., & Doloreux, D. (2009). What we should know about knowledge-intensive business services. *Technology in Society*, 31, 64–72. doi:10.1016/j.techsoc.2008.10.001.
- Naldi, L., Nordqvist, M., Sjöberg, K., & Wiklund, J. (2007). “Entrepreneurial orientation, risk taking, and performance in family firms”. *Family Business Review*, 20(1), 33–47. doi:10.1111/j.1741-6248.2007.00082.x.
- Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, 54(4), 20–35. doi:10.2307/1251757.
- Robinson, R. B., & Pearce, J. A. (1988). Planned patterns of strategic behavior and their relationship to business unit performance. *Strategic Management Journal*, 9, 43–60. doi:10.1002/smj.4250090105.
- Ruekert, R. (1992). Developing a market orientation: an organizational strategy perspective. *International Journal of Research in Marketing*, 9, 225–245. doi:10.1016/0167-8116(92)90019-H.
- Santos-Vijande, M. L., López-Sánchez, J. A., & Trespalacios, J. A. (2012). How organizational learning affects a firm’s flexibility, competitive strategy, and performance. *Journal of Business Research*, 65, 1079–1089. doi:10.1016/j.jbusres.2011.09.002.
- Santos-Vijande, M. L., González-Mieres, C., & López-Sánchez, J. A. (2013). An assessment of innovativeness in KIBS: implications on KIBS’ co-creation culture, innovation capability, and performance. *Journal of Business & Industrial Marketing*, 28, 86–102. doi:10.1108/08858621311295236.
- Sinkula, J. M., Baker, W., & Noordewier, T. G. (1997). A framework for market-based organizational learning: linking values, knowledge and behavior. *Journal of the Academy of Marketing Science*, 25, 305–318. doi:10.1177/0092070397254003.
- Slater, S. F., & Narver, J. C. (1999). Market-oriented is more than being customer-led. *Strategic Management Journal*, 20, 1165–1168. doi:10.1002/(SICI)1097-0266(199912)20:12<1165::AID-SMJ73>3.0.CO;2-#.
- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of sustainable enterprise performance. *Strategic Management Journal*, 28, 1319–1350. doi:10.1002/smj.640.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18, 509–533. doi:10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.

- Venkatraman, N., & Ramanujam, V. (1987). Measurement of business economic performance: an examination of method convergence. *Journal of Management*, *13*, 109–122. doi:10.1177/014920638701300109.
- Wales, W. J., Parida, V., & Patel, P. C. (2013). Too much of a good thing? Absorptive capacity, firm performance, and the moderating role of entrepreneurial orientation. *Strategic Management Journal*, *34*, 622–633. doi:10.1002/smj.2026.
- Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: a review and research agenda. *International Journal of Management Reviews*, *1*, 31–51. doi:10.1111/j.1468-2370.2007.00201.x.
- Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation and the performance of small and medium-sized businesses. *Strategic Management Journal*, *24*, 1307–1314. doi:10.1002/smj.360.
- Zahra, S. A. (1996). Technology strategy and new venture performance: a study of corporate-sponsored and independent biotechnology ventures. *Journal of Business Venturing*, *11*, 289–321. doi:10.1016/0883-9026(95)00128-X.
- Zahra, S. A. (2008). Being entrepreneurial and market driven: implications for company performance. *Journal of Strategy and Management*, *1*, 125–142. doi:10.1108/17554250810926339.
- Zahra, S. A., & Covin, J. G. (1995). Contextual influences on the corporate entrepreneurship-performance relationship: a longitudinal analysis. *Journal of Business Venturing*, *10*, 43–58. doi:10.1016/0883-9026(94)00004-E.
- Ženka, J., Novotný, J., Slach, O., & Ivan, I. (2015). Spatial distribution of knowledge-intensive business services in a small post-communist economy. *Journal of the Knowledge Economy*, 1–22.
- Zhou, K. Z., Yim, B. C., & Tse, D. K. (2005). The effects of strategic orientations on technology- and market-based breakthrough innovations. *Journal of Marketing*, *69*(2), 42–60.

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