University of Tehran Press

Industrial Management Journal

Online ISSN: 3115 - 7386

Homepage: https://imj.ut.ac.ir

Ambidextrous Market Orientation and Innovation Performance: The Mediating Role of Entrepreneurial Capabilities

Mahmoud Moradi ✉ [1], **Hadi Zarea** [2], **Shayan Jalalat** [3], **Mohsen Akbari** [4], **and Mitra Kooche Moshki** [5]

1. Corresponding author, Associate Prof., Department of Industrial Management, Faculty of Management and Economics, University of Guilan, Guilan, Iran. E-mail: mahmoudmoradi@gmail.com
2. Instructor, Department of Management, Faculty of Business Administration, Laval University, Quebec, Canada. E-mail: hadi.zarea.1@ulaval.ca
3. Department of Industrial Management, Faculty of Management and Economics, University of Guilan, Guilan, Iran. E-mail: shayan_jalalat@yahoo.com
4. Associate Prof., Department of Industrial Management, Faculty of Management and Economics, University of Guilan, Guilan, Iran. E-mail: m.akbari@guilan.ac.ir
5. Ph.D. Candidate, Department of Management, Lang School of Business and Economics, University of Guelph, Ontario, Canada. E-mail: mkoochem@uoguelph.ca

Article Info

Article type:
Research Article

Article history:
Received January 08, 2026
Received in revised form February 13, 2026
Accepted March 03, 2026
Available online April 01, 2026

Keywords:
Ambidextrous market orientation, entrepreneurial capability, market knowledge competence, innovation performance, emerging markets, knowledge-based firms.

ABSTRACT

Objective: Innovation performance is a critical source of competitive advantage for knowledge-intensive firms operating in emerging markets. This study investigates how ambidextrous market orientation (AMO)—the simultaneous pursuit of exploratory and exploitative market strategies—affects innovation performance, examining entrepreneurial capabilities as a mediating mechanism and market knowledge competence as a boundary condition.

Methodology: Using survey data from 161 knowledge-based firms located in Gilan Science and Technology Park and affiliated research centers in Iran, we test a moderated mediation model through partial least squares structural equation modeling (PLS-SEM).

Results: The findings reveal that AMO does not directly enhance innovation performance; rather, its effect is fully mediated by entrepreneurial capabilities. Moreover, this indirect relationship is significantly contingent upon market knowledge competence, with stronger effects observed among firms possessing higher levels of market knowledge.

Conclusion: These results contribute to the literature by clarifying the micro-level mechanisms through which market ambidexterity translates into innovation outcomes in emerging economies. Practically, the study underscores the importance of cultivating entrepreneurial capabilities and market knowledge to effectively leverage ambidextrous market strategies for innovation. Beyond theoretical implications, the findings carry concrete guidance for managers of knowledge-based firms in emerging markets. First, firms should invest in building entrepreneurial capability as an organizational priority, recognizing that market intelligence alone does not translate into innovation unless the firm has the internal processes and agility to act on it.

Cite this article: Moradi, M., Zarea, H., Jalalat, S., Akbari, M., & Kooche Moshki, M., (2026). Ambidextrous Market Orientation and Innovation Performance: The Mediating Role of Entrepreneurial Capabilities, ***Industrial Management Journal***, 18(2), 265-297. https://doi.org/10.22059/imj.2026.412919.1008308

Publisher: University of Tehran Press.

DOI: https://doi.org/ 10.22059/imj.2026.412919.1008308

Introduction

In today's volatile and rapidly evolving business landscape, innovation is no longer a luxury—it is a necessity. Firms must continuously reinvent their products, services, and internal processes to survive and thrive amid intense competition, technological disruption, and changing customer expectations. Organizational performance reflects the extent to which firms achieve strategic objectives through both tangible outcomes and intangible capacities, including knowledge integration and innovation capabilities (Hill & Birkinshaw, 2012; Mathias, 2014). In this context, Innovation performance, as a specific dimension of organizational performance, has received increasing scholarly attention due to its pivotal role in enabling firms to adapt and thrive in volatile and competitive environments (Dranev et al., 2018; Andriopoulos & Lewis, 2010; Apanasovich et al., 2016). Empirical evidence consistently links innovation-related activities to positive outcomes; for instance, both exploratory innovation (focused on new product/market domains) (Rosenkopf & McGrath, 2011; Zhu, et al., 2024) and exploitative innovation (aimed at improving existing positions) (Rosenkopf & McGrath, 2011; Zhu et al., 2024) demonstrate significant positive correlations with operational performance (Mathias, 2014). Such dynamism is characterized by high environmental turbulence, state uncertainty, and competitive intensity, driving firms to innovate for competitive advantage and long-term viability (Hu et al. 2023; Simsek et al., 2009). However, despite the clear benefits, a consistent consensus remains elusive regarding the precise mechanisms and specific drivers that reliably stimulate organizational innovation, with many proposed antecedents often assessed through indirect measures or implied relationships rather than direct empirical evidence (Zhu et al., 2024), prompting a need to investigate under what conditions innovation is effectively realized.

An organization's orientation toward the market is a frequently cited driver of innovation (Clayton et al., 2018; Zhu et al., 2024). To thrive in dynamic environments characterized by evolving customer needs and expectations, organizations must remain adaptive and innovative (Di Stefano et al, 2014). This requires not only monitoring customer demands but also actively analyzing competitor behavior to secure a sustainable advantage (Di Stefano et al, 2014). This context elevates the strategic importance of market orientation. Market orientation is precisely defined as the organization-wide generation, dissemination, and responsiveness to market intelligence pertaining to current and future customer needs, as well as competitor activities (Debruyne & Schoovaerts, 2006). In this study, we conceptualize ambidextrous market orientation as a synthesis of market orientation and organizational ambidexterity. This refers to a dual capability to simultaneously explore new market opportunities and exploit existing ones (O'Reilly & Tushman, 2008; Zhu et al., 2024). Since the 1990s, scholars have extensively investigated the

impact of market orientation on various facets of organizational performance (Beck et al., 2011; Narver et al., 2004; Hult et al., 2005). The current study specifically focuses on the relationship between ambidextrous market orientation and innovation performance, particularly within knowledge-based firms. This emphasis on innovation performance is motivated by two key considerations: First, innovation performance is theoretically congruent with market orientation (Beck et al., 2011). Research suggests that both responsive market orientation (focusing on expressed customer needs and linked to exploitation) and proactive market orientation (focusing on latent customer needs and linked to exploration) form the foundation for innovation-related efforts within firms (Narver et al., 2004; Frambach et al, 2003). Proactive market orientation, in particular, is likely to lead to truly pioneering and breakthrough innovations driven by creativity (Zhou et al., 2005; Narver et al., 2004). Second, a market-oriented culture fosters a climate conducive to creativity and innovation, embedding these values within the broader organizational culture (Beck et al., 2011; Harmancioglu et al., 2020). Furthermore, innovation orientation, characterized by an organization's propensity for new ideas and change through adopting new technologies, resources, and systems, acts as a key driver for successful new system, process, or product implementation (Zhou et al., 2005; Narver et al., 2004).

However, despite these generally positive associations, the relationship between market orientation and innovation is not consistently supported across contexts (Deshpande & Farley, 2000, in Zhou et al., 2005; Ozkaya et al., 2015). Several studies report mixed or even negative outcomes, particularly for market-based innovations, where excessive attention to current customers and competitors can cause firms to overlook opportunities in new or emerging markets (Ozkaya et al., 2015; Lukas & Ferrell, 2000; Zhou et al., 2005). This inconsistency underscores the need to explore the boundary conditions under which different forms of market orientation influence innovation. Contextual factors such as industry characteristics, institutional environments, innovation type, and internal organizational capabilities are likely to play decisive roles in shaping these outcomes. Against this backdrop, focusing on innovation performance is especially important given its strong link to broader organizational effectiveness (Zhou et al., 2005; Wu, Wang, Hong, Piperopoulos, & Zhuo, 2015; Ozkaya et al., 2015). As a critical leading indicator, innovation performance reflects how firms convert innovation-related efforts into tangible advantages, including improved financial performance and long-term competitiveness (Gunday et al., 2011). Examining innovation performance, therefore, provides valuable insights into how customer-centric strategies and value-creation initiatives translate into organizational efficiency and sustainable growth. This study addresses these gaps by investigating how ambidextrous market orientation influences innovation performance in knowledge-based firms, focusing on the mediating role of entrepreneurial capabilities and the moderating role of market

knowledge competence within an emerging-market context.

Literature Background

Ambidextrous Market Orientation

Market Orientation

The concept of market orientation has undergone substantial theoretical development over the past decades. Early management thinkers such as Drucker (1954) and Levitt (1960) argued that the purpose of business is to create and retain customers, stressing the primacy of customer value over product focus. However, the formal operationalization of market orientation as an organizational capability emerged in the early 1990s, with the seminal works of Jaworski and Kohli (1996) and Narver and Slater (1990). These contributions remain the cornerstone of contemporary scholarship, providing two complementary perspectives: a behavioral approach and a cultural approach. Building on this foundation, ambidextrous market orientation (AMO) integrates the principles of organizational ambidexterity with the marketing domain by emphasizing the balance between exploratory and exploitative market activities. Rooted in organizational ambidexterity theory (Duncan, 1976; March, 1991; O'Reilly & Tushman, 2004), AMO reflects a firm's capability to simultaneously pursue radical innovation through exploration and incremental improvements through exploitation. Within marketing research, this duality has been operationalized through the distinction between proactive and reactive market orientations (Narver, Slater, & MacLachlan, 2004; Pertusa-Ortega, Molina-Azorín, & Claver-Cortés, 2018).

Organizational Ambidexterity

Organizational ambidexterity refers to the ability of firms to pursue exploration—activities that involve experimentation, innovation, and risk-taking—alongside exploitation, which emphasizes refinement, efficiency, and implementation (March, 1991; Gibson & Birkinshaw, 2004). This concept, first introduced by Duncan (1976), has become a central theme in organizational theory as a key determinant of sustained competitive advantage in dynamic markets (O'Reilly & Tushman, 2004; Hu, Dou, & You, 2023). Contemporary studies highlight multiple approaches to achieving ambidexterity. Structural ambidexterity separates exploratory and exploitative units, contextual ambidexterity allows individuals to shift between modes, and temporal ambidexterity emphasizes alternating exploration and exploitation over time (Simsek, Heavey, Veiga, & Souder, 2009; Venugopal, Krishnan, Kumar, & Upadhyayula, 2020). Importantly, performance outcomes are not determined by the magnitude of exploration or exploitation individually but by their balance

and alignment with strategic goals (Gianzina, 2022; Rao & Mattarelli, 2023). Misalignment, even when activities are intense, often results in suboptimal performance.

