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Dual performance of business model innovation in emerging market enterprises: A configurational approach

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ABSTRACT

Business model innovation (BMI) is a critical driver of enterprise growth, yet its implementation in emerging market enterprises (EMEs) remains underexplored. To bridge this gap, our study adopts a configurational approach to systematically investigate the complex causal relationships among thematic BMI, strategic orientations, and environmental characteristics, while considering the dual performance imperatives—substantive and symbolic—of EMEs. Using fuzzy-set qualitative comparative analysis on EMEs from China, we reveal three key findings: (1) Pioneering and perfecting BMI operates through distinct mechanisms. Pioneering BMI enhances substantive performance by fostering differentiation advantages, whereas perfecting BMI improves symbolic performance by refining existing models to better meet articulated customer needs. (2) In pursuing dual performance outcomes, pioneering and perfecting BMI are mutually reinforcing. Their synergistic integration is essential for achieving dual performance objectives. (3) Dual BMI alone is insufficient to realize dual performance. Instead, alignment with strategic orientation and environmental characteristics is essential. Specifically, the synergy of digital orientation enhances firms' substantive performance, whereas the interplay of policy orientation and environmental munificence enhances symbolic performance.

Introduction

Emerging market enterprises (EMEs) face multiple pressures, including institutional deficiencies, resource scarcity, and rapidly evolving societal demands (Kafouros et al., 2015), which challenge the sustainability of traditional business practices. Business model innovation (BMI) provides a strategic avenue for EMEs by redefining value creation and delivery mechanisms, enabling them to penetrate new markets, advance technological development, and unlock the growth potential of existing businesses (Guo et al., 2022). However, EMEs face a dual dilemma in BMI implementation. They encounter substantive performance pressures from technological and industry uncertainties (Bouncken & Kraus, 2013), requiring innovation and differentiation to drive financial growth (Kafouros et al., 2015; Porter, 1996). At the same time, emerging technologies and nascent industries often struggle with a legitimacy deficit. During the early stages of market entry, firms typically lack credibility, creating symbolic performance challenges in establishing legitimacy (Zhang & White, 2016). To establish legitimacy, firms must align with societal norms and institutional expectations (Meyer & Nguyen, 2005; Xu et al., 2025), but excessive conformity may hinder innovation and differentiation. This tension between distinctiveness and conformity presents a key challenge: balancing economic value creation with legitimacy imperatives to achieve dual performance (Zhao et al., 2017).

Despite its significance, existing research has yet to fully elucidate how BMI reconciles these competing demands to drive the growth of EMEs. First, in terms of BMI performance, existing studies focus primarily on financial performance metrics, focusing less on symbolic performance (Ilyas et al., 2024; Menter et al., 2024). However, in emerging markets, a company's success is not determined solely by economic returns; it also requires legitimacy through BMI to reduce institutional uncertainty and gain long-term competitive advantage. For instance, peer-to-peer (P2P) lending platforms, as an emerging financial innovation model, initially attracted a large number of users and investors, achieving rapid financial growth. However, due to an imperfect regulatory environment and low social trust, many platforms ultimately collapsed. Therefore, focusing solely on the financial performance of BMI, while neglecting legitimacy and institutional adaptability, may

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undermine the long-term survival capabilities of enterprises.

Second, existing studies mainly adopt a transaction-based perspective, overlooking the embeddedness of BMI in emerging market institutional contexts (Eyring et al., 2011; Luo et al., 2022). For example, Amit and Zott's (2001) NICE (novelty, lock-in, complementarities, efficiency) framework focuses on transaction cost optimization but assumes a stable institutional environment, creating theoretical tension with BMI's context-dependent nature (Hargadon & Douglas, 2001). In emerging markets, institutional vacuums and defects constrain firms' strategic choices, making legitimacy-building through BMI more critical than just cost reduction (Luo et al., 2022). For example, the Indian company Flipkart faced trust issues due to weak electronic payment infrastructure. In response, it developed a hybrid payment system combining cash-on-delivery and mobile wallets, turning institutional constraints into a competitive advantage. This illustrates that EMEs often adapt and shape their institutional environment, rather than merely optimizing transactions.

Finally, existing research has largely overlooked the multifactor synergistic mechanisms that drive successful BMI (Leppänen et al., 2023). While BMI is generally linked to enhanced firm performance, some companies have witnessed performance declines following its implementation (Ilyas et al., 2024; Wang et al., 2022). Research has found that singular focus on BMI is unlikely to lead to high performance, as it primarily emphasizes value creation without necessarily enhancing business model profitability. Instead, achieving substantial improvements requires additional enterprise strategies that focus on value capture to convert innovation into sustainable financial gains (Leppänen et al., 2023).

To address these gaps, we propose the following research question: How can BMI coordinate internal and external factors to achieve dual performance in EMEs? To answer this question, we adopted the thematic BMI framework proposed by Luo et al. (2022), which is specifically designed for the unique context of EMEs—differentiating between pioneering and perfecting BMI and offering a robust analytical perspective. Additionally, we developed a comprehensive configurational model to capture the synergistic effects among business model value drivers, strategic orientations, and environmental characteristics. To empirically validate this model, we employed fuzzy-set qualitative comparative analysis (fsQCA). This method is particularly effective for uncovering complex causal relationships in the contexts of limited sample sizes and heterogeneous conditions. Using EMEs in China—the world's largest emerging market—as our sample, we conducted an empirical investigation.

This study's core contribution lies in the advancement of BMI performance measurements by adopting a dual framework (substantive and symbolic performance), moving beyond the traditional financial focus. Additionally, we validated the distinct mechanisms of pioneering and perfecting BMI in emerging markets and their differentiated impact on dual performance. Specifically, pioneering BMI drives substantive performance by exploring new technologies, markets, and value propositions. It establishes new transaction models and competitive rules in emerging markets, helping firms secure first-mover advantages and foster economic growth. Meanwhile, perfecting BMI enhances symbolic performance by optimizing business processes, strengthening stakeholder relationships, and aligning with institutional requirements, thereby securing social acceptance.

Finally, we uncovered the synergistic mechanisms of BMI, emphasizing that pioneering and perfecting BMI must align with strategic orientation and environmental factors to drive firm growth. For instance, digital orientation strengthens competitive advantage, while policy orientation and environmental munificence provide legitimacy support for innovation. Our findings deepen BMI theory and offer strategic insights for EMEs to effectively leverage BMI in dynamic market environments.

A configuration approach to business model innovation of EMEs

EMEs navigate the dual tension between distinctiveness and conformity, requiring BMI to drive substantive performance, such as financial growth, and to enhance symbolic performance, including legitimacy and social recognition (Shirokova et al., 2020; Zhang & White, 2016). *Substantive performance* refers to the generation of objectively measurable financial outcomes or the establishment of a competitive market position. This performance dimension provides direct feedback on EMEs' competitive effectiveness (Ilyas et al., 2024; Pedersen et al., 2018). In contrast, *symbolic performance* pertains to the perceived legitimacy of a firm in the eyes of stakeholders, reflecting its alignment with institutional norms and expectations. This dimension signifies stakeholders' confidence in the firm's long-term viability and, to some extent, represents the strategic resources that the firm may access in the future (Zimmerman & Zeitz, 2002). Together, substantive and symbolic performance capture the present and future growth trajectories of emerging enterprises, underscoring their indispensable role in the sustainable development of EMEs.

