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Unlocking Business Success: How Networking and Branding Capabilities Drive Performance Through Product Innovativeness

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ABSTRACT

In today's fast-paced market, developing innovative products with significant advantages over existing alternatives is essential for a strong market presence. This study, based on the resource-based and dynamic capability view, examines how market and technological innovativeness contribute to differentiation advantage and improved business performance. It also investigates the roles of complementary capabilities in enhancing these relationships. Primary data were collected through an on-site questionnaire survey of Iranian research and development-intensive manufacturing firms. Using 125 valid responses from senior managers, partial least squares structural equation modeling tested the proposed model. Findings indicate that networking and branding capabilities enhance technological and market innovativeness, respectively, thereby strengthening differentiation advantage. Moreover, differentiation advantage is a crucial mechanism for translating innovativeness into improved business performance. These results provide theoretical insights and practical guidance for developing effective product innovativeness strategies to augment international competitiveness and performance.

1 | Introduction

In today's hyper-competitive global market, firms must innovate continuously to maintain a competitive edge, particularly in international markets (Jacobs and Swoboda 2025; Ma et al. 2025; Saci and Ahmad 2024). The literature inadequately addresses how product innovativeness leads to sustained competitive advantage, making it crucial for business practitioners to understand the contribution of product innovativeness strategies to international competitiveness and performance outcomes (Mu et al. 2017; Qu and Mardani 2023; Rana et al. 2024; van der Duin et al. 2024; Wu et al. 2024; Zhang et al. 2023). The current dynamic business environment, characterized by technological advancements and fluctuating consumer expectations, demands a more nuanced understanding of converting product innovativeness into tangible performance outcomes (Bogetoft et al. 2024; Wei et al. 2025). Product innovativeness alone does not automatically enhance performance without effective deployment mechanisms and complementary capabilities (Itani et al. 2024; Li et al. 2025; Sheng et al. 2013; Wilden et al. 2016).

As a matter of fact, McKenzie et al. (2011) argues that the lack of an integrated approach to leveraging these capabilities leaves firms vulnerable, often underperforming despite high innovation levels. Existing studies mainly focus on direct associations between product innovativeness and performance, neglecting the moderating effects of organizational capabilities, leading to a fragmented understanding of business success mechanisms (Groza et al. 2021; Morgan et al. 2009b; Qalati et al. 2024; Tsai and Yang 2013). McKenzie et al. (2011) criticizes this approach

Summary

- These capabilities complement both technological and market innovativeness enhancing differentiation advantage.
- This advantage acts as a critical mechanism transforming innovativeness into improved business performance.
- Based on a survey of 125 manufacturing firms, the study provides empirical evidence of the significant role of networking and branding in leveraging product innovativeness.
- The findings contribute to dynamic capability and resource-based view theories by highlighting the importance of deployment mechanisms and complementary capabilities.
- The study offers actionable insights for firms to develop and implement effective product innovativeness strategies and so achieve international competitiveness and performance.

for undermining the complexity of strategic resource deployment in turbulent environments. While anecdotal evidence suggests a positive relationship between product innovativeness and business performance, higher innovativeness does not automatically lead to better performance without complementary organizational capabilities and deployment mechanisms, warranting empirical investigation (Fakhreddin and Foroudi 2022; Itani et al. 2024). This study contributes to resource-based and dynamic capability theories by offering a model that explains the interplay between strategic resources and complementary capabilities. McKenzie et al. (2011) highlights the negative consequences of neglecting this integration, reinforcing the importance of this research. Emphasizing these relationships underscores the strategic necessity of capability integration for achieving and sustaining superior performance.

Product innovativeness, divided into market and technological innovativeness, indicates the newness and superiority of products (Cillo et al. 2010; Tao and Ucbasaran 2024). Market innovativeness enhances customer benefits through market insights, while technological innovativeness leverages advanced technologies (Ding and Ding 2022; McNally et al. 2010). Business performance measures the achievement of objectives like market share, sales, profits, and return on investment (Qalati et al. 2024; Sheng et al. 2013; Tsai and Yang 2013). According to the resource-based view (RBV), product innovativeness is a complex, inimitable resource leading to competitive advantage and improved performance (Ahmed et al. 2024; Menguc and Auh 2006; Tsai and Yang 2013). However, literature lacks studies on the contingencies and mechanisms through which innovativeness enhances performance, often focusing only on direct associations (Ding and Ding 2022; Qalati et al. 2024; Sheng et al. 2013; Story et al. 2015; Tsai and Yang 2013).

This study addresses these gaps with three objectives. First, it empirically examines how technological and market innovativeness contribute to differentiation advantage, often overlooked in translating innovativeness into performance (Ding and Ding 2022; Razzaque et al. 2024; Sheng et al. 2013). Second, it explores the moderating roles of networking and branding capabilities on the impact of innovativeness on differentiation advantage, addressing the lack of empirical evidence on complementary capabilities (Burton and Dickinger 2025; Itani et al. 2024). Third, it validates a comprehensive model explaining the interaction between strategic resources and dynamic capabilities in achieving performance outcomes, filling a gap in integrated models in current research (Groza et al. 2021; Kuckertz et al. 2024; Parida et al. 2017; Wilden et al. 2016). This framework provides a holistic understanding of capability integration and guides future research.

Product innovativeness (e.g., Ding and Ding 2022; Sheng et al. 2013) and organizational capabilities such as networking and branding capabilities (e.g., Garousi Mokhtarzadeh et al. 2020; Ranjan 2024) are each linked to superior performance whereas their combined effects may deliver even greater benefits, as suggested by the dynamic capability view (DCV) (Itani et al. 2024; Seepana et al. 2021). The DCV, extending the RBV (Fakhreddin et al. 2021; Hernández-Linares et al. 2024; Joussen et al. 2024; Morgan et al. 2009b), posits that resources alone are insufficient in dynamic and turbulent markets; instead, complementary dynamic capabilities are required to reconfigure resources, adapt to market conditions, and achieve sustained competitive advantage (Barreto 2010; Burton and Dickinger 2025; Wilden et al. 2019; Fakhreddin et al. 2021). Furthermore, the ability to deploy and reconfigure resources through organizational capabilities is often more critical than the resources themselves in achieving performance outcomes (Hernández-Linares et al. 2024; Itani et al. 2024; Murray et al. 2011; Seepana et al. 2021). Addressing these gaps, this research explores the role of networking and branding capabilities as complementary enablers that enhance the effectiveness of product innovativeness, enabling firms to achieve differentiation advantage and improve business performance.

Furthermore, previous studies on the relationship between product innovativeness and business performance have mainly focused on the degree of innovativeness (e.g., Caseiro and Coelho 2019; Ferraresi et al. 2012; Razzaque et al. 2024; Tsai and Yang 2013), with limited research on the type of innovativeness (Sethi et al. 2012). It remains unclear if the performance implications of technological and market innovativeness strategies differ (Ding and Ding 2022). Thus, empirical examination of these impacts is essential for a clearer understanding of their performance outcomes. Additionally, most research has focused on developed markets (e.g., Cillo et al. 2018; Groza et al. 2021; Hatak et al. 2016; Kuckertz et al. 2024), while industrial firms in emerging markets face turbulent conditions and complex challenges in international markets. Consequently, there is a need for more empirical research on the effects of product innovativeness strategies on the competitiveness and performance of firms in these markets (e.g., Ding and Ding 2022; Story et al. 2015).

Overall, this study results in three important contributions. First, this study reveals that differentiation advantage, defined as the extent to which firms benefit from higher levels of product quality, product uniqueness, and brand awareness (Andersén 2021; Murray et al. 2011), is a significant deployment mechanism. This finding addresses a critical gap, as previous research has focused on the

direct associations between innovativeness and performance but neglected effective deployment mechanisms (Ding and Ding 2022; Sheng et al. 2013; Story et al. 2015; Razzaque et al. 2024; Tsai and Yang 2013). This study extends RBV by addressing a key limitation—its static assumption that firms merely possess resources for competitive advantage (Fakhreddin and Foroudi 2022; Ketchen et al. 2007; Pooja et al. 2024). Our findings demonstrate that differentiation advantage serves as a deployment mechanism, actively transforming product innovativeness into business performance rather than merely assuming a direct resource-performance link (Barney et al. 2021). This shifts the RBV lens from resource possession to resource orchestration.

