Junior Management Science

www.jums.academy
ISSN: 2942-1861

In the Eye of the Beholder: Examining the Role of Dynamic Capabilities, Industry Dynamics, and Internal Knowledge Sharing in Strategists' Entry Decisions

Elisa Schulte genannt Kulkmann

Technical University of Munich

Abstract

Dynamic capabilities are a major driver of strategic entry into new industries. Building on the dynamic capabilities approach and on strategy literature, I develop a model for strategists' assessment of entry. I examine two specific dynamic capabilities, namely absorptive capacity and new product development capability and argue that both positively influence strategists' perceived attractiveness of entering a new industry. Further, I aim to respond to the call to consider the moderating effects of both external and internal conditions, by integrating environmental dynamism and internal knowledge sharing as moderators in my model. I test my hypotheses via a conjoint experiment and data on 1,664 entry assessments embedded within 52 strategists. As expected, I find that both high levels of perceived absorptive capacity and new product development capability increase entry attractiveness. Moreover, those effects are particularly strong when the environmental dynamism in the new industry is expected to be low. Internal knowledge sharing strengthens the relationship between perceived new product development and entry attractiveness. Regarding perceived absorptive capacity, I do not find significant interactions.

Keywords: absorptive capacity; dynamic capabilities; entry assessment; new product development; strategic entry

1. Introduction

The question of what organizational capabilities lead decision makers to pursue certain strategic directions such as strategic entry and why they do so has long been featured in organizational, strategic, and behavioural research (e.g., Baía and Ferreira 2019; Gavetti and Levinthal 2000; Lavie 2006). The dynamic capabilities concept, which has attracted increasing attention among scholars, aims to provide answers to this essential question. Originally rooted in the resource-based-view (RBV) of the firm, such capabilities can be defined as a firm's potential to solve problems in a systematic manner, which results from its ability to recognize opportunities and hazards, to ensure efficient and market-driven decision-making, and to quickly modify its existing resource base accordingly (Barreto, 2010). As business environments become ever more dynamic in the wake of globalization, digitization and steady technological progress, dynamic capabilities play a major role in securing competitive advantage and superior firm performance (e.g., Brettel et al., 2011; Drnevich and Kriauciunas, 2011; Teece, 2007). Particularly regarding successful entry into new industries, such capabilities can be a highly valuable asset to the firm since they significantly reduce costs associated with such a move (Argyres et al., 2019).

Although very influential, literature on dynamic capabilities suffers from several deficiencies. One important source of concern is that overall, empirical research has paid insufficient attention to mediators and moderators (Schilke et al., 2018). Dynamic capabilities are context-dependent and therefore, environmental features cannot be excluded when analysing their impact on, for example, strategic decision-making or firm performance. In particular, there is a call for the inclusion of both external as well as internal specific moderators and for potential interactions (Baía & Ferreira,

I would like to thank Prof. Dr. Nicola Breugst for giving me the opportunity to write my master thesis at the TUM Entrepreneurship Research Institute and for her support throughout the writing process. Additionally, I would like to thank Dr. Lilia Stratz for her supervision and great guidance.

DOI: https://doi.org/10.5282/jums/v9i4pp2050-2081

2019). Second, with regard to methodologies, many scholars in the field of strategic decision-making, have focused on post-hoc approaches to examine the role of dynamic capabilities. While highly important for advancements in this research domain, such approaches incorporate the risk of survey data errors as a result of biased decision-making or lack of relevant information (Zacharakis & Shepherd, 2018). Third, the majority of research has explored the role of generic dynamic capabilities rather than focusing on more specific ones. Focusing on specific and well-defined dynamic capabilities would make it easier to derive practical implications that are more tangible. Finally, although scholars have acknowledged the importance of those capabilities in entry decisions, there is comparably little literature available on this relationship (Argyres et al., 2019).

To address the above-mentioned gaps, I empirically investigate the link between two specific dynamic capabilities (i.e., absorptive capacity and new product development capability) and firms' strategists' assessment of strategic entry. Further, since the entry assessment is dependent not only on firms perceived dynamic capabilities but also on how the strategists perceive additional external as well as internal factors, I develop a model that includes the moderating effects of environmental dynamism and internal knowledge sharing on the relationship of dynamic capabilities on entry assessment. I test my model based on a metric conjoint experiment and data on 1,664 evaluation points that are nested within 52 strategists. I suggest a positive relationship between the perceived dynamic capabilities and strategic entry assessment (hypotheses 1a and 1b). Both hypotheses are supported by my results. In terms of moderators, I assume the positive effect of perceived absorptive capacity on entry attractiveness to be moderated by environmental dynamism in such a way that the perceived absorptive capacity encourages strategists to enter new industries, especially when anticipated environmental dynamism is high (hypothesis 2a). For perceived new product development capability, I assume the moderating effect to go in the opposite direction (hypothesis 2b). While hypothesis 2a is not consistent with my results, I find proof for hypothesis 2b. Finally, I assume anticipated internal knowledge sharing to strengthen the positive relationships between both perceived absorptive capacity (hypothesis 3a) and perceived new product development capability (hypothesis 3b) and entry attractiveness. I find support only for hypothesis 3b. Figure 1 briefly illustrates the model tested in my study.

My paper adds value to existing literature in the following ways. First, I respond to the call for specific dynamic capabilities to be studied. Specifically, I react to an analysis of Schilke et al. (2018), who found that an impressive number of scholars ask for an additional examination of new product development capability. By examining two specific dynamic capabilities, I find that both perceived absorptive capacity and new product development capability play an essential role in strategists' assessment of strategic entry. This could also help managers in their future decision-making processes. Second, I am able to identify factors that influence the relationship between dynamic capabilities and decision-making which justifies the statement of Baía and Ferreira (2019) who have argued that the examination of context-dependent dynamic capabilities requires the inclusion of external and internal moderators. Both, environmental dynamism, and internal knowledge sharing mechanisms are considered by strategists in their entry decisions. Finally, by using an experimental real-time conjoint approach, I reduced the risks of biased self-reporting of decision makers and failure to consider that decision-making is an evolving and dynamic process (e.g., Sandberg, 1986; Shepherd and Zacharakis, 2018).

2. Theoretical background and hypotheses

Dynamic capabilities can provide firms with critical tools required for strategic entry. To better understand their characteristics, the next section first provides a brief definition of dynamic capabilities, in particular of absorptive capacity and new product development capability. Second, I develop my hypotheses on the relationship between the two capabilities and strategic entry, and finally, I introduce my moderators, i.e., environmental dynamism and internal knowledge sharing.

2.1. Defining dynamic capabilities

How firms achieve and maintain competitive advantage and long-term growth in environments characterized by rapid technological change remain at the heart of strategy research (e.g., Baía and Ferreira, 2019; Protogerou et al., 2011; Schilke et al., 2018). By taking into account purposeful modifications of firms' resources and capabilities, the dynamic capabilities approach builds upon the basic assumption of the RBV of the firm which indicates that a firm's competitive advantage depends primarily on its unique resources and capabilities (Barney, 1986, 1991), and thus adds a less static but more dynamic component to the RBV framework (Baía & Ferreira, 2019). Initially developed by Penrose (1959) and subsequently extended and popularized, the RBV assumes that firms' bundles of resources and capabilities are heterogeneously distributed across competing firms (Barreto, 2010). Since such bundles' of resources are valuable, rare, inimitable, and non-substitutable (VRIN), they may either enable or limit firms' choices of market entries and profit levels firms may generate (Wernerfelt, 1989). However, valuable resources alone, do not necessarily ensure superior firm performance. To leverage the full potential of their resources, firms additionally need to possess distinctive organizational capabilities (Penrose, 1959).

In the face of an increasingly dynamic business environment, initial propositions of the RBV were questioned and considered too static as they ignored the inevitable influence of market dynamism (e.g., Eisenhardt and Martin, 2000; Priem and Butler, 2001), leading to the development of the concept of dynamic capabilities. In their seminal contribution, Teece et al. (1997, p. 516) define dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing

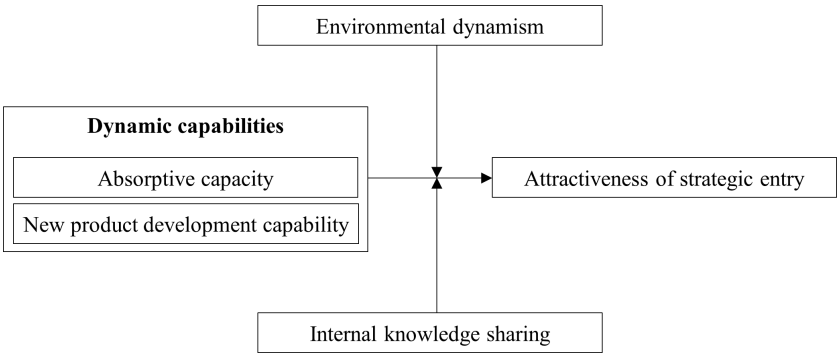

Figure 1: Proposed model

environments". Their approach is based on multiple main elements that support its major theoretical foundations (Barreto, 2010). First, they underpinned the essential role of strategic management and categorized the nature of the framework as being an "ability", thus extending the RBV by proposing a special kind of capability. Second, a specific role of this capability was defined, i.e., the ability to integrate, build, and reconfigure internal as well as external competences. Third, since they considered the dynamic capabilities approach as an extension of the RBV to turbulent environments, the external context was given by the dominant focus on markets characterized by dynamism and change which indicates a direction towards a more entrepreneurial perspective (Barreto, 2010; Schumpeter, 1983). Fifth, in line with the RBV and its VRIN resources, an underlying assumption is capability heterogeneity across competing firms. Finally, competitive advantage and value creation are the main outcomes of dynamic capabilities, which is yet another indication that this concept is an extension of the RBV, as it retains its core objectives.

Since dynamic capabilities can give firms competitive advantage, the approach has attracted increasing attention among strategy and management scholars and the notion and conceptualization of dynamic capabilities have subsequently been expanded and refined (e.g., Denford, 2013; Eisenhardt and Martin, 2000; Teece, 2007; Zollo and Winter, 2002). However, a distinct and uniform definition has not been reached yet. Literature reviews summarize the impressive body of published dynamic capabilities research as somewhat scattered and disparate (e.g., Pavlou and El Sawy, 2011; Peteraf et al., 2013). Although existing literature is partially complementary, it lacks a common and clear theoretical basis (Burisch & Wohlgemuth, 2016). There is consensus that the dynamic capabilities concept has been significantly influenced by two main contributions – i.e., Teece et al. (1997) and Eisenhardt and Martin (2000) – that have largely steered research into two somewhat diverging streams which are based on different assumptions, theoretical reasoning and perspectives regarding outcomes (e.g., Di Stefano et al., 2014; Ringov, 2017). Teece et al. (1997) originally characterized dynamic capabilities as abilities that are unique to the firm, logically implying they cannot be examined and studied by comparing their quantity between competing firms (Laaksonen & Peltoniemi, 2018). Following Teece et al. (1997) approach, numerous scholars have classified dynamic capabilities as skills, capabilities, or capacities (e.g., Winter, 2003; Zahra et al., 2006; Zollo and Winter, 2002). Contrary to Teece et al. (1997), Eisenhardt and Martin (2000) stated that – although idiosyncratic in their details – dynamic capabilities share considerable similarities across firms and hence can be seen as "best practices". Teece (2007) argued that since best practices cannot be the source of competitive advantage, they are highly unlikely to constitute dynamic capabilities. This is in line with the work of Zollo and Winter (2002) and Winter (2003) who found that dynamic capabilities enable firms to constantly reconfigure their operational capabilities and thus, to achieve long-term competitive advantage.

Regardless of the theoretical underpinnings, to understand the nature of dynamic capabilities, a strict distinction must be made between these capabilities and operational capabilities (also called *"zero order" capabilities*) (Albort-Morant et al., 2018). *"Zero order" capabilities* operate independently, are more static and enable firms to pursue specifically defined sets of activities (Sunder M et al., 2019; Teece, 2007). Dynamic capabilities (also called *"higher order" capabilities*), in contrast, represent a firm's ability to modify its existing operational capabilities by sensing and seizing new valuable business opportunities and integrating them to develop superior strategies and thus achieve competitive advantage (e.g., Ambrosini and Bowman, 2009; Baía and Ferreira, 2019; Teece, 2007). *Dynamic* stands for the part they play in change and *capabilities* classifies them as a strategic move or as a response to a new business context (Barrales-Molina et al., 2014). Making an empirical distinction between operational capabilities and dynamic capabilities that drive this change is crucial since otherwise firms' superior performance may be falsely attributed to a firms' dynamic capabilities (Laaksonen & Peltoniemi, 2018). The most essential differences between operational and dynamic capabilities are summarized in figure 2.

In their systematic literature review on dynamic capabilities and firm performance, Baía and Ferreira (2019) denoted conceptual heterogeneity of the dynamic capabilities

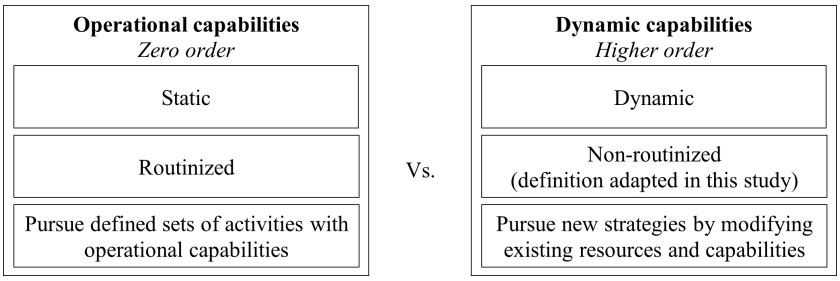

Figure 2: Distinction between operational and dynamic capabilities

construct and its related variables, and overlapping as the most essential challenges with regard to comparability of empirical papers and advancement of our understanding of the concept of dynamic capabilities. Their suggestions are in line with those of Eriksson (2014) who has identified two main tendencies in the study of dynamic capabilities, i.e., a focus on generic vs. a focus on more specific dynamic capabilities.

In this article, I follow Teece's (2007) line of reasoning and do not conceive dynamic capabilities as easily replicable best practices but much rather as a firm's potential to adapt to constantly changing environments by e.g., building, and reconfiguring internal and external competences. Dynamic capabilities refer to the reconfiguration and transformation of ordinary operation capabilities (Protogerou et al., 2011). Further, in my investigation of dynamic capabilities and strategic entry decisions, I focus on two specific dynamic capabilities, i.e., *absorptive capacity* and *new product development capability*. I chose these two dynamic capabilities for the following reasons: First, absorptive capacity and new product development capability are both essential instruments for reshaping a firm's resource base. Second, established definitions of both capabilities adequately match with the construct of dynamic capabilities adapted in this study. Such definitions are further explained in the following subsections. Third, absorptive capacity and new product development capability are two of the most frequently cited dynamic capability types in existing literature (Baía & Ferreira, 2019; Barreto, 2010; Helfat et al., 2007). In combination, these two capabilities are particularly representative of the dynamic capabilities approach which qualifies them a good fit for this article.

2.1.1. Defining absorptive capacity

As firms constantly face competitive, innovative and globalization pressures, absorptive capacity is considered one of the most essential factors for sustainable competitive advantage and firm survival (e.g., Lane et al., 2006; Roberts, 2015). Although the idea that externally acquiring knowledge is a spinoff of a firm's own R&D efforts was also developed and proposed by other scholars (e.g., Evenson et al., 1975; Tilton, 1971), the most prominent definition of absorptive capacity (based on citations) was offered by W. M. Cohen and Levinthal (1990, p. 128) who defined it as "a firm's ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends, which supports its innovative capabilities". Building on the propositions of W. M. Cohen and Levinthal (1990), Zahra and George (2002) reconceptualized absorptive capacity as a multidimensional dynamic capability construct and proposed four underlying component factors which refer to related terms in the literature on dynamic capabilities (Pavlou & El Sawy, 2011). First, knowledge acquisition refers to obtaining new (and external) knowledge (W. M. Cohen & Levinthal, 1990). Second, knowledge assimilation refers to knowledge articulation and knowledge transfer (e.g., Eisenhardt and Martin, 2000; Zander and Kogut, 1995). Third, knowledge transformation refers to creative thinking, efficient decision-making, and innovative problem-solving (Henderson & Cockburn, 1994; Teece et al., 1997). Finally, knowledge exploitation refers to seizing opportunities and reconfiguring existing capabilities (Grant, 1996; Teece, 2007). These four factors build upon each other and naturally combine to result in a dynamic capability (Camisón & Forés, 2010).

Multiple scholars have examined absorptive capacity and its outcomes and have found that firms that possess high levels of absorptive capacity demonstrate considerably stronger abilities of learning from strategic partners, sensing and integrating external information, and finally transforming the input into valuable firm-embedded knowledge (Domurath & Patzelt, 2016; C. L. Wang & Ahmed, 2007). Further, studies that focus on firm performance as an outcome of absorptive capacity, suggest a positive relationship between absorptive and firm performance (e.g., Bergh and Lim, 2008; Brettel et al., 2011; Yeoh, 2009). Hence, absorptive capacity plays an essential role in ensuring long-term competitive advantage.

Following Zahra and George's (2002) line of reasoning, I classify absorptive capacity as a firm's dynamic capability and adapt the definition proposed by W. M. Cohen and Levinthal (1990, p. 128), i.e., "a firm's ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends".

2.1.2. Defining new product development capability

In everchanging and growing industries, success is not only dependent on firms' competencies related to external knowledge exploitation, but also on firms' innovation efforts and on the rapid development of new products (e.g., Baía and Ferreira, 2019; Deeds et al., 2000). Empirical research in the field of innovation is longstanding and over time, different dimensions of innovative capability, which are cru-

cial for measuring a firm's overall innovative capability as part of the dynamic capabilities concept, have been conceptualized (C. L. Wang & Ahmed, 2004). Innovative capability refers to "a firm's ability to develop new products and/or markets, through aligning strategic innovative orientation with innovative behaviours and processes" (C. L. Wang & Ahmed, 2007, p. 38). As this definition indicates, numerous dimensions are embedded in the innovative capability construct and previous research has focused on different combinations of these dimensions. For instance, Schumpeter (1983) named the development of new products or services, new production methods, and organizational forms and the discovery of new sources of supply as innovative capabilities. Miller and Friesen (1983) further included the risk orientation of key executives and the tendency to seek novel and unconventional solutions and Capon et al. (1992) suggested that the tendency to pioneer and to be at the cutting edge of technology in its new product and service introductions plays another essential part regarding new product development capability and organizational innovativeness.

Although numerous combinations of innovative capability dimensions have been examined, the majority of studies on the topic of dynamic capabilities has focused on new product development as an enabler for a firm's change and renewal (e.g., Helfat and Winter, 2011; Schilke, 2014). This may be due to the fact that new development capability positively influences a firm's competitive performance making it a key determinant of success in dynamic and unfamiliar industries (e.g., Deeds et al., 2000; D'Este, 2002). To achieve superior performance, firms must be able and willing to generate new products and services, which in turn is dependent on the firm's technological and scientific capabilities (Helfat & Raubitschek, 2000). In the context of dynamic capabilities, this also means a firm's new product development capability must be as dynamic as the industry the firm operates in.