Emerging markets, characterized by the coexistence of abundant market opportunities and institutional deficiencies, create a context of unique market feasibility and institutional legitimacy for BMI (Jia et al., 2012; Wang et al., 2022). However, a business model does not function in isolation; rather, it constitutes an interconnected activity system that extends beyond firm boundaries (Zott & Amit, 2010). Its successful implementation relies on the dynamic interplay and coevolution between firms and their internal and external environments (Casadesus-Masanell & Zhu, 2013; Leppänen et al., 2023). From a configurational perspective, two key considerations for BMI theme design emerge: (1) complementarity of internal configurations (Chester et al., 2019; Ghezzi & Cavallo, 2020) and (2) alignment with external environmental conditions (Leppänen et al., 2023; Wang et al., 2022).

Internal configurations define how firms create value by optimizing resource allocation and activity design (Leppänen et al., 2023). To enhance firm performance, management must establish a configuration that maximizes synergies, that is, while a specific solution may appear suboptimal when considered in isolation, it can constitute an optimal decision at the system level (Argyres & Liebeskind, 1999; Zhao et al., 2017). Within internal configurations, we focus on strategic orientation, as it directly shapes a firm's competitive logic and service model (Zhou et al., 2005). Specifically, we examine policy and digital orientation, as these two strategic foci address the core challenges faced by EMEs in navigating institutional environments and market competition. *Policy orientation* enables firms to leverage government support to bridge institutional vacuums or access scarce resources, thereby enhancing symbolic performance (Hargadon & Douglas, 2001). In contrast, *digital orientation* drives substantive performance by improving operational efficiency and user experience through technological innovation (Li et al., 2024; Täuscher & Laudien, 2018). This complementarity positions strategic orientation as a critical bridge linking a firm's internal capabilities to dual performance objectives, reinforcing the interconnected role of policy and digital strategies in achieving economic value creation and legitimacy.

Contrarily, external alignment emphasizes that BMI must be congruent with external environmental characteristics to ensure that value-creating activities are effectively adapted to the external context and translated into tangible performance outcomes (Leppänen et al., 2023; Wang et al., 2022). In emerging markets, environmental munificence and environmental competitiveness are two critical dimensions of external environments. *Environmental munificence* reflects the degree of societal acceptance and institutional support available to firms, directly influencing their ability to achieve symbolic performance (Fainshmidt et al., 2019). For instance, firms operating in more inclusive regions may find it easier to gain legitimacy and social recognition, as these environments are more receptive to innovation. Conversely, *environmental competitiveness* influences substantive performance by driving firms to innovate and optimize resource allocation. In highly competitive environments, firms must adopt differentiation strategies or cost leadership approaches to sustain their competitive advantage (Porter, 1996). Therefore, examining environmental munificence and competitiveness provides valuable insights into how firms navigate complex and dynamic market conditions to achieve dual performance.

Building on the above analysis, we adopt a configurational approach to systematically examine how BMI facilitates dual performance in EMEs through internal and external synergy mechanisms. Rather than treating BMI as an independent contributor to firm performance, this approach emphasizes the interactions between a firm's business model design and key contextual factors. Specifically, we explore the synergistic effects of BMI—including pioneering and perfecting BMI—in conjunction with strategic orientations (policy and digital orientation) and environmental characteristics (environmental munificence and environmental competitiveness). To clarify the mechanisms behind substantive and symbolic performance, this study adopts the competitive advantage and institutional theories as its foundations. The competitive advantage theory explains how synergistic effects help firms build unique advantages and enhance economic outcomes, while the institutional theory examines how synergy enables firms to gain legitimacy and strengthen external recognition (Porter, 1996; Suchman, 1995; Zhao et al., 2017). The analytical framework is illustrated in Fig. 1, and the following sections provide a detailed explanation of these components.

BMI and dual performance in EMEs

The widespread presence of institutional vacuums and institutional defects differentiates emerging economies from mature markets (Li et al., 2008). This distinctive institutional context profoundly shapes the thematic focus of BMI in EMEs and acts as a key enabler for achieving dual performance in complex environments. Specifically, an institutional vacuum refers to the absence of a fully developed institutional framework, characterized by regulatory gaps, weak legal structures, and underdeveloped governance mechanisms (Li et al., 2008). Such an environment creates lucrative opportunities for firms with strong exploratory capabilities, first-mover advantages, and a propensity for winner-takes-all strategies. Within this context, pioneering BMI emerges as a critical mechanism for identifying and capitalizing on new market opportunities, as it enables firms to bridge institutional vacuums and establish novel transaction paradigms and market spaces.

The essence of pioneering BMI lies in pursuing distinctiveness by exploring new markets, developing new technologies, and creating novel value propositions, which significantly drive substantive performance (Bashir et al., 2023). First, pioneering BMI enables firms to establish new markets and build differentiated competitive advantages. It does so by identifying latent customer needs and leveraging forward-looking market insights to redefine transaction structures and rules, thereby shaping market behavior (Luo et al., 2022). This first-mover advantage generates new revenue streams and expands market share, directly enhancing substantive performance. Second, pioneering BMI fosters incremental growth by creating new value propositions. Through the development of new technologies, cross-sector collaborations, or entirely novel value offerings, pioneering BMI enables firms to attract new customer segments and diversify revenue sources. EMEs can leverage pioneering BMI to disrupt conventional market patterns, explore new opportunities, and penetrate emerging markets (He & Wong, 2004). By offering distinctive products or services, firms can achieve unique value creation (Zott & Amit, 2007). Based on this, we propose the following hypothesis:

H1a. In emerging markets, pioneering BMI plays a critical role in enhancing firms' substantive performance.

Institutional defects in emerging markets—such as arbitrary regulations, high entry barriers, and weak enforcement—often hinder market efficiency and pose challenges for firms (Li et al., 2008; Peng, 2003). However, these institutional voids also create opportunities for firms to adapt and innovate within existing structures.

Perfecting BMI refers focusing on refining existing operations, products, or services, with an emphasis on meeting clear and established customer needs (Luo et al., 2022). Unlike pioneering BMI, which emphasizes exploring new markets and creating unique value propositions, perfecting BMI is characterized by prioritizing the management and refinement of mature products or services, ensuring continuous improvement to enhance customer satisfaction (He & Wong, 2004; Luo et al., 2022). This alignment allows firms to better satisfy stakeholder expectations and regulatory standards, making them more likely to gain external acceptance, social recognition, and legitimacy—key components of symbolic performance (DiMaggio & Powell, 1983; Meyer & Rowan, 1977).

Moreover, in markets characterized by weak institutional frameworks and low levels of intellectual property protection, where imitation is relatively easy, perfecting BMI can leverage the spillover effects from pioneers (Haunschild & Miner, 1997). By building on existing models rather than radically departing from them, firms avoid the high uncertainty and cost of exploration while offering improved products or services that align with market needs. This "follower" strategy enables firms to achieve market validation more quickly and to be perceived as reliable, competent, and compliant with institutional expectations (He & Wong, 2004).

In summary, perfecting BMI often involves incremental improvements and alignment with dominant institutional logics, which are generally more acceptable and legitimate in the eyes of regulators, investors, and other external stakeholders. Based on these arguments, we propose the following hypothesis:

H1b. In emerging markets, perfecting BMI plays a critical role in enhancing firms' symbolic performance.