Second, this study empirically demonstrates that networking and branding capabilities effectively complement technological and market innovativeness, respectively, leading to higher levels of differentiation advantage. This contribution is significant, as it provides empirical support for the complementarity between strategic resources and dynamic capabilities, addressing a research gap that has been underexplored (Hernández-Linares et al. 2024; Itani et al. 2024; Seepana et al. 2021). Third, the research contributes to the DCV, emphasizing that in turbulent market environments, complementary organizational capabilities are essential for reconfiguring and deploying resources to achieve competitive advantage and improved performance (Burton and Dickinger 2025; Fakhreddin et al. 2021; Morgan et al. 2009b; Seepana et al. 2021; Wilden et al. 2016; Wilden et al. 2019).

The structure of this paper is as follows: first, we review the relevant literature and theoretical foundation underlying our research, followed by the formulation of the research hypotheses. Next, we describe the research context, the data collection methods, and the process of validating our measurements. Then, we present the results and discuss the key findings. Lastly, we outline the theoretical and practical implications of our study and offer suggestions for future research.

2 | Theoretical Framework and Hypothesis Development

The current research is grounded on the DCV, which is an extension of the RBV of the firm (Fakhreddin et al. 2021; Hernández-Linares et al. 2024; Morgan et al. 2009b). According to the RBV, sustained competitive advantage and increased performance outcomes result from owning heterogeneous and immobile resources, such as assets, organizational processes, skills, and intelligence, that are simultaneously valuable, rare, inimitable, and non-substitutable (Barney 1991; Schweiger et al. 2019). These strategic resources empower managers to implement value-adding strategies, and they are fundamental to driving increased performance outcomes (Fakhreddin et al. 2021; Morgan et al. 2009b). Prior studies in the literature have relied widely upon the RBV to examine relationships between firm resources and performance (e.g., Morgan et al. 2009b; Seepana et al. 2021). Product innovativeness is conceptualized as a complex and inimitable resource that can generate competitive advantage and enhanced performance (Menguc and Auh 2006; Tsai and Yang 2013). Accordingly, the current study relies on the RBV in order to examine the associations among technological and market innovativeness and business performance. Though the RBV asserts that possessing idiosyncratic resources, which are valuable and inimitable, results in superior performance (Barney 1991; Barreto 2010), this strategic view has been criticized for not taking account of the mechanisms through which the resources contribute to superior performance (Morgan et al. 2009b). Arguably, as mentioned earlier, the current representation of the RBV indicates that resources have only potential value; actualizing this value needs consideration of competitive-advantage elements that act as deployment mechanisms (Fakhreddin and Foroudi 2022; Ketchen et al. 2007). That is to say, the idiosyncratic resources empower firms to execute strategic actions more effectively, and this utilization of resources brings about a competitive advantage that, in turn, enhances performance (Murray et al. 2011). Therefore, the present research contributes to the RBV by going beyond the simple resource-performance relationship; that is, it takes account of the differentiation advantage as a competitive-advantage element that transforms the impacts of technological and market innovativeness into enhanced business performance.

Moreover, the RBV is considered static in nature; however, this view does not take account of environmental dynamisms and does not adequately explain how resources are developed and deployed to gain competitive advantage (Barreto 2010; Morgan et al. 2009b). Accordingly, to address these limitations, the DCV argues that in current dynamic environments, dynamic capabilities play a key role in reconfiguring and integrating resources in a way that matches market conditions and brings about sustained competitive advantage (Eisenhardt et al. 2010; Wilden et al. 2016). Dynamic capabilities are organizational processes through which resources are synthesized and reconfigured, and they are utilized to produce an advantageous configuration of resources (Barreto 2010; Fakhreddin et al. 2021). These capabilities involve complex and integrated patterns of skills and knowledge that gradually turn into organizational routines and are critical for driving competitive advantage and enhanced performance (Eisenhardt and Martin 2000; Morgan et al. 2009b). Therefore, the DCV asserts that though owning valuable and unique resources is important, it is not adequate to gain competitive advantage, particularly in the current turbulent environment, and firms need to possess complementary capabilities to be able to deploy their resources under the dynamics of the market (Fakhreddin et al. 2021; Wilden et al. 2019). On that account, this study extends the DCV by illustrating how networking and branding capabilities act as complementary dynamic capabilities rather than standalone enablers. Prior research has emphasized the need for dynamic capabilities to facilitate resource reconfiguration (Wilden et al. 2019), yet little empirical evidence demonstrates how specific capabilities interact with strategic resources. Our findings show that networking capability strengthens technological innovativeness, while branding capability enhances market innovativeness—thus, firms must develop capability-resource alignment strategies for sustained differentiation advantage.

Arguably, the concept of complementarity between strategic resources and dynamic capabilities, though often discussed, remains underexplored in terms of empirical evidence, warranting further investigation; in fact, in the current turbulent environment, dynamic capabilities are indispensable for maximizing the value of strategic assets; thus, establishing empirical

support for the complementarity between specific strategic resources and dynamic capabilities would significantly advance the literature in this domain (Hernández-Linares et al. 2024; Itani et al. 2024). Therefore, building on these theoretical perspectives, we further provide details on the research concepts and develop several hypotheses.

2.1 | Product Innovativeness and Differentiation Advantage

Innovative new products mainly incorporate technological advances and/or market benefits in comparison to existing or competitive products. Product innovativeness has two dimensions, namely, technological innovativeness and market innovativeness (Ding and Ding 2022). While technological innovativeness refers to the extent to which new products are developed based on advanced and state-of-the-art technologies, market innovativeness reflects increased novelty and uniqueness resulting in new features and customer benefits (Sethi et al. 2012). Prior studies indicate that product innovativeness can bring about greater value and potential differentiation, thus resulting in competitive advantage and better performance (e.g., Song et al. 2011; Song and Di Benedetto 2008). Innovative new products incorporating the latest technologies offer superior quality and customer value, as these products are quite new to the industry and bring about considerable improvements to the existing products (Sethi et al. 2012; Zhou et al. 2005). Therefore, firms launching these ground-breaking new products will benefit from an innovative edge, which will enable them to defeat rivals and stand out in the crowd (Ding and Ding 2022). Similarly, market innovativeness leads to greater differentiation from competitors by responding to formerly unsatisfied needs or by offering totally new benefits; also, in some situations, it is implemented through establishing new categories or new market segments (McNally et al. 2010).

Accordingly, market innovativeness enables firms to construct first-mover barriers, inhibiting rivals from entering the market, and the newly developed products empower firms to take the position of a market pioneer, resulting in differentiation and competitive advantage (Ding and Ding 2022). Therefore, both technological and market innovativeness provide distinctive features and greater benefits for customers in comparison to existing products in the market, and these characteristics put firms in a better position compared to rivals, bringing about differentiation advantage. So, we propose as follows:

Hypothesis 1. *Technological innovativeness is positively associated with differentiation advantage.*

Hypothesis 2. *Market innovativeness is positively associated with differentiation advantage.*

2.2 | The Moderating Effects of Networking Capability

Developing novel, innovative products and delivering them to new markets is a complex process requiring a wide range of competencies and capabilities; thus, firms are increasingly engaging in collaborative networks to obtain the required resources, develop competencies, share research and development costs and risks, and enhance their innovation capabilities (Faems et al. 2005; Garousi Mokhtarzadeh et al. 2020). Innovation tends to be the outcome of collaborative work between partners pooling their resources (e.g., technologies, knowledge, and skills) rather than the results of isolated firms exploiting their own resources (Azadegan et al. 2013). That is, the locus of innovation is situated within the network of firms' business relationships through which they actively enhance their partnership experiences, utilize their absorptive capacity, and mobilize network resources to augment product innovation (Mitrega et al. 2017). Accordingly, taking part in collaborative networks and processing inbound and outbound knowledge flows is complementary to firms' internal innovation activities, as this collaboration results in co-learning and in an upgrade of the firms' innovation competencies (Ford et al. 2018; Tsai 2001). Participants in the business network, such as small and large firms, universities, and research institutions, actively engage in collaborative activities and exchange resources; thus, networking capability empowers firms to focus on their core business processes while leveraging other firms' resources and competencies to augment innovation capabilities (Garousi Mokhtarzadeh et al. 2020; Parida et al. 2009). That is, building mutually beneficial relationships with strategic partners results in complementary knowledge for the firm, enabling it to utilize advanced technologies and develop new products that satisfy customers' needs (Parida et al. 2017). As companies rarely have all the resources necessary for innovation practices, engaging in business networks helps them obtain technical and commercial competencies resulting in higher levels of technological and market innovativeness (Corsaro et al. 2012; Sarwar et al. 2021). Therefore, we believe that there is complementarity between firms' networking capability and technological and market innovativeness practices, and so we propose the following hypotheses:

Hypothesis 3. *Networking capability strengthens the association between technological innovativeness and differentiation advantage.*

Hypothesis 4. *Networking capability strengthens the association between market innovativeness and differentiation advantage.*

2.3 | The Moderating Effects of Branding Capability

Building strong brands empowers firms to construct barriers to imitation and competition, thus generating competitive advantage (Morgan 2012). Focusing on developing a brand while neglecting innovativeness could be detrimental to achieving competitive advantage and superior performance; in fact, integrating branding with innovation is the cornerstone of establishing strong brands and accomplishing superlative performance outcomes (Beverland et al. 2010). Branding capability reflects the firm's ability to build up salient and meaningful representations of the firm as a dependable provider of innovation to customers and other stakeholders. This capability enables the firm to represent itself as a competent

and trustworthy innovator, and this innovator image reduces customers' risks and elevates their confidence; therefore, branding capability is a crucial element contributing to innovativeness (Tsai 2015).