Reactive (Responsive) Market Orientation

Reactive or responsive market orientation emphasizes addressing customers' expressed and current needs through vigilant monitoring of existing market conditions, competitor actions, and immediate feedback. This dimension aligns with exploitation strategies, where firms refine and optimize their current offerings to maintain short-term competitiveness and customer satisfaction (Narver et al., 2004). Responsive MO is behaviorally rooted in quick adaptations to visible market signals, such as adjusting products based on direct customer complaints or competitor moves (Atuahene-Gima, 2005). Empirical studies show that it positively influences firm performance by enhancing operational efficiency and market share in stable environments, but it can lead to myopia if overemphasized, as firms may overlook emerging trends (Slater & Narver, 1998). For instance, responsive competitor orientation—focusing on reacting to rivals' strategies—has been linked to improved firm performance through mediated effects of learning orientation, enabling incremental improvements (Schulze, Townsend, & Talay, 2022).

Proactive Market Orientation

In contrast, proactive market orientation involves anticipating latent or future customer needs that are not yet articulated, often through exploratory activities like market experimentation, trend forecasting, and collaboration with lead users (Narver et al., 2004). This dimension draws from ambidexterity theory (March, 1991), emphasizing long-term innovation and disruption of existing market structures. Proactive MO encourages firms to shape markets rather than merely respond to them, fostering radical innovations and superior value creation (Blocker et al., 2011). Research indicates that it drives new product success by uncovering unmet needs, though it requires higher resource commitment and carries risks in uncertain markets (Herhausen, 2016). For example, proactive competitor orientation, which aims to alter competitive dynamics preemptively, has been shown to enhance innovation performance via technology orientation mediation (Schulze, Townsend, & Talay, 2022). Studies in service contexts further demonstrate that proactive MO leads to radical innovations and improved business performance, particularly when integrated with customer and competitor insights (Jaeger et al., 2016).

Ambidextrous Market Orientation

AMO represents the simultaneous pursuit of reactive and proactive orientations, enabling firms to

balance exploitation (refining current capabilities) and exploration (pursuing novel opportunities) for sustained performance (O'Reilly & Tushman, 2013). This ambidexterity addresses the limitations of singular orientations: reactive MO may stifle breakthrough innovations, while proactive MO can neglect immediate market demands (Herhausen, 2016). Conceptual typologies classify market strategies into habitual (low proactivity/responsiveness), visionary (high proactivity/low responsiveness), adaptive (low proactivity/high responsiveness), and ambidextrous (high in both), each with distinct value-creation logics (Brege & Kindström, 2021).

Empirical evidence supports AMO's positive impact on innovation ambidexterity, particularly in sectors like agribusiness, where market orientation emerges as a core predictor of both exploitative and exploratory innovations. For instance, in agri-food firms, high market orientation combined with organic structures fosters innovation exploitation, while standalone market orientation drives exploration (Corchuelo Martínez-Azúa, Dias, & Sama-Berrocal, 2025). Empirical studies confirm the complementarity of these orientations. While RMO ensures alignment with existing demands, excessive reliance risks myopia and incrementalism. Conversely, exclusive emphasis on PMO may result in inefficiencies and market misfits. Firms that integrate both orientations achieve superior performance by leveraging current competencies while simultaneously building innovation potential (Dolz, Iborra, & Safón, 2019; Dranev, Izosimova, & Meissner, 2018).

Recent evidence further demonstrates that the dual deployment of RMO and PMO enhances innovation outcomes in turbulent environments (Wang, Hong, & Sun, 2023; Zhu, Liu, & Zhang, 2024; Hannevig, 2025). Ambidextrous market orientation can be conceptualized as a dynamic capability that allows firms to sense and interpret both current and emerging market signals, translating them into strategic actions that balance operational excellence with innovation (O'Reilly & Tushman, 2013; Boronat-Navarro, Garcés-Ayerbe, & García-Marco, 2023). By aligning organizational ambidexterity (exploration–exploitation) with dual marketing orientations (reactive–proactive), AMO facilitates innovation efficiency while also sustaining long-term renewal. Empirical evidence suggests that AMO positively influences innovation rates, organizational learning, and financial performance across industries such as technology, healthcare, and renewable energy (Zimmermann, Raisch, & Birkinshaw, 2015; Barcelos et al., 2022). However, its effectiveness depends on mediating capabilities—particularly entrepreneurial and absorptive capacities—that convert ambidextrous market behaviors into sustained competitive advantage (Mom, Van den Bosch, & Volberda, 2007; Raisch, Birkinshaw, Probst, & Tushman, 2009).

Key findings across the literature highlight AMO's role in enhancing firm outcomes, particularly in the context of innovation performance as explored in emerging markets. Responsive and proactive MO together influence new product development success, with proactive elements being stronger predictors of radical innovations (Narver et al., 2004; Bodlaj, 2010). In emerging contexts, AMO mediates the relationship between entrepreneurial orientation and performance, promoting agility in turbulent markets (Najafi-Tavani et al., 2016). However, challenges include resource tensions and the need for supportive organizational factors like learning and technology orientations (Schulze, Townsend, & Talay, 2022). Despite these advancements, gaps remain. Much research is cross-sectional and focused on developed economies, with limited longitudinal studies on AMO's evolution in emerging markets or specific industries (Rokkan, 2023). Future research could explore the moderating effects of digital transformation or environmental turbulence on the reactive-proactive balance, as well as its mediating role in linking entrepreneurial capabilities and market knowledge competence to innovation performance.

Innovation performance

Innovation performance is widely regarded as a fundamental dimension of organizational success, particularly for knowledge-intensive firms operating in dynamic and competitive environments (Gunday, Ulusoy, Kilic, & Alpkan, 2011; Wu et al., 2015). It represents the effectiveness of firms in transforming innovative inputs—such as knowledge, ideas, and R&D efforts—into tangible outcomes that strengthen competitive advantage (Ritala, Olander, Michailova, & Husted, 2015; Hu, Dou, & You, 2023). As firms increasingly rely on innovation to secure both immediate performance and long-term survival, scholars emphasize that this construct cannot be fully captured through financial indicators alone (Wang & Ahmed, 2004; Ozkaya, Droge, Hult, Calantone, & Ozkaya, 2015). This relationship has also been documented in the Iranian context, where studies published in this journal have examined innovation determinants among knowledge-based and technology-intensive firms.

Instead, innovation performance must be evaluated using multidimensional measures that reflect technological, process, and market outcomes. The first dimension concerns the efficiency of the innovation process, often assessed in terms of time-to-market, development speed, project success rates, and the effectiveness of cross-functional collaboration (Wu et al., 2015; Posch & Garaus, 2020). The second dimension focuses on product and service innovativeness, which refers to the degree of novelty, distinctiveness, and value creation embodied in new offerings. This dimension captures both incremental improvements and radical breakthroughs that reshape markets or customer experiences (Cai, Liu, Zhu, & Deng, 2014; Cillo, Rialti, & Marzi, 2019). The

third dimension reflects market outcomes, which include tangible performance indicators such as the sales ratio of new products, increases in market share, patent activity, international expansion, and long-term customer adoption (Ritala et al., 2015; Dranev, Izosimova, & Meissner, 2018; Hu et al., 2023). Previous studies illustrate the application of these dimensions in practice. Wu et al. (2015), for instance, measured innovation performance through the number of new products launched, the sales derived from them, their development speed, the number of patent applications, and the novelty of outcomes. Cai et al. (2014) distinguished between incremental and radical innovations by analyzing the extent of technological progression and market exclusivity. More recently, Hu et al. (2023) demonstrated how the benefits of ambidextrous strategies for innovation outcomes vary across institutional contexts, particularly in family-managed enterprises in emerging economies. In line with the structural framework of this study, innovation performance is therefore conceptualized along three interrelated dimensions: process effectiveness, referring to the efficiency of innovation activities; output quality, reflecting the novelty and functional superiority of products and services; and commercial impact, denoting the degree to which innovations achieve market success through adoption, revenues, and international competitiveness. This multidimensional perspective ensures a more comprehensive understanding of innovation performance, which is particularly critical for knowledge-based firms where competitive advantage depends not only on technological novelty but also on the effective commercialization and alignment of innovations with market needs (Cillo et al., 2019; Ozkaya et al., 2015).

H1: Ambidextrous Market Orientation (AMO) has a significant positive effect on Innovation Performance (IP).

Market Knowledge Competency

In neoclassical economic theory, land, labor, and capital were considered the primary factors of production. However, with the advent of the resource-based view (RBV), this perspective in industrial economics has become largely obsolete (Li & Calantone, 1998). Wernerfelt (1984), in his seminal article "A Resource-Based View of the Firm," described resources and products as two sides of the same coin, noting that most products require multiple resources for production and that most resources can be applied to multiple products. Under this view, competitive advantage stems from an organization's internal resources and assets, with each firm regarded as a unique bundle of resources—some of which form the basis for sustainable competitive advantage (Wernerfelt, 1984; Barney, 1991). In the shift from neoclassical to resource-based perspectives, market knowledge has emerged as a pivotal intangible resource that fosters sustained competitive advantage (Roxas et al., 2012). This knowledge, especially when tacit and deeply embedded within the firm, satisfies

the VRIN criteria—valuable, rare, inimitable, and non-substitutable—positioning it as a strategic asset (Wu et al., 2015; Frambach et al., 2003). It enables firms to gain nuanced insights into customers and competitors in ways that are challenging to replicate, owing to its path-dependent evolution and firm-specific integration (De Luca & Atuahene-Gima, 2007).

The specificity of market knowledge pertains to its contextual nature, anchored in individual expertise, organizational routines, and internal processes. When focused on a particular segment—such as customer behaviors in a niche market or competitor dynamics in a localized context—this knowledge becomes hard to transfer or imitate (Zhou et al., 2005; De Luca & Atuahene-Gima, 2007). This leads to causal ambiguity, creating "stickiness" where the underlying mechanisms of knowledge generation and application remain opaque to outsiders (Song et al., 2010; Herhausen, 2016). In this study, market knowledge competency is therefore conceptualized as a dynamic capability arising from such specificity and embeddedness, empowering the firm to convert complex, tacit insights into strategic actions while preserving a durable competitive edge.