Since new product development as a dynamic capability aims at updating and reconfiguring a firm's product portfolio by e.g., adapting underlying processes to changing conditions, it should also play a crucial role for strategists when considering strategic entry. In my paper, I draw on the article by Capon et al. (1992) and suggest that new product development capability is dependent on the innovativeness of the market, the innovativeness of the organization, and especially on the strategic tendency of a firm and its employees to pioneer. Hence, I define new product development capability as a firm's ability to constantly attempt to pioneer and to be at the cutting edge of technology in its new product and service introductions. Further, it should be noted that I agree with Zahra et al. (2006) who emphasized that the qualifier *dynamic* differentiates the ability to develop new products from the dynamic capability to reconfigure and modify the way a firm develops new products. Therefore, I define a new routine for developing products as an operational capability and the ability to adapt such capabilities as a dynamic capability.

Although several dynamic capabilities share similar characteristics and even overlap in their definitions, I differentiate between absorptive capacity and new product development capability based on the following factors:

1. While my definition of absorptive capacity emphasizes the firm's ability to acquire and internalize external knowledge (i.e., knowledge outside the firm) in a value-adding manner, the major focus of new product development capability focus is on the firm's ability to benefit from internal resources, processes, and courses of action.

2. The absorptive capacity of a firm enables the firm to capture value from external sources – however, it does not describe the firm's intrinsic drive to do so. My definition of new product development capability does include this thrive by assuming that firms proactively aim to be pioneers in their new products and services.

Figure 3 briefly summarizes the differences between the two dynamic capabilities.

2.2. Dynamic capabilities and strategic entry

How firms respond to innovative actions taken by (potential) rivals and which capabilities lead firms' strategists to pursue a specific strategic direction are two central questions in management and strategy research (e.g., Argyres et al., 2019; Roy and Sarkar, 2016). Contrary to prior literature which is based mainly on Utterback and Abernathy's (1975) theory about industry dynamics, Argyres et al. (2015, p. 216) introduce the innovation shock approach and suggest that it is not the dominant design or an external shock but the "introduction of a pioneering new product design by a single firm" that forces incumbents to take strategic actions (i.e., repositioning, imitating, exiting) and that leads potential rivals to consider market entry. Further, the question arises of which capabilities enable a firm and its managers to pursue a specific strategic direction. Literature on innovations and dynamic industries has often investigated firms' capabilities and resources when seeking answers for their difficulties in responding to innovation shocks and change and suggests that the ability to respond to new industries is part of a firm's dynamic capabilities (e.g., King and Tucci, 2002). As ordinary operational capabilities (*zero-order capabilities*) are defined as a "high-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization's management a set of decision options for producing significant outputs of a particular type" (Winter, 2003, p. 991), they may not necessarily enable a firm to enter into related or entirely new industries and to integrate new technologies to generate value (Lavie, 2006). Much rather, decisions of whether and how to enter new industries are dependent on the reconfiguration of internal resources and capabilities and on the acquisition of required external knowledge (e.g., Leonard-Barton, 1992; Tripsas and Gavetti, 2000). As opposed to operational capabilities, dynamic capabilities (higher order capabilities) incorporate changing environments and are thus crucial when entering

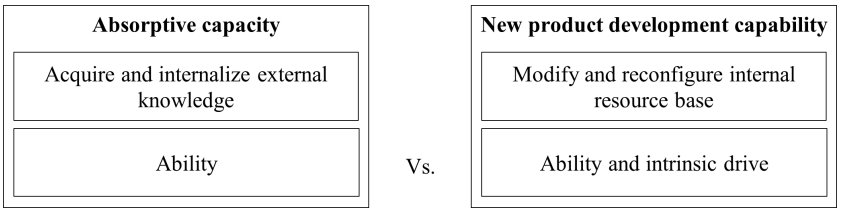

Figure 3: Distinction between absorptive capacity and new product development capability

new fields and responding to disruptive shifts (Damanpour & Wischnevsky, 2006; Rosenbloom & Christensen, 1994). Argyres et al. (2015) argued that an innovation shock provides knowledge about product features required to profit from the newly detected revenue pool and may lead other firms to consider entry based on their perceived resources and capabilities.

Therefore, my theoretical model investigates the effects of perceived dynamic capabilities on the assessment of strategic entry to an industry that has recently experienced an innovation shock. Following the work of Merikle and Joordens (1997) on cognitive psychology, it should be noted that the emphasis must be on perceived rather than objective dynamic capabilities to understand how corporate absorptive capacity shapes strategists' valuation approaches.

Further, I build on the behavioural theory of the firm and in particular on the findings of Gavetti and Levinthal (2000) according to which decision makers, although boundedly rational, can anticipate the broad consequences of broadly formulated actions as a result of crude and simplified representations of the environment in which they operate. Gavetti (2005) expanded this concept by including the role of cognitive representations. The way a senior strategist or top management team portrays a competitive environment has a strong impact on the strategic actions and positioning of the firm. This perspective is described in more detail in the methods section.

2.2.1. Perceived absorptive capacity and strategic entry

The assessment of strategic entry is determined by multiple factors which may either be of external or internal nature. Absorptive capacity constitutes one of the most essential internal elements and thus, I assume the perceived level of absorptive capacity of a firm to be of high relevance for strategists' evaluation of entry opportunities.

While the uncertainty following an innovation shock leaves some rival firms vulnerable (e.g., Bigelow et al., 2019; Christensen, 1997), it creates valuable opportunities for other incumbents and firms considering strategic entry (e.g., Argyres et al., 2015). By leveraging existing capabilities – particularly knowledge-based ones – firms may manage to leapfrog rivals and ensure sustained competitive advantage (Helfat & Raubitschek, 2000). In their seminal article on dynamic capabilities and strategic management, Teece et al. (1997) name a mismatch between the bundle of organizational processes required to meet the needs of a new industry as a major reason for entry failure. For instance, firms may lack the financial resources to imitate capabilities in a timely manner (e.g., Helfat and Eisenhardt, 2004), may not be able to leverage their human capital (e.g., Hitt et al., 2001), or may not succeed in acquiring and assimilating external knowledge (e.g., Kogut and Zander, 1992).

Further, followers' strategic choices are dependent on "comparative adjustment costs" – costs that are influenced by three categories of organizational factors, namely (1) internal knowledge, capabilities, and resources, (2) internal incentives and organizational structures, and (3) relationships with third parties such a regulators and suppliers (Argyres et al., 2015) (see figure 4).

The first category includes a firm's technological knowledge base and financial assets. Firms with higher levels of embedded knowledge face lower adjustment costs as they enter a new industry or consider repositioning. Knowledge markets are often subject to severe information asymmetries (e.g., Caves et al., 1983), making knowledge acquisition a difficult and time-consuming process. Hence, the lower the firm's embedded knowledge, the greater the expected adjustments costs. The concept of absorptive capacity consists of a series of processes related to external knowledge: acquisition, appropriation, transformation, and exploitation of external knowledge, which is dynamic and heterogenous. There is a consensus that firms with higher levels of absorptive capacity possess stronger abilities to learn from strategic partners, capture and integrate external information, and transform this information into value-enhancing, firm-embedded knowledge (e.g., Baía and Ferreira, 2019; Barreto, 2010; C. L. Wang and Ahmed, 2007). Building on these findings, a firm with strong absorptive capacity may face fewer challenges when acquiring and integrating knowledge than a firm with low absorptive capacity and thus, face considerably lower adjustment costs. This line of reasoning is also in accordance with the repositioning framework developed by Argyres et al. (2019) which aims to guide strategists who have do decide whether and how to reposition as a response to an innovation shock. Dynamic capabilities and adjustment costs are intimately linked as both approaches describe potential (financial) barriers firms face when modifying or updating their resources, capabilities, and knowledge. Further, particularly knowledge-based dynamic capabilities (including absorptive capacity) are of high relevance when explaining differences in competitive advantage and firm performance in dynamic environments.

When considering strategic entry, firms' strategists must also take into account the timing of entry. If an innova-

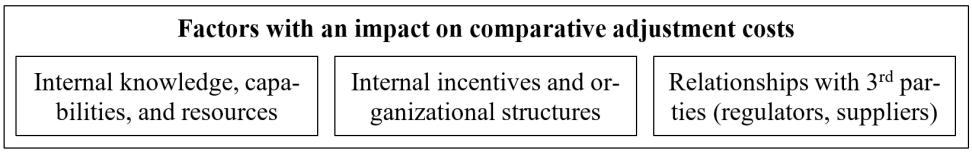

Figure 4: Factors that determine comparative adjustment costs

tion shock leads to a sufficient first mover advantage, followers may not be able to benefit from a sufficiently large share of the increased demand and therefore cannot keep up with the first mover (Argyres et al., 2015). In his pioneering work on industry evolution, Klepper (1996) found that early entrants ultimately gain an insurmountable cost advantage over later followers since returns on investment in cost-cutting process R&D grow with scale. Hence, as firms expand and become larger, the cost gap between early and later entrants also widens, leading to the exit of later entrants. Those observations were also confirmed for the specific case of firms entering an industry that has experienced an innovation shock (Argyres et al., 2015). The speed of change is part of strategic change which is defined as "a difference in the form, quality, or state over time" (Van de Ven & Poole, 1995, p. 512). This definition compromises three change dimensions, i.e., the type, the magnitude (form and quality), and the speed of change (over time). Yi et al. (2015) examined the relationship between dynamic capabilities and the speed of change and found strong technological capabilities and absorptive capacity to have a positive impact on firms' speed of change. In the case of everchanging environments, technological skills and a strong resource base were found to complement absorptive capacity, enabling firms to quickly implement strategic change. The faster strategic change can be integrated, the more opportunities a company can capitalize on ahead of its competitors to achieve superior competitive advantage (Lieberman & Montgomery, 1988). The speed of implementation does not only provide insights about the need for change, but also about the absorptive capacity a firm possesses to realize strategic change, as this capacity is also accompanied by the slack required to respond quickly to external dynamism. Firms with high absorptive capacity may therefore also be quicker in implementing strategic change than firms who possess low levels of absorptive capacity.

In addition to implementation speed, the speed of strategic change covers the speed and efficiency of strategic decision-making (Eisenhardt, 1989). As absorptive capacity includes the ability to recognize the value of new external information, this may also be beneficial when having to choose between strategic directions. For instance, firms with comparably higher absorptive capacity are much more likely to imitate an innovation shock more quickly. As new innovations limit the value of established firms' knowledge, they need to possess absorptive capacity to quickly recognize the value of newly available information and to develop a comparable product which stimulates the new demand (Bigelow et al., 2019). This is in line with findings of Henderson and Cockburn (1994) who discovered a positive relationship between in-house knowledge and competence through R&D of pharmaceutical firms and its discovery productivity.

As reflected in its definition, absorptive capacity allows firms to better "receive" external knowledge, i.e., knowledge generated by other firms or partners. The ability to benefit from knowledge generated outside the firm may not only be valuable when cooperating with strategic partners or suppliers, but also in the context of knowledge spillovers (see figure 5). Such spillovers refer to the existence of externalities, commonly defined as often unanticipated externalities associated with an activity or process (Agarwal et al., 2010). More precisely, knowledge spillovers are external benefits from the creation of knowledge that also benefit parties other than those investing in the creation of knowledge. Such benefits include, among other things, improved innovation and productivity (Audretsch & Belitski, 2023). However, spillovers as a form of externality are only utilized in case the available knowledge results in a direct and clear benefit. Access to knowledge spillovers stimulates firms' productivity and innovation efforts since the availability of new knowledge also strengthens firms' ability to develop new products and streamline underlying processes. In contrast to knowledge spillovers, knowledge collaborations are based on active knowledge sharing through e.g., strategic partnerships (Cassiman et al., 2018). Such collaborations enable firms to allocate costs (e.g., R&D, equipment) between partners (Veugelers, 1997) and to shorten the product development phase in the innovation life cycle (Audretsch & Belitski, 2023; Hagedoorn, 1993). This, in turn, increases a firm's competitiveness (e.g., W. M. Cohen and Levinthal, 1989; Miotti and Sachwald, 2003).

Some firms are better able than others to capture value from collaborations which can partly be attributed to the levels of absorptive capacity a firm possesses (Ritala & Hurmelinna-Laukkanen, 2013). Two dimensions of absorptive capacity are especially relevant regarding profiting from external knowledge implementation. The first one captures a firm's propensity to acquire new knowledge and its understanding of what kind of knowledge is relevant. The second one is the firm's ability to utilize and embed the external knowledge to an extent that results in competitive advantage.

Building on the above-mentioned findings and line of reasoning and putting them into the context of absorptive capacity and strategic entry, one may assume the following: Since adjustment costs are considerably lower for firms with high levels of embedded knowledge and since extensive ab-

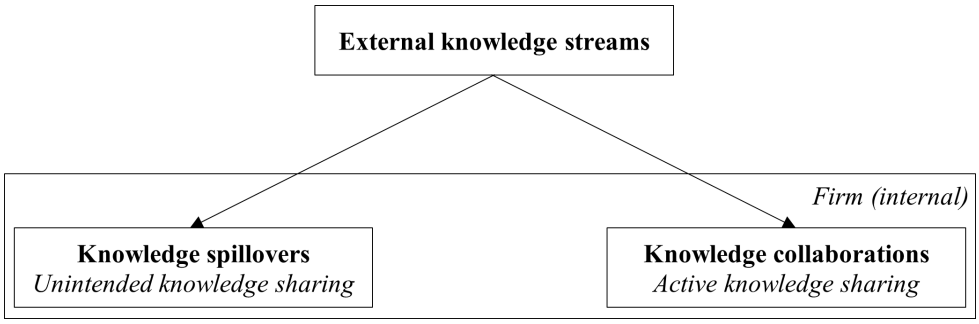

Figure 5: Forms of external knowledge streams

sorptive capacity enables firms to more easily acquire and integrate external knowledge, a firm's strategist may also assume that the organization faces lower comparative adjustment costs when entering a new industry when its perceived absorptive capacity is high than when its perceived absorptive capacity is low. Further, a firm's profit from entering a new industry is highly dependent on the speed of entry and the speed of change. Firms with extensive absorptive capacity are able to implement strategic change more quickly than rivals with limited absorptive capacity. Hence, takings these facts into account, a firm's strategist may rate the firm's speed in entering new industries higher when the perceived absorptive capacity is high than when the perceived absorptive capacity is low. Finally, drawing on the positive impact of knowledge spillovers and knowledge collaborations on firms' innovative behaviour and productivity, and the fact that strong absorptive capacity simplifies the process of receiving external knowledge, a firm's strategist may find the firm to be able to capture more value from knowledge externalities when the perceived absorptive capacity is high than when the perceived capacity is low. As stated in section 2.2, I assume that decision makers (i.e., strategists, senior managers) can anticipate consequences of a firm's courses of action and that their decisions have a significant impact of the strategic choices of a firm (Gavetti, 2005; Gavetti & Levinthal, 2000). Thus, I hypothesize:

Hypothesis 1a) As a firm's perceived absorptive capacity increases, so does the firm's strategists' assessment of entry attractiveness.

2.2.2. Perceived new product development capability and strategic entry

Similar to absorptive capacity, new product development capabilities play a crucial role with regard to firms' competitive position. To compete in new industries, a firm should not only be able to benefit from external knowledge but also to drive innovation and have the intrinsic motivation to do so. Therefore, I also assume the level of perceived new product development capability to be highly important for the assessment of strategic entry by the firm's strategist.

As stated in section 2.2.1, a firm's strategic move in response to changes in the environment caused by a rival firm, is not only dependent on financial or organizational constraints of the firm, but also on its entry timing. Firms considering entering a new industry must act quickly since, otherwise, the cost gap between early entrants and later followers will widen to the point that later entrants will have no other choice but to leave (Argyres et al., 2015; Klepper, 1996). Early entrants, on the other hand, may be able to neutralize the first mover advantage. The definition of new product development capability as a dynamic capability incorporates a strong and permanent determination to be at the cutting edge of technology. Firms that possess strong new product development capabilities aim to leapfrog their rivals when entering new industries. Being able to quickly adapt new product development processes and to transform technical knowledge into new offerings enables firms to remain competitive in changing environments. Firms that have high new product development capabilities may therefore be more likely to enter new industries quickly since they already have essential mechanisms in place to adapt internal operations flexibly and easily. On the other side, firms with low new product development capabilities may face various obstacles when entering new industries that delay the timing of entry. Such obstacles could include time-consuming R&D activities, or the creation of cross-functional teams to ensure new knowledge combinations. Hence, firms with strong new product development capability may be more likely to enter new industries in a timely manner which enables them to exploit more of the demand than those with low new product development capability.

In addition to a firm's "intrinsic" drive to enter new industries and to achieve technological leadership, this strategic decision is also linked to costs and efforts associated with technology resources required for superior performance. New product development comes with a considerable amount of funds such as specialized facilities, trainings, and state-of-the-art equipment (Helfat et al., 2007). Helfat and Winter (2011) argued that firms need to deploy their new product development capability multiple times to actually generate revenue for their investments to pay off. Schilke (2014) examined the relationship between new product development capability and competitive advantage under varying levels on environmental dynamism and stated that firms with strong new product development processes and routines tend to rely on experience which can result in or-

ganizational inertia. However, as illustrated in section 2.1.2, I do not define new product development capability as e.g., existing routines to develop new products but much rather as a firm's capability to easily adapt its new product development approach to changing conditions. Hence, although I agree that new product development capability comes with considerable costs, I allocate maintenance costs for existing new product development processes and providing state-of-the-art equipment for employees to "basic" new product development routines and not to costs associated with new product development as a dynamic capability. Much rather, I assume new product development capability to be costly as it requires considerable managerial commitment and time and further integration mechanisms (e.g., Barrales-Molina et al., 2010, 2013; Zahra et al., 2006). Moreover, I do not consider organizational inertia as a problem for firms with strong dynamic new product development capability, because I assume their intention to be a technological pioneer is deeply rooted in its culture and underlying company values.

New product development is a highly complex process which requires various interactions to fully capture value from the firm's technological capabilities to develop new offerings and product features (Marsh & Stock, 2003). Ensuring efficient new product development necessitates strong new product development capabilities as underlying skills and mechanisms must be constantly renewed to remain competitive in changing environments. This happens through activities such as investing heavily in non-traditional R&D activities, and through continuous management commitment and entrepreneurial decision-making (as opposed to routine-based decision-making) in this area (Teece, 2014). As building up and maintaining such capabilities is costly and time-consuming, numerous scholars suggest that investing in new product development capability only makes sense if a firm aims to compete with dynamic rivals in dynamic environments (e.g., Barrales-Molina et al., 2013; Darawong, 2018). Taking into account the effort a firm takes when developing a strong new product development capability, one may assume that such firms are likely to use their capability to pursue new strategies such as expanding to new industries.

As reflected in the definition of new product development capability used in this article, firms that possess comprehensive new product development capability do not just drive to innovate and to be at the cutting edge of technology in their new products when they have no other choice – much rather this urge to innovate is deeply integrated into the organization, its human capital, and its strategic courses of action. Semadeni and Anderson (2010, p. 1178) define the construct *competitor organizational innovativeness* as "a competitor's history of introducing innovative offerings over time". I use the term *organizational innovativeness* when referring to the history of successfully launching innovative products and services by a firm considering strategic entry. A firm's organizational innovativeness sends both signals to (potential) rivals as well as to potential customers. Drawing on information-based theories with the underlying assumption that in dynamic environments, information asymmetry is high, multiple scholars suggest that firms which are known for their success regarding innovations, are often perceived by their competitors as possessing crucial and superior market knowledge (e.g. Bergh et al., 2019; Bikhchandani et al., 1992). In addition, organizational innovativeness may cause other potential entrants to reconsider their decision to compete with a firm that has a long history of successful product launches and may cause less innovative incumbents to consider repositioning. At the same time potential consumers may connect the firm with strong organizational innovativeness and with superior, pioneering products (e.g., Pappu and Quester, 2016; Semadeni and Anderson, 2010) which would increase the probability of the entering firm to capture a portion of the newly discovered profit pool (i.e., increased demand). In addition to the signalling effect, multiple empirical studies proved that firms with a long history of successfully introducing new products – particularly in related industries – are more likely to succeed in entering new industries than firms with a less extensive history of innovative activity (e.g., Argyres et al., 2015; (Klepper, 1996)) (see figure 6).