Given the divergent objectives and mechanisms underlying dual performance, a single type of BMI is unlikely to simultaneously address the demands of both dimensions. Pioneering BMI enhances substantive performance by exploring new markets, developing novel technologies,

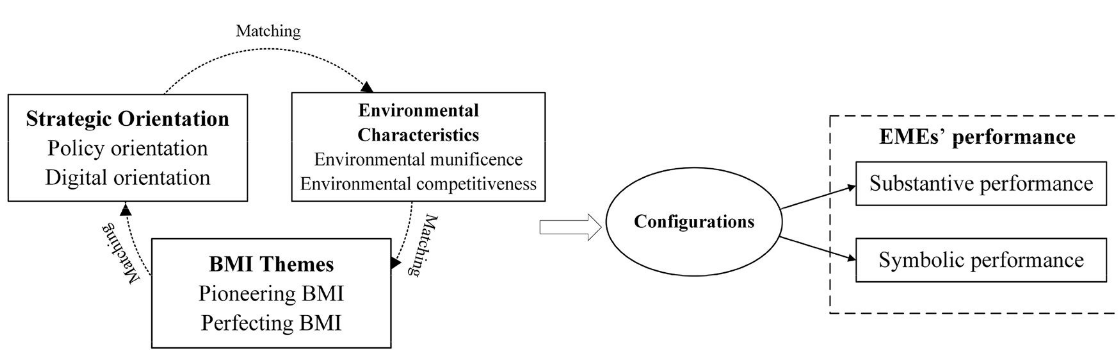

Fig. 1. Theoretical model: the configuration of thematic BMI for EMEs.

and pursuing distinctiveness, thereby creating new market opportunities and driving revenue growth. However, its contribution to symbolic performance is relatively limited. The exploratory nature of pioneering BMI may conflict with existing institutional regulations or stakeholder expectations, making it challenging for firms to achieve broad social recognition in the short term (Suchman, 1995; Zimmerman & Zeitz, 2002). Additionally, its limited focus on the needs of incumbent market stakeholders further diminishes its impact on symbolic performance.

In contrast, perfecting BMI enhances symbolic performance by optimizing existing processes, meeting stakeholder expectations, and ensuring organizational conformity, thereby strengthening corporate legitimacy and social recognition. However, its limited creative capacity and the challenge of differentiation in imitation-driven environments constrain its ability to drive substantive performance growth.

Based on this, we propose the following hypothesis:

H2. No single form of business model innovation is sufficient to achieve dual performance in emerging market enterprises.

The interplay of business model innovation, environmental characteristics, and strategic orientation

Environmental competitiveness serves as a key indicator of market competition intensity, directly influencing firms' survival and growth prospects within a given market (Fainshmidt et al., 2019). In highly competitive markets, resources tend to become increasingly homogeneous, diminishing the effectiveness of traditional competitive strategies in establishing a sustainable advantage. Therefore, firms must leverage new technologies to gain a competitive edge, making the integration of dual BMI with a digital-oriented strategy particularly crucial (Li et al., 2024).

Digital orientation refers to a firm's strategic inclination to continuously explore and apply new digital tools and technologies to enhance innovation capacity and market competitiveness (Kindermann et al., 2021). Digital technologies enable EMEs to rapidly acquire new resources, restructure resource linkages, and facilitate disruptive innovation (Bohnsack et al., 2021). By leveraging digital technologies, firms can more accurately capture market dynamics and consumer demands, utilize big data analytics to forecast trends, and swiftly respond to changes, thereby reducing decision-making risks and improving resource efficiency. Additionally, these technologies support the personalization of products and services, enhancing user experience and creating new revenue streams for firms.

While the synergy between digital orientation and BMI provides firms with substantial technological support and enhanced innovation capacity, the high risks associated with technological uncertainty may undermine symbolic performance. Emerging technologies often introduce uncertainties related to feasibility, market acceptance, and economic returns, raising concerns among stakeholders regarding their long-term viability, which negatively impacts symbolic performance (Aldrich & Fiol, 1994; Zimmerman & Zeitz, 2002). Moreover, the interplay between digital orientation and BMI may lead firms to over-rely on technology-driven solutions, potentially neglecting human-centered values and corporate social responsibility. For instance, in the pursuit of maximum efficiency, firms may deploy automation and artificial intelligence (AI) to replace a significant portion of the workforce. While this approach can reduce costs and enhance productivity, it may also result in job displacement and skill depreciation, attracting criticism for a lack of social responsibility. Additionally, the complexity and opacity of emerging technologies can exacerbate public distrust, particularly in relation to data privacy, algorithmic bias, and ethical concerns. When consumers perceive that a firm's technological applications infringe upon their interests or fail to address their needs, brand loyalty and social recognition may be significantly compromised.

Therefore, when firms implement a digital-oriented strategy, they should operate in a more munificent environment, which is typically characterized by institutional predictability and policy support, allowing firms to concentrate on long-term, high-risk innovation activities. Lower barriers and costs associated with resource acquisition can facilitate firms to integrate resources, expand innovation channels, and explore higher-risk market opportunities (Castrogiovanni, 1991). Moreover, such environments encourage the participation of multiple stakeholders, fostering communication and collaboration between firms and society, thereby enhancing public confidence in the prospects of emerging technologies.

Additionally, EMEs can leverage policy orientation to fully capitalize on the guiding role of policies in business operations, thereby enhancing organizational legitimacy and overcoming developmental legitimacy thresholds. In emerging markets, policies serve as a benchmark for industry-standard legitimacy, while simultaneously enhancing public cognitive legitimacy through media interpretation and dissemination (Minniti, 2008). By engaging with policy factors, firms can adopt strategic sense-making (Narayanan et al., 2011), increasing their policy sensitivity and enabling them to respond effectively to government directives, ultimately strengthening their organizational legitimacy (Falck et al., 2010).

Based on this, we propose the following hypothesis:

H3. In competitive environments, firms pursuing dual BMI in conjunction with a digital-oriented strategy must also adopt a policy-oriented strategy or operate within a munificent environment to achieve dual performance.

Conversely, in a munificent environment, firms face fewer external constraints, enjoy easier access to resources, and operate within a more stable and supportive institutional framework (Castrogiovanni, 1991). This favorable setting enables firms to acquire essential resources more efficiently, providing them with greater flexibility to engage in experimentation and exploration innovation. Consequently, firms are more likely to integrate emerging technologies into their BMI. By leveraging advanced technologies, such as big data and cloud computing, firms can utilize pioneering BMI to explore new market opportunities and create unique value propositions, thereby enhancing substantive performance. Simultaneously, within the context of perfecting BMI, digital technologies facilitate the optimization of existing processes, improve user satisfaction, and enhance operational efficiency and service quality, ultimately contributing to symbolic performance. Based on this, we propose the following hypothesis:

H4. In a munificent environment, the synergy between dual BMI and a digital-oriented strategy enables firms to achieve dual performance.

Methods

Sample and data

As one of the world's largest emerging markets, China is characterized by rapid technological transformation, institutional vacuums, and institutional defects, making it an ideal context for this study (Luo et al., 2022). Moreover, Chinese EMEs have demonstrated strong engagement in BMI, providing a rich source of cases and data to support this research.

We distributed questionnaires to 270 technology ventures in Beijing, Shenzhen, Nanjing, and Ningbo, China, achieving a recovery rate of 91.8 %. The survey responses were screened based on the following criteria: (1) Firms must operate in emerging industries, including next-generation information technology, biotechnology, green technology, and advanced manufacturing technology; (2) firms must have an operational tenure between one and eight years; (3) respondents must have more than one year of work experience and not be in an entry-level position (this was to ensure that they have a comprehensive understanding of the strategic impact of BMI); (4) surveys must have no more than six missing values and no overly homogeneous responses. Ultimately, 55 valid samples were retained for analysis.