H2: Ambidextrous Market Orientation (AMO) has a significant positive effect on Market Knowledge Competency (MKC).

H4: Market Knowledge Competency (MKC) has a significant positive effect on Innovation Performance (IP).

H6: Market Knowledge Competency (MKC) mediates the relationship between Ambidextrous Market Orientation (AMO) and Innovation Performance (IP).

Entrepreneurial Capability

As global markets become increasingly competitive, firms are compelled to pursue opportunity-driven strategies that go beyond cost leadership and instead emphasize innovation and market responsiveness (Apanasovich et al., 2016; Wu et al., 2015). Accordingly, other companies not only sought to market their products at lower prices, but also simultaneously sought new markets to offer new products or new types of existing products. In other words, these companies are looking to discover new opportunities that will bring them more profit. This model of business development is called entrepreneurship (Tardieu, 2003). Entrepreneurial capability refers to an organization’s ability to recognize, evaluate, and exploit market opportunities through innovative and proactive behavior. Unlike price-based competition, this approach emphasizes value creation through product differentiation, market expansion, and strategic renewal (Zhou et al., 2005; Apanasovich et al., 2016). Building on Schumpeterian foundations, entrepreneurship is conceptualized as a

capability that integrates resources, knowledge, and organizational processes to enable opportunity-driven behavior across all organizational levels (Posch & Garaus, 2020; Groen, 2005). It transcends individual initiative and reflects a collective organizational capacity shaped by strategic orientation, learning culture, and decision-making autonomy. This capability is particularly vital for firms operating in turbulent markets, where success hinges on the speed and agility with which opportunities are seized (Wang & Ahmed, 2004; Ritala et al., 2015).

In an era of intensified global competition and rapid environmental changes, organizations increasingly seek internal mechanisms to respond flexibly and proactively to emerging market opportunities. While traditional entrepreneurship centers on the creation of new ventures by individuals or teams, organizational entrepreneurship (also called intrapreneurship) focuses on entrepreneurial behaviors that originate within existing firms and are embedded in their strategic and operational frameworks (Antoncic & Hisrich, 2001; Binns et al., 2022).

Organizational entrepreneurship refers to the processes through which firms initiate and develop new business activities—such as the creation of innovative products, services, processes, administrative practices, or business models—from within the organizational structure. This form of entrepreneurship is not limited by the firm's size or sector; rather, it reflects an internal capability to adapt, renew, and innovate in response to external challenges (Garcia-Granero et al., 2015; Baumann et al., 2019). Unlike independent entrepreneurship, where risk-taking occurs in founding new entities, organizational entrepreneurship involves pursuing novel and often uncertain initiatives while leveraging the firm's existing resources and infrastructure (Burgers & Covin, 2016).

In other words, in organizational entrepreneurship, creative people and entrepreneurs in the context of the organization in which they operate, initiate and entrepreneurship that this entrepreneurship, as mentioned earlier, can be manifested in various forms. Scholars identify four core dimensions of organizational entrepreneurship: being in a new business, acting innovatively, self-renewal, and activity (Antoncic & Hisrich, 2001). These dimensions capture how entrepreneurial orientation can manifest across different levels of an organization. For example, new business venturing may involve creating an internal startup, while innovation reflects continuous development of new offerings and capabilities. Self-renewal involves organizational transformation through strategic and structural changes, and proactiveness refers to forward-looking opportunity exploration in competitive markets. Empirical research emphasizes that fostering entrepreneurship inside organizations not only enhances responsiveness to dynamic environments but also strengthens long-term performance by embedding entrepreneurial mindsets

in routines, culture, and leadership processes (Gibson & Birkinshaw, 2004; Baumann et al., 2019).

In this view, organizational entrepreneurship is not merely an activity but a strategic competence—one that supports both exploration of new opportunities and exploitation of current advantages. This internal entrepreneurial capacity is particularly relevant for firms facing dual demands for innovation and efficiency, as highlighted in the broader context of ambidexterity and adaptive capability.

H3: Ambidextrous Market Orientation (AMO) has a significant positive effect on Entrepreneurial Capabilities (EC).

H5: Entrepreneurial Capabilities (EC) have a significant positive effect on Innovation Performance (IP).

H7: Entrepreneurial Capabilities (EC) mediate the relationship between Ambidextrous Market Orientation (AMO) and Innovation Performance (IP).

Interactive Effect of Variables

When capabilities such as market knowledge and entrepreneurial orientation are complementary, their interaction can lead to enhanced organizational outcomes. In particular, entrepreneurial capability enables the firm to identify and seize new opportunities, while market knowledge competence ensures that such entrepreneurial efforts are relevant and contextually informed (Zhou et al., 2005; De Luca & Atuahene-Gima, 2007). This integration supports a firm's innovation trajectory more effectively than either capability alone. In this study, these two dimensions—entrepreneurial capability and market knowledge competence—are not viewed in isolation. Instead, their interaction is conceptualized as a structural mechanism through which firms optimize innovation performance. Specifically, the moderating role of market knowledge competence is tested to determine whether the strength of entrepreneurial capability in driving innovation is contingent upon the depth and specificity of market understanding. What is the relationship between entrepreneurship capability and innovation performance at different levels of market knowledge competence in the organization? This approach reflects the configuration logic of the resource-based view, where competitive advantage is not solely about possession of superior resources, but about their synergistic combination and strategic alignment with the firm's innovation goals. As a result, the model incorporates market knowledge competency as a moderator, proposing that the effect of entrepreneurial capabilities on innovation outcomes is contingent upon the depth of contextual market understanding.

H8: Market Knowledge Competency (MKC) and Entrepreneurial Capabilities (EC) jointly act as a moderating mechanism in the relationship between Ambidextrous Market Orientation (AMO) and Innovation Performance (IP).

Based on the theoretical underpinnings discussed above, the conceptual model of this study is shown in Figure 1:

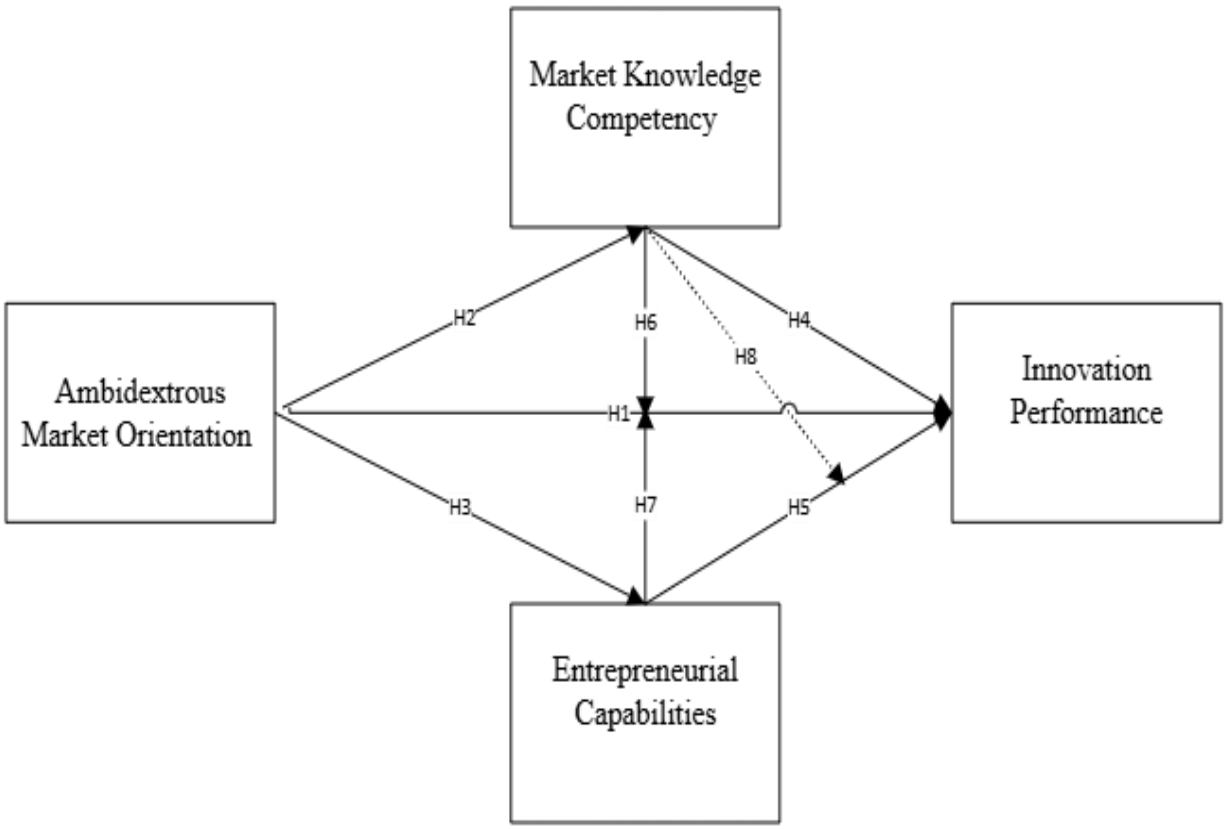

Figure 1. Conceptual model of study

Table 1 provides a structured summary of the key studies informing the theoretical constructs and hypotheses of this study.