Since firms with high new product development capabilities constantly attempt to pioneer in their new offerings, it seems reasonable to assume they also have a long history of successfully launching new products.

Putting these suggestions in the context of new product development and strategic entry assessment, one may assume the following. Since the share of market demand that a firm can capture when entering new industries is highly dependent on timing and since new product development capabilities enable firms to quickly adapt their underlying mechanisms to changing environmental conditions, a firm's strategist may expect the firm to be able to capture more value when the firm's perceived new product development capability is high than when the perceived new product development capability is low. Further, new product development capabilities are accompanied by a considerable amount of costs and commitment. Although these capabilities imply that the firm and its employees have an intrinsic drive to innovate, it nevertheless requires continuous effort. Therefore, a firm's strategist may find it necessary to actively deploy the firm's new product development capability in order for the benefits to outweigh the costs and required commitment. Finally, the definition of new product development capability implicates that firms with such a capability tend to have a strong history regarding innovations. Such a history of successfully launching innovative products and services serves as a signalling mechanism to potential customers and rivals and moreover, enhances overall firm performance. Therefore, a firm's strategist may rate the likelihood to be able to compete with rival firms in new industries as higher when the firm's perceived new product development capability is high than when the perceived new product development capability is low. Building on the above chain of reasoning, I hypothesize:

Hypothesis 1b) As a firm's perceived new product development capability increases, so does the firm's strategists' assessment of entry attractiveness.

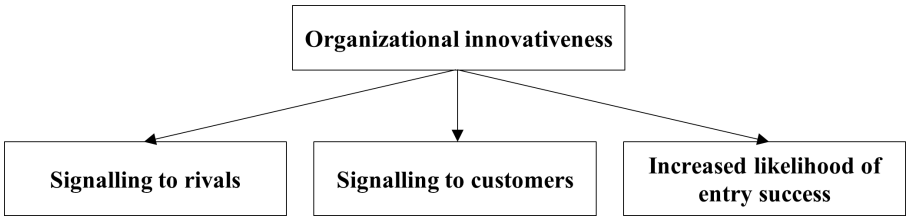

Figure 6: Effects of organizational innovativeness

2.3. The role of environmental dynamism

Since the effect of dynamic capabilities on competitive advantage and firm performance does not only depend on these capabilities themselves but also on the contextual setting in which they are applied (e.g., Levinthal, 2001), numerous scholars have started to examine the relationship based on different settings. Particular emphasis in research is placed on the role of environmental dynamism since a firm's ability and the necessity to change is, in most cases, at least somewhat dependent on the environmental context (e.g., Baía and Ferreira, 2019; Hrebiniak and Joyce, 1985; Schilke, 2014; Zahra et al., 2006). With regard to environmental dynamism, I draw on the work of Miller and Friesen (1983) and adapt their conception which states that both unpredictability (or uncertainty) and speed and amount of change (volatility) are fundamental determinants of environmental dynamism. Currently, two somewhat opposing views on the role of environmental dynamism with respect to dynamic capabilities and its outcomes prevail. While the first group of scholars posits that an urgent need to change is prerequisite to capture value from dynamic capabilities (e.g., Drnevich and Kriauciunas, 2011; Wilhelm et al., 2015; Winter, 2003; Zollo and Winter, 2002), the other literature stream assumes dynamic capabilities to be an inadequate means of change.

Environmental dynamism as a positive factor – The majority of scholars who classify high environmental dynamism as an enabler and prerequisite for dynamic capabilities build their argumentation on costs and efforts associated with developing such capabilities. Anticipatable costs typically involve those that accompany the continuous reconfiguration and learning process (Schilke, 2014). However, further anticipatable costs may arise if the necessity for resource alterations is wrongly estimated, or dynamic capabilities are deployed improperly. If a firm invests heavily in resources associated with dynamic capabilities without having an explicit need for change, this may result in comparatively poor firm performance. Therefore, firms' strategists need to match costs with the actual use of their dynamic capabilities. Kogut and Zander (1992) refer to dynamic capabilities as "strategic options" that enable firms to reconfigure their existing resource base when they recognize a need for change. If this need for change is low, the opportunity to "strike" the option is less likely, which in turn lowers the value of the dynamic capability. Following this line of reasoning, in environments with low dynamism, dynamic capabilities seem to be of comparably less importance for firms to realize sustainable competitive advantage. Such environments much rather encourage firms to exploit present resources (Teece, 2007). Thus, the logical conclusion for these researchers is that low environmental dynamism limits the value of the deployment of dynamic capabilities. For instance, Wilhelm et al. (2015) analysed the impact of dynamic capabilities on the effectiveness and efficiency of operating routines under varying levels of environmental dynamism and their results show a positive impact of dynamic capabilities on efficiency only in highly dynamic environments. Since the maintenance of the capabilities is costly and since their effect on efficiency is limited, dynamic capabilities contributed less to efficiency in environments characterized by low dynamism.

Environmental dynamism as a negative factor – The other group of scholars emphasizes that dynamic capabilities are path-dependent and routine-based and thus, based on outcomes means for modifying existing resources locally, they may prove ineffective when new and unknown forces steadily change the basis of competitive success (in this case: highly dynamic environments) (Levinthal & March, 1993; Schreyögg & Kliesch-Eberl, 2007). In line with this, Schilke (2014) argued that unfamiliar states pose challenges for the deployment of dynamic capabilities and its effectiveness. However, contrary to most scholars who follow this perspective, he also found these capabilities to be relatively ineffective in environments characterized by low levels of environmental dynamism. This results from the few occasions to actually deploy expensive dynamic capabilities which significantly lowers their net value. Instead, moderate environmental dynamism constitutes the most profitable context for the execution of dynamic capabilities. This condition provides sufficient opportunities for strategic implementation of change while, at the same time, enabling the firm to leverage know-how and solutions from previous experience.

It becomes apparent that there is no consensus on the influence of environmental dynamism on the impact of dynamic capabilities on competitive advantage. This can predominantly be attributed to the differences in the conceptualizations of the dynamic capabilities construct – i.e., defining dynamic capabilities as identifiable and specific processes that are stable and analytic in less dynamic industries and fragile and experimental in high-velocity industries (Eisenhardt & Martin, 2000) vs. dynamic capabilities as capabilities in sensing, seizing and transforming (Teece, 2007) that are most effective in dynamic industries. As stated in section 2.1, I adapt the perspective that easily replicable best practices are not likely to constitute a dynamic capability.

2.3.1. Perceived absorptive capacity and environmental dynamism

As stated in section 2.2.1, I assume perceived absorptive capacity to have a positive impact on the likelihood that a corporate strategist will consider entering an industry that has recently experienced an innovation shock. For example, Woiceshyn and Daellenbach (2005), in their study on technology adoption (of Canadian oil firms) in the face of environmental technology change, found that absorptive capacity is crucial for firm survival and superior performance. Their results show that the adoption process for a new horizontal drilling technology of firms with higher absorptive capacity is more efficient than the process of firms with lower levels of absorptive capacity. Differences in the processes of adoption were determined by several dimensions: Firms with strong absorptive capacity (in contrast: firms with low absorptive capacity) developed strong long-term resource commitment, integrated external first-hand knowledge from partners such as joint ventures and strategic partnerships, anchored innovative behaviour and risk tolerance in their values and norms, fostered funding initiatives within managerial systems, and finally, ensured high skills in relevant areas through targeted project staffing and training.

Chen (2004) examined factors that influence a firm's ability to acquire and replicate knowledge from outside the firm and confirmed a positive relationship between a firm's absorptive capacity and knowledge transfer performance. Inward technology transfer –an integral part of the absorptive capacity construct – is, among other things, facilitated by the possession of superior technical skills, resources, and managerial commitment (e.g., Agmon and Von Glinow, 1991). It becomes quite evident that the development of absorptive capacity requires considerable and continuous investment (Marsh & Stock, 2003) and deep managerial commitment (Woiceshyn & Daellenbach, 2005). Given the effort of building superior absorptive capacity, I assume that firms need to extensively make use of such capability in order to generate revenue from it. Hence, I agree with the authors who state that, as developing dynamic capabilities is costly and requires strict commitment, absorptive capacity does not necessarily pay off in stable environments. In certain settings, the capability may even be destructive due to high maintenance costs (Li & Liu, 2014). High-velocity environments, on the other side, are characterized by comparably short product lifecycles with frequent technology shifts. While some scholars assume such conditions to decrease the effectiveness of dynamic capabilities, suggesting these capabilities are routine-based and thus not matchable to new settings (e.g., Schilke, 2014), I do not assume absorptive capacity to prove less effective in such environments.

As reflected in the definition I adapt in this article, absorptive capacity is the ability of a firm to capture value from "new" external information, implying this is of particular importance in new and unfamiliar industry settings. Given the constant threats of competitors and rapidly evaporating opportunities, a dynamic environment may enable firms with strong absorptive capacity to gain an advantage over incumbents or new entrants with lower levels of absorptive capacity. Further, in hyper-competitive industries, resources and skills are difficult to obtain, making the ability to efficiently sense and adapt in a timely manner one of the few ways to achieve short-term advantage (D'Aveni et al., 2010). In less hostile environments where previous strategies can often be reused, absorptive capacity may be much less relevant and not necessarily beneficial, given the costs associated with building and maintaining such capability. However, if a firm decides to enter a new industry, this results in additional investments and resource commitment which are not necessarily related to dynamic capabilities. Such costs may involve implementing new quality controls to meet the new industry's regulations and standards, hiring new employees, or renting new buildings. Thus, although a firm with strong absorptive capacity may benefit from environmental dynamism in a new industry in terms of fully exploiting this dynamic capability, costs and capacity risks may increase due to resource scarcity and activities to maintain absorptive capacity. On the contrary, low-velocity industries may not offer sufficient opportunities to capture much value from absorptive capacity

As illustrated in section 2.2.1, in addition to active knowledge internalization, firms with absorptive capacity also benefit from passive knowledge acquisition as a result of knowledge spillovers. Firms with high absorptive capacity enjoy a better understanding of new and external knowledge. However, the likelihood of the occurrence of knowledge spillovers and of actually capturing value from such knowledge spillovers is not only in the hands of the firm entering a new industry. It is also determined by the mechanisms competitors deploy to secure their knowledge and lock it in. Such appropriability mechanisms include, among others, secrecy tactics, and intellectual property rights (e.g., patents, trade secrets). Altogether, these mechanisms form the "*appropriability regime*" of organizations (Ritala & Hurmelinna-Laukkanen, 2013). If a competitor has a strong appropriability regime, the likelihood of unintended spillovers is unlikely (McGahan & Silverman, 2006), making it difficult for the entering firm to use its absorptive capacity efficiently in this context. However, if a competitor lacks protection mechanisms for its innovation efforts and knowledge, unintended spillovers enable firms with high levels of absorptive capacity to profit and incorporate that external knowledge. Building on the theory of Porter (1997), considerable research suggests that industry characteristics such as the degree of competition and dynamism influence the degree of technical progress and the intensity of competitive forces, which in turn affect competitors' ability to prevent knowledge spillovers (James et al., 2013). Fast moving industries with strong competition and constant change make it difficult for innovators to protect their innovations, as, for example, the constant pressure to innovate and develop new products is accompanied by numerous new patent applications, which can take many years to be granted. Hence, in those industries, unintended knowledge spillovers are quite likely

to happen. On the contrary, in low-velocity industries with comparably long product life cycles, appropriability regimes are more extensive, and therefore knowledge spillovers can be avoided more easily by competitors (see figure 7).

Given that valuable opportunities in dynamic environments can only be exploited if the firm's employees are able to process respective external information, van Doorn et al. (2017) examined how top management teams and strategists enhance firms' entrepreneurial orientation in industries characterized by high environmental dynamism. Managers and strategists play an essential role in strategy formulation and execution and thus, their ability to interpret environments the firm operates in, contributes significantly to the firm's strategic positioning as a response to environmental changes (Cho & Hambrick, 2006; Kirova, 2023). Since it is assumed that absorptive capacity increases managers' ability to capitalize on external knowledge (Goll et al., 2007), van Doorn et al. (2017) assessed the interplay between external advice seeking and managers' absorptive capacity and found that only when combined with strong absorptive capacity, advice seeking aids top managers in elaborating innovative strategies in dynamic environments. Also, absorptive capacity enables managers to better evaluate the feasibility of advice and to refine useful information in a value-adding manner (Augier et al., 2001). Further, it eases timely decision-making which is an in indispensable ability in high-velocity environments. (Szulanski, 1996). In such environments, windows of opportunities to achieve competitive advantage are short and absorptive capacity incorporates the skillset to identify such opportunities at an earlier stage, incorporate them, and apply them to commercial ends. Since accumulated knowledge shapes opportunities firms and individuals identify and transform into profitable business operations, managers' ability to understand and adopt external knowledge has an impact on the ability to capitalize on entrepreneurial opportunities – especially if the environment is dynamic.

Given the pace of change in dynamic environments, strategists operating in firms that lack timely decision-making processes and appropriate screening mechanisms, may consider entry into dynamic industries riskier and less attractive than competitors that are quicker and more efficient in strategic decision-making. High absorptive capacity enables firms to fasten strategic decision-making and to profit from external knowledge in dynamic as well as in stable environments. However, firms may be able to derive more benefits from such dynamic capability in high-velocity industries. Although environmental dynamism may increase maintenance costs for absorptive capacity, I expect the benefit it generates for the firm to outweigh its costs and hence, I assume that strategists give greater weight to the former. Further, not all determinants of absorptive capacity require continuous investments. For instance, employee incentives (Van Den Bosch et al., 1999), usage of information systems (Lenox & King, 2004), and percentage of technical employees (Luo, 1997) are frequently used proxies for absorptive capacity. Unlike, for example, R&D investments, these factors do not require continuous investment – the costs and effort occur predominantly in their development stage. Considering the potential for absorptive capacity in dynamic environments that arises through, e.g., streamlined decision-making processes, and leveraging unintended knowledge spillovers from competitors, strategists may rank entry into a high-velocity industry as more valuable than into a stable environment. For instance, if a firm's strategist assumes the firm to have high absorptive capacity, he or she might also assume the firm to be able to screen and apply external knowledge and to efficiently implement new strategies based on the generated insights. However, if this firm enters a stable environment where change is rare, strategy adjustments or implementations may not be necessary, and previous investments in absorptive capacity development may not pay off to the same extant. On the contrary, if the new industry is accompanied by frequent change, the perceived ability to quickly make decisions and execute new strategies may lead the strategist to assume the firm to have a substantial advantage over competitors. Moreover, as a result of unintended spillovers due to competitors lacking adequate protection mechanisms, the strategist may be better able to sense and screen knowledge outside the firm than in stable industries where it is easier for competitors to protect their knowledge. Thus, I hypothesize:

Hypothesis 2a) Perceived absorptive capacity will encourage a firm's strategist to enter a new industry, especially if the industry is expected to show high levels of environmental dynamism.

2.3.2. Perceived new product development capability and environmental dynamism

New product development capability is positively related to firm performance (M. Song et al., 2005), organizational effectiveness (Arnett et al., 2018), and competitive advantage (Drnevich & Kriauciunas, 2011). Firms with strong new product development capability are able to reconfigure and modify the way a firm develops new products and services based on changes in the environment it operates in. Similar to my discussion of absorptive capacity and dynamic capabilities in general, it should be noted that new product development capabilities usually require a sustained commitment of resources such as high investments in new R&D activities and adequate compensation to attract and keep technical employees. Given the commitment and costs, I anticipate that firms will need to leverage their new product development capability extensively to offset corresponding costs. This justifies the assumption that the strength of the positive impact of new product development capabilities on the above-mentioned outcomes varies depending on the degree of environmental dynamism.

Stable environments are characterized by infrequent change and comparably easily predictable actions of competitors and customers. Thus, in many cases, existing products and services can be sold without any major changes and old strategies can be reused (Hambrick, 1983). On the contrary, when contextual circumstances undergo relatively frequent

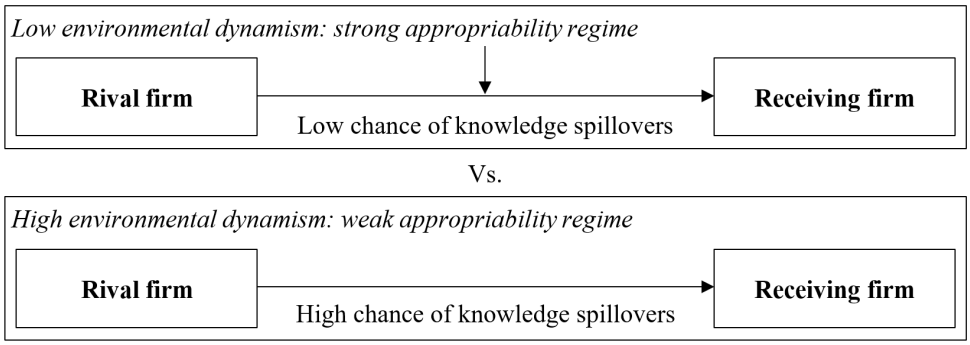

Figure 7: Knowledge spillovers in environments with low vs. high dynamism

changes, new product launches or overhauls are essential for firms to remain competitive (M. Song et al., 2005). Changes are required not only in the product itself but also in the whole process of developing new offerings. Multiple scholars have examined firm performance under varying levels of industry dynamics and have found innovative behaviour of firms to play a crucial role. For example, entrepreneurial orientation increases firm performance but at faster pace for businesses in dynamic environments (Wiklund & Shepherd, 2005).

Moreover, more entrepreneurially oriented firms are better able to capitalize on opportunities in such environments and are less prone to threats. Opportunities include, among other things, newly identified customer preferences (Sandvik et al., 2011), or new product development as a result of technological breakthroughs whose technical information is publicly available (Wilden & Gudergan, 2015). Threats, on the other hand may involve sunk costs resulting from existing products and services becoming obsolete or redundant due to changes in new environmental demands or changing customer preferences (Baum & Wally, 2003; van Doorn et al., 2017). To harness the potential of opportunities and to minimize vulnerability to threats, some firms place strong emphasis on the development of technologies, IT systems, and task-related activities, that allow them to rapidly develop new offerings – i.e., they strive for high new product development capabilities. However, although new product development capability is considered a major source of increased firm performance, gaps between investments on the dynamic capability and outcomes of such investments are not uncommon (Bicen & Hunt, 2012). Main causes of this gap include, for example, the increasing costliness and complexity of new product development and uncertainties associated with corresponding research and development (Rindfleisch and Moorman, 2001; Sivadas and Dwyer, 2000). To close the gap – or at least keep it as small as possible – firms need market information (Bicen & Hunt, 2012).