Branding capability serves as a critical contributory element facilitating the transformation of strategic resources into competitive advantage and superior performance (Bodlaj and Čater 2022; Ranjan 2024); hence, branding capability has been the subject of considerable research interest in recent years. Nevertheless, existing studies on branding capability frequently investigate its influence on brand performance (e.g., Merrilees et al. 2011; Odoom et al. 2017) whereas relatively less attention has been given to its impacts on firm performance (Ranjan 2024). Moreover, recent investigations on the RBV and DCV emphasize the significance of firms' capabilities, such as branding capability, in transforming strategic resources into higher performance benefits (e.g., Bodlaj and Čater 2022; Ranjan and Nayak 2024); however, the current understanding of how branding capability assists firms in converting strategic assets into escalated performance is limited (Ranjan 2024). Thus, empirical examination of the complementarity among branding capability and innovativeness can significantly add to the literature, as it casts light on the role of branding capability in converting innovativeness into improved performance.

Regarding this complementarity, when innovativeness is combined with branding capability, the firm is able to evaluate and assimilate new ideas more effectively, and it also develops additional skills and knowledge to generate new ideas more efficiently (Lee et al. 2016).

More specifically, when an innovative firm develops branding capability, not only is it able to pursue promising market opportunities that result in brand growth and expansion, but also, it is capable of developing innovative products that are aligned and consistent with the brand's identity and core values (Beverland et al. 2010; Lee et al. 2016). That is to say, branding capability functions as a guiding light that provides a greater sense of focus and sheds light on the direction through which the firm develops innovative market offerings to achieve competitive advantage and better performance (Lee et al. 2016; Ranjan 2024).

Market innovativeness, in particular, incorporates introduction of novel offerings based on market insights and, hence, branding capability communicates and amplifies the value of these offerings, making them more appealing and trustworthy to consumers (Odoom and Mensah 2019; Tsai 2015). As a matter of fact, branding acts as a complementary competency reducing consumer uncertainty, signaling quality and reliability, and accelerating market acceptance of the new offerings (Odoom and Mensah 2019; Ranjan 2024). Thus, branding capability ensures that market innovativeness is effectively communicated and resonates with target audiences, resulting in differentiation advantage. However, while prior studies have acknowledged the importance of branding capability in enhancing firm performance, there is limited empirical research on how branding capability moderates the relationship between various product innovativeness strategies and differentiation advantage. Specifically, existing research has not adequately explored the synergistic effects of branding capability with technological and market innovativeness, leaving a significant gap in our understanding of how firms can maximize the value of their innovative efforts (e.g., Itani et al. 2024; Seepana et al. 2021). To fill this gap, our research investigates the moderating role of branding capability, providing new empirical insights into how it enhances the effectiveness of product innovativeness in creating differentiation advantage. This aligns with our second research objective, which aims to advance the understanding of dynamic capabilities in strategic resource deployment. So, we hypothesize as follows:

Hypothesis 5. *Branding capability strengthens the association between technological innovativeness and differentiation advantage.*

Hypothesis 6. *Branding capability strengthens the association between market innovativeness and differentiation advantage.*

2.4 | Differentiation Advantage and Business Performance

The extant literature indicates that resources and competencies like technological innovativeness and market innovativeness are fundamental to the firm's success in competing in both domestic and international markets, thus leading to the firm's competitive advantage (Leiblein and Reuer 2004; Tsai and Yang 2013). Differentiation advantage as a type of competitive advantage occurs when the firm is capable of creating something new that is both different and unique in comparison to competitors' offerings (Murray et al. 2011). Developing innovative new products that are unique and are of high quality not only results in a distinguished brand image but also enables the firm to meet customers' needs more effectively and to achieve higher levels of performance (Morgan, Feng, and Whitler 2018; Morgan, Kaleka, and Katsikeas 2004). In fact, differentiation advantage as a competitive advantage is one of the main drivers of performance rather than a synonym for performance; that is to say, offering superior values to customers and fulfilling their needs better than rivals do leads to differentiation advantage, which subsequently enhances firm performance (Tan and Sousa 2015). Furthermore, prior studies in the literature have revealed that differentiation advantage is among the main predictors of business performance; for instance, Bodlaj and Čater (2022) indicate that developing innovative products offering new technological or market-based features results in differentiation advantage that, in turn, enhances business performance. Similarly, Murray et al. (2011) reveal that new product development competencies bring about differentiation advantage that subsequently augments firm financial and strategic performance. On that account, we propose that there is a positive relationship between differentiation advantage and business performance. The hypothesized relationships can be seen in Figure 1.

Hypothesis 7. *Differentiation advantage is positively associated with business performance.*

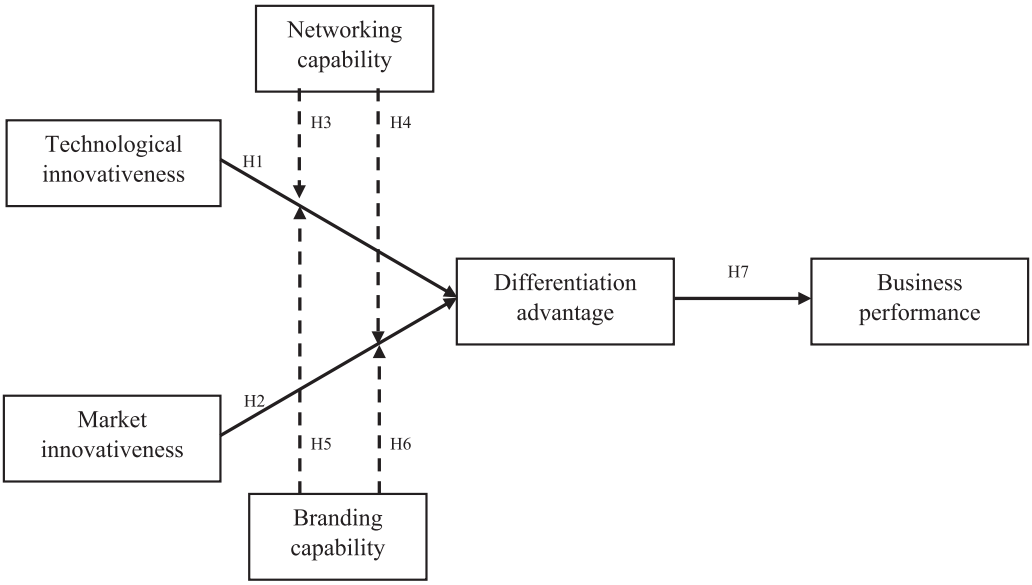

FIGURE 1 | Research conceptual model.

3 | Research Methodology

3.1 | Sample and Data Collection

In order to conduct this empirical research, an on-site questionnaire-based survey was carried out to collect primary data. Accordingly, to test our hypotheses, survey data were obtained from senior managers of medium-high and high R&D-intensive manufacturing industries operating in Iran (i.e., chemicals and chemical products, electrical equipment, machinery and industrial equipment, computer and electronic products). We chose the case of Iran for multiple reasons. First, Iranian manufacturing industries are endeavoring to obtain knowledge and technology, utilize best practices, and participate in interfirm cooperation in order to improve their innovation practices and, as a result, decrease the technological and knowledge gaps they have with their counterparts in developed economies (Najafi-Tavani et al. 2023). In fact, Iranian firms have a strong motivation to extend their innovation practices, gaining the capabilities necessary to compete in the global market (Aliasghar et al. 2019). Second, Iran, as a "Next Eleven" emerging country, has prioritized innovation across manufacturing sectors (Siahtiri et al. 2020) and has witnessed noticeable industrial production growth, even moving beyond 6.9% and reaching 10.1% (Fakhreddin and Foroudi 2022; Heirati and O'Cass 2016). Accordingly, the country is considered as a bridge between advanced and underdeveloped economies and, as such, findings from this region can be representative of what will happen in other economies moving behind the "Next Eleven" emerging regions (Heirati et al. 2017; Vesal et al. 2021). Third, Iran shares many similarities with other Middle Eastern countries regarding the culture and stage of development; hence, it is also representative of other Middle Eastern and North African emerging economies (Fakhreddin et al. 2021; Najafi-Tavani et al. 2018). On that account, we believe that a sample from Iranian medium-high and high R&D-intensive manufacturing industries that make an effort to succeed in domestic and international markets provides a suitable research context to examine the performance implications of product innovativeness strategies and leads to generalizable results.