Table 1. Summary of Key Literature

Author(s) & Year	Construct(s) Addressed	Key Finding	Relevance to This Study
Narver & Slater (1990)	Market Orientation	MO positively affects business profitability	Foundational MO construct
March (1991)	Organizational Ambidexterity	Exploration–exploitation tension shapes learning	Basis for AMO framework
Narver et al. (2004)	Proactive & Responsive MO	Both orientations predict new product success	AMO operationalization
De Luca & Atuahene-Gima (2007)	Market Knowledge Competence	MKC dimensions drive product innovation performance	MKC construct and H4
Teece (2007)	Dynamic Capabilities	Microfoundations of sustainable enterprise performance	Theoretical grounding for EC
Zhou et al. (2005)	Market & Innovation Orientation	MO antecedents and innovation outcomes in China	Contextual comparison basis
Wu et al. (2015)	Dynamic Capabilities, Innovation Performance	Dynamic capabilities mediate the diversification–innovation link	Comparison case (China)
Ozkaya et al. (2015)	MO, Market Knowledge, Innovation	Market knowledge competence conditions MO–innovation link	H6 and H8 grounding
Herhausen (2016)	Proactive & Reactive MO	AMO has ambidextrous effects on performance	AMO definition and effects
Schulze et al. (2022)	Proactive Competitor Orientation	Proactive CO enhances innovation via technology orientation	AMO–innovation mechanism
Zhu et al. (2024)	Executive influence, innovation	Top executives shape innovation through multiple mechanisms	Innovation performance scope
Corchuelo et al. (2025)	Market Orientation, Innovation Ambidexterity	MO predicts both exploitative and exploratory innovation in agribusiness	AMO–IP relationship

Materials and Methods

The study was conducted in six sequential steps, as illustrated in Figure 2. The first step involved a systematic review of the relevant literature on ambidextrous market orientation, entrepreneurial capability, market knowledge competence, and innovation performance, from which the theoretical framework and eight hypotheses were derived. The second step covered questionnaire design and scale adaptation, drawing on validated instruments from prior research and applying forward and back-translation procedures to ensure contextual appropriateness for the Iranian business environment. The third step consisted of population identification and data collection, targeting all 211 knowledge-based firms affiliated with the Gilan Science and Technology Park and its associated research centers. The fourth step addressed data quality assessment, including screening for incomplete responses, attention check verification, and common method bias evaluation. The fifth step comprised measurement model evaluation using PLS-SEM, examining factor loadings, composite reliability, average variance extracted, and discriminant validity. The sixth and final step

involved structural model estimation, including collinearity diagnostics, path coefficient testing, effect size analysis, and mediation and moderation hypothesis evaluation.

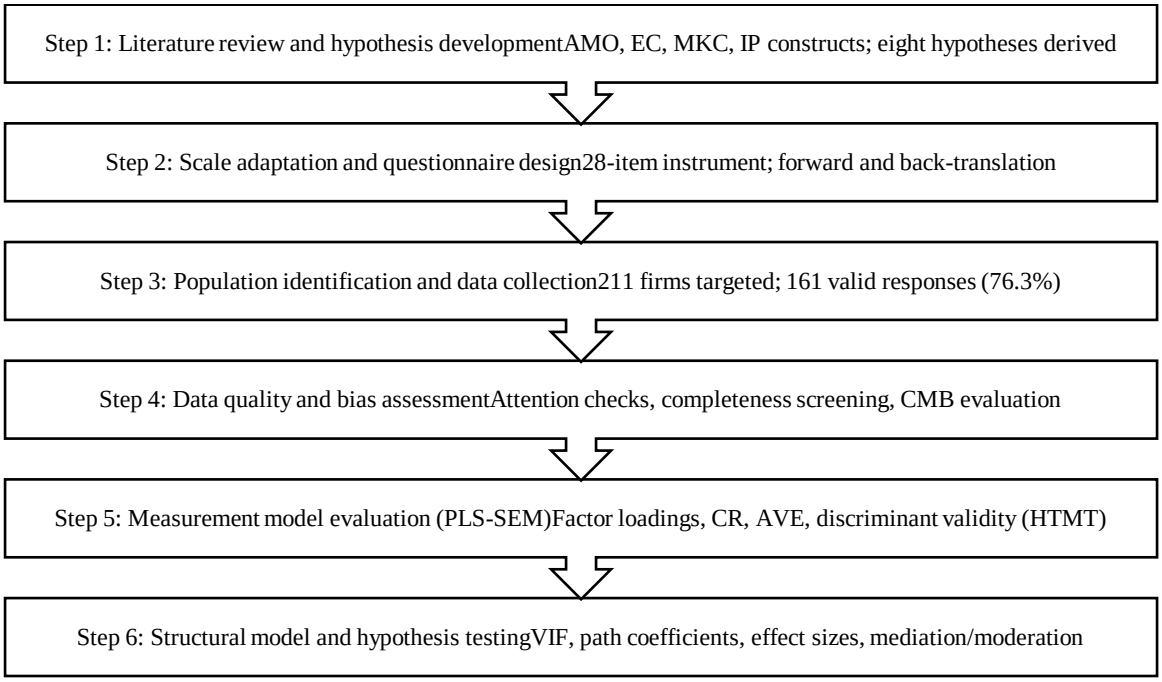

Figure 2. Research procedure of the study

This study employed a quantitative research design using a cross-sectional survey approach to test the proposed theoretical model. Primary data were collected through a structured online questionnaire administered to knowledge-based firms operating within science and technology parks and research centers in Gilan Province, Iran. The choice of this research setting was deliberate, as these organizations represent knowledge-intensive enterprises that rely heavily on innovation for competitive advantage and are embedded within supportive innovation ecosystems. The target population comprised all knowledge-based firms affiliated with the Science and Technology Park of Gilan Province and nine associated research centers distributed in the province, totaling 211 firms. This population represents a comprehensive census of formal knowledge-based enterprises operating within the province's innovation ecosystem. The sampling frame was obtained from official records maintained by the Gilan Science and Technology Park administration. A census sampling approach was initially attempted to maximize representativeness and statistical power (Fowler, 2014).

However, due to response rate constraints common in organizational surveys (Baruch &

Holtom, 2008), the final sample consisted of 161 firms, representing a response rate of 76.3%. This sample size exceeds the minimum requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis, as determined through power analysis calculations using G*Power software (Faul et al., 2007; Hair et al., 2017).

The research instrument consisted of a structured questionnaire comprising two main sections: demographic information and construct measurements. The demographic section captured organizational characteristics, including firm age, size, industry sector, and innovation activity levels. The construct measurement section included 28 items measured on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). All measurement scales were adapted from established instruments with demonstrated reliability and validity in previous research. Table 1 presents the operationalization of the four main constructs, their respective dimensions, and source references. Minor modifications were made to ensure cultural and contextual appropriateness for the Iranian business environment, following standard scale adaptation procedures including forward and back-translation processes.

The survey was administered electronically through a secure online platform, with personalized invitations sent to senior managers (CEOs, CTOs, or innovation directors) of the target firms. These respondents were selected based on their strategic decision-making roles and comprehensive understanding of their organizations' market orientation, entrepreneurial activities, and innovation performance. Multiple contact attempts were made to enhance response rates, including initial invitations, reminder emails, and follow-up telephone calls. To ensure data quality, the survey included attention checks and logical consistency controls. Responses were monitored for completeness and pattern recognition to identify potential response bias or careless responding.

Table 2. Constructs, Dimensions, Abbreviations, and Source References

Construct	Dimensions	Abbreviation	Source References
Ambidextrous Market Orientation (AOM)	- Proactive market orientation	PMO	Narver et al. (2004)
	- Responsive market orientation	RMO	
Market Knowledge Competence (MKC)	- Specificity of market knowledge creation	SMKC	De Luca & Atuahene-Gima (2007); Song et al. (2010)
	- Extent of market knowledge	EMK	
	- Market knowledge integration	MKI	
	- Application of market knowledge	AMK	
Entrepreneurial Capability (EC)	- Recognizing entrepreneurial opportunities	REO	Zahra et al. (2011)

	- Selecting opportunities	SO	
	- Mobilizing internal resources	MIR	
	- Adapting to external and internal changes	AEIC	
Innovation Performance (IP)	- Innovation process performance	IPP	Wu et al. (2015); Gunday et al. (2011); Wang & Ahmed (2004)
	- Product/service innovativeness	PI	
	-Innovation-related market outcomes	IMO	

Results

The survey instrument was completed by 161 respondents, generating data across the four focal constructs: ambidextrous market orientation, market knowledge competence, entrepreneurial capability, and innovation performance. The constructs reported mean values generally above the scale midpoint, suggesting moderately high perceptions across the sample. Among the constructs, market knowledge competence recorded the highest mean value (M = 3.99, SD = 0.58), reflecting the relatively strong emphasis firms place on generating, integrating, and applying market knowledge. In contrast, innovation performance exhibited the lowest mean score (M = 3.37, SD = 0.57), indicating that innovation outcomes are less developed relative to knowledge- and capability-related constructs. The measures of dispersion also highlight distinct patterns. Ambidextrous market orientation displayed the greatest variability (variance = 0.455), suggesting heterogeneity in firms' ability to balance proactive and responsive market orientations. Conversely, innovation performance was the most homogeneous (variance = 0.329), implying relatively similar performance outcomes across the surveyed firms.

Measurement Model Evaluation

The adequacy of the measurement model was examined in terms of reliability, convergent validity, and discriminant validity (Hair, Hult, Ringle, Sarstedt, & Thiele, 2017). Reliability was assessed using factor loadings and composite reliability (CR). Convergent validity was evaluated through the average variance extracted (AVE), while discriminant validity was assessed via cross-loadings and the Fornell–Larcker criterion (Fornell & Larcker, 1981). Composite reliability (CR) was employed to assess the internal consistency of the latent constructs. Unlike Cronbach's alpha, which assumes equal indicator loadings, CR considers the actual standardized loadings, thereby providing a more accurate reliability estimate in the context of PLS-SEM (Hair et al., 2017). Values of CR range from 0 to 1, with thresholds above 0.70 generally considered acceptable for exploratory research, and values exceeding 0.80–0.90 indicating good to excellent reliability in more advanced

research settings (Hair et al., 2017; Chin, 1998). In addition to CR, convergent validity was evaluated using the Average Variance Extracted (AVE), which represents the proportion of variance captured by a construct relative to the variance due to measurement error. An AVE value of 0.50 or higher suggests that a construct explains more than half of the variance in its indicators, thereby supporting convergent validity (Fornell & Larcker, 1981).