Being able to identify consumers' current needs and to predict their future actions and preferences is critical for targeted use of firms' new product development capabilities. Hence, if a firm's strategist assesses the attractiveness of entry, he or she may not only take into account the firm's level of new product development capability but also its ability to predict future consumer needs. Constantly striving to pioneer and to be at the forefront of technology in new product introductions may not be sufficient to achieve a superior position in unknown high-velocity industries. Much rather, firms must implement procedures within the firm that enable them to identify environmental changes and then respond in a beneficial way. Arnett et al. (2018) examined the effect of new product development capability on organizational effectiveness and were able to prove a positive relationship. However, they included the ability to acquire external knowledge and integrate it into internal processes in their definition of new product development capability. They argued that gathering internal as well as external technical and market information is a prerequisite for an adequate resource allocation with respect to successful new offerings and that new product development capability can therefore be viewed as a type of market-sensing capability. Further, although there are variations across industries and firms, a review of the literature on new product development suggests that four basic stages underlie a successful new market offerings process, i.e., opportunity evaluation, technical development, experimentation and testing, and commercialization (e.g., Alam and Perry, 2002; De Jong and Vermeulen, 2003; Salunke et al., 2019).

In the first stage, firms aim to identify evolving market trends, competitor actions, and consumer behaviour and – based on their findings – assess their ability to successfully develop products that possess the features desired by the consumers (Sandvik et al., 2011). The technical development stage involves setting up the necessary processes and allocating resources required to address the opportunities discovered in the previous stage (Arnett et al., 2018). In the experimentation and testing stage, both the offering and its proposed sales program are assessed. This allows firms to make required changes before the product and its underlying activities are fully implemented (Thomke, 2008). Finally, the commercialization stage covers the implementation, management, and tracking of the new product launch (X. M. Song & Montoya-Weiss, 1998). Arnett et al. (2018) propose that firms must possess at least acceptable abilities in all four stages to create successful new offerings and that, thus, firms

must consider alle stages when developing new products or taking new strategic directions. Moreover, they suggest that new product development capability as a dynamic capability provides firms with sufficient abilities in each stage. As stated earlier, Arnett et al. (2018) incorporate the ability to acquire and capitalize on external knowledge in their definition of this dynamic capability. I agree with the assumption that external and internal insights are crucial for market success. However, I take a different view on the definition of new product development capability. As described in section 2.1.1, I define absorptive capacity as a firm's ability to acquire and internalize external knowledge for the benefit of the organization. For new product development, on the contrary, I assume internal resources and activities to be the driving forces. Following this line of reasoning, I classify absorptive capacity as a market sensing dynamic capability and new product development capability as a more intrinsic drive to use internal skills to generate value with new offerings. Since I do not view new product development capability as a market sensing capability, I do not assume this capability to be a sufficient prerequisite for a firm to succeed in the opportunity evaluation stage. Even in the development stage, I suggest that firms require stronger market-sensing skills. For example, unintended and intended spillovers may help firms build up required processes and technical equipment. The four new product development stages are illustrated in figure 8. Further, the ones that require new market-sensing capabilities are highlighted. Therefore, I expect firms with high new product development capability to face significant challenges when entering dynamic industries with constant change if they lack accompanying screening abilities (covered by e.g., absorptive capacity).

Ruiz-Ortega and García-Villaverde (2008) examined the implications that the timing of entry has for the impact of dynamic capabilities on firm performance. They did not find variation in the relationship between new product development capabilities and firm performance for different moment of entries into new industries. However, pioneering firms and early follower run the risk of incurring too high a cost for their commitment. Firms that focus on imitation rather than on investments in innovative activities, on the contrary, face lower risks. Adapting this line of reasoning to the case of entry into a highly volatile industry that has just experienced an innovation shock, this would increase the risk for a firm with high new product development capability as such firms thrive to be at the forefront of technology in their new offerings. Other risks associated with high-velocity industries include unpredictable actions of competitors who may also launch new products resulting in increasing consumer choice, availability of new technologies which may enable rivals to imitate products with optimized features, and changing economic conditions which may limit the buying behaviour of potential consumers (Arnett et al., 2018).

The urge to be at the forefront of technology is deeply rooted in the culture and values of firms with high new product development capability. Being able to innovate and develop new products is of high relevance in turbulent environments. However, the ability to do so involves considerable commitment and multiple risks and does not necessarily pay off more in dynamic environments (M. Song et al., 2005). Overall, given the high costs required to remain competitive in high-velocity industries, I assume the risks in such environments to outweigh the opportunities new product development capability creates. This, in turn, might weaken the attractiveness of entry for decision makers. For instance, the perceived new product development capability of a firm may be high. If the firms' strategist decides to enter a highly volatile industry which has just experienced an innovation shock, the firm may be faster than competitors in terms of developing superior products and thus, be able to cover a significant portion of the new demand. On the other hand, entering such industries requires high costs for technical equipment, research and development, and maintenance. Such costs may even increase if the firm lacks mechanisms and skills that help acquire and internalize external information. The need for external information such as market, consumer, or competitor information is particularly important in turbulent settings and new product development capability does not necessarily provide firms with such ability. If incumbents possess high new product development capability, too, they may be able to outperform the entering firm. Further, entering a high-velocity industries involves risks associated with changing consumer demands. If the firm enters a comparable stable environment, on the other hand, it may still require its new product development capability to quickly develop development processes and respond to the innovation shock. However, the maintenance costs and risks are considerably lower as actions of competitors and consumers are generally easier to predict, and technology changes occur less frequent. Much rather, the firm could focus on becoming technology leader and further, try to build mechanisms to protect its technical knowledge, which is more doable in stable industries. Thus, I hypothesize:

Hypothesis 2b) Perceived new product development capability will encourage a firm's strategist to enter a new industry, especially if the industry is expected to show low levels of environmental dynamism.

2.4. The role of internal knowledge sharing

In addition to dynamic capabilities, other organizational conditions, abilities, and mechanisms have a significant impact on sustainable competitive advantage and strategic choices, and on the relationship between dynamic capabilities and its outcomes (e.g., Baía and Ferreira, 2019; Barrales-Molina et al., 2010). One of the most examined organizational mechanisms to improve innovative performance and gain competitive advantage in dynamic environments is internal knowledge sharing (e.g., Davenport and Prusak, 1998; Grant, 1996; Pai and Chang, 2013; Zhao et al., 2021). As an essential knowledge-centred organizational activity, it allows employees to add value in knowledge distribution, exploitation and finally, to the competitive advantage of the firm they work for (e.g., Cabrera and Cabrera, 2005; Jackson

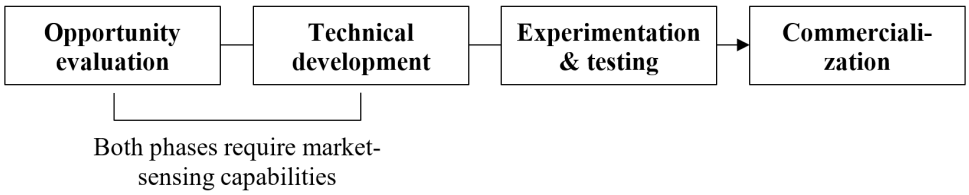

Figure 8: New product development phases and market sensing capabilities

et al., 2006; S. Wang and Noe, 2010). More precisely, knowledge sharing means providing information and know-how with the intention to collaborate and to help others (e.g., Cummings, 2004; S. Wang and Noe, 2010).

Existing research results can be roughly classified in two directions. One group of scholars suggests that organizational innovativeness is guaranteed by knowledge sharing (e.g., Jackson et al., 2006; C.-P. Lin, 2007). Other researchers agree that knowledge sharing partially impedes the innovation performance of firms. For instance, Ritala et al. (2015) found that, although knowledge sharing has a positive influence on innovation performance, unintentional or intentional external knowledge sharing negatively moderates this relationship. Moreover, knowledge sharing inevitably leads to knowledge resource heterogeneity within organizations, which, in turn, can cause gaps in internal knowledge exchange and finally, increase knowledge management costs and hinder innovative performance (Ancona & Caldwell, 1992).

However, although there are some differences in the results and conceptualizations of knowledge sharing, the majority of studies conclude that, as knowledge is the firm's most important resource, firms and their decision makers profit from knowledge sharing mechanisms in multiple ways. For example, it can help reduce production costs, increase the speed of new product development projects, strengthen team performance, and optimize firm performance through sales growth and growth of revenue from new products and services (e.g., Arthur and Huntley, 2005; Mesmer-Magnus and DeChurch, 2009; S. Wang and Noe, 2010) (see figure 9).

In the following, I use the term knowledge sharing when referring to knowledge sharing within a firm.

When I refer to knowledge sharing to external parties, I use the term external knowledge sharing. Further, I assume firms to possess high levels of knowledge sharing if internal processes for sharing information effectively among individuals, decision makers, and internal units are very well developed. In contrast, if such processes are only developed to a limited extent, a firm's level of knowledge sharing mechanisms is low.

2.4.1. Perceived absorptive capacity and internal knowledge sharing

Absorptive capacity is a central organizational capability as it enables firm to gain competitive advantage through, for instance, increased learning abilities and knowledge acquisition and internalization (e.g., Baía and Ferreira, 2019). While absorptive capacity plays a major role in firms' competitive performance, it is not the only element that has an effect on performance and strategic choices. Given the high relevance of both absorptive capacity and knowledge sharing, there is a growing interest in identifying and examining factors that determine the relationship between these two organizational mechanisms (e.g., Balle et al., 2020; Ceccagnoli and Jiang, 2013; Van Wijk et al., 2008). However, the results of studies on the relationship between absorptive capacity and knowledge sharing are somewhat puzzling and ambiguous. While some scholars claim that knowledge sharing is positively influenced by a firm's absorptive capacity (e.g., Ai and Tan, 2017; Berry, 2017; Miguélez and Moreno, 2015), others suggest a positive impact of knowledge sharing on absorptive capacity (e.g., Costa and Monteiro, 2016; Lim et al., 2015; Peltokorpi, 2017).

With respect to articles that regard absorptive capacity as an antecedent to knowledge sharing, the majority of scholars base their line of reasoning on the assumption that absorptive capacity provides the knowledge base necessary to establish knowledge sharing mechanisms in an organization and facilitates its process (Balle et al., 2020). It is assumed that absorptive capacity provides the grounding needed to engage in knowledge sharing activities. This happens, among other things, by applying best practices, and by identifying and integrating new knowledge opportunities (e.g., Grimpe and Hussinger, 2013). However, these arguments are difficult to reconcile with the definitions of dynamic capabilities and absorptive capacity adapted in this study. First, I do not define dynamic capabilities as best practices and, hence, do not assume absorptive capacity to foster knowledge sharing via the application of such learnings. Second, I define absorptive capacity as the firm's ability to internalize and profit from knowledge outside the firm, implying that internal knowledge sharing is not necessarily influenced by knowledge streams arising from the firm's absorptive capacity. Finally, although absorptive capacity increases knowledge transfer from external sources, I suggest that firms can still implement extensive knowledge sharing mechanisms and utilize already existing internal knowledge without requiring strong absorptive capacity.

On the other hand, regarding the literature stream that considers absorptive capacity as an outcome of knowledge sharing mechanisms, the major argument in qualitative studies is a boost in absorptive capacity resulting from the existence of knowledge sharing support practices (e.g., Elezi and Bamber, 2016). Quantitative articles, which are the major-

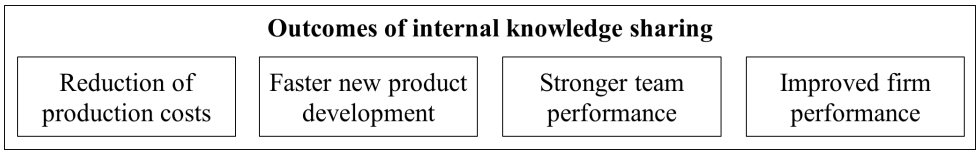

Figure 9: Outcomes of internal knowledge sharing

ity in this stream, mainly suggest that knowledge sharing increases knowledge in multiple units making it easier for firms to estimate and rank the value of external knowledge.

When faced with the choice to either enter new or related industries or remain in the current strategic position, firms' strategists must take into account both external as well as internal factors that may facilitate or complicate entry. Internal factors to consider include the firm's levels of knowledge sharing. Zhao et al. (2021) found that, although internal knowledge sharing cannot directly foster firms' innovation performance, absorptive capacity has a full mediating effect on this relationship. Further, since knowledge sharing exposes organizational teams to new knowledge and spreads it within the firm, this knowledge distribution may also help improve firms' absorptive capacity (Curado et al., 2015). In terms of outcomes of absorptive capacity, a considerable number of scholars have found a positive and direct relationship between absorptive capacity and firm and innovation performance (e.g., Bergh and Lim, 2008; Brettel et al., 2011). I agree with this view and further suggest a positive relationship between absorptive capacity and the assessment of strategic entry. However, I do not explore the role of knowledge sharing as a mediator but much rather as a moderator.

Knowledge sharing spreads knowledge across departments which can streamline the process of acquiring and internalizing knowledge. Further, Liao et al. (2007), in their article on knowledge sharing behaviour in knowledge-intense industries, argue that if firms manage to establish a strong knowledge sharing culture, employees are likely to be affected in a way that increases their learning ability and motivation. Since knowledge sharing fosters interaction and emphasizes the firm's support for collaboration, employees are able to better understand their firm's positioning and engage more in learning activities. A firm with strong absorptive capacity is able to internalize external knowledge and capture value from it regardless of internal knowledge sharing and hence, may decide to enter a new industry. However, the firm's strategist's perception of knowledge sharing may impact the extent to which he or she assumes high levels of absorptive capacity can lower the barriers to strategic entry, because it often eases rapid and balanced distribution of newly acquired knowledge, and collaboration may lead to knowledge synergies. For example, a firm might possess high levels of absorptive capacity that enable the firm to internalize external knowledge acquired from spillovers and collaboration. However, sharing this extracted knowledge between teams and ensuring it also falls into the hands of specialists who might be able to utilize it in other beneficial ways than those who internalized the knowledge in the first place might require considerable effort and time. Therefore, I assume a firm's strategist to rate strategic entry as much more attractive if he or she feels the organization disposes of sufficient processes to ensure the knowledge is distributed in a timely manner and that internal resources are actually committed to sharing knowledge and to learning from received knowledge. In contrast, if the firm is able to acquire and internalize external knowledge but it takes tremendous time to share such knowledge within the firm and there is no motivation to do so, strategists might agree that the firm is not able to fully capitalize on the newly acquired knowledge. Thus, I hypothesize:

Hypothesis 3a) Perceived absorptive capacity will encourage a firm's strategist to enter a new industry, especially if it is assumed that knowledge sharing within the firm is very well developed.

2.4.2. Perceived new product development capability and internal knowledge sharing

Innovation is often explained in terms of modifications in firms' offerings and the way firms develop and deliver these offerings (Francis & Bessant, 2005). Drawing on Samson's (1991) innovation categories, i.e., product, process, and managerial and systems innovation, innovative capability is commonly assumed to be reflected in the ability to show performance in these three categories. As stated in section 2.1.2, new product development capability represents one of the numerous dimensions of innovative capabilities and is one of the most explored dynamic capabilities (e.g., Helfat and Winter, 2011; Schilke, 2014). While a considerable number of studies have examined the relationship between knowledge sharing, absorptive capacity as a specific dynamic capability, and their outcomes, comparably little research is available on the relationship between new product development capability and knowledge sharing. However, multiple scholars have focused on the investigation of how innovative capabilities (which incorporate new product development capabilities) and knowledge sharing relate to each other.

Quinn et al. (2009) suggested that intellect and knowledge grow exponentially when shared. If knowledge is only exchanged between two persons, this only results in linear growth. However, if this knowledge is further distributed by such persons, others integrate feedback and learnings and finally, the value becomes exponential. This is the case in firms that put a strong emphasis on the implementation of comprehensive knowledge sharing mechanisms. Building on this logic, Liao et al. (2007) explored the role of knowledge shar-

ing in firms' innovation efforts and proved a positive effect of knowledge on innovation capability. Since prior research was able to prove a positive impact of shared knowledge on various innovation outcomes such as product innovation (Camelo-Ordaz et al., 2011), team innovation (Hu & Randel, 2014), and technical innovation (Chen & Huang, 2009), knowledge sharing is likely to also improve overall organizational performance (Costa & Monteiro, 2016). Further, knowledge sharing mechanisms can be divided into knowledge donating and knowledge collecting (H.-F. Lin, 2007).

As knowledge is personal (Davenport & Prusak, 1998), a prerequisite for effective knowledge management in firms is the determination of employees to share their knowledge and to cooperate with colleagues. If a firm promotes knowledge donation, this encourages the development of innovative ideas and business opportunities, and thus facilitates innovative actions (Darroch & McNaughton, 2002). Knowledge collection, on the other hand, reflects mechanisms and processes for gathering internal and external knowledge (H.-F. Lin, 2007). Collecting essential knowledge represents a major element of successful innovation project completion and thus, also increases innovation capabilities (Hansen, 1999). Hence, employees' willingness to both donate and collect knowledge are positively related to a firm's innovation capability. As firms' performance is partially determined by sales and revenue numbers, Collins and Smith (2006) investigated the impact of knowledge practices on new product revenue and sales growth in high-technology firms and proposed that, as a higher level of shared codes and language between specialists facilitates frequent knowledge exchange and combination among specialists, this also increases both revenue from new product introductions as well as sales growth. Therefore, it is reasonable to say that, since effective knowledge sharing fastens and optimizes product innovation by driving individual learning, it is an essential enabler for idea and product innovations (Gao & Bernard, 2018).

However, knowledge sharing in firms is hampered by a variety of obstacles. One challenge that accompanies firms' new product development efforts, is the cross-functional nature of product development processes. If firms do not have various standardized knowledge sharing practices across departments in place, they may not be able to maximize the value from new product introductions. Such gaps in knowledge exchange might lead to costly mistakes. Additional main barriers to project success include a lack of detailed and transparent knowledge definitions, and of mechanisms to ensure access to relevant information in the multilingual environment (Bradfield & Gao, 2007).

Similar to the effect of knowledge sharing on perceived absorptive capacity and strategic entry, I expect the firm's strategist's perception of knowledge sharing to influence the extent to which high levels of new product development can lower strategic entry barriers. In this article, a firm's new product development capability is reflected in the ability to constantly attempt to pioneer and to be at the cutting edge of technology in its new product and service introductions. Knowledge sharing facilitates, among other things, new ideas development, the learning ability of specialist employees, and employees' motivation to actively contribute to firm performance.

For instance, a firm might have extensive new product development capabilities and thus, benefit from increased competitiveness with regard to technological performance and quality of new products. However, if the firm lacks appropriate knowledge sharing mechanisms, the new product development process might involve high costs as a result of inefficient knowledge paths and untransparent technological documentations. The firm's strategist must believe that the firm has sufficient procedures in place to ensure high-quality knowledge sharing, to rate entry as a highly valuable strategic move. On the contrary, if the perceived new product development capability of the firm is high but the strategists assume that no adequate knowledge sharing mechanisms are implemented, the firm might be expected to face costly obstacles and thus, the strategist might rate the ability of the firm to capitalize as rather limited. Thus, I hypothesize:

Hypothesis 3b) Perceived new product development capability will encourage a firm's strategist to enter a new industry, especially if it is assumed that knowledge sharing within the firm is very well developed.

3. Method

To test my hypotheses, I conducted an online conjoint experiment with 52 strategists as the survey sample. The following section briefly explains the approach I used to define my sample, the benefits of conjoint analyses, and the main steps of my data collection. Further, I provide an overview of the participants' demographics, describe the assessment situation, and introduce the model's variables.

3.1. Research approach

The concept of bounded rationality (Simon, 1955) indicates that, as limited rational agents, we cannot imagine all sets of available choices, nor can we specify the entire relationships between possible actions and their outcomes. The rather limited representations, based on which actors shape their environmental models, both simplify the interactions among decision makers and choices, and causal and spatial relationships (Gavetti & Levinthal, 2000; Weick, 1979).