In order to design the survey instrument, three procedures were carefully followed. First, all measurement scales in the survey instrument were adapted from pertinent studies in the extant literature. Second, the study drew up the English format of the questionnaire and then had it translated into Persian and back-translated into English by professional independent translators in order to ensure conceptual equivalence. Finally, to confirm the face validity and content validity of the measures, the present research had them examined by seven academic peers and manufacturing firm managers and received their confirmation.

Following the guidelines of Wright et al. (2005) for conducting research in emerging economies, this study employed a face-to-face survey method. The survey was conducted over a nine-month period, from May 2023 to February 2024. During this time, senior managers from Iranian manufacturing firms were visited in person, given the questionnaire, and asked to complete the survey on-site. More specifically, to form the initial sampling frame, 600 medium-high and high R&D-intensive manufacturing companies were randomly selected from the Iranian Ministry of Industry, Mine, and Trade database. Before approaching the companies in the sample, a check was conducted to see whether they were still in operation, had at least ten employees, and had introduced a new product to the market during the last three years. This initial process resulted in a total of 443 potential firms that could take part in the survey. In the next step, top managers of these companies, such as the CEO, vice president, marketing manager, or R&D manager, were contacted by phone and e-mail to see if they were willing to participate in this research. As a result, 152 firms confirmed their willingness, and we made an appointment with one of the key informants in each firm. However, 27 informants canceled their appointments owing to personal or business matters. Finally, the remaining 125 informants were visited in their firms and asked to complete the questionnaire; thus, this on-site data collection process

led to 125 usable questionnaires (an effective response rate of 20.83%). The sample size was determined based on the guidelines provided by Hair et al. (2017).

Since the structural model includes six exogenous constructs influencing an endogenous construct, and PLS-SEM was chosen as the analytical method, a minimum sample size of 106 was required. This threshold ensures a statistical power of 80% with a minimum R^2 value of 10% at a 10% significance level. Therefore, the current study's sample size of 125 respondents exceeds this recommendation, ensuring reliable and generalizable results. The age of the participating firms ranges between 3 and 60 years, and their size ranges from 10 to 500 employees. Table 1 shows the descriptive statistics of the sample in terms of the industry, firm size, and position of respondents. After the data collection process, seeing as non-response bias could be a concern regarding the survey, early and late participants were compared according to procedures recommended by Armstrong and Overton (1977). To do so, analysis of variance (ANOVA) was conducted, and the homogeneity of variance was tested among early and late respondents. The results revealed no significant difference between them in terms of the firm age, firm size, and number of new products introduced into the market; therefore, non-response bias was not a major concern.

3.2 | Common Method Bias

In single-informant surveys, common method variance (CMV) is likely to be a biasing threat that needs to be addressed. Accordingly, to ensure that CMV is not an issue in the current research, both procedural and statistical remedies, as recommended by Podsakoff et al. (2012), were taken into consideration. Concerning the procedural steps, this study first reviewed the pertinent literature and adapted measurement items from well-anchored scales, thus focusing on the coherence of the measures. Besides, as mentioned earlier, this study conducted a consultation process with academic peers and managers, refining the measures and enhancing their clarity and comprehensibility. Second, the study randomly positioned the questionnaire items and avoided their predetermined order to curb respondents' speculation about the relationships between the research constructs. Third, to secure the accuracy of the answers, respondents were assured that their responses would remain completely anonymous. Regarding the statistical steps, after conducting the survey, Harman's single factor test was applied to examine the amount of total variance explained by a single factor. The results of the unrotated factor solution revealed that the single factor accounted for only 31.9% of the total variance, which was below the threshold of 50%. Moreover, following the procedures recommended by Kock (2015), the present research conducted the full collinearity test of common method bias. The results revealed that all variance inflation factor (VIF) values were below the threshold of 3.3. Thus, based on the conducted analyses, CMV is not problematic in the current research.

TABLE 1 | Descriptive profile of participants.

Participants' profile	Percent
Industry	
Chemicals and chemical products	41.6%
Electrical equipment	14.4%
Machinery and industrial equipment	24.8%
Computer and electronic products	19.2%
Firms' number of employees	
10–50	36.8%
51–100	31.2%
101–250	23.2%
251–500	8.8%
Participants' positions	
CEO	13.6%
Vice president	16.8%
Marketing manager	42.4%
R&D manager	27.2%

3.3 | Measures

In order to measure the research constructs, pertinent measurement scales were adapted from previous studies in the literature, and standard Likert-type seven-point scales were utilized. To measure technological and market innovativeness, two four-item scales were adapted from Ding and Ding (2022) and Bao et al. (2012), focusing on technological advances and new market-relevant features of newly developed products. To measure networking capability, a six-item scale was adapted from Mu and Benedetto (2012) to assess the ability of a firm to find, manage, and leverage network ties. Similarly, to measure branding capability, a six-item scale was adapted from Morgan et al. (2009a), focusing on how well a firm undertakes brand management activities. In order to measure differentiation advantage, a five-item scale was adapted from Andersén (2021) and Murray et al. (2011), focusing on product and branding advantages. Finally, to measure business performance, a five-item scale was adapted from Sheng et al. (2013) and Tsai and Yang (2013), evaluating a firm's sales growth, market share growth, profit growth, return on investment, and overall performance. The summary of the measurement scales and items is presented in Table 2.

3.4 | Analysis

The current research has utilized PLS-SEM to evaluate the measurement models and test the research hypotheses. This study is aimed at examining the influence of technological and market innovativeness on differentiation advantage, which subsequently impacts business performance, and it also analyzes the complementary moderating effects of networking and branding capabilities. Accordingly, PLS-SEM is appropriate for the analysis, as it is a variance-based structural equation modeling approach for examining complex relationships among research constructs, and it also helps avoid inadmissible solutions and factor indeterminacy (Guenther et al. 2023; Hair et al. 2024; Zhang et al. 2020). Moreover, PLS-SEM does not require strict assumptions, such as normality, and it is found to be more reliable when the sample size is

TABLE 2 | Measures.

Construct and source	Description	Standardized factor loading
Technological innovativeness (adapted from Ding and Ding 2022)	• Our new products incorporate state-of-the-art technology	0.755
	• Our new products involve major technological changes to existing products	0.810
	• The technology of our new products is quite new to our industry	0.793
	• The technology of our new products offers considerable improvements to that in existing products	0.858
Market innovativeness (adapted from Bao et al. 2012; Ding and Ding 2022)	• Customers perceive our new product features as unique	0.876
	• Our new products have introduced completely new features to the market	0.859
	• The benefits that our products offer are new to customers	0.872
	• Our products are brand new, never seen in the market before	0.833
Networking capability (adapted from Mu and Benedetto 2012)	• We search locally to find appropriate network partner	0.791
	• We search globally to identify proper network partners	0.835
	• If something seems to be going wrong in relationships with partners, we try to understand why	0.841
	• If the relationship with a partner is successful, we try to figure out what makes it work well	0.895
	• When the need arises, we can find partners to count on	0.837
	• We are able to receive the needed assistance from our partners in an accurate and timely manner	0.866
Branding capability (adapted from Morgan et al. 2009a)	• We regularly use customer insights to identify valuable brand positioning	0.860
	• We constantly establish desired brand associations in customers' minds	0.864
	• We maintain a positive brand image relative to competitors	0.850
	• We gain high levels of brand awareness in the market	0.920
	• We regularly track brand image among target customers	0.921
	• We regularly track brand awareness among target customers	0.918
Differentiation advantage (adapted from Andersén 2021; Murray et al. 2011)	Relative to major competitors, we have a competitive advantage in terms of	
	• Product quality	0.762
	• Product uniqueness	0.787
	• Brand awareness	0.863
	• Brand's mindshare	0.904
	• Brand personality	0.866
Business performance (adapted from Sheng et al. 2013; Tsai and Yang 2013)	Our firm's performance in comparison to major competitors over the past three years on (1 = far below the competitors, 7 = far above the competitors)	
	• Sales growth rate	0.866
	• Market share growth	0.901
	• The growth rate of profit	0.848
	• Return on investment	0.912
	• Overall performance	0.858

Note: All items, except the business performance indicators, use a Likert-type scale anchoring from 1 (strongly disagree) to 7 (strongly agree). Factor loading values are all significant at $p < 0.01$.

not considerably large, producing more robust results in comparison to alternatives (Dash and Paul 2021; Hair et al. 2017). Besides, PLS-SEM focuses on maximizing the prediction of the dependent constructs, providing better predictions and explanations with stronger statistical power (Dash and Paul 2021; Hair et al. 2017; Zhang et al. 2020).