Table 3. Measurement model results

Construct	CR	AVE	Dimension	CR	AVE	Item Code	Factor Loading	t-value
AOM	0.946	0.898	PMO	0.893	0.677	Q4	0.834	21.850
						Q8	0.784	12.878
						Q12	0.822	18.857
						Q16	0.848	21.538
			RMO	0.899	0.641	Q6	0.870	22.553
						Q10	0.720	7.476
						Q13	0.723	7.712
						Q19	0.794	14.419
						Q21	0.883	23.097
MKC	0.907	0.717	SMKC	1.000	1.000	Q17	1.000	0.000
			EMK	0.913	0.840	Q1	0.920	53.885
						Q5	0.913	42.667
			MKI	0.898	0.816	Q11	0.917	44.836
						Q20	0.889	17.282
			AMK	1.000	1.000	Q14	1.000	0.000
EC	0.915	0.731	REO	0.852	0.742	Q3	0.877	32.678
						Q22	0.845	20.178
			SO	0.769	0.625	Q2	0.786	10.672
						Q15	0.795	11.388
			MIR	1.000	1.000	Q18	1.000	0.000
			AEIC	0.883	0.791	Q7	0.863	15.256
						Q9	0.915	54.665
IP	0.892	0.734	IPP	0.826	0.703	Q23	0.812	10.584
						Q28	0.864	23.111
			PI	0.884	0.792	Q25	0.912	50.567
						Q27	0.868	19.053
			IMO	0.796	0.662	Q24	0.761	10.399
						Q26	0.862	32.177

Figure 3 presents the outer model results as generated by SmartPLS, displaying factor loadings, composite reliability values, and AVE indicators for each construct. The visual output corroborates the findings reported in Table 3, confirming satisfactory measurement quality across all latent variables.

As reported in Table 3, all factor loadings are above the recommended threshold of 0.70 (Hair, Hult, Ringle, & Sarstedt, 2013; Chin, 1998), and each is statistically significant at the 95%

confidence level. All constructs demonstrate CR values well above the recommended 0.70 threshold, indicating strong internal consistency. Similarly, all AVE values surpass the 0.50 benchmark, confirming convergent validity. Constructs measured by a single indicator exhibit fixed loadings of 1.0 with a t-value of 0, which reflects a standard estimation procedure in PLS-SEM. This approach is widely recognized in SEM and PLS-SEM applications, where the reliability of such constructs is typically justified through theoretical reasoning or by adjusting the error variance (Hair et al., 2017; Kline, 2016). These results indicate that the latent constructs are measured with satisfactory reliability and validity, thereby supporting the appropriateness of the measurement model for further structural analysis and establishing a solid foundation for subsequent structural model evaluation.

Convergent validity refers to the extent to which a set of observed indicators accurately represents the latent construct they are intended to measure. This is commonly assessed using the Average Variance Extracted (AVE), which quantifies the proportion of variance captured by the construct in relation to the variance due to measurement error. According to Hair et al. (2013), an AVE value of 0.50 or higher is considered acceptable, indicating that the construct explains at least 50% of the variance in its observed indicators. In the present study, AVE values were computed for both first-order and second-order constructs, including ambidextrous market orientation, market knowledge competence, entrepreneurial capability, and innovation performance. As reported in Table 3, all constructs—regardless of their order—exhibited AVE values exceeding the 0.50 threshold. This confirms that the latent variables in the measurement model demonstrate a satisfactory level of convergent validity. These results provide strong empirical support for the adequacy of the measurement models, suggesting that the selected items reliably capture the variance of their respective constructs. Therefore, based on the AVE criterion, the study meets the necessary condition for convergent validity, reinforcing the integrity of subsequent structural path analysis.

Discriminant validity refers to the extent to which a latent construct is empirically distinct from other constructs in the model, ensuring that each captures unique aspects of the underlying phenomena (Fornell & Larcker, 1981; Henseler, Ringle, & Sarstedt, 2015). In this study, discriminant validity was assessed using two complementary approaches: the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio of correlations. According to the Fornell–Larcker criterion, discriminant validity is established when the square root of a construct's average variance extracted (AVE) exceeds its correlations with other constructs. As shown in Table 4, the diagonal elements (square roots of AVE, bolded) are consistently greater than the corresponding inter-construct correlations, thereby supporting discriminant validity.

Table 4. Fornell–Larcker Criterion

	PMO	RMO	SMKC	EMK	MKI	AMK	REO	SO	MIR	AEIC	IPP	PI	IMO
PMO	0.839	0.527	0.48	0.397	0.617	0.577	0.69	0.481	0.481	0.541	0.56	0.448	0.503
RMO		0.813	0.783	0.593	0.6	0.645	0.555	0.65	0.633	0.496	0.544	0.61	0.48
SMKC			0.89	0.503	0.627	0.64	0.553	0.558	0.664	0.544	0.499	0.53	0.549
EMK				1	0.556	0.592	0.498	0.673	0.67	0.525	0.644	0.779	0.507
MKI					0.823	0.798	0.659	0.65	0.682	0.517	0.594	0.715	0.599
AMK						0.801	0.688	0.606	0.745	0.572	0.655	0.633	0.467
REO							0.861	0.391	0.693	0.618	0.727	0.526	0.597
SO								1	0.558	0.558	0.592	0.606	0.521
MIR									0.79	0.521	0.686	0.644	0.511
AEIC										1	0.607	0.422	0.447
IPP											0.889	0.492	0.556
PI												0.917	0.703
IMO													0.903

After establishing convergent validity, discriminant validity was assessed to ensure that each construct is truly distinct from the others in the model (Hair et al., 2022). This step evaluates the extent to which latent constructs diverge conceptually and empirically from each other. Traditionally, the Fornell–Larcker criterion (Fornell & Larcker, 1981) has been applied for this purpose.

More recent methodological advancements recommend the use of the Heterotrait–Monotrait ratio of correlations (HTMT), which represents the average correlations across constructs relative to the average correlations within the same construct (Hair et al., 2022). According to Henseler, Ringle, and Sarstedt (2014), HTMT values should not exceed 0.90 to confirm discriminant validity. Furthermore, the statistical significance of the HTMT ratios was evaluated using bootstrapped confidence intervals (2.5%–97.5%). If the interval does not include the value 1.0, discriminant validity is considered to be established. Following these guidelines, the results confirmed that the constructs in this study—Market Ambidexterity Orientation, Market Knowledge Competency, Entrepreneurial Capabilities, and Innovation Performance—exhibited satisfactory discriminant validity.

Table 5. Discriminant Validity Assessment (HTMT Criterion)

Relationship	HTMT	Bias-corrected Confidence Intervals	
		2.5%	97.5%
AMO ↔ IP	0.745	0.552 – 0.864	
AMO ↔ MKC	0.781	0.632 – 0.891	
AMO ↔ EC	0.694	0.498 – 0.828	
MKC ↔ IP	0.768	0.579 – 0.889	
MKC ↔ EC	0.803	0.621 – 0.910	
EC ↔ IP	0.826	0.643 – 0.932	

Appraisal of the structural model

The evaluation of the structural model begins with the assessment of collinearity to ensure that the estimates are not biased due to strong correlations among exogenous variables. Collinearity was assessed by examining the Variance Inflation Factor (VIF) values. According to Hair et al. (2013), VIF values below the threshold of 5 indicate that collinearity is not a critical concern, while values below 3 suggest no collinearity issues. The VIF assessment revealed the following values: Market Orientation (AMO = 3.178), Market Knowledge Competency (MKC = 2.117), Entrepreneurial Capability (EC = 2.850), and Interaction Variable (1.141). All VIF values are below 5, indicating that multicollinearity among the exogenous constructs in the structural model does not exceed critical levels. Most values were well below the conservative threshold of 3, with Market Orientation slightly above this threshold but still within acceptable limits. This confirms that collinearity does not pose a significant issue for the structural model. The VIF value of 3.178 for Market Orientation indicates that the standard error related to its path coefficient is approximately 1.78 times greater than it would be if this variable had no correlation with other independent variables, which is expected when multiple correlated independent variables are present in the structural model.

Next, predictive validity and relevance analysis were conducted using the R^2 and Stone–Geisser Q^2 values (Geisser, 1975; Stone, 1974). According to Chin (1998), R^2 values of 0.67, 0.33, and 0.19 represent substantial, moderate, and weak predictive validity, respectively. In addition, Q^2 values above 0.25 and 0.50 indicate medium and large predictive relevance (Hair et al., 2020). As presented in Table 6, all Q^2 values exceeded zero, thereby confirming the predictive relevance of the model. In terms of explanatory power, several endogenous constructs exhibited substantial R^2 values, such as RMO (0.918), SO (0.870), and IMO (0.818), suggesting that the model explains a large proportion of their variance. Similarly, PI (R^2 = 0.811; Q^2 = 0.609) reflects both substantial predictive validity and large predictive relevance, underscoring the robustness of innovation performance outcomes. Constructs such as MKC (R^2 = 0.625) and EC (R^2 = 0.453) indicated moderate levels of explained variance, consistent with expectations for complex organizational phenomena.

Table 6. Predictive Relevance (Q^2) Assessment

Construct	Endogenous Variable	R^2	Q^2
AMO		-	-
	PMO	0.878	0.550
	RMO	0.918	0.532
MKC		0.625	0.307
	SMKC	0.813	0.574
	EMK	0.727	0.420
	MKI	0.572	0.536
	AMK	0.810	0.598
EC		0.453	0.267
	REO	0.598	0.567
	SO	0.870	0.697
	MIR	0.697	0.538
	AEIC	0.702	0.681
IP		0.773	0.346
	IPP	0.574	0.376
	PI	0.811	0.609
	IMO	0.818	0.512

To conclude the evaluation of the structural model, the path coefficients and their corresponding effect sizes were examined. While the statistical significance of the relationships confirms the robustness of the hypothesized paths, relying solely on significance testing is insufficient (Sullivan & Feinn, 2012). As recommended by Cohen (1992) and Kline (2004), reporting effect sizes provides a more meaningful interpretation of the practical impact of each relationship. Effect sizes are particularly valuable because they are independent of sample size, unlike p-values, which may indicate significance even for trivial effects when the sample size is large (Hair et al., 2010). According to Hair et al. (2022), f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively. The findings in Table 6 show that AOM exerts a large total effect on IP (0.821), primarily through both direct and mediated paths via MKC and EC, while EC demonstrates a medium effect (0.450). In contrast, MKC has only a small effect on IP (0.084), indicating limited direct influence. The interaction term MKC × EC → IP reveals a medium-to-large contribution (0.272), highlighting the importance of complementary dynamics between knowledge competence and entrepreneurial capability. Collectively, these results confirm that both direct and mediated effects are critical, with ambidexterity orientation and entrepreneurial capability emerging as the strongest drivers of innovation performance.