Fuzzy-set qualitative comparative analysis

This study employs fsQCA, a method that examines how the interaction of antecedent conditions results in observable variations or discontinuities in outcomes (Du & Kim, 2021; Rihoux & Ragin, 2009). Compared to traditional regression analysis, fsQCA is a case-based, asymmetric approach that emphasizes complex causal relationships within contextual configurations, making it particularly suitable for exploring intricate social phenomena (Fiss, 2011; Ragin, 2008).

We argue that fsQCA is highly appropriate for this study for the following three reasons. First, fsQCA identifies asymmetric relationships and can explain cases that deviate from general trends (Douglas et al., 2020). In traditional regression analysis, outlier observations that significantly differ from the overall trend are often excluded to focus on average effects. However, these outliers frequently contain valuable research insights. The advantage of fsQCA lies in its ability to retain and analyze these outliers, uncovering asymmetries in complex causal relationships. For instance, when examining the impact of policy orientation on firms' differentiation advantages, regression analysis might conclude that policy orientation weakens differentiation advantages. However, fsQCA, through configurational analysis, may reveal that under certain conditions, firms can achieve differentiation advantages despite strong policy orientation. This capability makes fsQCA particularly well-suited for analyzing multidimensional causal relationships in complex social phenomena.

Second, fsQCA overcomes the limitations of regression analysis in handling high-order interactions (Luo et al., 2021). Regression analysis captures interdependences between variables by introducing interaction terms, but when interactions involve higher-order effects (e.g., three-way interactions), the results often become overly complex and difficult to interpret. In contrast, fsQCA systematically identifies all potential interdependencies among antecedent factors and clearly illustrates multiple equifinal pathways leading to the same outcome. This feature makes fsQCA an ideal tool for studying multifactor interactions. Therefore, fsQCA enables us to examine the interplay between BMI, strategic orientation, and environmental characteristics, as well as their collective impact on the dual performance of EMEs.

Third, fsQCA is particularly well-suited for small to medium-sized samples (Rihoux & Ragin, 2009). This study's sample size ($n = 55$) meets the requirements of the fsQCA method, making it suitable for effectively supporting our analysis and conclusions. Unlike traditional regression analysis, fsQCA does not require large samples or strict statistical assumptions; instead, it is based on set theory and Boolean minimization logic, focusing on the sufficiency and necessity of condition combinations rather than on probability distributions. Even with a small sample size, fsQCA can effectively identify key causal pathways as long as cases clearly exhibit relationships between condition combinations and outcomes. In small to medium-sized samples, fsQCA typically limits the number of conditions to prevent the combinatorial explosion problem, with an optimal range of four to seven conditions. This study includes six explanatory variables, making fsQCA particularly suitable for the analysis.

Measurement and calibration

The variables in this study were measured on a seven-point Likert scale, with answers ranging from one ("strongly disagree") to seven ("strongly agree"). The variables are as follows.

EME performance: The measurement of substantive performance was based on the scale developed by Li and Atuahene-Gima (2001) and included nine items, such as return on investment, sales return, and profit growth. The measurement of symbolic performance drew on the approach of Deephouse (1996), incorporating assessments from 10 stakeholder groups, including employees, customers, and regulatory officials.

Thematic BMI: We used the pioneering and perfecting BMI scale, developed by Luo et al. (2022), for measurement. This scale included eight items for each of the two conditions. An example item for pioneering BMI is, "Providing customers with distinctive and novel products, services, or information." An example item for perfecting BMI is, "Emphasizing the refinement and enhancement of product or service innovations."

Strategic orientation: The measurement of policy orientation was adapted from studies, such as Kohli and Jaworski (1990), and comprised three items. An example item is, "Government agencies' industrial development plans provide guidance for the technological development direction of entrepreneurial firms." The measurement of digital orientation drew on the scales developed by Gatignon and Xuereb (1997) and Zhou et al. (2005) and included five items. An example item is, "Our firm consistently utilizes digital technologies to develop new products or services."

Environmental characteristics: Environmental competitiveness was measured using the scale developed by Jansen et al. (2006), which consists of three items. An example item is, "Competition in our local market is intense." Environmental munificence was assessed using a four-item scale adapted from Sutcliffe (1994). An example item is, "There are abundant profit opportunities in the market."

In fsQCA, the process of assigning set membership is called calibration (Ragin, 2008). Specifically, the researcher must set three anchor points for calibration based on existing theory and the actual situation (Ragin, 2008): the "fully in," "crossover," and "fully out" points. The transformed set membership ranges between zero (fully out) and one (fully in). Following previous research (Fiss, 2011), these three anchor points were set as the 95 %, 50 %, and 5 % quantiles, respectively. The description of the measurement indicators and the determination of anchor points for each condition variable are shown in Table 1.

Procedure and results

Necessary conditions analysis[1]

Sufficiency analysis focuses on identifying condition combinations that can generate a specific outcome, but it may overlook individual necessary conditions, potentially resulting in missing critical information or drawing incorrect conclusions. To prevent necessary conditions from being eliminated during configurational analysis, it is essential to examine them before conducting the truth table analysis.

In Table 2, we present the results of the necessary conditions analysis (NCA). According to this method, a necessary condition must satisfy two criteria: (1) The effect size (d) is at least 0.1 (Dul, 2016); (2) Monte Carlo simulations of permutation tests (p value) must confirm that the effect size is statistically significant (Dul et al., 2020). The results indicate that pioneering and perfecting BMI, policy orientation, digital orientation, environmental munificence, and environmental competitiveness are the necessary conditions for the high substantive performance of EMEs. Pioneering and perfecting BMI, digital orientation, environmental munificence and competitiveness are the necessary conditions for the high symbolic performance of EMEs.

Sufficiency analyses

Following previous research (Fiss, 2011), we set the consistency threshold, proportional reduction in inconsistency (PRI), and case

[1] In the sufficiency analysis of fsQCA, necessary conditions function as constraints in generating condition combinations. QCA software includes a specific option for designating necessary conditions. Before constructing the truth table, the necessary conditions identified through necessary conditions analysis should be explicitly designated. This ensures that these conditions are not eliminated in the parsimonious solution during subsequent sufficiency analysis, thereby maintaining the completeness and accuracy of the analysis.

Table 1
Summary statistics and calibration thresholds.

	Variables	Mean	S.D.	Min	Max	Fully in	Crossover	Fully out
BMI themes	Pioneering BMI (pioBMI)	5.38	0.77	3.13	7.00	6.35	5.50	3.45
	Perfecting BMI (perBMI)	5.41	0.75	3.00	7.00	6.90	5.50	4.08
Strategic orientation	Policy orientation (PO)	4.14	1.43	1.00	6.67	6.40	4.00	1.67
	Digital orientation (DO)	5.37	0.82	2.80	7.00	6.68	5.40	3.36
Environmental characteristics	Environmental munificence (EM)	5.31	0.83	3.00	7.00	6.60	5.50	3.60
	Environmental competitiveness (EC)	5.44	0.74	3.33	7.00	7.00	5.33	4.00
Performance	Substantive performance (P)	5.32	0.63	3.67	6.44	6.33	5.44	4.18
	Symbolic performance (L)	5.53	0.57	4.00	6.60	6.42	5.60	4.40

Table 2
Analysis results of necessary conditions for necessary conditions analysis method.