Therefore, the statistical procedures applied in this study are suitable for achieving the research objectives. Furthermore, to ensure that the sample size in the current study is adequate and provides sufficient statistical power, the procedures recommended by Hair et al. (2017) have been followed. Accordingly, as the present research's structural model has the maximum number of six exogenous constructs directed at an endogenous construct, the sample size needs to exceed 106 to provide an R^2 value of 0.10 and a statistical power level of 80% at the significance level of 10% (Hair et al. 2017). Therefore, this study's sample size (125 firms) fulfils the requirements of PLS-SEM and secures robust and generalizable results.

4 | Results and Discussion

As the first step, measurement models were evaluated through conducting factor analysis. The results provide support for the initial factor structure, revealing that all item loadings are above the recommended threshold of 0.5 and statistically significant at the 0.01 level (see Table 2). In addition, to further ensure the convergent validity of the research constructs, AVE was taken into consideration. The AVEs for all research constructs exceed the acceptable threshold of 0.5, indicating sufficient convergent validity (Hair et al. 2017, 2019). Moreover, to validate the internal consistency reliability of the research constructs, analyses of Cronbach's alpha and composite reliability were taken into account. Table 3 displays the results of the factor analysis; all research constructs score above 0.7 concerning the aforementioned measures, and thus, they all benefit from acceptable internal consistency reliability (Hair et al. 2017, 2019).

To address issues of discriminant validity, the present research first followed the procedures recommended by Fornell and Larcker (1981), comparing the AVEs of the research constructs with the inter-construct correlations. Table 4 demonstrates the comparison and shows that the square roots of the AVEs are greater than the inter-construct correlations, thus indicating the discriminant validity of the research constructs. Additionally, to further ensure the discriminant validity of the research constructs, the heterotrait-monotrait ratios of correlations (i.e., HTMT values) were analyzed, as they are considered to be more reliable measures for diagnosing issues of discriminant validity (Henseler et al. 2015). As the results in Table 5 show, all HTMT values are below the threshold of 0.9, thus confirming the discriminant validity of the research constructs (Hair et al. 2017; Henseler et al. 2015).

After confirming the convergent validity, internal consistency reliability, and discriminant validity of the research constructs, the present study carried out statistical analyses to evaluate the structural model. First, assessment of the structural model's predictive capabilities was taken into consideration, and after ensuring that there are no collinearity issues, the coefficient of determination (R^2 values), f^2 effect size, predictive relevance Q^2,

TABLE 3 | Measurement analysis.

Construct	Mean	SD	Standardized factor loading	AVE	CR	CA
Technological innovativeness	5.94	0.82	0.75–0.85	0.64	0.88	0.81
Market innovativeness	5.42	1.10	0.83–0.87	0.74	0.91	0.88
Networking capability	5.81	1.00	0.79–0.89	0.71	0.93	0.92
Branding capability	5.82	1.09	0.85–0.92	0.79	0.95	0.94
Differentiation advantage	5.91	0.90	0.76–0.90	0.70	0.92	0.89
Business performance	5.98	0.82	0.84–0.91	0.77	0.94	0.92

Note: SD stands for standard deviation. AVE stands for average variance extracted. CR stands for composite reliability. CA stands for Cronbach's alpha.

TABLE 4 | Discriminant validity.

Variables	1	2	3	4	5	6
1- Technological innovativeness	0.805					
2- Market innovativeness	0.531**	0.860				
3- Networking capability	0.082	−0.024	0.845			
4- Branding capability	0.172*	0.257**	0.216**	0.890		
5- Differentiation advantage	0.617**	0.583**	0.095	0.132	0.838	
6- Business performance	0.585**	0.546**	0.182*	0.179*	0.665**	0.877

Note: The bold and italicized figures on the diagonal are square roots of the AVEs. Below-diagonal figures are correlations between the variables.
*$p < 0.10$.
**$p < 0.05$.

TABLE 5 | Heterotrait-monotrait ratio (HTMT).

Variables	1	2	3	4	5
1- Technological innovativeness					
2- Market innovativeness	0.627				
3- Networking capability	0.108	0.112			
4- Branding capability	0.189	0.282	0.210		
5- Differentiation advantage	0.711	0.653	0.098	0.145	
6- Business performance	0.673	0.600	0.183	0.187	0.727

TABLE 6 | Structural model evaluation.

Construct/structural path	VIF	f^2	R^2	Q^2	q^2
Technological innovativeness					
Technological innovativeness → Differentiation advantage	1.410	0.240			0.116
Market innovativeness					
Market innovativeness → Differentiation advantage	1.472	0.184			0.082
Networking capability					
Networking capability → Differentiation advantage	1.068	0.012			0.001
Branding Capability					
Branding capability → Differentiation advantage	1.131	0.005			0.002
Differentiation advantage			0.479	0.299	
Differentiation advantage → Business performance	1.000	0.792			0.103
Business performance			0.442	0.313	

Note: Final sample (N) = 125; VIF: Variance inflation factor; f^2: f^2 effect size; R^2: Coefficient of determination; Q^2: Predictive relevance/Stone-Geisser's Q^2 value (blindfolding procedure with omission distance of 7); q^2: q^2 effect size.

and q^2 effect size were analyzed. As revealed by the results of the analysis (see Table 6), the baseline structural model explains 47.9% of the variance of differentiation advantage and 44.2% of the variance of business performance, thus benefiting from sufficient in-sample predictive power and accuracy. Moreover, according to the results, Stone-Geisser's Q^2 values for both differentiation advantage and business performance are significantly above zero, thus indicating the structural model's out-of-sample predictive power and relevance (Hair et al. 2017, 2019).

After ensuring predictive accuracy and relevance of the structural model, the hypothesized relationships were analyzed; bootstrapping analysis with 5000 subsamples was performed. Table 7 presents the results of the hypotheses testing.

Concerning the relationship between technological innovativeness and differentiation advantage (H1) and between market innovativeness and differentiation advantage (H2), the results indicate that the effects of technological innovativeness ($\beta = 0.359$; $p < 0.01$) and market innovativeness ($\beta = 0.370$; $p < 0.01$) on differentiation advantage are positive and statistically significant, thus providing empirical support for H1 and H2. These findings demonstrate that the more a firm's new products offer technological advances and/or market benefits, the higher the level of the firm's differentiation advantage will be. That is to say, when companies launch new products incorporating state-of-the-art technologies and/or new market features, they offer considerably greater value to customers and, thus, they benefit from a distinguished position against rivals. Arguably, innovative new products not only alter market demands and accepted technologies but also provide the firm with an innovative edge, thus empowering it to defeat competitors and gain a differentiated position in the market. In this condition, the newly launched products seem superior in terms of quality and uniqueness, and the related brands outperform rivals in terms of awareness and mindshare. Besides, the results reveal that market innovativeness, in comparison to technological innovativeness, has a more profound influence on differentiation advantage; thus, keeping the core production technology at a reasonably new level but introducing considerably innovative market features and offering more customer benefits brings about higher levels of differentiation advantage.

Arguably, R&D intensive manufacturing firms in Iran, like in many emerging markets, face rapidly changing consumer preferences and market demands (Ghasempour Ganji and Kazemi 2024; Mitrega et al. 2017; Zaefarian et al. 2017). Market innovativeness, thus, enables the firms to align their offerings more closely with customer expectations, and this alignment is crucial in differentiating products in a market where utilized

TABLE 7 | Results of hypothesis testing.