However, with regard to managerial decisions and courses of actions, cognitive representations have proven to be a highly relevant factor (e.g., Gavetti, 2005; Gavetti et al., 2012; Walsh, 1995). Specifically, firms' strategic directions are, in many cases, a result of their decision makers cognitive representations. Although decisions are developed and formed in actors simplified mental space, it is possible for them to identify the most promising actions by translating their cognition into actual organizational behaviour. This happens trough both a backward-looking and forward-looking logic (learning vs. consequences of actions) (Gavetti & Levinthal, 2000). By further examining the interplay between cognition and action, Gavetti (2005) found that the

way a firm's manager or strategist represents a given contextual situation, fundamentally affects the firm's strategic direction it will pursue (see figure 10). This implies that a firm's future actions and business agenda are typically shaped by such experts' advice which is of particular relevance when firms enter new fields or when external shocks result in a new structure of firms' strategic decision problem (Gavetti, 2005; Zajac & Kraatz, 1993).

Building on this logic, I performed my experiment with strategists since I assume they adequately represent their respective firms (further information on the sample is summarized in section 3.2). Of course, the answers in surveys are subjective and dependent on a variety of other factors – nevertheless, strategists' past and future directions shape firms' behaviour and they can partially anticipate the impact of their strategic decision-making on their firm's position. Further, strategic roles in organizations require deep theoretical and practical understanding regarding firms' strategic positioning behaviour. Hence, I do not only assume strategists to be able to anticipate broad consequences of their own strategic actions but also to consider essential firm theories and practical implications in their decision-making process. This is in line with other studies that focus on strategic management since they also commonly use managers and strategists as proxies (e.g., Schilke (2014): interviews with top-level managers, Kohtamäki et al. (2020): survey with CEOs, development, production, and innovation managers).

For my study, I used an online conjoint experiment to gather data on strategists' assessment of strategic entry. In such an experiment, respondents are required to make a series of assessments for a number of decision scenarios (Domurath & Patzelt, 2016). The set of attributes enables dismantling of decisions into their composing parts using hierarchical linear modelling (Green et al., 2001; McMullen & Shepherd, 2006). While the attributes in a scenario reflect the independent variables, the dependent variable is represented by participants' scenario assessment. The conjoint method has been used in plenty of decision-making and judgement articles and is highly appropriate for this type of study for several reasons. First, it allows for examination of interactions between the defined attributes which is reflected in some of my hypotheses (Domurath & Patzelt, 2016). Second, instead of relying on post hoc techniques and thus, accepting an increased risk of biased reporting (e.g., Sandberg and Hofer, 1987) and ignorance of a dynamic decision-making process (e.g., Hall and Hofer, 1993), conjoint analysis considers the recognition of opportunities instead of evaluating recognized opportunities (e.g., Ellis and Pecotich, 2001). Third, I integrate the call from Shepherd and Zacharakis (2018) to take into account complex and turbulent environments by considering environmental dynamism and innovation shocks, and fourth, I aim to spur future conjoint research taking the perspective of firms' stakeholders since this view falls, to this date, comparably short (Shepherd & Zacharakis, 2018).

3.2. Sample and data collection

My sample consisted of professionals employed in the position of strategist/ strategic growth expert, business development expert, or innovation expert (summarized under the term strategist). Such positions provide a good population for the topic of my study for the following reasons. First, assessing strategic moves and their potential outcomes is part of their daily work and hence, they know how to approach complex decision-making processes. Second, their performance is measured to a large extent by figures resulting from certain strategic decisions and expansion plans they make. This ensures their commitment in such tasks. Third, strategic decision-making requires a deep understanding of what capabilities are required for certain strategic actions and therefore, such experts know the relevance of a firm's ability to internalize external knowledge (absorptive capacity). Fourth, it is common that these professionals are in regular exchange with, for instance, R&D, production, and sales departments and are thereby informed about progress, challenges, and department-specific needs (new product development). Altogether, I assume that my sample has a reasonable understanding of the interplay between firms' capabilities and the likelihood of industry survival and competitive advantage.

The survey was built in Unipark and written in English. The channels I used to reach out to potential participants included LinkedIn, The Global Business Development Network (BDN) – a network of screened business development experts, executives, and business owners –, and firms' websites. To ensure participants' suitability for my survey, I applied two selection criteria: First, I only contacted professionals with at least three years of work experience since I do not assume that participation in major strategic decisions is the norm in early years. Second, to ensure that the assessment of strategic entry explored in my experimental approach is relevant to participants, at least to some extent, the majority of contacted professionals work in knowledge-extensive and/ or technology industries characterized by moderately or high levels of environmental dynamism. Since such environments are highly competitive and incorporate frequent change, they typically have higher expansion end repositioning potential (Domurath & Patzelt, 2016; Zacharakis & Shepherd, 2018). Altogether, I reached out to 173 potential participants. When contacting the professionals, I found that 37 were either not available under the email address provided on the firms' websites, did not match my selection criteria, or were not interested in participating. Hence, 136 potential candidates remained. In case the survey was not completed within three weeks, I sent a second email or personal message on LinkedIn as a reminder. In total, 52 professionals conducted the entire survey, which is reflected in a response rate of 30.1 % in terms of strategists contacted. The sample size is consistent with those of other conjoint studies (e.g., Choi and Shepherd (2004) with 55 and McMullen and Shepherd (2006) with 54 participants) and exceeds the minimum sample size of 50 participants proposed by Shepherd and Zacharakis (2018). Since conjoint analysis offers multiple data points within one individual, thus allowing individ-

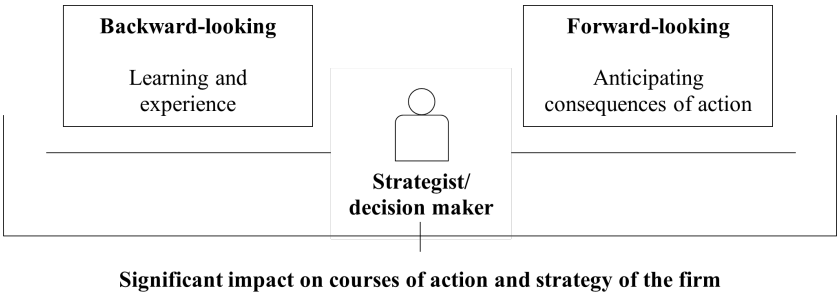

Figure 10: Decision-making process and impact on firm strategy

ual subject analysis, it requires a considerable smaller sample size than standard survey formats (Zacharakis & Shepherd, 2018).

The majority of participants were aged between 18 and 36 years, 40% were female, and more than 69% of the participants indicated a Master's degree or higher as their highest educational level. Further, more than half of the persons who conducted the survey had at least 6 years of work experience in (51.8%) and only 17.3% have worked for their current company for less than 3 years. The most frequently mentioned industries the participants are active in were "Computer and Technology" (19.2%), "Finance and Economics" (21.2%), and "Pharma" (19.2%). More detailed information regarding the experiment's participants is summarized in table 1.

3.3. Experimental design

A hypothetical scenario described an industry that has recently experienced an innovation shock and included information on the firm's absorptive capacity, its new product development capability, internal knowledge sharing process, and on industry dynamics (i.e., environmental dynamism) in the new industry. I chose these variables as evaluation inputs since the assessment of varying scenarios reflects strategists' assessment of strategic entry in diverse industries and with different underlying levels of organizational capabilities and processes. More precisely: there are differences in the strategist's perception of each of the variables. For example, a strategist may perceive his or her firm as capable of integrating external knowledge in some cases, while in others, he or she does not. Further, in some cases it may be anticipated that the firm strives to pioneer and outperform its competitors, while in others, it may lack the underlying values and technology resources to do so. The same accounts for the two moderators. In some cases, strategists may assume the firm is able to quickly allocate essential knowledge to the right person, while in others, the strategists may assume the knowledge sharing process is highly time-consuming. With regard to environmental dynamism, the assessment depends upon whether the strategists regard the industry as highly unpredictable or assumes that shocks and shifts in demand constitute the exception.

Hence, each hypothetical scenario included two attributes that described dynamic capabilities (i.e., absorptive capacity, new product development capability), one attribute that described another organizational factor (i.e., knowledge sharing), and one attribute that described an external factor (i.e., environmental dynamism). Each of these attributes was varied at two levels resulting in $2^4 = 16$ profiles. These profiles were fully replicated to ensure reliability, increasing the number to 32 profiles in total (Shepherd & Zacharakis, 2018). Since my model incorporates multiple interactions, I applied a full factorial design (as opposed to a fractional factorial design) to account for all interaction terms.

13% of the 52 participants did not answer reliably ($p > .05$) – however, excluding their responses from my sample did not lead to significant changes in the statistical results. The mean correlation between the original profiles and their replications was 0.912. This indicates the assessments were reliable and consistent. Further, to avoid order effects, I randomly assigned the order of attributes within a profile and the profiles for four versions of the experiment. A variance analysis revealed no major differences across the different versions ($p > .10$).

3.4. Assessment situation and research variables

The experiment started with the description of the assessment situation. The strategists were asked to put themselves in the position of the head of business development for an established firm. In their last strategy meeting with their board, they received the information that the firm is looking to expand to other industries as part of its new strategy. Hence, participants were primed that they are expected to make a strategic move. Further, in the hypothetical situation, the head of business development (i.e., the strategist) received an internal strategy report that contained information about a related industry that has recently experienced an innovation shock. A definition of an innovation shock was also included in the description, i.e., "a shift in an industry that occurs with the introduction of a breakthrough new product design by a single firm whose demand increases in an unanticipated way" (Argyres et al., 2015, p. 216). The report also indicated that firms with prior experience in related industries are much more likely to succeed in a new industry affected by an innovation shock when compared to de novo entrants (e.g., Argyres et al., 2015; Klepper, 1996). Therefore, in the experimental task, the head of business development could anticipate that strategic entry to the related

Table 1: Information of survey participants

Attributes	*N*	*In %*
Gender		
Female	21	40.4%
Male	31	59.6%
Age		
Under 18	3	5.8%
Between 18 and 36	34	65.4%
Between 37 and 46	10	19.2%
47 onwards	5	9.6%
Work experience		
Between 3 and 5	25	48.2%
Between 6 and 10 years	20	38.4%
11 years or more	7	13.4%
Highest education		
Bachelor's degree	16	30.7%
Master's degree	32	61.5%
Ph.D. or higher	4	7.8%
Years in current firm		
Between 1 and 2 years	9	17.3%
Between 3 and 5 years	34	65.4%
Between 6 and 10 years	7	13.5%
11 years or more	2	3.8%
Top 3 industries and remaining		
Computer and Technology	10	19.2%
Finance and Economics	11	21.2%
Pharma	10	19.2%
Other	21	40.4%

industry is a potentially valuable business opportunity. This was further emphasized by the note that initial analyses have not revealed any red flags to entry and that the firm is not constraint by capital. At the end of the description, the head of business development received the task to assess whether to enter the related industry or not.

To ensure that participants did not conduct the experiment in parallel with other activities, ignoring relevant factors and terms, I integrated a timer which allowed them to proceed with the questionnaire only after thirty seconds of reading and an attention check that had to be passed to continue participating in the survey. The check was illustrated by a multiple-choice question that asked the strategists what the report indicated (correct answer: firms with prior experience in related industries are much more likely to succeed in a new industry). If the wrong answer was selected, the survey was cancelled, otherwise participants were forwarded to the next page which involved detailed instructions regarding the varying profiles, their assessment, and the adapted scale. Moreover, the page included an overview of the attributes' levels' definitions, which are summarized in table 2. The explanation page was followed by the experiment task (i.e., varying profiles) and ended with the post experimental questionnaire. Figure 11 summarizes the survey procedure.

To make sure instructions were clear and the defined attributes were representative, I conducted a pre-test with two PhD students (strategy focus and market-oriented corporate management) and two senior managers in the field of strategic innovation.

Dependent variable **–** I defined strategic entry as the point in time were the firm initiated the sales of its products and/ or service in the new industry (Domurath & Patzelt, 2016). Based on the varying hypothetical scenarios, strategists were asked to evaluate the attractiveness of entry on a 7-point Likert scale. The scale ranged from *definitely not enter* (1) to *definitely enter* (7).

Independent variables **–** The profiles of my conjoint experiment consisted of four attributes. This number is consistent with other conjoint studies and the findings of Wright (1975) showing that a high number of attributes (eight or more) distorts participants' true decision-making principles as this tempts them to use simplifying tactics.

Two of the four attributes in my experiment described the strategist's firm's dynamic capabilities (absorptive capacity, new product development capability), one attribute reflected another organizational element (internal knowledge sharing), and one the characteristics of the environment in the new industry (environmental dynamism). In line with previous conjoint analyses, I differentiated between two levels when describing the attributes (e.g., Domurath and Patzelt,

Table 2: Decision attribute definitions

Attribute [level]	*Description*
Absorptive capacity	
[High]	Your company's ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends is very well developed
[Low]	Your company's ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends is only developed to a limited extent
New product development capability	
[High]	Your company constantly attempts to pioneer and to be at the cutting edge of technology in its new product and service introductions
[Low]	Your company rarely attempts to pioneer and to be at the cutting edge of technology in its new product and service introductions
Environmental dynamism	
[High]	The new potential market is highly volatile in terms of the rate and amount of change and the actions of competitors and customers are very difficult to predict
[Low]	The new potential market is very stable in terms of the rate and amount of change and the actions of competitors and customers can be predicted very well
Knowledge sharing	
[Extensive]	Processes for sharing information effectively among individuals, decision makers, and internal units are very well developed in your firm
[Limited]	Processes for sharing information effectively among individuals, decision makers, and internal units are only developed to a limited extent in your firm

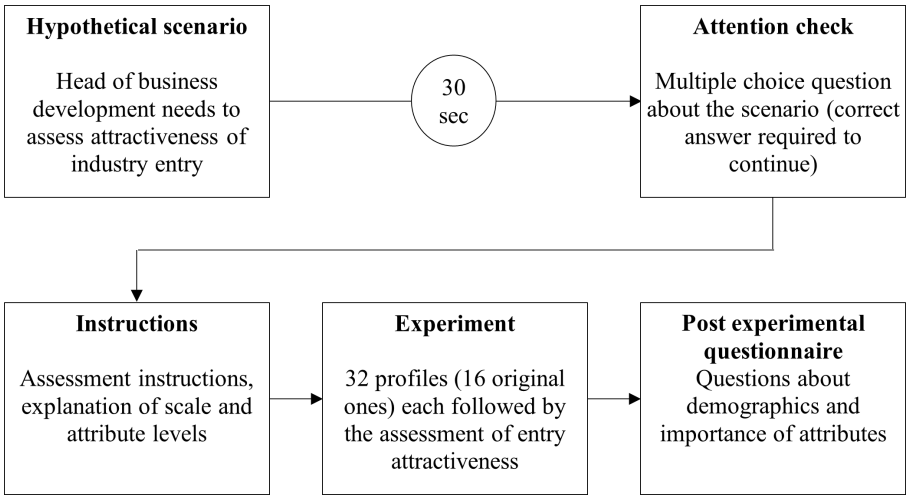

Figure 11: Online survey procedure

2016; Haynie et al., 2009; McMullen and Shepherd, 2006). As shown in table 2, absorptive capacity, new product development capability, and environmental dynamism can be either high or low. Knowledge sharing in the strategist's firm can be either extensive or limited.

Control variables – In total, I controlled for five factors.

Age – First, I controlled for the age of the survey participants since, among others, Scherer et al. (1990) found that differences in age can result in different entrepreneurial behaviour and strategic decision-making in general.

Work experience – Further, numerous studies found years of work experience to impact strategic positioning decisions and innovation behaviour (e.g., Nuruzzaman et al., 2019; Shao et al., 2020). Hence, I also controlled for the total number of work experience of the strategist. At least one of two criteria had to be met for the work experience to be considered in the study. First, the prior position of the strategist had to be in the field of business development, strategic growth, or innovation strategy and/ or second, it had to be a higher-order position. For instance, I did not include work experience as a PR assistant in a newspaper since I expect this work experience to be irrelevant for evaluating the attractiveness of strategic entry.

Field of study in educational background – Since, for example, Colombo and Grilli (2005) argued that specialization in specified educational fields are associated with strategic decisions, I further controlled for strategists' educational background in business and economics, engineering, and natural sciences (categories adapted from Domurath and Patzelt (2016)). A binary coded variable was used for each of the categories (remaining educational fields as reference category).

Industry focus – I also controlled for the industry the strategists currently work in. Some industry characteristics are more likely to require strategic expansions in order to stay competitive and thus, this may influence the strategist's decision-making process (Zacharakis & Shepherd, 2018). This is particularly the case for high technology industries, such as computer and technology, pharma, and engineering. As with educational background, I used a binary coded variable for each of the three industries and the other industries served as reference categories.

Years in company – Finally, I included the years the strategist has worked for his or her current employer in my control variables. Strategic decision-making is influenced by prior experience in comparable contexts (Baron & Ensley, 2006; Domurath & Patzelt, 2016). Therefore, as firm specific knowledge regarding e.g., innovative behaviour, processes, and risk propensity of board member, I did not only account for general work experience but also work experience within the current firm.

Since experimental research is based on hypothetical scenarios, it is a challenge to select variables that are also taken into account by the experiment's participants in real-life decisions (Domurath & Patzelt, 2016; Zacharakis & Shepherd, 2018). To reduce this risk, I only defined attributes which relevance for value creation through knowledge and resources is underpinned by a strong theoretical foundation (Audretsch & Belitski, 2023; Deeds et al., 2000; Schilke, 2014). To further secure the informative value of my variables, I adapted the approach of Domurath and Patzelt (2016) and asked the strategists to assess the importance of each of the independent variables for their real-life decisions in a post-experimental questionnaire. Participants had to rate the perceived importance for real-life strategy decisions on entry of each attribute on a seven-point Likert scale (1-not important at all, 7-highly important). For all variables, the averages answers exceeded the scale mean of 3.5 (i.e., 5.5 for absorptive capacity, 5.1 for new product development capability, 4.4 for internal knowledge sharing, and 3.8 for environmental dynamism). Therefore, based on self-reporting of the participants, the relevance of the attributes regarding strategic entry decisions is confirmed (at least to a certain extent).

3.5. Data analysis

My data analysis was done via the software R-studio. Following scale and data reliability checks, I tested for my hypotheses using the lme4-package for multilevel models. R-studio is particularly suitable for my setting, as it allows to plot and interpret interaction terms which were incorporated in hypothesis 2a, 2b, 3a, and 3b.

4. Results

The following section summarizes the results of my data analysis including correlations and findings of the hierarchical linear modeling analysis. Further, plots to explain interaction effects are presented.

4.1. Correlations

Correlations of the Level 2 variables are summarized in table 3. As described in section 3.3, I adapted an orthogonal full factorial design for my conjoint experiment. Hence, correlations between Level 1 variables are zero and therefore not included in the table. Correlations between Level 1 and Level 2 variables are also excluded since all participants were provided with the same profiles, and hence, Level 1 attribute levels do not differ between survey participants and do not correlate with Level 2 attribute levels. Since no value of the correlation between the remaining variables exceeds 0.7, multicollinearity is not a concern for my further analyses. This was further supported by a VIF analysis (all values <10) (e.g., Hair, 2011). An analysis of the correlation matrix based on the work of J. Cohen (1988) revealed no strong correlations between the Level 2 variables ($|r| < 0.5$). There are moderate positive correlations between age and work experience and years in a company, and educational background and industry focus. However, they do not constitute a problem for further evaluations.