Variables	Outcome	Scope	Ceiling zone	Accuracy	Effect size (d)[a]	p value [b]
pioBMI	P	0.93	0.309	85.5 %	0.332	0.000
	L	0.92	0.213	92.7 %	0.213	0.002
perBMI	P	0.91	0.235	85.5 %	0.258	0.001
	L	0.90	0.157	90.9 %	0.173	0.024
PO	P	0.91	0.179	81.8 %	0.196	0.025
	L	0.90	0.098	87.3 %	0.105	0.207
DO	P	0.92	0.224	92.7 %	0.243	0.002
	L	0.91	0.224	89.1 %	0.246	0.001
EM	P	0.92	0.237	81.8 %	0.258	0.000
	L	0.91	0.288	76.4 %	0.316	0.000
EC	P	0.90	0.191	87.3 %	0.212	0.011
	L	0.89	0.161	90.9 %	0.180	0.035

Note: a. $0.0 \le d < 0.1$: low level; $0.1 \le d < 0.3$: moderate level; $0.3 \le d < 0.5$: medium high level; $0.5 \le d$: high level. b. Permutation test (number of resamplings = 10,000).

threshold at 0.8, 0.70, and 1, respectively. We obtained intermediate solutions and distinguished between core and marginal conditions of the configuration based on intermediate and parsimonious solutions. The intermediate solution[2] was derived through counterfactual analysis, assuming the presence of necessary conditions, such as pioneering BMI, perfecting BMI, policy orientation, digital orientation, environmental munificence, and environmental competitiveness, which may contribute to high substantive performance. Additionally, assuming the presence of necessary conditions, such as pioneering BMI, perfecting BMI, digital orientation, environmental munificence, and environmental competitiveness, the presence or absence of policy orientation may generate high symbolic performance.

Using fsQCA, we identified three high substantive performance configurations, with a consistency index of at least 0.882. The consistency of the solution was 0.878, exceeding the commonly accepted threshold of 0.80 (Ragin, 2008). Additionally, the coverage was 0.715, further demonstrating that these three configurations serve as sufficient conditions for high substantive performance, explaining 70 % of the variance (solution coverage) in it. Additionally, fsQCA identified three high symbolic performance configurations, with a consistency index of at least 0.957. The consistency of the solution was 0.951, and the coverage was 0.740. This finding confirms that these three configurations also represent sufficient conditions for high symbolic performance, explaining 74 % of the variance in high symbolic performance. Therefore, both sets of solutions presented an acceptable fit. The results of the analysis are shown in Table 3.

High substantive performance

Configuration P1 (pioBMI*perBMI*PO*DO*EM)[3]: In a munificent environment, EMEs can achieve high substantive performance through the synergy of dual BMI, policy orientation, and digital orientation. This pathway accounts for 57.5 % of high substantive performance cases among EMEs, representing a policy-driven pathway typical of emerging market contexts.

In emerging markets, when government policies prioritize a specific industry, the sector is often perceived as an opportunity-rich market. For example, the Chinese government has actively promoted the new-energy–vehicle industry by introducing a series of supportive policies, such as purchase subsidies and free license plate registration. These measures have significantly stimulated market demand. By providing extensive policy resources and talent support, the government helps guide EMEs in identifying market expansion opportunities. EMEs that actively respond to these policies can effectively mitigate market entry risks and leverage the advantages of a munificent environment to unlock greater growth opportunities.

Table 3
Configurations for high substantive and symbolic performance.

Variables	Substantive performance			Symbolic performance		
	P1	P2	P3	L1	L2	L3
pioBMI	●	●	●		●	●
perBMI	●	●		●	●	●
PO	●		⊗	●	●	
DO	●	●	●		●	●
EM	●		●		●	●
EC		●	●	●		●
Raw coverage	0.575	0.648	0.450	0.622	0.615	0.667
Unique coverage	0.038	0.027	0.030	0.040	0.034	0.085
Consistency	0.882	0.883	0.944	0.957	0.967	0.968
Overall solution coverage	0.715			0.740		
Overall solution consistency	0.878			0.951		

● indicates presence of a condition; ⊗ indicates its absence. Large characters indicate core conditions; small characters indicate peripheral conditions; Blanks indicate "does not matter".

[2] QCA analysis produces three types of solutions: complex, intermediate, and parsimonious. The complex solution considers only configurations with empirically observed cases, while the parsimonious solution incorporates all logical remainders without evaluating their plausibility. The intermediate solution, however, integrates theoretically and practically meaningful logical remainders, guided by the researcher's domain knowledge and expertise (Rihoux & Ragin, 2009). Compared to the other two solutions, the intermediate solution strikes a balance between complexity and parsimony, enabling the inclusion of a broader range of potential causal pathways while maintaining theoretical interpretability. Most importantly, the intermediate solution ensures that necessary conditions are not eliminated, thereby preventing the loss of critical information or the oversight of causal mechanisms due to excessive simplification.

[3] In fsQCA, A*B*∼C means the intersection of the set where conditions A and B are present, and the set where condition C is absent. Here, * represents the intersection operator and ∼ signifies negation or absence.

Moreover, in resource-abundant markets, EMEs benefit from greater tolerance for trial and error, making them more inclined to engage in experimentation and exploratory innovation. Digital technologies, as rapidly evolving innovations, play a critical role in capturing and responding to market dynamics in a comprehensive and timely manner. Firms actively integrate digital technologies into their BMI, leveraging them in two key ways.

First, digital technologies enhance the effectiveness of perfecting BMI by improving production efficiency and reducing costs, ultimately contributing to financial growth. For example, unmanned factories boost productivity and significantly lower operational costs. Second, digital technologies serve as a crucial driver of pioneering BMI, enabling firms to explore new market opportunities. For instance, new-energy–vehicle manufacturers are making substantial investments in intelligent driving technologies, engaging in extensive exploration innovation to create new growth avenues. In this scenario, firms that adopt a hybrid approach, combining pioneering and perfecting BMI, can achieve significant substantive performance gains.

Configuration P2 (pioBMI*perBMI*DO*EC): In a competitive environment, EMEs can achieve high substantive performance through the synergy of dual BMI and a digital-oriented strategy. This represents a steady yet progressive pathway, explaining the broadest range of high substantive performance cases among EMEs, with a raw coverage of 64.8 %. Under competitive market conditions, EMEs tend to scrutinize their core resources and prioritize digital innovation capabilities to enhance their dynamic competitive advantage. Specifically, integrating digital technologies into pioneering and perfecting BMI enables firms to explore new markets, attract new users, and create new revenue streams through pioneering BMI, while simultaneously strengthening their existing market share through perfecting BMI, ensuring long-term stability and sustainable growth.

Configuration P3 (pioBMI*∼PO*DO*EM*EC): In a simultaneously munificent and competitive environment, EMEs can achieve high substantive performance through the synergy of pioneering BMI and a digital-oriented strategy. This represents a more aggressive pathway, explaining 45.0 % of high substantive performance cases. In such an environment, EMEs face a certain survival crisis and they may prefer to overcome the current market bottleneck via digital innovation. In this context, pioneering BMI is more conducive to such a breakthrough and the development of EMEs in new models and markets. Regardless of the environmental context, pioneering BMI is present in every high substantive performance configuration, thus, supporting H1a.