Table 7. Structural Model Results

Path (Hypothesis)	β (Coefficient)	t-value	Result	Effect Size	Total effect	Interpretation
AOM → IP (H1)	0.409	2.355	Supported	0.232	0.821	Large
AOM → MKC (H2)	0.673	9.116	Supported			
AOM → EC (H3)	0.791	11.094	Supported			
MKC → IP (H4)	0.084	1.079	Not Supported	0.015	0.084	Small
EC → IP (H5)	0.45	2.824	Supported	0.312	0.450	Medium
MKC × EC → IP (H8)	0.272	2.331	Supported	0.414	0.272	Medium–Large
AOM → PMO	0.937	50.240	Supported			
AOM → RMO	0.958	69.602	Supported			
MKC → SMKC	0.773	15.794	Supported			
MKC → EMK	0.933	47.153	Supported			
MKC → MKI	0.835	17.711	Supported			
MKC → AMK	0.838	25.577	Supported			
EC→ REO	0.902	31.02	Supported			
EC → SO	0.853	19.587	Supported			
EC→ MIR	0.756	11.597	Supported			
EC→ AEIC	0.9	34.113	Supported			
IP → IPP	0.758	12.687	Supported			
IP → PI	0.901	41.556	Supported			
IP →IMO	0.904	55.787	Supported			

Figure 4 presents the structural model output generated by SmartPLS, including the estimated path coefficients, t-values from bootstrapping, and R^2 values for endogenous constructs. The visual representation confirms the pattern of supported and unsupported hypotheses reported in Table 7.

In addition to the direct structural relationships, the study also examined the mediating and moderating mechanisms hypothesized in H6–H8. The mediation analyses were evaluated using the Variance Accounted for (VAF) index and Sobel tests, while the moderation was assessed through interaction terms and effect size criteria. The results, summarized in Table 8, show that MKC does not mediate the relationship between AMO and IP (H6 not supported), whereas EC acts as a significant partial mediator (H7 supported). Furthermore, the interaction between MKC and EC provides a large moderating effect on the AMO–IP relationship, confirming H8. These findings highlight that entrepreneurial capability plays a crucial role in transmitting and amplifying the impact of ambidextrous market orientation on innovation performance, while market knowledge competency exerts its influence more as a complementary condition than as a mediator.

Table 8. Summary of Mediation and Moderation Hypotheses (H6–H8)

Hypothesis	Path / Effect Tested	VAF / Effect Size	Sobel Test (Z-value)	Result
H6	AMO → MKC → IP (Mediation of MKC)	VAF = 0.121 (< 0.20)	Z = 1.043 (ns)	Not Supported
H7	AMO → EC → IP (Mediation of EC)	VAF = 0.465 (Partial Mediation)	Z = 2.814 ($p < 0.01$)	Supported
H8	AMO × (MKC × EC) → IP (Moderation)	$f^2 = 0.414$ (Large)	t = 2.331 ($p < 0.05$)	Supported

Discussion and Conclusion

This study set out to test the assumption that ambidextrous market orientation (AMO) directly enhances innovation performance (IP). The results tell a more nuanced story. Although H1 indicated a positive relationship ($\beta = 0.409$, $p < 0.05$), the effect was modest, and its strength paled in comparison to mediated pathways. This finding challenges classical models (Narver & Slater, 1990; Jaworski & Kohli, 1996), which positioned market orientation as a direct engine of performance. Instead, our evidence aligns with contingency perspectives (Zhou et al., 2005; Kirca et al., 2005), suggesting that AMO only produces tangible innovation benefits when translated into organizational capabilities. This pattern reflects the institutional realities of emerging markets, where firms often operate under weaker infrastructure, fragmented support systems, and resource constraints. In such environments, sensing customer needs and competitor behaviors (AMO) is necessary but not sufficient. Without mechanisms to seize and act on these insights, innovation performance remains limited. Thus, AMO's value in our context lies not in its direct link to innovation, but in how it enables firms to develop entrepreneurial capacity.

Entrepreneurial capability (EC) emerges as the central mechanism through which AMO drives innovation. H3 confirmed that AMO strongly enhances EC ($\beta = 0.791$, $p < 0.001$), while H5 showed that EC significantly improves IP ($\beta = 0.450$, $p < 0.01$). Mediation analysis (H7) revealed that nearly half of AMO's impact on IP flows through EC (VAF = 0.465, Z = 2.814, $p < 0.01$). This finding resonates with dynamic capability theory (Teece, 2007; Eisenhardt & Martin, 2000) but specifies entrepreneurial capability as the critical dynamic capability in resource-constrained settings. Unlike in developed markets, where firms can often rely on institutional support and established innovation ecosystems (Wu et al., 2015), firms in emerging contexts cannot rely solely on market intelligence. They must actively convert market signals into entrepreneurial action—identifying opportunities, mobilizing scarce resources, and adapting structures rapidly. This explains why AMO's direct effect is weak, but its mediated effect via EC is strong. Market orientation alone creates awareness, but without entrepreneurial capacity, this awareness cannot be transformed into innovative products, services, or processes. Our study positions EC as the

indispensable bridge between strategic orientation and performance in emerging economies.

The results for market knowledge competence (MKC) were mixed but illuminating. H2 confirmed that AMO enhances MKC ($\beta = 0.673$, $p < 0.001$), indicating that firms with strong ambidextrous orientations also develop richer and more integrated knowledge bases. However, H4 was not supported ($\beta = 0.084$, ns), showing that MKC alone does not directly improve innovation performance. Likewise, H6 (mediation via MKC) was unsupported (VAF = 0.121, Z = 1.043, ns). At first glance, these findings might appear disappointing. Yet, they are theoretically important. They suggest that knowledge, no matter how rich, remains inert unless paired with entrepreneurial action. In other words, having deep insights into markets does not automatically lead to innovation unless the firm has the entrepreneurial agility to act on that knowledge. The moderating effect (H8) provides stronger evidence of this complementarity: MKC significantly amplifies the EC → IP pathway ($\beta = 0.272$, $p < 0.05$). This means that when firms combine strong entrepreneurial capacity with robust market knowledge, innovation outcomes improve significantly more than when either capability is deployed alone. This supports recent RBV arguments (Barney, 1991; Grant, 1996) that resources and capabilities must be configured synergistically, not treated as independent drivers.

These findings align with and extend prior empirical work on market orientation and innovation. Consistent with Narver et al. (2004) and Bodlaj (2010), responsive and proactive market orientations jointly contribute to innovation outcomes, with the proactive dimension displaying a stronger association with breakthrough innovations. However, unlike Wu et al. (2015), who reported direct effects of dynamic capabilities on innovation performance in Chinese firms, our study finds that the direct AMO–IP relationship is considerably weaker in the Iranian context, and the mediated pathway through entrepreneurial capability is substantially more important. This divergence is consistent with Najafi-Tavani et al. (2016), who documented the moderating role of absorptive capacity in market orientation–performance relationships, and with Ozkaya et al. (2015), who demonstrated that market knowledge competence functions primarily as a conditional rather than an independent driver of innovation. The non-significance of MKC as a direct predictor in our study contrasts with De Luca and Atuahene-Gima (2007), where market knowledge dimensions predicted product innovation performance directly; this divergence likely reflects the difference in context, as their sample comprised established firms in developed market settings with stronger institutional support for knowledge-to-innovation transfer. Taken together, these comparisons reinforce the argument that contextual and institutional factors shape which mechanisms link market orientation to innovation.

A final contribution lies in demonstrating that the mechanisms linking AMO, EC, and IP are context-dependent. In developed market studies (e.g., Wu et al., 2015; Hult et al., 2005), AMO often exerts both direct and mediated effects on innovation. In our study of Iranian knowledge-based firms, the direct pathway was weak, and entrepreneurial capability became indispensable. This divergence suggests that institutional voids fundamentally alter the "rules of the game." In resource-constrained, volatile environments, market orientation by itself cannot guarantee innovation success. Firms must cultivate internal entrepreneurial processes to compensate for weak external support. This observation advances institutional theory (Peng et al., 2008; Meyer & Peng, 2016) by showing that institutions do not merely shape firm choices but restructure the pathways through which strategic orientations affect performance.

Beyond theoretical implications, the findings carry concrete guidance for managers of knowledge-based firms in emerging markets. First, firms should invest in building entrepreneurial capability as an organizational priority, recognizing that market intelligence alone does not translate into innovation unless the firm has the internal processes and agility to act on it. This implies hiring and developing personnel who can identify opportunities, mobilize resources under uncertainty, and adapt rapidly to changing conditions. Second, while market knowledge competence does not independently drive innovation, managers should treat it as a complementary amplifier: combining deep market understanding with entrepreneurial processes produces substantially stronger innovation outcomes than either capability deployed in isolation. In practical terms, this argues for integrating market research functions closely with entrepreneurial units or innovation labs, ensuring that market signals inform and accelerate, rather than substitute for, entrepreneurial action. Third, for managers operating under the resource constraints typical of science-park-based firms in Iran, the findings suggest a sequencing logic: prioritizing the development of entrepreneurial capabilities first, then investing in broadening and deepening market knowledge systems to amplify that capacity over time.

Limitations and Future Research

Despite these contributions, several limitations must be acknowledged. The cross-sectional design restricts causal inference, meaning the relationships observed should be interpreted as associations rather than definitive cause–and–effect dynamics. Longitudinal or panel studies would better capture how AMO, EC, and MKC evolve. Second, while the sample covers nearly all firms in one province (161 of 211), it remains only a fraction of the ~3,650 knowledge-based firms in Iran, and all are tied to innovation parks. This raises questions of external validity, as results may not generalize to independent firms or other provinces. Future research should expand across regions

and contexts to test the stability of our findings. Third, reliance on some single-item measures (e.g., SMKC, AMK, MIR) limits measurement precision. Future studies could refine these scales or triangulate with archival data such as patents, product launches, or sales records. Finally, other boundary conditions (absorptive capacity, digital transformation, environmental turbulence) could further explain when entrepreneurial capability most effectively converts AMO into innovation.

Author Contribution Declaration

All authors contributed significantly to the conceptualization, design, execution, and writing of this study. Specific contributions are outlined below:

• Mahmoud Moradi: Conceptualization, methodology, formal analysis, writing - original draft,

Supervision. (Corresponding author).

• Shayan Jalalat: Investigation, data curation, formal analysis, writing - original draft.