Hypothesis/structural path		β	t	p	Result
H1	Technological innovativeness → Differentiation advantage	0.359	4.296	0.000	Supported
H2	Market innovativeness → Differentiation advantage	0.370	3.616	0.000	Supported
H3	Networking capability × Technological innovativeness → Differentiation advantage	0.191	1.884	0.060	Supported
H4	Networking capability × Market innovativeness → Differentiation advantage	0.001	0.012	0.990	Not supported
H5	Branding capability × Technological innovativeness → Differentiation advantage	−0.106	1.085	0.278	Not supported
H6	Branding capability × Market innovativeness → Differentiation advantage	0.228	2.246	0.025	Supported
H7	Differentiation advantage → Business performance	0.666	11.467	0.000	Supported

technologies might be similar across competitors. Moreover, in the context of Iran where firms may have limited access to cutting-edge technologies due to sanctions or resource constraints (Fakhreddin et al. 2021; Najafi-Tavani et al. 2023), technological innovativeness can be more easily replicated or adapted by competitors; therefore, market innovativeness fosters more sustainable differentiation through creating unique value propositions based on customer insights.

These findings advance the RBV by emphasizing the strategic role of innovativeness in creating value. Arguably, based on the results, leveraging advanced technologies and incorporating novel market benefits in new products are recognized as essentials of crafting distinctive value propositions and raising customers' willingness to pay for the newly developed products. Hence, technological and market innovativeness serve as strategic resources that shift competitive focus to value creation which is a core tenet of the RBV (Barney et al. 2021); in fact, strategy research must explain how managers can influence value creation so that their firms can succeed in outperforming competitors (Foss and Mazzelli 2025). Furthermore, the findings are in line with prior studies in the literature stating that product innovativeness is an important enabler of companies, allowing them to offer completely new benefits and respond to unsatisfied needs, resulting in competitive advantage and superior performance outcomes. Arguably, the results corroborate Ding and Ding's (2022) claim that market and technological innovativeness are significant predictors of enhanced performance outcomes. Zhang et al. (2023) also reveal that in aspirant markets and in the presence of dysfunctional competition, product innovativeness is significantly effective for enhancing manufacturing firm performance, and Sheng et al. (2013) and Tsai and Yang (2013) have indicated that innovativeness leads to augmented business performance outcomes.

Regarding the moderating effect of networking capability on the association among technological innovativeness and differentiation advantage (H3) and among market innovativeness and differentiation advantage (H4), the results show that while the complementary effect of networking capability and technological innovativeness on differentiation advantage is statistically significant ($\beta = 0.191$; $p < 0.10$), the complementary effect of networking capability and market innovativeness is not ($\beta = 0.001$; $p > 0.10$), thus providing empirical support only for H3. The absence of empirical evidence supporting the complementary relationship between networking capability and market innovativeness influencing differentiation advantage may be attributed to the research context. In R&D intensive manufacturing sectors, technological innovativeness often demands substantial resources, including access to advanced knowledge and specialized equipment, and Iranian high-tech firms operating under economic sanctions and resource constraints may heavily rely on external partnerships, through networking, to access technological resources (Mitrega et al. 2017; Zaefarian et al. 2017).

However, market innovativeness largely depends on internal routines and competencies such as market research and, thus, networking may offer limited value in enhancing these internally driven practices as they are more influenced by firm-specific understanding of local market dynamics rather than external partnerships. Besides, partnerships for market innovativeness may be hindered by concerns over sharing sensitive market information, limiting the effectiveness of networking in enhancing market innovativeness. In other words, developing new innovative products based on advanced technologies rather than new market features is a more sophisticated process requiring complementary resources and networking competencies; hence, participating in collaborative networks is an effective means of enabling companies to obtain the required resources and to develop new products incorporating state-of-the-art technology and offering high-tech benefits. Accordingly, taking part in mutually beneficial cooperation with other companies is a reciprocal process through which a firm is able to absorb the knowledge resources necessary for the development of innovative products; this process facilitates co-learning, which enhances the firm's innovation competencies. Therefore, the present research states that there is complementarity between technological innovativeness and networking capability, resulting in competitive advantage in terms of product quality and brand advantages. This finding bridges the RBV and DCV by demonstrating that strategic resources and dynamic capabilities interact to create differentiation advantage. This observation enriches the RBV by emphasizing that the value of strategic resources is enhanced when combined with complementary capabilities; specifically, resources do not function in isolation but gain strategic significance through integration. Consequently, this finding advances the RBV's evolving focus on resource orchestration while reinforcing the DCV's premise that dynamic

capabilities are crucial for leveraging the value of resources in volatile and competitive markets (Burton and Dickinger 2025; Itani et al. 2024).

Moreover, the finding is in line with previous studies in the literature stating that networking capability not only enables companies to focus on their core innovation processes but also empowers them to leverage other partners' complementary knowledge resources and competencies in order to develop advantageous innovative products and improve innovation capabilities (Garousi Mokhtarzadeh et al. 2020; Parida et al. 2009; Parida et al. 2017). Arguably, Safardoust et al. (2024) reveal that networking capability plays a significant role in the enhancement of innovation competencies of high-tech firms participating in innovation networks, thus bringing about higher levels of firm performance outcomes. Besides, Tariq et al. (2024) indicate that networking capability is a significant determinant of digital innovation competencies that subsequently result in sustainable performance outcomes.

Regarding the moderating effect of branding capability on the relationship between technological innovativeness and differentiation advantage (H5) and between market innovativeness and differentiation advantage (H6), the results demonstrate that while there is no significant complementarity between branding capability and technological innovativeness ($\beta = -0.106$; $p > 0.10$), the complementary effect of branding capability and market innovativeness on differentiation advantage is statistically significant ($\beta = 0.228$; $p < 0.05$), thus providing empirical support only for H6. The lack of empirical support for the synergistic effect of branding capability and technological innovativeness on differentiation advantage could be explained by the specific contexts of the present study. Given that Iranian manufacturing firms operate in a highly volatile market environment (Ghasempour Ganji and Kazemi 2024; Mitrega et al. 2017; Zaefarian et al. 2017), their branding capabilities are frequently oriented toward communicating the value of their market-relevant offerings. Consequently, these firms tend to utilize their branding competencies to mitigate consumers' uncertainty regarding market benefits and novel features. Furthermore, technological innovativeness, particularly in R&D intensive industries, can often be quickly imitated by competitors, especially in markets with limited intellectual property enforcement. As a result, firms cannot rely solely on branding competencies to sustain the differentiation gained from technological innovativeness. However, market innovativeness embedded within a strong brand identity is considerably harder to replicate and, thus, branding capability is a more effective complement to market innovativeness. This finding indicates that the branding competencies of a firm better reinforce its market innovativeness practices rather than its technological innovativeness. This could be because branding capabilities provide the toolbox to better represent the market-relevant features of innovative new products and empower the firm to develop market offerings that are aligned with its core values and identity. In fact, simultaneously benefiting from branding and market innovativeness competencies is an important enabler of companies to represent themselves as reliable innovators, and this innovator image brings them better levels of differentiation advantage. Arguably, a company that benefits from competent branding and market innovativeness routines is able to both develop innovative products that contribute to brand growth and launch novel products that support the brand's identity and core values. This complementarity not only leads to higher levels of product quality and uniqueness but also results in enhanced brand awareness and mindshare.

This finding enriches the RBV and DCV by illustrating how strategic resources and dynamic capabilities interact to create competitive advantage. In fact, it underscores that strategic resources like market innovativeness do not yield maximum value in isolation but require dynamic capabilities such as branding capability to realize their full potential. Hence, branding capability serves as a critical competency enabling medium-high and high R&D intensive manufacturing firm to transform market innovativeness into sustained competitive advantage. This complementarity advances the DCV's central argument that competitive advantage arises from the effective mobilization of dynamic capabilities in volatile and competitive markets (Burton and Dickinger 2025; Itani et al. 2024). Furthermore, this finding is in line with prior studies in the literature stating that the key to achieving competitive advantage and higher levels of performance lies in the extent to which the firm integrates branding with innovativeness (Lee et al. 2016; Tsai 2015). That is, Tajeddini and Ratten (2020) indicate that firms with strong branding competencies and a market-oriented approach—particularly those that actively develop new products to address market opportunities—are more likely to secure a competitive advantage and achieve enhanced market and financial performance. Accordingly, the present study's findings support prior research stating that interaction between branding competencies and innovativeness allows firms to lessen the risks involved and respond immediately to market opportunities (Lei et al. 2013), and through this complementarity, firms are able to develop innovative products and provide superior values for customers, thus benefiting from enhanced performance (Khan et al. 2023). Nevertheless, our finding diverges from some studies in the existing literature indicating that interaction between branding competences and innovativeness adversely affects performance outcomes (e.g., Ghasempour Ganji and Kazemi 2024). Arguably, this lack of consensus reinforces the need to consider the degree and/or type of innovativeness while empirically examining these complementary relationships.