4.2. Results of the hierarchical linear modeling (HLM) analysis

Given that there are 32 decisions for each of the 52 participants of my study, the total number of 1,664 data points in my analysis are not independent of each other (32 decisions are nested within each strategist). To take into account the nested data structure, I used hierarchical linear modeling (HLM). Since this approach accounts for potential heteroskedasticity of data and for autocorrelation, it is well suited for my data analysis (Osborne, 2000). A random coefficient model was specified to account for between-individual variance (i.e., both intercepts and slopes could vary between individuals) (e.g. Domurath and Patzelt, 2016; Snijders and

Table 3: Correlations

	Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Age	1.000								
2	Business education	-0.029	1.000							
3	Engineering education	0.152	-0.279**	1.000						
4	Science education	0.033	-0.388**	-0.291**	1.000					
5	Engineering industry	0.139	-0.052	0.368**	-0.064	1.000				
6	IT industry	0.054	-0.025	-0.130	0.457**	-0.179	1.000			
7	Pharma industry	0.036	-0.084	-0.165	-0.097	-0.118	-0.198	1.000		
8	Work experience	0.454**	-0.069	0.009	0.137	0.166	0.178	-0.148	1.000	
9	Years in company	0.543***	-0.143	-0.031	0.287**	0.064	0.212**	-0.033	0.554**	1.000

* p<.05, ** p<.01, *** p<.001
Note: N = 52 strategists
IT, information technology; SD, standard deviation.

Bosker, 1999). In the following, I report the coefficient (including the level of significance [indicated by the asterisks]), and the robust standard errors for all variables. Level 1 variables include the four evaluation criteria, i.e., absorptive capacity, new product development capability, environmental dynamism, and internal knowledge sharing, and their interaction terms (absorptive capacity with environmental dynamism and internal knowledge sharing; new product development capability with environmental dynamism and internal knowledge sharing). At level 2, I entered the control variables to account for differences between participating strategists.

Null model (model 1) – HLM models accounts for variance that occurs at different levels of analysis since it considers nested data structures (Bryk & Raudenbush, 1992; Hofmann, 1997). In my experiment, variance at the lowest level (i.e., level 1) would be visible in variance in the outcome variable attractiveness of strategic entry, while the variance among subjects at the higher level (i.e., level 2) would relate to differences between strategists. To assess whether there is evidence of clustering of data in terms of my outcome variable, I first tested a model with no predictors (i.e., null model). Since clustering effects can produce biases in parameter estimates and standard errors, which in turn lead to erroneous conclusions in single level models, the null model is an important prerequisite for assessing whether a multilevel approach is warranted. Results of the null model which was used for calculating the intraclass correlation (ICC) are shown in model 1 (table 4). In HLM, the ICC serves as a basis for quantifying the distribution of variation at the different levels of the hierarchy. An ICC of 0 means the variation occurs exclusively at the individual level, while an ICC of 1 indicates the variation occurs exclusively at the group level (Aguinis et al., 2013; Domurath & Patzelt, 2016). In my setting, the ICC takes a value of .058, indicating that 5.8% of total variation in my dependent variable is accounted for by individual differences. Hedges and Hedges and Hedberg (2007) note that the ICC in educational and strategy research often ranges from .05 to .20 which is also confirmed in the book on multilevel modeling techniques by Heck et al. (2013) who state that .05 is frequently considered a rough cut-off for evidence of substantial clustering. However, even trivial sets of clusters can still have a considerable impact on conclusions when running single level regressions (Pituch & Stevens, 2015; Scariano & Davenport, 1987). These numbers demonstrate that there is sufficient variability among individuals in my study which justifies the utilization of HLM.

Level 1 main effects and level 2 control variables (model 2) – In model 2, I included the control variables which were introduced in section 3.4. As can be seen in table 4, only one of my control variables (i.e., years in company) is significant beyond the .05 level, and thus explains variance in the strategists' assessments of strategic entry (coefficient = 0.209). This is in line with analyses of other scholars who argue that industries characterized by strong competition and technological progress typically require strategic actions to keep up with competitors (Zacharakis & Shepherd, 2018). Further, I expanded my analysis in model 2 by introducing the level 1 variables, i.e., absorptive capacity, new product development capability, environmental dynamism, and internal knowledge sharing. As presented in table 4, three out of the four assessment criteria at level 1 exhibit statistically significant deviations from zero. In particular, strategists rate strategy entry as more attractive if the firm has (1) high absorptive capacity (coefficient = 1.742, $p < .001$), (2) high new product development capability (coefficient = 1.832, $p < .001$), and if (3) processes for sharing information effectively within the firm are very well developed (coefficient = 0.679, $p < .001$). Only the fourth attribute, i.e., environmental dynamism shows a negative coefficient (-0.308, $p < .05$). Overall, the results support hypothesis 1a) and 1b) since both the positive relationship between absorptive capacity and entry assessment and between new product development and entry assessment are significant beyond 0.05.

Level 1 interaction effects (model 3) – Model 3 extends model 2 by including interaction effects. Specifically, I examined the interaction of environmental dynamism with absorp-

Table 4: Strategists' assessed entry attractiveness (models)

Evaluation Criteria	*Null model (Model 1)*		*Level 1 main effects Level 2 control variables (Model 2)*		*Level 1 interactions (Model 3)*	
	Coefficient	Rob. SE	Coefficient	Rob. SE	Coefficient	Rob. SE
Intercept	4.06***	0.07	4.06***	0.07	4.06***	0.07
Level 2						
Age			-0.18†	0.10	-0.18†	0.10
Business education			0.11	0.17	0.11	0.17
Engineering education			0.12	0.21	0.12	0.21
Science education			0.11	0.19	0.11	0.19
Engineering industry			0.23	0.23	0.23	0.23
IT industry			-0.00	0.11	-0.00	0.11
Pharma industry			0.33†	0.21	0.33†	0.21
Work experience			-0.11	0.08	-0.11	0.08
Years in company			0.21**	0.07	0.21**	0.07
Level 1						
Absorptive capacity AC			1.74***	0.06	1.74***	0.06
New product development capability NPDC			1.83***	0.08	1.83***	0.08
Environmental dynamism ED			-0.30*	0.12	-0.30*	0.12
Internal knowledge sharing IKS			0.69***	0.05	0.69***	0.05
AC × ED					-0.18*	0.08
AC × IKS					-0.02	0.08
NPDC × ED					-0.20**	0.07
NPDC × IKS					0.20**	0.07
Variance components						
Level 1 variance	2.73		0.64		0.63	Δ1.36%‡
Level 2 variance	0.17		0.20		0.20	
ICC§	0.06					
Pseudo R^2 Level 1¶			0.66		0.66	
Pseudo R^2 Level 2¶			0.08		0.08	

† p< .1, *p<.05, **p<.01, ***p<.001
Note: N = 1,664 at the assessment level; N = 52 at the individual level
‡ This value highlights the proportionate increase in explained variance attained by including interactions at Level 1 within the model (derived f from the reduction in error variance at Level 1 due to inclusion of independent variables when compared to the previous model as a reference point)
§ ICC = Level 2 variance/ Level 1 variance = .165/ (.165 + 2.733)
¶ Pseudo R^2 based on Snijders and Bosker (1999)
IT, information technology; Rob. SE, robust standard error; AC, absorptive capacity; NPDC, new product development capability; ED, environmental dynamism; IKS, internal knowledge sharing

tive capacity and new product development capability and the one of internal knowledge sharing with absorptive capacity and new product development capability. I predicted that environmental dynamism strengthens the positive influence of absorptive capacity on strategists' assessment of entry (hypothesis 2a) and weakens the positive influence of new product development capability (hypothesis 2b). As for internal knowledge sharing, I assumed that this would reinforce both the positive effect of absorptive capacity and new product development on strategists' entry evaluation (hypotheses 3a, 3b). In table 4 it can be seen that there are significant interactions between absorptive capacity and environmental dynamism (coefficient = -0.183, $p < .05$), new product development and environmental dynamism (coefficient = -0.205, $p < .01$), and new product development and internal knowledge sharing (coefficient = 0.203, $p < .01$).

To specify the type of significant level 1 interactions, I followed the advice of J. Cohen (1988) to plot the interactions. On a y axis of assessed entry attractiveness and an x axis of absorptive capacity/ new product development capability, I plotted low and high levels of environmental dynamism and internal knowledge sharing (separate lines). The plot for the interaction between absorptive capacity and environmental dynamism, illustrated in figure 12, shows that entry attractiveness increases with stronger perceived absorptive capacity. However, this relationship is weaker for high levels of environmental dynamism (flatter line). Thus, it does not support hypothesis 2a. Figure 13 plots the interaction effects

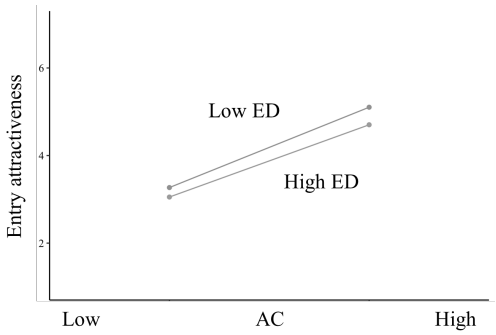

Figure 12: Absorptive capacity × environmental dynamism

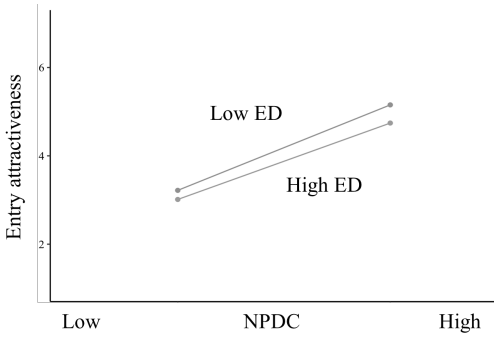

Figure 13: New product development capability × environmental dynamism

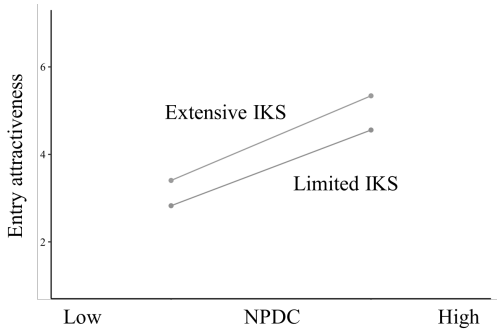

Figure 14: New product development capability × internal knowledge sharing

between new product development capability and environmental dynamism. Similarly, to figure 12, the attractiveness of entry is significantly lower for high levels environmental dynamism which shows support for hypothesis 2b. Figure 14 demonstrates the positive effect of new product development on entry attractiveness and further indicates that this relationship is magnified when internal knowledge sharing is extensive (steeper line). The interaction between absorptive capacity and internal knowledge sharing is not significant (coefficient = -0.025, $p > .05$) and therefore not plotted. Overall, my results support hypothesis 2a, 2b, and 3b – hypothesis 3a cannot be proven.

As described earlier in this section, HLM facilitates the estimation of individual variance components for every analysis level (Snijders & Bosker, 1999). In his book on multilevel analysis techniques, Hox (2010) points out that – although exceptions may exist – variables operating at a particular level are likely to explain the variability within that level, rather than influencing the variance components at other levels. In line with this, results in table 4 report a change in the level 1 variance component (within-individual variance) with the introduction of model 3 (i.e., interaction effects are included). Adding the level 1 interaction terms leads to an 1.38% increase in the explained variance of the dependent variable compared to the model without interactions. This incremental effect appears to be small – however, it is typical of interaction effects which tend to have small sizes (Bliese & Jex, 1999).

5. Discussion and conclusion

5.1. Key findings and implications

To date, most of research into entrepreneurial and strategic decision-making processes has relied upon post-hoc methods (Zacharakis & Shepherd, 2018). This work offers a real-time approach to understanding the impact of two dynamic capabilities on strategists' assessments of the attractiveness of entering new industries. By using a conjoint experiment with a hypothetical entry scenario, I examined the effect of absorptive capacity and new product development on entry decisions. Further, I accounted for external as well as internal organizational factors by including environmental dynamism and internal knowledge sharing in my model. My study acknowledges varying dynamics in everchanging industries and serves as a basis for further studies that broaden our understanding not only about the influence of dynamic capabilities on strategic decision-making but also about the interplay between such capabilities and essential organizational and industry-specific conditions.

The results of my study inform the strategy literature in the following ways. First, I found significant differences in strategists' assessments of strategic industry entry based on perceived absorptive capacity and new product development capability. More precisely, I found that both increases in perceived absorptive capacity and perceived new product development capability led strategists to value entry more attractive. Thus, these two dynamic capabilities are relevant

for strategists' entry decisions and hypothesis 1a and 1b are supported. These findings are in line with other studies investigating strategic decision-making based on dynamic capabilities (e.g., Bigelow et al., 2019; Domurath and Patzelt, 2016). Second, both the positive relationship between perceived absorptive capacity and entry attractiveness and perceived new product development capability and entry attractiveness are moderated by increases in environmental dynamism. For both dynamic capabilities, the positive relationship was weaker for high levels of environmental dynamism. These findings support hypothesis 2b and strengthen the argument that the perceived costs associated with developing and maintaining new product development capabilities in highly dynamic environments outweigh the advantages the capabilities can pro- vide in such settings. The relationship between perceived absorptive capacity and entry attractiveness were moderated by environmental dynamism in the opposite direction of that I hypothesized in 2a. Given the benefits absorptive capacity can generate in high-velocity markets (e.g., timely decision-making processes, profiting from knowledge spillovers due to weak appropriability regimes), I assumed that strategists would rate the effect of such dynamic capability as even more valuable in dynamic industries. What I found, though, is that perceived absorptive capacity encourages firms' strategists to enter new industries, especially for low-velocity industries. Hence, the benefits resulting from absorptive capacity for high environmental dynamism seem to be outweighed by other factors leading strategists to perceive the dynamic capability as particularly valuable in more stable environments. Third, the positive effect of perceived new product development capability on strategic entry attractiveness is moderated by internal knowledge sharing in such a way that perceived new product development encourages strategists to enter new industries, especially when organizational knowledge sharing mechanisms are very well developed. This finding supports hypothesis 3b and confirms the importance of internal organizational mechanisms for the relationship between dynamic capabilities and entry attractiveness. Surprisingly, I was not able to prove a significant positive effect of internal knowledge sharing on the relationship between perceived absorptive capacity and entry attractiveness (hypothesis 3b). However, the significant interactions (hypothesis 2a, 2b, and 3a) show that the value of perceived absorptive capacity and new product development capability varies considerably across strategists (in terms of environmental dynamism and internal knowledge sharing), highlighting the importance of considering such relationships between dynamic capabilities and internal and external conditions in the related literature.

My study contributes to existing research on dynamic capabilities and entry decisions in several ways. First, it provides empirical evidence that a strategist's perception of the dynamic capabilities the firm he or she operates in possesses significantly affects the decision of whether to enter new industries. Although, I am not the first one to argue that dynamic capabilities and entry decisions are directly linked, most contributions to such literature stream are based on qualitative studies, or their theory still lacks empirical confirmation (e.g., Protogerou et al., 2011). Second, scholars tend to rely on post-hoc instruments to examine decision-making motivations and outcomes which leaves comparably little room for adequate management implications (Helfat & Peteraf, 2009). I respond to the call by Zacharakis and Shepherd (2018) who demand the utilization of real time methods such as conjoint analysis to avoid errors and biases due to participants' motivation to bias their own survey results. Third, various scholars name context-dependency of dynamic capabilities studies as a major problem (e.g., Baía and Ferreira, 2019; Fainshmidt et al., 2019). It is suggested that future research should recognize internal as well as external aspects since the value of dynamic capabilities "is determined by a complex interplay of environmental and internal factors" (Ringov, 2017, p. 654). By integrating environmental dynamism and internal knowledge sharing into my model, I am able to prove that both the external as well as the organizational factor have an effect on the perceived value of the two dynamic capabilities for strategic entry decisions. All proven relationships are illustrated in figure 15.

Regarding practical implications, my study provides several guidelines for strategists and managers facing complex strategic positioning decisions. The results can serve as a basis for experts to reflect on their assessment of new or related industries and optimize their evaluation of entry attractiveness. Consequently, to increase the value of entry, strategists could aim to strengthen their firm's absorptive capacity and new product development capability. Since a firm's absorptive capacity and new product development capability depend, among other things, on the ability to recognize valuable external knowledge and deep technological skills, strategists could aim to set the management focus on developing internal market sensing mechanisms and on hiring technical experts. For instance, the BMW group has established a department *Marketing and Innovation* which is merely responsible for frequent market sensing to be able to identify and to react to current and future trends (Wilden & Gudergan, 2015). Similarly, the group's subsidiary *Research and Technology* only carries new and uncommon R&D activities to be able to shape future developments. Moreover, I found environmental dynamism to influence the value of dynamic capabilities for the assessment of entry. Hence, strategists should base their decisions not only on organizational capabilities but also on environmental conditions in the potential industry. To be able to evaluate the importance of the degree of environmental dynamism, it may make sense to only screen the targeted industry, but also to estimate costs and commitment that might be required to optimize, adapt, and maintain the firm's dynamic capabilities in the respective environment. Internally, well developed knowledge-sharing mechanisms help foster the full potential of dynamic capabilities. The value of such mechanisms depends on the willingness of employees to share their knowledge and on adequate knowledge management. Hence, a strategist could aim to develop and improve internal knowledge sharing by, for example, offering incentives to employees to actively share their

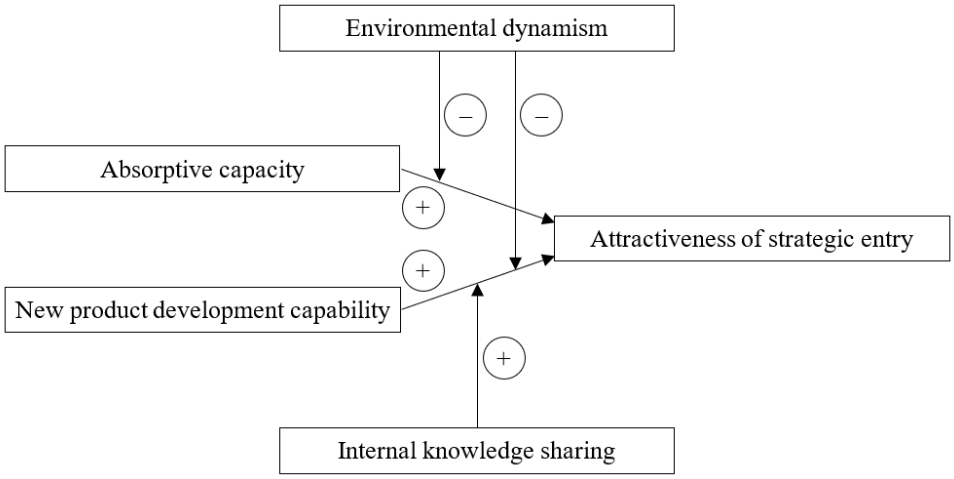

Figure 15: Proven relationships

knowledge and not "hide" it from other colleagues or departments. Further, knowledge sharing could be enhanced by implementing up-to-date knowledge management systems and by establishing frequent meetings between departments to spread knowledge across the entire organization.

5.2. Limitations and directions for future research

The results of my study need to be acknowledged in light of the following limitations. First, I examined the relationship between two specific dynamic capabilities and attractiveness of entry, but my work does not consider how the capabilities evolve, or whether some of my constructs are prerequisites for the development of another one. For instance, in his paper on the linkage between firms' marketing capabilities and business performance, Morgan (2012) argues that, in order to successfully develop successful offerings and to keep up with products of rival firms, firms must acquire both internal as well as external technical knowledge. Such capability can be viewed as a type of market-sensing capability – a capability which is incorporated in the definition of absorptive capacity. Future research could build on suggestions like this and investigate whether some dynamic capabilities are antecedents for others (e.g., absorptive capacity as an antecedent for new product development capability).