• Mohsen Akbari: Methodology, formal analysis, validation, writing - review & editing.

• Mitra Kooche Moshkie: Conceptualization, investigation, writing - review & editing, visualization.

• Hadi Zarea: Conceptualization, methodology, writing - original draft, writing - review & editing, project administration

All authors have reviewed and approved the final version of the manuscript for submission.

Data Availability Statement

The data supporting the findings of this study are available upon reasonable request from the corresponding author, Hadi Zarea (hadi.zarea.1@ulaval.ca).

Acknowledgements

The authors gratefully acknowledge the management and data analytics team for providing access to the empirical data used in this study.

Conflict of interest

The authors declare no conflict of interest related to the content, data, or results of this study. All analyses were conducted independently, and no external parties influenced the interpretation or presentation of the findings.

Funding

The authors received no financial support for this article's research, authorship, and/or publication.

Ethical considerations

The authors declare compliance with all applicable ethical guidelines, including proper data handling, originality of content, and avoidance of duplicate submission.

References

Andriopoulos, C., & Lewis, M. W. (2010). Managing innovation paradoxes: Ambidexterity lessons from leading product design companies. *Long Range Planning*, *43*(1), 104–122. https://doi.org/10.1016/j.lrp.2009.08.003

Antoncic, B., & Hisrich, R. D. (2001). Intrapreneurship: Construct refinement and cross-cultural validation. *Journal of Business Venturing*, *16*(5), 495-527. https://doi.org/10.1016/S0883-9026(99)00054-3

Apanasovich, N., Alcalde Heras, H., & Parrilli, M. D. (2016). The impact of business innovation modes on SME innovation performance in post-Soviet transition economies: The case of Belarus. *Technovation, 57*, 30–40. https://doi.org/10.1016/j.technovation.2016.05.001

Atuahene-Gima, K. (2005). Resolving the capability–rigidity paradox in new product innovation. Journal of Marketing, 69(4), 61–83. https://doi.org/10.1509/jmkg.2005.69.4.61

Barcelos, E., Amatucci, M., Borini, F. M., & Raziq, M. (2022). Renewing a subsidiary's innovative capabilities through flexible design, contextual ambidexterity, and external embeddedness, *Review of Business Management*, *24*(3). https://doi.org/10.7819/rbgn.v24i3.4188

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17, 99-120. https://doi.org/10.1177/014920639101700108

Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human relations*, *61*(8), 1139-1160. https://doi.org/10.1177/0018726708094863

Baumann, O., Eggers, J. P., & Stieglitz, N. (2019). Colleagues and competitors: How internal social comparisons shape organizational search and adaptation. *Administrative Science Quarterly, 64*(2), 275–309. https://doi.org/10.1177/0001839218766310

Beck, L., Janssens, W., Debruyne, M., & Lommelen, T. (2011). A Study of the Relationships Between Generation, Market Orientation, and Innovation in Family Firms. *Family Business Review, 24*(3), 252-272. https://doi.org/10.1177/0894486511409210

Binns, A., Tushman, M., L., & O'Reilly, Ch. (2022). Leading disruption in a legacy business. *MIT Sloan Management Review*, *63*(2). https://sloanreview.mit.edu/article/leading-disruption-in-a-legacy-business/

Bodlaj, M. (2010). The impact of a responsive and proactive market orientation on innovation and business performance. *Economic and business review*, *12*(4), 2. https://doi.org/10.15458/2335-4216.1255

Boronat-Navarro, M., Garcés-Ayerbe, C., & García-Marco, T. (2023). Ambidexterity in micro and small firms: Can competitive intelligence compensate for size constraints? BRQ Business Research Quarterly, 26(3), 285–300. https://doi.org/10.1177/23409444231164170

Brege, H., & Kindström, D. (2021). Proactivity and responsiveness in value creation: a conceptual typology of market strategies. Journal of Business & Industrial Marketing, 36(1), 72-85. https://doi.org/10.1108/JBIM-11-2019-0479

Burgers, J. H., & Covin, J. G. (2016). The contingent effects of differentiation and integration on corporate entrepreneurship. *Strategic Management Journal*, *37*(3), 521–540. https://doi.org/10.1002/smj.2343

Cai, L., Liu, Q., Zhu, X., & Deng, S. (2014). Market orientation and technological innovation: the moderating role of entrepreneurial support policies. *International Entrepreneurship and Management Journal*, *11*(3), 645-671. 10.1007/s11365-013-0290-3

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), Modern methods for business research (pp. 295–336). Mahwah, NJ: Lawrence Erlbaum Associates.

Cillo, V., Rialti, R., & Marzi, G. (2019). Ambidextrous innovation in turbulent contexts: The role of absorptive capacity and entrepreneurial orientation. Technological Forecasting and Social Change, 148, 119724. https://doi.org/10.1016/j.techfore.2019.119724

Clayton, C. M., McDonald, R., Altman, E, J., & McDonald, R. (2018). Disruptive Innovation: An Intellectual History and Directions for Future Research, *Journal of Management Studies*, *55*(7), 1043–1078. https://doi.org/10.1111/joms.12349

Corchuelo Martínez-Azúa, B., Dias, Á., & Sama-Berrocal, C. (2025). The key role of market orientation in innovation ambidexterity in agribusiness firms. *Review of Managerial Science*, *19*(1), 39-65. https://doi.org/10.1007/s11846-024-00732-6

Danneels, E. (2002). The Dynamics of Product Innovation and Firm Competences. *Strategic Management Journal*, *23*(12), 1095–1121. http://www.jstor.org/stable/3094297

De Luca, L. M., & Atuahene-Gima, K. (2007). Market knowledge dimensions and cross-functional collaboration: Examining the different routes to product innovation performance. *Journal of Marketing, 71*(1), 95-112. https://doi.org/10.1509/jmkg.71.1.095

Debruyne, M., & Schoovaerts, M. (2006). *Innovation outside the lab: strategic innovation as the alternative*: Flanders District of Creativity Leuven, Belgium.

Di Stefano, G., Peteraf, M., & Verona, G. (2014). The organizational drivetrain: A road to integration of dynamic capabilities research. *Academy of Management Perspectives*, *28*(4), 307–327. https://doi.org/10.5465/amp.2013.0100

Díaz-Fernández, M., Pasamar-Reyes, R., & Valle-Cabrera, R. (2017). Human capital and human resource management to achieve ambidextrous learning: A structural perspective. BRQ Business Research Quarterly, 20(2), 63–77. https://doi.org/10.1016/j.brq.2016.07.002

Dolz, C., Iborra, M., & Safón, V. (2019). Improving the likelihood of SME survival during financial and economic crises: The importance of TMTs and family ownership for ambidexterity. BRQ Business Research Quarterly, 22(2), 119–131. https://doi.org/10.1016/j.brq.2018.09.004

Dranev, Y., Izosimova, A., & Meissner, D. (2018). Organizational ambidexterity, performance, and knowledge management: Empirical evidence from the energy and pharmaceutical sectors. Journal of Knowledge Management, 22(4), 694–715. https://doi.org/10.1108/JKM-09-2017-0428

Drucker, P. F. (1985). *Innovation and entrepreneurship practices and principles*: AMACON.

Duncan, R. B. (1976). The ambidextrous organization: Designing dual structures for innovation. *The Management of Organization*, *1*(1), 167–188.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, *21*(10–11), 1105–1121. https://doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191. https://doi.org/10.3758/BF03193146

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.1177/002224378101800104

Fowler Jr, F. J. (2013). Survey research methods. Sage publications.

Frambach, R. T., Prabhu, J., & Verhallen, T. M. (2003). The influence of business strategy on new product activity: The role of market orientation. *International journal of research in marketing*, *20*(4), 377-397. https://doi.org/10.1016/j.ijresmar.2003.03.003

Garcia-Granero, A., Llopis, O., Fernández-Mesa, A., & Alegre, J. (2015). Unraveling the link between managerial risk-taking and innovation: The mediating role of a risk-taking climate. *Journal of Business Research*, *68*(5), 1094-1104. https://doi.org/10.1016/j.jbusres.2014.10.012

Gianzina, O. (2022). Review of Organizational Ambidexterity Research. SAGE Open. 12. 215824402210821. 10.1177/21582440221082127

Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, *47*(2), 209–226. https://doi.org/10.5465/20159573

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, *17*(S2), 109–122. https://doi.org/10.1002/smj.4250171110

Groen, A. J. (2005). Knowledge intensive entrepreneurship in networks: towards a multi-level/multi dimensional approach. *Journal of Enterprising Culture*, *13*(01), 69-88. https://doi.org/10.1142/S0218495805000069

Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). Effects of innovation types on firm performance. *International Journal of production economics*, *133*(2), 662-676. https://doi.org/10.1016/j.ijpe.2011.05.014

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.

Hannevig, H. (2025). The influence of CEO succession on ambidextrous strategies in family versus nonfamily SMEs: A knowledge- and resource-based view. BRQ Business Research Quarterly, 0(0). https://doi.org/10.1177/23409444251343099

Harmancioglu, N., Sääksjärvi, M., & Hultink, E. J. (2020). Cannibalize and combine? The impact of ambidextrous innovation on organizational outcomes under market competition. *Industrial Marketing Management*, *85*, 44–57. https://doi.org/10.1016/j.indmarman.2019.07.005

Herhausen, D. (2016). Unfolding the ambidextrous effects of proactive and responsive market orientation. *Journal of Business Research*, *69*(7), 2585-2593. 10.1016/j.jbusres.2015.10.139

Hill, S. A., & Birkinshaw, J. (2012). Ambidexterity and survival in corporate venture units. *Journal of Management*, *40*(7), 1899–1931. https://doi.org/10.1177/0149206312445925

Hu, M.,, Dou, J., & You, X. (2023). Is organizational ambidexterity always beneficial to family-managed SMEs? Evidence from China. *Journal of Business Research. 167*. https://doi.org/10.1016/j.jbusres.2023.114184

Huang, J., & Zhou, X. (2021). Digital transformation, market orientation, and innovation performance: Evidence from China. Technovation, 107, 102288. https://doi.org/10.1016/j.technovation.2021.102288

Hult, G. T. M., Ketchen, D. J., & Slater, S. F. (2005). Market orientation and performance: an integration of disparate approaches. *Strategic Management Journal*, *26*(12), 1173-1181. https://doi.org/10.1002/smj.494

Jaeger, N. A., Zacharias, N. A., & Brettel, M. (2016). Nonlinear and dynamic effects of responsive and proactive market orientation: A longitudinal investigation. *International Journal of Research in Marketing*, *33*(4), 767-779. https://doi.org/10.1016/j.ijresmar.2016.01.006

Jaworski, B. J., & Kohli, A. K. (1996). Market orientation: review, refinement, and roadmap. *Journal of Market-Focused Management*, *1*(2), 119-135. https://doi.org/10.1007/BF00128686

Kirca, H., Jayachandran, S., & Bearden, W. O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. Journal of Marketing, 69(2), 24–41. https://doi.org/10.1509/jmkg.69.2.24.60761

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford publications.