Finally, regarding the relationship between differentiation advantage and business performance (H7), the results reveal that this competitive advantage has positive impacts on business performance ($\beta = 0.666$; $p < 0.01$), thus providing empirical support for H7. Arguably, this finding indicates that differentiation advantage as a competitive advantage is a critical predictor of business performance, and it should not be considered a synonym for performance. In fact, launching new products that are unique and are of high quality gives the firm a distinguished brand image that subsequently results in higher levels of business performance outcomes. In other words, when the firm is capable of offering superior values to customers and meeting their needs better than competitors do, it gains a differentiated position in the market that, in turn, leads to improved business performance. Accordingly, this finding advances the RBV by revealing that strategic resources require deployment mechanisms to result in superior performance outcomes. Importantly, it underscores that differentiation advantage acts as a significant

mechanism through which product innovativeness strategies affect business performance. Hence, this adds to the RBV by indicating that the value derived from strategic resources depends on how firms deploy them as the same resource can yield various outcomes based on usage, purposes, and combinations with other resources and competencies (Itani et al. 2024). Moreover, the finding corroborates previous studies in the literature stating that differentiation advantage, as a main driver of superior performance, significantly enhances the firm's financial, strategic, and overall performance (Bodlaj and Čater 2022; Murray et al. 2011; Tan and Sousa 2015). For instance, the finding supports Ofori and Appiah-Nimo's (2022) finding that competitive advantage is a main driver of operational performance or supports Dung Ngo et al. (2024), who indicate that differentiation advantage is an essential antecedent of superior performance outcomes.

5 | Conclusion

The current research contributes to the innovativeness literature in two important ways. First, this research has gone beyond the simple association among product innovativeness strategies and business performance, and it casts light on differentiation advantage as a deployment mechanism by which industrial firms are able to leverage their technological and market innovativeness practices on enhanced business performance. Arguably, strategic resources, like technological and market innovativeness, have merely potential value, and actualization of this potential requires competitive-advantage elements as deployment mechanisms (Fakhreddin and Foroudi 2022; Ketchen et al. 2007; Murray et al. 2011). Therefore, this empirical study revealed that launching innovative products incorporating advanced technology and/or market-related benefits enhances the firm's competitive advantage in terms of product quality, product uniqueness, brand awareness, brand mindshare, and brand personality, which subsequently augments business performance. Second, the present study casts light on two complementary dynamic capabilities that empower firms to better transform their product innovativeness practices in order to achieve differentiation advantage and enhanced performance. More specifically, the findings indicate that while networking capability complements technological innovativeness resulting in competitive advantage, branding capability complements market innovativeness leading to differentiation advantage. Accordingly, strategic resources alone might not be sufficient to drive competitive advantage and improved business performance, particularly in turbulent market environments; therefore, complementary dynamic capabilities are essential for the reconfiguration and reorchestration of resources in a way that matches market conditions and, thus, brings about sustained competitive advantage (Fakhreddin et al. 2021; Wilden et al. 2016; Wilden et al. 2019). On that account, as stated earlier, this study reveals that networking and branding capabilities are two critical dynamic capabilities that are complementary to technological and market innovativeness respectively, and this complementarity brings about differentiation advantage and augmented business performance.

The broad implications of these results are far-reaching for both business leaders and policymakers. They emphasize the critical need to dedicate resources to R&D and market analysis. Companies are advised to invest not only in creating new technologies but also in comprehending market dynamics and consumer preferences, which can inform targeted product development strategies. These investments progressively foster a more vibrant innovation environment within the organization, enhancing overall performance. Consequently, policymakers and business ecosystem leaders should recognize that both market and technological innovativeness are crucial factors in achieving differentiation advantages and improved business performance outcomes. This underscores the necessity for policies that promote technological advancement and market flexibility, such as R&D investment incentives, innovation-supportive regulatory structures, and initiatives facilitating knowledge transfer between academic institutions and industry. The present study also emphasizes that firms should extend beyond internal R&D efforts to actively collaborate with external networks, such as strategic partnerships, industry groups, and academic institutions. These external connections can provide access to valuable knowledge, lower innovation expenses, and shorten product development cycles, thereby enhancing firms' ability to create distinctive products. In addition, the results suggest that policymakers should prioritize the creation of environments that boost firms' networking capabilities, including industrial clusters, innovation centers, and platforms for professional connections.

These ecosystems can promote collaboration, facilitate knowledge sharing, and encourage innovation across different sectors, ultimately contributing to national and regional competitiveness. Finally, the research findings suggest that branding capability plays a crucial role as a dynamic capability, allowing firms to fully leverage the value of market innovativeness and enhance differentiation. In other words, branding capability should be viewed as an essential component in maximizing the outcomes of market innovativeness, particularly in distinguishing a firm's products in a competitive marketplace. Consequently, businesses should craft branding strategies that not only emphasize innovativeness but also establish an emotional and perceptual connection with customers, ensuring that newly developed products resonate more profoundly with the intended audience. Such strategies might involve marketing campaigns that position the firm as an industry pioneer, a champion of customer-focused solutions, or a frontrunner in delivering exceptional value.

5.1 | Theoretical Implications

The present study makes several important theoretical contributions. First, this study provides a more nuanced model to explain how product innovativeness impacts the business performance of medium-high and high R&D-intensive manufacturing firms. Arguably, in comparison to evaluating product innovativeness as a unidimensional concept, as in previous studies (e.g., Story et al. 2015; Tsai and Yang 2013; Zhang et al. 2023), this study moves one step further to examine the different and relative impacts of technological and market innovativeness, two major dimensions of product innovativeness, on the differentiation advantage and business performance of R&D-intensive manufacturing firms. Thus, the findings provide novel insights on the relative importance of technological and market innovativeness

for attaining differentiation advantage and enhanced business performance. Second, the present research illuminates the underlying mechanism of the influence of technological and market innovativeness on business performance.

Arguably, existing studies have merely assessed direct associations among product innovativeness and performance (e.g., Ding and Ding 2022; Sheng et al. 2013; Story et al. 2015; Tsai and Yang 2013; Zhang et al. 2023) but have overlooked the roles of deployment mechanisms. Therefore, this study identifies differentiation advantage as a critical deployment mechanism converting product innovativeness into improved business performance. This is particularly important, as existing studies in the literature often use competitive advantage as a synonym or proxy for performance, which hinders the development of any understanding of which specific strategic resources and capabilities foster competitive advantage (Bodlaj and Čater 2022; Tan and Sousa 2015). Third, this study provides empirical support for the notion of complementarity between strategic resources and dynamic capabilities. According to the results, while networking capability complements technological innovativeness, branding capability reinforces market innovativeness practices resulting in differentiation advantage and improved performance. This finding is a significant contribution to the literature, as our understanding about the complementarity between specific key resources and capabilities as well as their impacts on competitive advantage and business performance is still limited (Itani et al. 2024; Seepana et al. 2021), and this line of thought requires further empirical investigation (Hernández-Linares et al. 2024).

Furthermore, the current research has made important contributions to the RBV of the firm, positing that simultaneously valuable, rare, inimitable, and non-substitutable resources are the main predictors of sustained competitive advantage and enhanced performance (Barney 1991; Schweiger et al. 2019). Accordingly, this study indicates that technological and market innovativeness is a strategically valuable resource that leads to increased business performance outcomes, thus empirically contributing to the RBV. More importantly, the RBV has been criticized for not considering the deployment mechanisms through which valuable resources contribute to increased performance; that is, the current manifestation of the RBV indicates that resources have only potential value and that competitive-advantage elements that act as deployment mechanisms are needed for the realization of these values (Fakhreddin and Foroudi 2022; Ketchen et al. 2007). Accordingly, the present empirical study takes this notion into account and reveals that technological and market innovativeness as a strategic resource brings about higher levels of differentiation advantage and that, in turn, these higher levels result in augmented business performance, therefore shedding light on differentiation advantage as a deployment mechanism and contributing to the RBV. Additionally, this research contributes to the DCV, which is an extension of the RBV. This view asserts that the RBV is static in nature; that is, it does not consider environmental dynamisms and does not clarify how valuable resources are developed and deployed to obtain competitive advantage (Barreto 2010; Wilden et al. 2016). Therefore, the DCV argues that in current dynamic market environments, dynamic capabilities are indispensable for the integration and reconfiguration of resources in a way that matches environmental conditions and results in sustained competitive advantage.