High symbolic performance

Configuration L1 (perBMI*PO*EC): In highly competitive environments, EMEs can achieve high symbolic performance through the synergy of perfecting BMI and a policy-oriented strategy. This pathway explains 62.2 % of high symbolic performance cases among EMEs. This may be because, in competitive environments, stakeholders place greater emphasis on a firm's stability. Consequently, EMEs adopt a policy-oriented strategy to secure government endorsement and social recognition, thereby enhancing their legitimacy and social capital. Additionally, by focusing on optimizing and refining existing markets, EMEs improve user satisfaction, align with societal expectations, further reinforcing their high symbolic performance.

Configuration L2 (pioBMI*perBMI*PO*DO*EM): In a munificent environment, EMEs can achieve high symbolic performance through the synergy of dual BMI, policy orientation, and digital orientation. This pathway explains 61.5 % of high symbolic performance cases among EMEs, aligning with P1 and demonstrating the effectiveness of a policy-driven approach. While pioneering BMI and digital orientation may pose short-term challenges to symbolic performance, policy orientation provides firms with government endorsement, and a munificent environment enhances EMEs' tolerance for trial and error, thereby reducing the risks associated with adopting new technologies. These factors collectively enhance stakeholder recognition and improve firms' symbolic performance. Thus, this integrated strategy enables firms to explore new markets and technologies and ensures their stability and legitimacy in existing markets, thereby fostering broad social support and trust.

Configuration L3 (pioBMI*perBMI*DO*EM*EC): In a simultaneously munificent and competitive environment, the synergy of dual BMI and digital innovation orientation enables emerging enterprises to achieve high symbolic performance. This pathway explains 66.7 % of high symbolic performance cases. This may be because, in a competitive environment, EMEs rely on the integration of pioneering BMI and digital orientation to establish competitive advantage. While such an approach may initially pose challenges to symbolic performance, a munificent environment provides a favorable setting for innovation, offering greater tolerance for radical innovation among stakeholders. Consequently, this configuration also facilitates high symbolic performance. Similarly, we find that perfecting BMI appears in every high symbolic performance configuration, thus, supporting H1b.

Further analysis

Using Boolean algebra, we can identify common solutions that achieve dual performance by comparing configurations (Park et al., 2017). Through this approach, we find that L3 is a subset of P2, as both configurations share the same elements, except for environmental munificence. These two configurations can be expressed as follows: L3= {pioBMI, perBMI, PO, DO, EM}, P2={pioBMI, perBMI, PO, DO, (EM or ∼EM)}. Therefore, L3 is a subset of P2 (i.e., P2⊃L3). Overall, we identify three configurations leading to dual performance (Fig. 2). We observe that every dual performance configuration includes pioneering and perfecting BMI, indicating that a single BMI approach (e.g., P3 and L1) cannot achieve dual performance, thereby supporting H2.

Examining P&L2 and P&L3, we find that in competitive environments, firms pursuing dual BMI in conjunction with a digital-oriented strategy must also either adopt a policy-oriented strategy or operate within a munificent environment to achieve dual performance, thereby supporting H3. Specifically, P&L2 and L3 share the same configuration and can be considered a subset of P2. Compared to P2, P&L2 incorporates the synergistic effect of a munificent environment. This suggests that, while digital technologies create opportunities for BMI in competitive environments, they also introduce risks that may raise concerns among stakeholders. The resource abundance and market opportunities provided by a munificent environment help firms better manage these risks, facilitating digital technology innovation and strengthening competitiveness and legitimacy. Similarly, P&L3 represents the intersection of P2 and L1. Compared to P2, P&L3 integrates the synergistic effect of policy orientation, which functions similar to environmental munificence. Government endorsement and policy support reduce stakeholders' perceived risks, thereby enhancing firms' legitimacy and social recognition, ultimately improving symbolic performance. In contrast to L1, P&L3 incorporates pioneering BMI and digital orientation, indicating that, in competitive environments, merely refining user needs and responding to government policies is insufficient for achieving a differentiated competitive advantage. Instead, pioneering BMI, which focuses on identifying novel market opportunities, enables firms to discover and seize new growth areas by developing

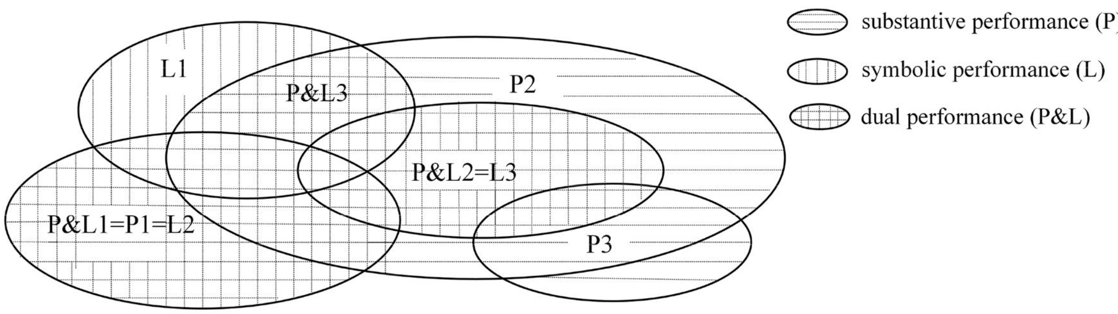

Fig. 2. Set–subset relations of configurations from intersection analysis.

innovative products and services, thereby achieving differentiation.

Our results did not identify the configuration predicted by H4. Instead, we discovered a new configuration (P&L1) that emerges from the synergy between policy orientation and environmental munificence. It is the same configuration as P1 and L2, where EMEs actively respond to government policies and leverage state support for specific industries to enhance the legitimacy and social recognition of their innovations. Additionally, government-backed policies stimulate market demand, while digital orientation strengthens firms' competitive advantage in BMI, ultimately driving financial growth and achieving dual performance. The configuration predicted by H4 (where firms rely solely on environmental munificence to achieve the synergistic effect) possibly did not emerge because of the absence of clear strategic guidance and a structured support mechanism, which could lead firms to engage in unfocused exploratory efforts. Without a well-defined direction, firms may struggle to effectively identify and capture new market opportunities, ultimately failing to achieve high levels of substantive and symbolic performance.

Robustness tests

We also conducted robustness tests on the high substantive and symbolic performance of EMEs (e.g., Fiss, 2011; Luo et al., 2021). In this study, while keeping other parameters unchanged, we increased the frequency threshold to 2, which yielded the new high substantive performance grouping (Pa) and new high symbolic performance groupings (La1 and La2). Then, we increased the consistency threshold for PRI from 0.7 to 0.75. As the natural breaking point of the original high symbolic configuration was 0.761, we further raised the PRI threshold for the high symbolic configuration to 0.8. This adjustment resulted in the new high substantive (Pb1 and Pb2, PRI = 0.75) and new high symbolic (Lb, PRI = 0.8) performance configurations. The newly generated configurations exhibit a clear subset relationship with the original configurations, indicating that the results are robust (Appendix A).

Discussion

Adopting a configurational approach to BMI, this study sought to understand how pioneering and perfecting BMI interact with firms' strategic orientation and environmental characteristics to achieve dual performance. We emphasize that pioneering BMI primarily enhances substantive performance through first-mover advantages and differentiation, whereas perfecting BMI strengthens symbolic performance by optimizing existing models. As anticipated, pioneering BMI and perfecting BMI were present in all configurations associated with high substantive and high symbolic performance, respectively, further validating the thematic BMI framework proposed by Luo et al. (2022). Beyond prior research, this study empirically demonstrates that BMI alone is insufficient to predict superior performance; its effectiveness depends on its alignment with a firm's strategic approach and environmental conditions. Even when firms implement pioneering and perfecting BMI, misaligned configurations may result in suboptimal performance outcomes (see Configurations ~P3 and ~L3 in Appendix B). This finding challenges the conventional notion that BMI is a performance driver (Amit & Zott, 2001), underscoring the critical need for it to dynamically adapt to environmental contingencies to achieve meaningful impact.