Kumar, V., Jones, E., Venkatesan, R., & Leone, R. P. (2011). Is market orientation a source of sustainable competitive advantage or simply the cost of competing? Journal of Marketing, 75(1), 16–30. https://doi.org/10.1509/jm.75.1.16

Levitt, T. (1960). Marketing Myopia//Harvard Business Rewiew. *July August*.

Li, T., & Calantone, R. J. (1998). The impact of market knowledge competence on new product advantage: conceptualization and empirical examination. *The Journal of Marketing, 62*, 13-29. https://doi.org/10.1177/002224299806200402

Liao, S. H., Hsu, C. C., & Ke, Y. C. (2019). Market orientation, knowledge integration, and product innovation. Journal of Business Research, 100, 204–217. https://doi.org/10.1016/j.jbusres.2019.03.021

Link, A. N., & Scott, J. T. (2003). U.S. science parks: the diffusion of an innovation and its effects on the academic missions of universities. *International Journal of Industrial Organization, 21*(9), 1323–1356. https://doi.org/10.1016/S0167-7187(03)00085-7

Lukas, B. A., & Ferrell, O. C. (2000). The effect of market orientation on product innovation. *Journal of the Academy of* Marketing Science, 28(2), 239-247. https://doi.org/10.1177/0092070300282005

March, J. G. (1991). Exploration and exploitation in organizational learning. Organization Science, 2(1), 71–87. https://doi.org/10.1287/orsc.2.1.71

Mathias, B.D. (2014). Exploration, Exploitation, Ambidexterity, and Firm Performance: A Meta-Analysis, Exploration and Exploitation in Early Stage Ventures and SMEs (Technology, Innovation, Entrepreneurship and Competitive Strategy, Vol. 14), Emerald Group Publishing Limited, Leeds, 289-317. https://doi.org/10.1108/S1479-067X20140000014009

Mom, T. J. M., Van Den Bosch, F. A. J., & Volberda, H. W. (2007). Investigating managers' exploration and exploitation activities: The influence of top-down, bottom-up, and horizontal knowledge inflows. Journal of Management Studies, 44(6), 910–931. https://doi.org/10.1111/j.1467-6486.2007.00697.x

Najafi-Tavani, S., Sharifi, H., & Najafi-Tavani, Z. (2016). Market orientation, marketing capability, and new product performance: The moderating role of absorptive capacity. Journal of Business Research, 69(11), 5059–5064. https://doi.org/10.1016/j.jbusres.2016.04.080

Narver, J. C., & Slater, S. F. (1990). The effect of a market orientation on business profitability. *Journal of Marketing*, *54*(4), 20–35. https://doi.org/10.2307/1251757

Narver, J. C., Slater, S. F., & MacLachlan, D. L. (2004). Responsive and proactive market orientation and new-product success. *Journal of Product Innovation Management*, *21*(5), 334-347. https://doi.org/10.1111/j.0737-6782.2004.00086.x

Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press.

Nummela, N., Puumalainen, K., & Saarenketo, S. (2005). International growth orientation of knowledge-intensive SMEs. *Journal of International Entrepreneurship*, *3*(1), 5-18. https://doi.org/10.1007/s10843-005-0350-z

O'Reilly, C. A., & Tushman, M. L. (2004). The ambidextrous organization. *Harvard Business Review*. https://hbr.org/2004/04/the-ambidextrous-organization

O'Reilly, C. A., & Tushman, M. L. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, *28*, 185–206. https://doi.org/10.1016/j.riob.2008.06.002

O'Reilly, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. Academy of Management Perspectives, 27(4), 324–338. https://doi.org/10.5465/amp.2013.0025

Ozkaya, H. E., Droge, C., Hult, G. T. M., Calantone, R., & Ozkaya, E. (2015). Market orientation, knowledge competence, and innovation. *International Journal of Research in Marketing*, *32*(3), 309-318. https://ssrn.com/abstract=2507956

Pertusa-Ortega, E. M., Zaragoza-Sáez, P., & Claver-Cortés, E. (2018). A joint analysis of determinants and performance consequences of organizational ambidexterity. BRQ Business Research Quarterly, 21(2), 84–98. https://doi.org/10.1016/j.brq.2018.03.001

Phan, P. H., Siegel, D. S., & Wright, M. (2005). Science parks and incubators: observations, synthesis and future research. *Journal of Business Venturing*, *20*(2), 165–182. https://doi.org/10.1016/j.jbusvent.2003.12.001

Posch, A., &Garaus, C. (2020). Boon or curse? A contingent view on the relationship between strategic planning and organizational ambidexterity. *Long Range Planning, 53*(6). https://doi.org/10.1016/j.lrp.2019.03.004

Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. Organization Science, 20(4), 685–695. https://doi.org/10.1287/orsc.1090.0428

Rao, A., & Mattarelli, E. (2023). Reacting to the ambidexterity mandate: How experienced tensions and cognitive dissonance influence innovative behaviors in a global organization. *Strategic Organization*, *22*(2), 297-329. https://doi.org/10.1177/14761270231193386

Ritala, P., Olander, H., Michailova, S., & Husted, K. (2015). Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study. *Technovation, 35*, 22-31. https://doi.org/10.1016/j.technovation.2014.07.011

Rokkan, A. I. (2023). Market orientation (once again): Challenges and a suggested solution. *AMS review*, *13*(1), 71-91. 10.1007/s13162-022-00235-1

Rosenkopf, L., & McGrath, P. (2011). Advancing the conceptualization and operationalization of novelty in organizational research. *Organization Science*, 22(5), 1297–1311. https://doi.org/10.1287/orsc.1100.0637

Roxas, B., Chadee, D., & Wu, T. (2012). Export knowledge and performance of small and medium-sized enterprises in the Philippines: the moderating effects of relational capital. In: Marinov, M.A., Marinova, S.T. (eds) Impacts of Emerging Economies and Firms on International Business. Palgrave Macmillan, London. https://doi.org/10.1057/9781137032546_12

Schulze, A., Townsend, J. D., & Talay, M. B. (2022). Completing the market orientation matrix: The impact of proactive competitor orientation on innovation and firm performance. *Industrial Marketing Management*, *103*, 198-214. 10.1016/j.indmarman.2022.03.013

Simsek, Z. (2009). Organizational ambidexterity: Towards a multilevel understanding. *Journal of Management Studies*, *46*(4), 597–624. https://doi.org/10.1111/j.1467-6486.2009.00828.x

Slater, S. F., & Narver, J. C. (1998). Customer-led and market-oriented: let's not confuse the two. *Strategic management journal*, *19*(10), 1001-1006. 10.1002/(SICI)1097-0266(199810)19:10<1001::AID-SMJ996>3.0.CO;2-4

Song, M., Wang, T., & Parry, M. E. (2010). Do market information processes improve new venture performance?, *Journal of Business Venturing, 25*(6), 556-568. https://doi.org/10.1016/j.jbusvent.2009.03.003

Tardieu, L. (2003). Knowledge and the maintenance of entrepreneurial capability. *Center for Economic Analysis, Université d 'Aix-Marseille.*

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Venugopal, A., Krishnan, T.N., Upadhyayula, R, S., & Kumar, M. (2020). Finding the microfoundations of organizational ambidexterity - Demystifying the role of top management behavioural integration, *Journal of Business Research, 106*. https://doi.org/10.1016/j.jbusres.2019.08.049

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. https://doi.org/10.1108/14601060410565056

Wang, C., Jiao, H., & Song, J. (2023). Wear glasses for supervisors to discover the beauty of subordinates: Supervisor developmental feedback and organizational ambidexterity. *Journal of Business Research, 158*, 113650. https://doi.org/10.1016/j.jbusres.2023.113650

Wang, C.L. and Ahmed, P.K. (2007). Dynamic Capabilities: A Review and Research Agenda. International *Journal of Management Reviews, 9*, 31-51. https://doi.org/10.1111/j.1468-2370.2007.00201.x

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171–180. http://www.jstor.org/stable/2486175

Wu, H., Chen, J., & Jiao, H. (2015). Dynamic capabilities as a mediator linking international diversification and innovation performance of firms in an emerging economy. *Journal of Business Research, 69*(8), 2678-2686. https://doi.org/10.1016/j.jbusres.2015.11.003

Zahra, S. A., & George, G. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review, 27*(2), 185–203. https://doi.org/10.5465/amr.2002.6587995

Zahra, S., Abdel-Gawad, S., Svejenova, S., & Sapienza, H. (2011). Entrepreneurial capability: opportunity pursuit and game changing. Paper presented at the DRUID Conference On Innovation, strategy, and structure-Organizations, Institutions, Systems and Regions at Copenhagen Business School, Denmark, June.

Zhou, K. Z., & Li, C. B. (2010). How strategic orientations influence the building of dynamic capability in emerging economies. *Journal of Business Research, 63*(3), 224–231. http://dx.doi.org/10.1016/j.jbusres.2009.03.003

Zhou, K. Z., Gao, G. Y., Yang, Z., & Zhou, N. (2005). Developing strategic orientation in China: antecedents and consequences of market and innovation orientations. *Journal of Business Research, 58*(8), 1049-1058. https://doi.org/10.1016/j.jbusres.2004.02.003

Zhu, D. H., Zhao, Z., & Semadeni, M. (2024). How and Why top executives influence innovation: A review of mechanisms and a research agenda. *Journal of Management, 51*(6), 2320-2354. https://doi.org/10.1177/01492063241284962

Zimmermann, A., Raisch, S., & Birkinshaw, J. (2015). How is ambidexterity initiated? The emergent charter definition process. Organization Science, 26(4), 1119–1139. https://doi.org/10.1287/orsc.2015.0971