Taking this notion into consideration and empirically contributing to the DCV, the current study reveals that networking and branding capabilities are two significant dynamic capabilities that are complementary to technological and market innovativeness respectively, and they empower industrial firms to better orchestrate and reconfigure their innovativeness practices to achieve higher levels of differentiation advantage and business performance. Furthermore, our research contributes to resource-based and dynamic capability theories by empirically demonstrating the mediating role of differentiation advantage and the moderating influence of networking and branding capabilities. This study fills a critical gap by offering an integrated model that captures the complex interplay between strategic resources and capabilities, guiding future research on capability deployment and strategic adaptability in dynamic markets.

5.2 | Managerial Implications

The results of the current research have significant practical implications for managers of medium-high and high R&D-intensive manufacturing industries aiming to succeed in domestic and international markets. First, the findings of this study suggest that technological and market innovativeness are essential for firms seeking to obtain competitive advantage and enhanced business performance. This finding is consistent with the recommendations of Tsai and Yang (2013) that firms should constantly innovate to ensure that their products are in line with high-velocity and hyper-competitive markets. In fact, to make certain that their firms survive and grow under such complex market conditions and benefit from international competitiveness, managers should develop a culture of innovativeness that supports and encourages creative thinking and that resists inertial forces that are hindering innovation. Accordingly, brand managers in R&D-intensive manufacturing firms must strategically leverage technological and market innovativeness to achieve differentiation advantage and enhance performance outcomes. This involves continuously adopting and integrating advanced technologies into the new product development process to upgrade product features and stay ahead of rivals.

Managers should actively scan the market for emerging technological trends and use customer feedback and behavior insights to introduce innovative, market-relevant features that meet evolving consumer needs. Furthermore, encouraging employees to develop and execute creative ideas aligned with the firm's strategic objectives is essential. By aligning brand messaging with product innovations to emphasize uniqueness and quality, and by utilizing strong networks to expedite market entry and gather valuable market intelligence, brand managers can maximize resource utilization. These efforts collectively foster a sustainable competitive edge and contribute to the firm's international organizational performance, ensuring long-term success in dynamic and competitive markets.

Second, the present study argues that there is complementarity between networking capability and technological innovativeness and that it has an impact on differentiation advantage. Firms should proactively engage in inter-industry innovation alliances, particularly with research institutions and specialized suppliers. This collaboration should focus on securing technology-sharing agreements, joint R&D investments, and cross-sector partnerships to drive technological innovativeness.

Firms should proactively engage in inter-industry innovation alliances, particularly with research institutions and specialized suppliers. These collaborations should focus on securing technology-sharing agreements, joint R&D investments, and cross-sector partnerships to drive technological innovativeness. Brand managers must integrate market insights into branding strategies by leveraging customer-driven innovation messaging and brand storytelling techniques that emphasize the unique market benefits of new products. Furthermore, firms should align product differentiation strategies with brand positioning efforts to ensure that new product launches reinforce the firm's long-term brand identity. To maximize differentiation advantage, firms should focus on customer-centric innovation, ensuring that product features directly address latent consumer needs rather than relying solely on generic technological advancements. Moreover, companies must adopt data-driven marketing strategies to reinforce differentiation through targeted advertising and competitive pricing models.

Therefore, managers of medium-high and high R&D-intensive firms should continuously become involved in collaborative innovation networks in order to foster inter-organizational technological learning, as this co-learning is highly beneficial for the combination, integration, and application of knowledge from external network partners, and it helps innovate new products that incorporate advanced technology and high-tech benefits. Hence, R&D-intensive manufacturing firms should engage in partnerships or alliances with leading manufacturers, suppliers, or academic institutions to co-develop innovative products and solutions, as this allows access to cutting-edge technologies and new market opportunities, thereby strengthening differentiation. Third, this study also argues that branding capability is a critical dynamic capability that complements market innovativeness and its impact on differentiation advantage. Accordingly, this finding implies that managers should consider branding routines as a guiding light that illuminates the path by which firms produce new innovative products.

In this sense, not only are firms able to innovate new products in a way that is consistent with their core brand identity, but also, they are capable of following a market innovativeness strategy that strengthens and consolidates their brand positioning in the market; thus, this interaction of branding with market innovativeness brings the firms higher levels of differentiation advantage and business performance. Accordingly, brand managers of R&D-intensive manufacturing firms should ensure that their brand effectively communicates the firm's innovative practices and market positioning. This includes investing in clear and consistent brand messages that highlight how the firm's market innovativeness differentiates it from competitors. Also, the firm's innovative market offerings should be integrated into the brand story, positioning the brand as forward-thinking and responsive to customers' needs.

5.3 | Limitations and Directions for Future Research

While this study provides significant insights into the interplay between product innovativeness, networking and branding capabilities, and business performance, several limitations must be acknowledged. These limitations also open avenues for future research, particularly in underexplored areas. First, this study focuses on medium-high and high R&D-intensive manufacturing firms in Iran, which may limit the generalizability of the findings to other industries and regions. While these firms provide a relevant context due to their emphasis on innovation and international competitiveness, future research should explore different industry contexts, such as service industries and digital-native firms, where branding and networking capabilities function differently in shaping innovativeness and competitive advantage. Expanding the study to multiple geographic regions, particularly emerging economies with diverse innovation ecosystems, would also improve the external validity of these findings.

Second, the study relies on self-reported data from senior managers, which, while relevant, may introduce common method bias or subjective interpretations. Future studies could employ a multi-informant approach, incorporating perspectives from marketing, R&D, and operational managers to provide a more holistic view of how branding and networking capabilities enhance firm performance. Additionally, using secondary financial performance data alongside survey responses could strengthen the validity of performance-related conclusions. Third, this study does not explicitly address the role of digital transformation in shaping the relationships between networking and branding capabilities and product innovativeness. Future research could examine how emerging technologies, such as artificial intelligence (AI), blockchain, and big data analytics, enhance networking capability by improving interfirm collaboration and knowledge-sharing mechanisms. Additionally, social media analytics, digital branding strategies, and metaverse-based marketing could be investigated as tools that enhance branding capability, ultimately influencing differentiation advantage and firm performance. Given the increasing reliance on digital platforms for brand building and business networking, this area offers a promising direction for future research.

Fourth, to measure business performance, this study utilized subjective indicators. While prior studies have consistently validated subjective performance measures as reliable proxies for objective data (e.g., Ding and Ding 2022; Sheng et al. 2013; Tsai and Yang 2013), future research could incorporate objective performance metrics, such as financial reports, market share data, or industry benchmarks, to enhance measurement accuracy. Fifth, while this study highlights branding and networking capabilities as complementary enablers of product innovativeness, it does not examine other dynamic capabilities that may contribute to leveraging innovativeness. Future research could explore how capabilities such as agility, digital competency, or open innovation practices interact with product innovativeness to sustain

competitive advantage. These capabilities may be particularly relevant in fast-changing and technology-intensive industries, where firms must continuously reconfigure their strategies to adapt to evolving market conditions. Sixth, this study employs a cross-sectional survey design, which limits causal inferences. Future research could utilize longitudinal data to assess how networking and branding capabilities evolve over time and contribute to sustained competitive advantage. Additionally, experimental or quasi-experimental research could test how different branding strategies or innovation-driven networking efforts impact firm performance under varying market conditions. By employing mixed-method approaches, scholars could gain deeper insights into how these relationships unfold in practice.

Seventh, this study identifies differentiation advantage as a significant deployment mechanism linking technological and market innovativeness to business performance. Future studies could empirically investigate other types of competitive advantage that serve as deployment mechanisms for these relationships, further enriching the theoretical understanding of how innovativeness translates into performance outcomes. Eighth, this study identifies networking and branding capabilities as critical dynamic capabilities that complement technological and market innovativeness, thereby enhancing differentiation advantage and business performance. However, what other managerial and theoretically significant capabilities might complement technological and market innovativeness? Future research is encouraged to empirically examine the complementary effects of additional dynamic capabilities on the relationships between technological and market innovativeness, differentiation advantage, and business performance. Ninth, this study specifically examines types of product innovativeness and the complementarity between technological and market innovativeness and networking and branding capabilities. However, it does not consider the degree of product innovativeness. Future research could investigate how incremental and radical innovativeness interact with branding and networking capabilities to further elucidate the nuances of these complementarities.

Tenth, this study does not directly capture environmental dynamism or the influence of external factors on the relationships proposed in the theoretical model. Future research is encouraged to examine how external factors such as market volatility, competitive intensity, and regulatory changes impact the relationships among product innovativeness, differentiation advantage, and business performance. Finally, by exploring these underexamined research directions, future studies can advance the theoretical understanding of RBV and DCV while providing practical insights on how firms can optimize their innovativeness strategies in increasingly digital and interconnected markets.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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