To further investigate the impact of BMI configurations on dual performance, this study employed Boolean algebra to examine the intersection of all configurations and their set–subset relationships. The objective was to identify universal solutions that simultaneously enhance multiple dimensions of performance (Park et al., 2017; Ragin, 2008). The analysis reveals that the combination of pioneering and perfecting BMI is essential for achieving dual performance. Notably, all high-performing configurations include pioneering and perfecting BMI, indicating that neither approach alone is sufficient. Pioneering BMI, while fostering market competitiveness, does not guarantee legitimacy, whereas perfecting BMI, while reinforcing legitimacy, struggles to drive competitiveness. This finding supports H2 and underscores the complementary nature of pioneering and perfecting BMI.

Furthermore, we explored the synergistic effects of BMI combinations and contextual factors, using the MSDO (most similar, different outcome) analytical logic (Rihoux & Ragin, 2009). By comparing similar configurations yielding different performance outcomes, we aimed to uncover the underlying drivers of performance variation. Our findings indicate that policy orientation significantly enhances symbolic performance, corroborating prior research suggesting that government policies facilitate corporate legitimacy. Specifically, subsidies, tax incentives, and regulatory flexibility enable firms to gain market recognition and social acceptance more efficiently. Additionally, environmental munificence exerts a dual effect on firms. While abundant market resources create more innovation opportunities, firms without a clear strategic direction may struggle to identify and capitalize on these opportunities effectively. Importantly, our analysis did not identify any configuration wherein environmental munificence alone significantly enhanced BMI performance (i.e., PioBMI*PerBMI*DO*EM). This suggests that environmental munificence must be complemented by policy orientation or other strategic imperatives to yield meaningful improvements in symbolic performance and market competitiveness. Based on these findings, the study makes the following contributions to the research on BMI and EMEs.

Contributions

First, this study responds to the call for contextualizing research on BMI and advances the understanding of its applicability within emerging market institutional environments, particularly examining how BMI influences the multifaceted performance of EMEs. Several scholars have emphasized the need to deepen the understanding of institutional contexts to expand existing BMI theories and explore their applicability across different settings, while also calling for greater attention to BMI's impact on stakeholders (Eyring et al., 2011; Ilyas et al., 2024; Luo et al., 2022). In response to this call, our study is the first to introduce the concept of BMI's dual performance in an emerging market context, arguing that it is not merely an optimization tool for transactional models but also a strategic mechanism for firms to secure legitimacy and enhance competitive advantage within institutional environments. By developing an integrated theoretical framework linking BMI and dual performance, we demonstrate that different configurations of BMI can enhance firms' market competitiveness and legitimacy under varying contextual conditions. Moreover, research that focuses solely on financial performance risks underestimating BMI's role in fostering long-term organizational sustainability.

Second, this study is the first to reveal the complementary relationship between pioneering and perfecting BMI, further expanding the ambidextrous aspects of BMI. Existing literature on business model design and firm performance has often overlooked the systemic nature of business models, failing to conceptualize them as interrelated elements. In response to calls for a more granular examination of business model configurations (Leppänen et al., 2023), this study introduces the notion that pioneering and perfecting BMI are not independent, but must be integrated to jointly drive firms' ambidextrous performance. Specifically, pioneering BMI fosters substantive performance by shaping market rules and establishing novel transaction paradigms. However, in the absence of institutional alignment and market acceptance, firms may encounter legitimacy challenges. Conversely, perfecting BMI enhances legitimacy and social endorsement by refining existing models, yet it lacks the disruptive force necessary to sustain competitive differentiation. Consequently, firms can achieve dual performance in uncertain environments only when pioneering BMI serves as the engine of innovation and perfecting BMI functions as a legitimacy safeguard, effectively balancing innovation with legitimacy. This finding challenges the implicit assumption in conventional BMI research that greater novelty in BMI necessarily translates into higher performance (Amit & Zott, 2001). By framing BMI as an ambidextrous innovation strategy, our study advances the understanding of its dual role, offering a novel theoretical perspective for future research that explores the interplay between different types of BMI.

Finally, this study contributes to the research on strategic configurations of BMI by proposing an interactive theoretical framework that integrates internal and external dynamics. It emphasizes that BMI must align with firms' strategic orientations and market environmental factors to achieve dual performance outcomes. By adopting a configurational perspective, we identify three effective BMI strategy combinations that reconcile the tension between uniqueness and legitimacy for EMEs, thereby enriching the theoretical understanding of BMI within complex causal relationships. Our findings indicate that the effectiveness of BMI implementation does not exist in isolation but is highly dependent on specific contextual conditions. From an internal perspective, integrating digital orientation into BMI significantly enhances firms' substantive performance. However, the successful implementation of this strategy requires alignment with legitimacy-enhancing strategies and environmental factors. For instance, policy orientation provides EMEs with a clear direction for innovation and strengthens their legitimacy, offering a more stable foundation for growth in institutionally uncertain market environments. From an external perspective, a competitive environment drives firms to adopt risk-intensive technological innovation strategies to gain differentiation advantages. Meanwhile, in contexts with high environmental munificence, firms can better leverage external resources to strengthen brand image, increase market recognition, and enhance their symbolic performance. These findings further reveal how different BMI strategy combinations create synergistic effects across varying market conditions, offering a novel theoretical perspective on how firms can effectively pursue business model innovation in uncertain environments.

Managerial implications

First, this study provides EMEs with actionable insights into effective BMI strategy combinations for achieving dual performance. In the complex and dynamic landscape of emerging markets, firms face the dual challenge of pursuing economic performance to sustain their survival, while simultaneously securing social legitimacy for long-term development. By identifying three strategic configurations that lead to dual performance, our study reveals that firms can effectively integrate pioneering and perfecting BMI and flexibly align their strategic orientation to drive innovation-led growth, while constructing legitimacy within institutional constraints. For example, in highly competitive environments, firms can actively respond to government policies (e.g., national initiatives promoting the development of new-energy vehicles) by integrating digital technologies into pioneering BMI (e.g., leveraging big data to develop intelligent driving solutions and filling market gaps) to gain competitive advantages. Moreover, they can implement perfecting BMI by optimizing existing markets (e.g., using data analytics to identify customer pain points and providing personalized customer service systems) to enhance customer satisfaction. This integrated strategy enables firms to explore new market opportunities and improve substantive performance, and enhances user experience and social recognition, thereby strengthening symbolic performance. These findings provide valuable theoretical and practical guidance for EMEs striving for sustainable development in complex environments.

Second, for mature-market firms planning to enter emerging markets, this study provides concrete guidance on adapting BMI strategies by analyzing the practices of EMEs. As Eyring et al. (2011) noted, many mature-market firms tend to replicate their existing business models when entering emerging markets, yet this approach often leads to failure. The primary reason is that these firms fail to account for the unique contextual characteristics of emerging markets, including differences in institutional environments, cultural backgrounds, and market demands. Our study highlights that mature-market firms should place particular emphasis on acquiring symbolic performance when entering emerging markets, as this factor is often a critical concern in emerging economies but is frequently overlooked in mature markets. Specifically, firms need to assess the local institutional environment, actively respond to local policies and regulations, and leverage opportunities arising from environmental munificence. Furthermore, they should implement perfecting BMI to optimize existing business processes and service systems. For example, firms can strengthen their legitimacy by establishing close collaborations with local governments and communities to ensure that their business model aligns with local regulations and social expectations. Simultaneously, they can leverage digital technologies, such as big data and AI, to enhance service quality, meet customers' personalized needs, and improve user experience and satisfaction.