Second, although I aimed to include all critical attributes in my model, it is not possible to create an entirely complete data set. Part of the differences in strategists' evaluation of strategic entry may be the result of additional variables. For instance, strategists who have already been faced with entry decisions before and have had either positive or negative experience with their approaches and suggestions, may be biased. Moreover, personality traits could have an impact on how the strategist rates the likelihood of entry. Several scholars examine the effect of risk aversion on decision-making and find the risk tolerance of decision makers to be a significant factor (e.g., Alarcon and Jessup, 2023; Liu and Colman, 2009; Wong, 2023). In future studies, characteristics such as risk aversion, propensity to trust others, and self-awareness could be considered, too.

Third, since the hypothetical scenarios in my experienced perceived the characteristics of the four attributes as either high or low (not as an actual objective number), it is not possible to examine what defines the difference between such descriptions. It would be interesting to find out more about how the perceptions are shaped based on objectives measures. Also, the fact that I each variable could only take on two different values, limits the possible outcomes of my model. Schilke (2014) studied the role of dynamic capabilities regarding competitive advantage under varying levels of environmental dynamism and was able to confirm a u-shaped relationship, i.e., dynamic capabilities were most effective in securing competitive advantage in environments characterized by moderate levels of dynamism. Adding an additional level to the attribute environmental dynamism (e.g., high, medium, and low) would help to find out whether this might also be the case for the attractiveness of entry.

Fourth, although the survey participants differ in their backgrounds (e.g., industry focus, educational focus, nationality, age), they all share several characteristics that might have influenced the results. For example, the majority of them works in Germany, indicating that country-specific aspects such as legal conditions and cultural habits could have had an impact on the evaluation of the questionnaire (Domurath & Patzelt, 2016; Kiss & Danis, 2008).

Finally, I investigated the effect of two specific dynamic capabilities on attractiveness of strategic entry as this was suggested by previous research on dynamic capabilities (Baía & Ferreira, 2019). However, there are numerous dynamic capabilities worth exploring, such as the dynamic alliance management capability. It is common knowledge that a firm's strategic alliances have a positive impact upon its innovativeness and knowledge flows between alliance partners are greater than those between non-allied firms (Shan et al., 1994). Especially when a decision has to be made of whether to enter a new industry or not, this may partly depend on a

firm's alliance management capability. Perhaps if a firm has strong strategic partnerships and knows how to build new ones in the potential industry, this may help reduce entry barriers and also offer insights into the new sector. Hence, strategists might rank industries as more attractive if they possess over strong alliance capabilities. Future research could have a look at further specific capabilities and also take into account potential interactions.

To conclude, my study confirms that strategists' assessment of industry entry is not only dependent on the strategist's firm's dynamic capabilities but also on organizational knowledge mechanisms and environmental conditions. The decision-making process regarding entry is a complex construct that requires the consideration of both internal as well as external factors. Further, my findings justify the investigation of further dynamic capabilities, their interplay, and the role of additional moderators.

References

Agarwal, R., Audretsch, D., & Sarkar, M. (2010). Knowledge spillovers and strategic entrepreneurship. *Strategic Entrepreneurship Journal*, *4*(4), 271–283.

Agmon, T., & Von Glinow, M. A. (1991). *Technology transfer in international business*. Oxford University Press on Demand.

Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-Practice Recommendations for Estimating Cross-Level Interaction Effects Using Multilevel Modeling. *Journal of Management*, *39*(6), 1490–1528.

Ai, Q., & Tan, H. (2017). Acquirers' prior related knowledge and post-acquisition integration. *Journal of Organizational Change Management*, *30*(4), 647–662.

Alam, I., & Perry, C. (2002). A customer-oriented new service development process. *Journal of Services Marketing*, *16*(6), 515–534.

Alarcon, G. M., & Jessup, S. A. (2023). Propensity to trust and risk aversion: Differential roles in the trust process. *Journal of Research in Personality*, *103*, 104349.

Albort-Morant, G., Leal-Rodríguez, A. L., Fernández-Rodríguez, V., & Ariza-Montes, A. (2018). Assessing the origins, evolution and prospects of the literature on dynamic capabilities: A bibliometric analysis. *European Research on Management and Business Economics*, *24*(1), 42–52.

Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management? *International Journal of Management Reviews*, *11*(1), 29–49.

Ancona, D. G., & Caldwell, D. F. (1992). Bridging the Boundary: External Activity and Performance in Organizational Teams. *Administrative Science Quarterly*, *37*(4), 634–665.

Argyres, N., Bigelow, L., & Nickerson, J. A. (2015). Dominant designs, innovation shocks, and the follower's dilemma. *Strategic Management Journal*, *36*(2), 216–234.

Argyres, N., Mahoney, J. T., & Nickerson, J. (2019). Strategic responses to shocks: Comparative adjustment costs, transaction costs, and opportunity costs. *Strategic Management Journal*, *40*(3), 357–376.

Arnett, D. B., Sandvik, I. L., & Sandvik, K. (2018). Two paths to organizational effectiveness – Product advantage and life-cycle flexibility. *Journal of Business Research*, *84*, 285–292.

Arthur, J. B., & Huntley, C. L. (2005). Ramping up the Organizational Learning Curve: Assessing the Impact of Deliberate Learning on Organizational Performance Under Gainsharing. *Academy of Management Journal*, *48*(6), 1159–1170.

Audretsch, D. B., & Belitski, M. (2023). Evaluating internal and external knowledge sources in firm innovation and productivity: an industry perspective. *R&D Management*, *53*(1), 168–192.

Augier, M., Shariq, S. Z., & Thanning Vendelø, M. (2001). Understanding context: its emergence, transformation and role in tacit knowledge sharing. *Journal of Knowledge Management*, *5*(2), 125–137.

Baía, E. P., & Ferreira, J. J. M. (2019). Dynamic capabilities and performance: How has the relationship been assessed? *Journal of Management & Organization*, 1–30.

Balle, A., Oliveira, M., & Curado, C. (2020). Knowledge sharing and absorptive capacity: interdependency and complementarity [ahead-of-print]. *Journal of Knowledge Management*.

Barney, J. B. (1986). Strategic Factor Markets: Expectations, Luck, and Business Strategy. *Management Science*, *32*(10), 1231–1241.

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120.

Baron, R. A., & Ensley, M. D. (2006). Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs. *Management Science*, *52*(9), 1331–1344.

Barrales-Molina, V., Benitez-Amado, J., & Perez-Arostegui, M. (2010). Managerial perceptions of the competitive environment and dynamic capabilities generation. *Industrial Management and Data Systems*, *110*, 1355–1384.

Barrales-Molina, V., Bustinza, Ó. F., & Gutiérrez-Gutiérrez, L. J. (2013). Explaining the Causes and Effects of Dynamic Capabilities Generation: A Multiple-Indicator Multiple-Cause Modelling Approach. *British Journal of Management*, *24*(4), 571–591.

Barrales-Molina, V., Martínez-López, F. J., & Gázquez-Abad, J. C. (2014). Dynamic Marketing Capabilities: Toward an Integrative Framework. *International Journal of Management Reviews*, *16*(4), 397–416.

Barreto, I. (2010). Dynamic Capabilities: A Review of Past Research and an Agenda for the Future. *Journal of Management*, *36*(1), 256–280.

Baum, J. R., & Wally, S. (2003). Strategic decision speed and firm performance. *Strategic Management Journal*, *24*(11), 1107–1129.

Bergh, D. D., Ketchen, D. J., Orlandi, I., Heugens, P. P. M. A. R., & Boyd, B. K. (2019). Information Asymmetry in Management Research: Past Accomplishments and Future Opportunities. *Journal of Management*, *45*(1), 122–158.

Bergh, D. D., & Lim, E. N.-K. (2008). Learning how to restructure: absorptive capacity and improvisational views of restructuring actions and performance. *Strategic Management Journal*, *29*(6), 593–616.

Berry, H. (2017). Managing valuable knowledge in weak IP protection countries. *Journal of International Business Studies*, *48*(7), 787–807.

Bicen, P., & Hunt, S. D. (2012). Alliance market orientation, new product development, and resource advantage theory. *Journal of Business & Industrial Marketing*, *27*(7), 592–600.

Bigelow, L., Nickerson, J. A., & Park, W.-Y. (2019). When and how to shift gears: Dynamic trade-offs among adjustment, opportunity, and transaction costs in response to an innovation shock. *Strategic Management Journal*, *40*(3), 377–407.

Bikhchandani, S., Hirshleifer, D., & Welch, I. (1992). A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *Journal of Political Economy*, *100*(5), 992–1026.

Bliese, P. D., & Jex, S. M. (1999). Incorporating multiple levels of analysis into occupational stress research. *Work & Stress*, *13*(1), 1–6.

Bradfield, D. J., & Gao, J. X. (2007). A methodology to facilitate knowledge sharing in the new product development process. *International Journal of Production Research*, *45*(7), 1489–1504.

Brettel, M., Greve, G. I., & Flatten, T. C. (2011). Giving up Linearity: Absorptive Capacity and Performance. *Journal of Managerial Issues*, *23*(2), 164–189.

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical models: Applications and data analysis methods*. Sage.

Burisch, R., & Wohlgemuth, V. (2016). Blind spots of dynamic capabilities: A systems theoretic perspective. *Journal of Innovation & Knowledge*, *1*(2), 109–116.

Cabrera, E., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *The International Journal of Human Resource Management*, *16*, 720–735.

Camelo-Ordaz, C., García-Cruz, J., Sousa-Ginel, E., & Valle-Cabrera, R. (2011). The influence of human resource management on knowledge sharing and innovation in Spain: the mediating role of affective commitment. *The International Journal of Human Resource Management*, *22*(7), 1442–1463.

Camisón, C., & Forés, B. (2010). Knowledge absorptive capacity: New insights for its conceptualization and measurement. *Journal of Business Research*, *63*(7), 707–715.

Capon, N., Farley, J. U., Lehmann, D. R., & Hulbert, J. M. (1992). Profiles of Product Innovators among Large U.S. Manufacturers. *Management Science*, *38*(2), 157–169.

Cassiman, B., Veugelers, R., & Arts, S. (2018). Mind the gap: Capturing value from basic research through combining mobile inventors and partnerships. *Research Policy*, *47*(9), 1811–1824.

Caves, R. E., Crookell, H., & Killing, J. P. (1983). The Imperfect Market for Technology Licenses. *Oxford Bulletin of Economics and Statistics*, *45*(3), 249–267.

Ceccagnoli, M., & Jiang, L. (2013). The cost of integrating external technologies: Supply and demand drivers of value creation in the markets for technology. *Strategic Management Journal*, *34*(4), 404–425.

Chen, C.-J. (2004). The effects of knowledge attribute, alliance characteristics, and absorptive capacity on knowledge transfer performance. *R& D Management*, *34*(3), 311–321.

Chen, C.-J., & Huang, J.-W. (2009). Strategic human resource practices and innovation performance — The mediating role of knowledge management capacity. *Journal of Business Research*, *62*(1), 104–114.

Cho, T. S., & Hambrick, D. C. (2006). Attention as the Mediator Between Top Management Team Characteristics and Strategic Change: The Case of Airline Deregulation. *Organization Science*, *17*(4), 453–469.

Choi, Y. R., & Shepherd, D. A. (2004). Entrepreneurs' Decisions to Exploit Opportunities. *Journal of Management*, *30*(3), 377–395.

Christensen, C. M. (1997). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Harvard Business School Press.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Erlbaum.

Cohen, W. M., & Levinthal, D. A. (1989). Innovation and Learning: The Two Faces of R&D. *The Economic Journal*, *99*(397), 569–596.

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, *35*(1), 128–152.

Collins, C. J., & Smith, K. G. (2006). Knowledge Exchange and Combination: The Role of Human Resource Practices in the Performance of High-Technology Firms. *Academy of Management Journal*, *49*(3), 544–560.

Colombo, M. G., & Grilli, L. (2005). Founders' Human Capital and the Growth of New Technology-Based Firms: A Competence-Based View. *Research Policy*, *34*(6), 795–816.

Costa, V., & Monteiro, S. (2016). Knowledge Processes, Absorptive Capacity and Innovation: A Mediation Analysis. *Knowledge and Process Management*, *23*(3), 207–218.

Cummings, J. N. (2004). Work Groups, Structural Diversity, and Knowledge Sharing in a Global Organization. *Management Science*, *50*(3), 352–364.

Curado, C., Oliveira, M., Maçada, A. C., & Nodari, F. (2015). Teams' Innovation: Getting There Through Knowledge Sharing and Absorptive Capacity. *Knowledge Management Research & Practice*, *15*.

Damanpour, F., & Wischnevsky, J. D. (2006). Research on Innovation in Organizations: Distinguishing Innovation-Generating from Innovation-Adopting Organizations. *Journal of Engineering and Technology Management*, *23*(4), 269–291.

Darawong, C. (2018). Dynamic Capabilities of New Product Development Teams in Performing Radical Innovation Projects. *International Journal of Innovation Science*, *10*.

Darroch, J., & McNaughton, R. (2002). Examining the Link Between Knowledge Management Practices and Types of Innovation. *Journal of Intellectual Capital*, *3*(3), 210–222.

D'Aveni, R. A., Dagnino, G. B., & Smith, K. G. (2010). The Age of Temporary Advantage. *Strategic Management Journal*, *31*(13), 1371–1385.

Davenport, T., & Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*.

De Jong, J. P., & Vermeulen, P. A. (2003). Organizing Successful New Service Development: A Literature Review. *Management Decision*, *41*(9), 844–858.

Deeds, D. L., Decarolis, D., & Coombs, J. (2000). Dynamic Capabilities and New Product Development in High Technology Ventures: An Empirical Analysis of New Biotechnology Firms. *Journal of Business Venturing*, *15*(3), 211–229.

Denford, J. S. (2013). Building Knowledge: Developing a Knowledge-Based Dynamic Capabilities Typology. *Journal of Knowledge Management*, *17*(2), 175–194.

D'Este, P. (2002). The Distinctive Patterns of Capabilities Accumulation and Inter-firm Heterogeneity: The Case of the Spanish Pharmaceutical Industry. *Industrial and Corporate Change*, *11*(4), 847–874.

Di Stefano, G., Peteraf, M., & Verona, G. (2014). The Organizational Drivetrain: A Road To Integration Of Dynamic Capabilities Research. *Academy of Management Perspectives*, *28*.

Domurath, A., & Patzelt, H. (2016). Entrepreneurs' Assessments of Early International Entry: The Role of Foreign Social Ties, Venture Absorptive Capacity, and Generalized Trust in Others. *Entrepreneurship Theory and Practice*, *40*(5), 1149–1177.

Drnevich, P. L., & Kriauciunas, A. P. (2011). Clarifying the Conditions and Limits of the Contributions of Ordinary and Dynamic Capabilities to Relative Firm Performance. *Strategic Management Journal*, *32*(3), 254–279.

Eisenhardt, K. M. (1989). Making Fast Strategic Decisions in High-Velocity Environments. *The Academy of Management Journal*, *32*(3), 543–576.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic Capabilities: What Are They? *Strategic Management Journal*, *21*(10-11), 1105–1121.

Elezi, E., & Bamber, C. (2016). Investigating Knowledge Management in Emerging Markets: An Albanian Case Example. *International Journal of Knowledge Management Studies*, *7*, 192.

Ellis, P., & Pecotich, A. (2001). Social Factors Influencing Export Initiation in Small and Medium-Sized Enterprises. *Journal of Marketing Research*, *38*(1), 119–130.

Eriksson, T. (2014). Processes, Antecedents and Outcomes of Dynamic Capabilities. *Scandinavian Journal of Management*, *30*(1), 65–82.

Evenson, R. E., Kislev, Y., & Bank, W. (1975). *Agricultural Research and Productivity*. Yale University Press.

Fainshmidt, S., Wenger, L., Pezeshkan, A., & Mallon, M. R. (2019). When do Dynamic Capabilities Lead to Competitive Advantage? The Importance of Strategic Fit. *Journal of Management Studies*, *56*(4), 758–787.

Francis, D., & Bessant, J. (2005). Targeting Innovation and Implications for Capability Development. *Technovation*, *25*(3), 171–183.

Gao, J., & Bernard, A. (2018). An Overview of Knowledge Sharing in New Product Development. *The International Journal of Advanced Manufacturing Technology*, *94*(5), 1545–1550.

Gavetti, G. (2005). Cognition and Hierarchy: Rethinking the Microfoundations of Capabilities' Development. *Organization Science*, *16*(6), 599–617.

Gavetti, G., Greve, H. R., Levinthal, D. A., & Ocasio, W. (2012). The Behavioral Theory of the Firm: Assessment and Prospects. *Academy of Management Annals*, *6*(1), 1–40.

Gavetti, G., & Levinthal, D. A. (2000). Looking Forward and Looking Backward: Cognitive and Experiential Search. *Administrative Science Quarterly*, *45*(1), 113–137.

Goll, I., Brown Johnson, N., & Rasheed, A. A. (2007). Knowledge Capability, Strategic Change, and Firm Performance. *Management Decision*, *45*(2), 161–179.

Grant, R. M. (1996). Toward a Knowledge-Based Theory of the Firm. *Strategic Management Journal*, *17*(S2), 109–122.

Green, P. E., Krieger, A. M., & Wind, Y. (2001). Thirty Years of Conjoint Analysis: Reflections and Prospects. *Interfaces*, *31*(3), S56–S73.

Grimpe, C., & Hussinger, K. (2013). Formal and Informal Knowledge and Technology Transfer from Academia to Industry: Complementarity Effects and Innovation Performance. *Industry and Innovation*, *20*(8), 683–700.

Hagedoorn, J. (1993). Understanding the Rationale of Strategic Technology Partnering: Interorganizational Modes of Cooperation and Sectoral Differences. *Strategic Management Journal*, *14*(5), 371–385.

Hair, J. F. (2011). Multivariate Data Analysis: An Overview. *International Encyclopedia of Statistical Science*, 904–907.

Hall, J., & Hofer, C. W. (1993). Venture Capitalists' Decision Criteria in New Venture Evaluation. *Journal of Business Venturing*, *8*(1), 25–42.

Hambrick, D. C. (1983). High Profit Strategies in Mature Capital Goods Industries: A Contingency Approach. *Academy of Management Journal*, *26*(4), 687–707.

Hansen, M. T. (1999). The Search-Transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits. *Administrative Science Quarterly*, *44*(1), 82–111.

Haynie, J. M., Shepherd, D. A., & McMullen, J. S. (2009). An Opportunity for Me? The Role of Resources in Opportunity Evaluation Decisions. *Journal of Management Studies*, *46*(3), 337–361.

Heck, R. H., Thomas, S. L., & Tabata, L. N. (2013). *Multilevel and Longitudinal Modeling with IBM SPSS*. Routledge.

Hedges, L. V., & Hedberg, E. C. (2007). Intraclass Correlation Values for Planning Group-Randomized Trials in Education. *Educational Evaluation and Policy Analysis*, *29*(1), 60–87.

Helfat, C. E., & Eisenhardt, K. M. (2004). Inter-temporal Economies of Scope, Organizational Modularity, and the Dynamics of Diversification. *Strategic Management Journal*, *25*(13), 1217–1232.

Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M. A., Singh, H., & Winter, S. G. (2007). *Dynamic Capabilities: Understanding Strategic Change in Organizations*. Blackwell Publ.

Helfat, C. E., & Peteraf, M. A. (2009). Understanding Dynamic Capabilities: Progress Along a Developmental Path. *Strategic Organization*, *7*(1), 91–102.

Helfat, C. E., & Raubitschek, R. S. (2000). Product Sequencing: Co-evolution of Knowledge, Capabilities and Products. *Strategic Management Journal*, *21*(10-11), 961–979.

Helfat, C. E., & Winter, S. G. (2011). Untangling Dynamic and Operational Capabilities: Strategy for the (N)ever-Changing World. *Strategic Management Journal*, *32*(11), 1243–1250.

Henderson, R., & Cockburn, I. (1994). Measuring Competence? Exploring Firm Effects in Pharmaceutical Research. *Strategic Management Journal*, *15*(S1), 63–84.

Hitt, M. A., Bierman, L., Shimizu, K., & Kochhar, R. (2001). Direct and Moderating Effects of Human Capital on Strategy and Performance in Professional Service Firms: A Resource-Based Perspective. *Academy of Management Journal*, *44*(1), 13–28.

Hofmann, D. A. (1997). An Overview of the Logic and Rationale of Hierarchical Linear Models. *Journal of Management*, *23*(6), 723–744.

Hox, J. J. (2010). *Multilevel Analysis: Techniques and Applications* (2nd). Routledge/Taylor & Francis Group.

Hrebiniak, L. G., & Joyce, W. F. (1985). Organizational Adaptation: Strategic Choice and Environmental Determinism. *Administrative Science Quarterly*, *30*(3), 336–349.

Hu, L., & Randel, A. E. (2014). Knowledge Sharing in Teams: Social Capital, Extrinsic Incentives, and Team Innovation. *Group & Organization Management*, *39*(2), 213–243.

Jackson, S. E., Chuang, C.-H., Harden, E. E., & Jiang, Y. (2006). Toward Developing Human Resource Management Systems for Knowledge-Intensive Teamwork. *Research in Personnel and Human Resources Management*, *25*, 27–42.

James, S. D., Leiblein, M. J., & Lu, S. (2013). How Firms Capture Value From Their Innovations. *Journal of Management*, *39*(5), 1123–1155.

King, A. A., & Tucci, C. L. (2002). Incumbent Entry into New Market Niches: The Role of Experience and Managerial Choice in the Creation of Dynamic Capabilities. *Management Science*, *48*(2), 171–186.

Kirova, V. (2023). The wind of change: A dynamic managerial capabilities perspective on the role of marketing managers as strategic change agents. *Journal of Business Research*, *160*, 113817.

Kiss, A., & Danis, W. (2008). Country institutional context, social networks, and new venture internationalization speed. *European Management Journal*, *26*, 388–399.

Klepper, S. (1996). Entry, Exit, Growth, and Innovation over the Product Life Cycle. *The American Economic Review*, *86*(3), 562–583.

Kogut, B., & Zander, U. (1992). Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology. *Organization Science*, *3*.

Kohtamäki, M., Heimonen, J., Sjödin, D., & Heikkilä, V. (2020). Strategic agility in innovation: Unpacking the interaction between entrepreneurial orientation and absorptive capacity by using practice theory. *Journal of Business Research*, *118*, 12–25.

Laaksonen, O., & Peltoniemi, M. (2018). The Essence of Dynamic Capabilities and their Measurement. *International Journal of Management Reviews*, *20*(2), 184–205.

Lane, P. J., Koka, B. R., & Pathak, S. (2006). The Reification of Absorptive Capacity: A Critical Review and Rejuvenation of the Construct. *Academy of Management Review*, *31*, 833–863.

Lavie, D. (2006). Capability Reconfiguration: An Analysis of Incumbent Responses to Technological Change. *The Academy of Management Review*, *31*(1), 153–174.

Lenox, M., & King, A. (2004). Prospects for developing absorptive capacity through internal information provision. *Strategic Management Journal*, *25*(4), 331–345.

Leonard-Barton, D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, *13*(S1), 111–125.

Levinthal, D. A. (2001). Organizational Capabilities in Complex Worlds. In G. Dosi, R. R. Nelson, & S. Winter (Eds.), *The Nature and Dynamics of Organizational Capabilities*. Oxford University Press.

Levinthal, D. A., & March, J. G. (1993). The myopia of learning. *Strategic Management Journal*, *14*(S2), 95–112.

Li, D.-y., & Liu, J. (2014). Dynamic capabilities, environmental dynamism, and competitive advantage: Evidence from China. *Journal of Business Research*, *67*(1), 2793–2799.

Liao, S.-h., Fei, W.-C., & Chen, C.-C. (2007). Knowledge sharing, absorptive capacity, and innovation capability: an empirical study of Taiwan's knowledge-intensive industries. *Journal of Information Science*, *33*(3), 340–359.

Lieberman, M. B., & Montgomery, D. B. (1988). First-Mover Advantages. *Strategic Management Journal*, *9*, 41–58.

Lim, S. Y., Jarvenpaa, S. L., & Lanham, H. J. (2015). Barriers to Interorganizational Knowledge Transfer in Post-Hospital Care Transitions: Review and Directions for Information Systems Research. *Journal of Management Information Systems*, *32*(3), 48–74.

Lin, C.-P. (2007). To Share or Not to Share: Modeling Tacit Knowledge Sharing, Its Mediators and Antecedents. *Journal of Business Ethics*, *70*(4), 411–428.

Lin, H.-F. (2007). Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower*, *28*(3/4), 315–332.

Liu, H.-H., & Colman, A. M. (2009). Ambiguity aversion in the long run: Repeated decisions under risk and uncertainty. *Journal of Economic Psychology*, *30*(3), 277–284.

Luo, Y. (1997). Partner Selection and Venturing Success: The Case of Joint Ventures with Firms in the People's Republic of China. *Organization Science*, *8*(6), 648–662.

Marsh, S. J., & Stock, G. N. (2003). Building Dynamic Capabilities in New Product Development through Intertemporal Integration. *Journal of Product Innovation Management*, *20*(2), 136–148.

McGahan, A. M., & Silverman, B. (2006). Profiting from technological innovation by others: The effect of competitor patenting on firm value. *Research Policy*, *35*(8), 1222–1242.

McMullen, J. S., & Shepherd, D. A. (2006). Encouraging Consensus-Challenging Research in Universities*. *Journal of Management Studies*, *43*(8), 1643–1669.

Merikle, P. M., & Joordens, S. (1997). Parallels between Perception without Attention and Perception without Awareness. *Consciousness and Cognition*, *6*(2), 219–236.

Mesmer-Magnus, J. R., & DeChurch, L. A. (2009). Information sharing and team performance: A meta-analysis. *Journal of Applied Psychology*, *94*, 535–546.

Miguélez, E., & Moreno, R. (2015). Knowledge flows and the absorptive capacity of regions. *Research Policy*, *44*(4), 833–848.

Miller, D., & Friesen, P. H. (1983). Strategy-making and environment: The third link. *Strategic Management Journal*, *4*(3), 221–235.

Miotti, E., & Sachwald, F. (2003). Co-operative R&D: why and with whom?: An integrated framework of analysis. *Research Policy*, *32*(8), 1481–1499.

Morgan, N. A. (2012). Marketing and business performance. *Journal of the Academy of Marketing Science*, *40*(1), 102–119.

Nuruzzaman, N., Gaur, A. S., & Sambharya, R. B. (2019). A microfoundations approach to studying innovation in multinational subsidiaries. *Global Strategy Journal*, *9*(1), 92–116.

Osborne, J. W. (2000). Advantages of hierarchical linear modeling. *Practical Assessment, Research, and Evaluation*, *7*(1), 1.

Pai, F.-Y., & Chang, H.-F. (2013). The Effects of Knowledge Sharing and Absorption on Organizational Innovation Performance – A Dynamic Capabilities Perspective. *Interdisciplinary Journal of Information, Knowledge, and Management*, *8*, 83–97.

Pappu, R., & Quester, P. G. (2016). How does brand innovativeness affect brand loyalty? *European Journal of Marketing*, *50*(1/2), 2–28.

Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the Elusive Black Box of Dynamic Capabilities. *Decision Sciences*, *42*(1), 239–273.

Peltokorpi, V. (2017). Absorptive capacity in foreign subsidiaries: The effects of language-sensitive recruitment, language training, and interunit knowledge transfer. *International Business Review*, *26*(1), 119–129.

Penrose, E. T. (1959). *The Theory of the Growth of the Firm*. John Wiley.

Peteraf, M., Di Stefano, G., & Verona, G. (2013). The elephant in the room of dynamic capabilities: Bringing two diverging conversations together. *Strategic Management Journal*, *34*(12), 1389–1410.

Pituch, K. A., & Stevens, J. P. (2015). *Applied multivariate statistics for the social sciences: Analyses with SAS and IBM's SPSS*. Routledge.

Porter, M. E. (1997). Competitive strategy. *Measuring business excellence*, *1*(2), 12–17.

Priem, R., & Butler, J. (2001). Is The Resource-Based View a Useful Perspective for Strategic Management Research? *The Academy of Management Review*, *26*, 22.

Protogerou, A., Caloghirou, Y., & Lioukas, S. (2011). Dynamic capabilities and their indirect impact on firm performance. *Industrial and Corporate Change*, *21*(3), 615–647.

Quinn, J. B., Anderson, P., & Finkelstein, S. (2009). Managing professional intellect: making the most of the best. In *The Strategic Management of Intellectual Capital* (pp. 87–98). Routledge.

Rindfleisch, A., & Moorman, C. (2001). The acquisition and utilization of information in new product alliances: A strength-of-ties perspective. *Journal of Marketing*, *65*(2), 1–18.

Ringov, D. (2017). Dynamic capabilities and firm performance. *Long Range Planning*, *50*(5), 653–664.

Ritala, P., & Hurmelinna-Laukkanen, P. (2013). Incremental and Radical Innovation in Coopetition—The Role of Absorptive Capacity and Appropriability. *Journal of Product Innovation Management*, *30*(1), 154–169.

Ritala, P., Olander, H., Michailova, S., & Husted, K. (2015). Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study. *Technovation*, *35*, 22–31.

Roberts, N. (2015). Absorptive capacity, organizational antecedents, and environmental dynamism. *Journal of Business Research*, *68*(11), 2426–2433.

Rosenbloom, R. S., & Christensen, C. M. (1994). Technological Discontinuities, Organizational Capabilities, and Strategic Commitments. *Industrial and Corporate Change*, *3*, 655–685.

Roy, R., & Sarkar, M. (2016). Knowledge, firm boundaries, and innovation: Mitigating the incumbent's curse during radical technological change. *Strategic Management Journal*, *37*(5), 835–854.

Ruiz-Ortega, M. J., & García-Villaverde, P. M. (2008). Capabilities and competitive tactics influences on performance: Implications of the moment of entry. *Journal of Business Research*, *61*(4), 332–345.

Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2019). The central role of knowledge integration capability in service innovation-based competitive strategy. *Industrial Marketing Management*, *76*, 144–156.

Samson, D. (1991). *Manufacturing and operations strategy*. Prentice Hall.

Sandberg, W. R. (1986). *New venture performance: the role of strategy and industry structure*. Lexington Books.

Sandberg, W. R., & Hofer, C. W. (1987). Improving new venture performance: The role of strategy, industry structure, and the entrepreneur. *Journal of Business Venturing*, *2*(1), 5–28.

Sandvik, I. L., Arnett, D. B., & Sandvik, K. (2011). The Effects of New Product Development Proficiency on Product Advantage and Tourism Business Performance: Evidence from the Norwegian Hotel Industry. *Journal of Travel Research*, *50*(6), 641–653.

Scariano, S. M., & Davenport, J. M. (1987). The Effects of Violations of Independence Assumptions in the One-Way ANOVA. *The American Statistician*, *41*(2), 123–129.

Scherer, R. F., Brodzinski, J. D., & Wiebe, F. A. (1990). Entrepreneur career selection and gender: A socialization approach. *Journal of Small Business Management*, *28*(2), 37.

Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, *35*(2), 179–203.

Schilke, O., Hu, S., & Helfat, C. E. (2018). Quo Vadis, Dynamic Capabilities? A Content-Analytic Review of the Current State of Knowledge and Recommendations for Future Research. *Academy of Management Annals*, *12*(1), 390–439.

Schreyögg, G., & Kliesch-Eberl, M. (2007). How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization. *Strategic Management Journal*, *28*(9), 913–933.

Schumpeter, J. A. (1983). *The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle*. Transaction Books.

Semadeni, M., & Anderson, B. S. (2010). The Follower's Dilemma: Innovation and Imitation in the Professional Services Industry. *Academy of Management Journal*, *53*(5), 1175–1193.

Shan, W., Walker, G., & Kogut, B. (1994). Interfirm cooperation and startup innovation in the biotechnology industry. *Strategic Management Journal*, *15*(5), 387–394.

Shao, D., Zhao, S., Wang, S., & Jiang, H. (2020). Impact of CEOs' academic work experience on firms' innovation output and performance: evidence from Chinese listed companies. *Sustainability*, *12*(18), 7442.

Shepherd, D. A., & Zacharakis, A. (2018). Conjoint analysis: A window of opportunity for entrepreneurship research, Reflections and extensions on key papers of the first twenty-five years of advances. In *Emerald Publishing Limited*.

Simon, H. A. (1955). A behavioral model of rational choice. *The quarterly journal of economics*, 99–118.

Sivadas, E., & Dwyer, F. R. (2000). An examination of organizational factors influencing new product success in internal and alliance-based processes. *Journal of Marketing*, *64*(1), 31–49.

Snijders, T. A. B., & Bosker, R. J. (1999). *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling* (2nd).

Song, M., Droge, C., Hanvanich, S., & Calantone, R. (2005). Marketing and technology resource complementarity: An analysis of their interaction effect in two environmental contexts. *Strategic Management Journal*, *26*(3), 259–276.

Song, X. M., & Montoya-Weiss, M. M. (1998). Critical development activities for really new versus incremental products. *Journal of Product Innovation Management*, *15*(2), 124–135.

Sunder M, V., Ganesh, L. S., & Marathe, R. (2019). Dynamic capabilities: A morphological analysis framework and agenda for future research. *European Business Review*, *31*, 25–63.

Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, *17*(S2), 27–43.

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350.

Teece, D. J. (2014). The Foundations of Enterprise Performance: Dynamic and Ordinary Capabilities in an (Economic) Theory of Firms. *Academy of Management Perspectives*, *28*(4), 328–352.

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

Thomke, S. (2008). Chapter 15 - Learning by experimentation: Prototyping and testing [Some of the material in this chapter comes from Thomke (2003).]. In C. H. Loch & S. Kavadias (Eds.), *Handbook of New Product Development Management* (pp. 401–420). Butterworth-Heinemann.

Tilton, J. E. (1971). *International Diffusion of Technology: The Case of Semiconductors*. Brookings Institution.

Tripsas, M., & Gavetti, G. (2000). Capabilities, Cognition, and Inertia: Evidence from Digital Imaging. *Strategic Management Journal*, *21*(10/11), 1147–1161.

Utterback, J. M., & Abernathy, W. J. (1975). A dynamic model of process and product innovation. *Omega*, *3*(6), 639–656.

Van de Ven, A. H., & Poole, M. S. (1995). Explaining Development and Change in Organizations. *The Academy of Management Review*, *20*(3), 510–540.

Van Den Bosch, F., Volberda, H. W., & Boer, M. (1999). Coevolution of Firm Absorptive Capacity and Knowledge Environment. *Organization Science*, *10*, 551–568.

Van Wijk, R., Jansen, J. J. P., & Lyles, M. A. (2008). Inter- and Intra-Organizational Knowledge Transfer: A Meta-Analytic Review and Assessment of its Antecedents and Consequences. *Journal of Management Studies*, *45*(4), 830–853.

van Doorn, S., Heyden, M. L. M., & Volberda, H. W. (2017). Enhancing Entrepreneurial Orientation in Dynamic Environments: The Interplay between Top Management Team Advice-Seeking and Absorptive Capacity. *Long Range Planning*, *50*(2), 134–144.

Veugelers, R. (1997). Internal R&D expenditures and external technology sourcing. *Research Policy*, *26*(3), 303–315.

Walsh, J. P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organization Science*, *6*(3), 280–321.

Wang, C. L., & Ahmed, P. K. (2004). The development and validation of the organisational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management*, *7*(4), 303–313.

Wang, C. L., & Ahmed, P. K. (2007). Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews*, *9*(1), 31–51.

Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, *20*(2), 115–131.

Weick, K. E. (1979). *The Social Psychology of Organizing*. Random House.

Wernerfelt, B. (1989). From Critical Resources to Corporate Strategy. *Journal of General Management*, *14*(3), 4–12.

Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: a configurational approach. *Journal of Business Venturing*, *20*(1), 71–91.

Wilden, R., & Gudergan, S. P. (2015). The impact of dynamic capabilities on operational marketing and technological capabilities: investigating the role of environmental turbulence. *Journal of the Academy of Marketing Science*, *43*(2), 181–199.

Wilhelm, H., Schlömer, M., & Maurer, I. (2015). How Dynamic Capabilities Affect the Effectiveness and Efficiency of Operating Routines under High and Low Levels of Environmental Dynamism. *British Journal of Management*, *26*(2), 327–345.

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, *24*(10), 991–995.

Woiceshyn, J., & Daellenbach, U. (2005). Integrative capability and technology adoption: evidence from oil firms. *Industrial and Corporate Change*, *14*(2), 307–342.

Wong, K.-P. (2023). Risk aversion and entrepreneurship under uncertainty: Further results. *Economics Letters*, *230*, 111248.

Wright, P. (1975). Consumer Choice Strategies: Simplifying vs. Optimizing. *Journal of Marketing Research*, *12*(1), 60–67.

Yeoh, P.-L. (2009). Realized and Potential Absorptive Capacity: Understanding Their Antecedents and Performance in the Sourcing Context. *Journal of Marketing Theory and Practice*, *17*(1), 21–36.

Yi, Y., He, X., Ndofor, H., & Wei, Z. (2015). Dynamic Capabilities and the Speed of Strategic Change: Evidence From China. *IEEE Transactions on Engineering Management*, *62*(1), 18–28.

Zacharakis, A., & Shepherd, D. A. (2018). Reflection on Conjoint Analysis. In J. A. Katz & A. C. Corbett (Eds.), *Reflections and Extensions on Key Papers of the First Twenty-Five Years of Advances* (pp. 185–197, Vol. 20). Emerald Publishing Limited.

Zahra, S. A., & George, G. (2002). Absorptive Capacity: A Review, Reconceptualization, and Extension. *The Academy of Management Review*, *27*(2), 185–203.

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda*. *Journal of Management Studies*, *43*(4), 917–955.

Zajac, E. J., & Kraatz, M. S. (1993). A diametric forces model of strategic change: Assessing the antecedents and consequences of restructuring in the higher education industry. *Strategic Management Journal*, *14*(S1), 83–102.

Zander, U., & Kogut, B. (1995). Knowledge and the Speed of the Transfer and Imitation of Organizational Capabilities: An Empirical Test. *Organization Science*, *6*(1), 76–92.

Zhao, S., Jiang, Y., Peng, X., & Hong, J. (2021). Knowledge sharing direction and innovation performance in organizations. *European Journal of Innovation Management*, *24*(2), 371–394.

Zollo, M., & Winter, S. G. (2002). Deliberate Learning and the Evolution of Dynamic Capabilities. *Organization Science*, *13*(3), 339–351.