Finally, this study provides insights for emerging market governments on optimizing policy instruments to support BMI. On the one hand, governments should emphasize the guiding role of policies by clearly defining strategic priorities and systematically directing social capital toward high-growth industries. By formulating clear development road maps and incentive mechanisms, policymakers can help firms identify and enter promising sectors, thereby optimizing resource allocation and fostering sustainable economic growth. On the other hand, governments should establish legitimacy buffers for EMEs by creating more munificent business environments, particularly for firms engaged in pioneering BMI. Providing targeted policy support—such as simplifying project approval procedures, reducing approval timelines, issuing temporary licenses, or exempting specific regulatory requirements—can significantly enhance the feasibility of exploratory innovations. Overall, such policy initiatives contribute to enhancing firms' competitiveness and innovation capacity, ultimately driving industry advancement and promoting sustainable socioeconomic development.

Limitations and scope for future research

This study has several limitations that provide avenues for future research. First, this study relies on data from China, which constrains our understanding of how BMI functions under varying levels of institutional development. As a relatively institutionally mature emerging economy, China features centralized policymaking and strong governance capacity. These conditions offer firms a structured institutional environment that facilitates the implementation of BMI strategies through formal channels, such as responding to policy initiatives. In such a context, firms commonly acquire legitimacy and achieve dual performance by aligning their strategies with national development goals.

By contrast, in countries, such as Ghana, Nigeria, and other sub-Saharan African economies, weak institutional systems, fragmented policy frameworks, and inconsistent regulatory enforcement compel firms to innovate under institutional volatility (Adomako et al., 2024). In these settings, firms often lack reliable access to formal policy guidance or institutional support. Instead, many adopt digital technologies to reduce transaction costs and enable collaborative innovation that responds to local needs. These approaches strengthen the informal legitimacy of firms' BMI efforts and allow them to operate effectively despite institutional shortcomings (Howell et al., 2018). These institutional disparities suggest that firms in different emerging market contexts may adopt distinct mechanisms to configure and legitimize BMI. Future studies should extend this line of inquiry to EMEs in Latin America, Africa, and other regions with diverse institutional trajectories to uncover context-contingent pathways to dual performance.

Second, the study does not account for firm-level heterogeneity, particularly in terms of size and industry. Firm size influences the capacity for the organizational transformation required by BMI. Small and medium-sized enterprises (SMEs), owing to their agility, are often more capable of implementing pioneering BMI in dynamic markets, though resource constraints may prevent them from engaging in dual BMI simultaneously. SMEs may instead adopt lean models targeting underserved segments, achieving value creation with minimal structural complexity (Christensen, 1997; Massa et al., 2017). Conversely, large firms benefit from abundant resources and are better positioned to pursue dual BMI. However, they face greater structural inertia and coordination costs, which can hinder pioneering efforts (Leppänen et al., 2023). To overcome this, they may establish autonomous teams or subsidiaries to experiment with more exploratory models.

Industry characteristics also critically shape the configuration of BMI strategies. Firms in high-tech, internet-based, and platform-driven sectors typically favor pioneering BMI due to rapid technological change and evolving customer demands. Conversely, firms in capital-intensive, heavily regulated industries (e.g., manufacturing, energy, and healthcare) often adopt perfecting BMI, focusing on process optimization and regulatory compliance. Future research should examine how firm size and industry characteristics influence the balance between exploration and exploitation, and how this balance affects BMI performance outcomes.

Third, with rapid technological advancements, emerging technologies, such as AI are increasingly influencing BMI and corporate decision-making (Doshi et al., 2025). These technologies reshape firms' operational processes and redefine their interactions with external environments. Notably, the interaction mechanisms of emerging technologies with firms differ from those of traditional digital technologies. For instance, AI enhances existing processes through data analytics and serves as a decision-making agent, actively contributing to corporate strategy formulation and market forecasting, thereby influencing firms' decision-making at a higher level. However, this study provides only limited discussion on this topic. Future research should delve deeper into how emerging technologies interact with BMI and their impact on dual performance in EMEs.

Conclusion

This study investigated the following question: How can BMI coordinate internal and external factors to achieve dual performance in EMEs? Applying fsQCA, we integrated thematic BMI, strategic orientation, and environmental characteristics to examine the multiple concurrent factors and causal complexities influencing the realization of dual performance in EMEs. Our findings emphasize that neither pioneering nor perfecting BMI alone is sufficient to predict high substantive or symbolic performance, nor to independently achieve dual performance. However, when combined and aligned with other strategic orientations and environmental factors, these two BMI approaches significantly enhance dual performance. This supports our hypothesis that while dual BMI is essential for achieving dual performance, its full potential can be realized only when it interacts synergistically with other key factors. These insights provide scholars and practitioners with a fresh perspective on business model design and strategic configuration, enabling a more comprehensive understanding and optimization of BMI strategies. Ultimately, this study contributes to advancing the strategic management of EMEs, helping them navigate complex and dynamic environments to achieve superior performance outcomes.

CRediT authorship contribution statement

Feifei Huang: Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Xingwu Luo:** Supervision, Funding acquisition, Data curation, Conceptualization. **Mimi Xiao:** Writing – review & editing, Supervision, Resources, Methodology, Funding acquisition. **Wenhao Dong:** Writing – review & editing, Visualization.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jik.2025.100755.

Appendix

Appendix A. Robustness tests

Variables	Substantive performance			Symbolic performance		
	Pa	Pb1	Pb2	La1	La2	Lb
pioBMI	●	●	●	●	●	●
perBMI	●	●	●	●	●	●
PO	●	⊗	●	●		●
DO	●	●	●	●	●	●
EM	●		●	●	●	●
EC	●	●	⊗		●	
Raw Coverage	0.536	0.432	0.392	0.615	0.667	0.615
Unique Coverage	0.536	0.143	0.102	0.034	0.085	0.615
Consistency	0.877	0.965	0.937	0.967	0.968	0.967
Overall Solution Coverage	0.536	0.535		0.700		0.615
Overall Solution Consistency	0.877	0.952		0.963		0.967

Appendix B. Configurations for low substantive and symbolic performance

Variables	Not High Substantive performance			Not High Symbolic performance					
	~P1	~P2	~P3	~L1	~L2	~L3	~L4	~L5	~L6
pioBMI	⊗	⊗	●		⊗		⊗	●	
perBMI	⊗	⊗	⊗	⊗	⊗	●	⊗	⊗	⊗
PO		⊗	●	⊗		⊗	⊗		⊗
DO	⊗		●		⊗	⊗	⊗	●	●
EM	⊗	⊗	⊗	⊗	⊗	⊗		⊗	⊗
EC	⊗	⊗	⊗	●	⊗	⊗	●	⊗	
Raw Coverage	0.584	0.513	0.359	0.446	0.570	0.389	0.425	0.511	0.531
Unique Coverage	0.066	0.017	0.022	0	0.092	0.022	0.021	0.015	0.016
Consistency	0.942	0.950	0.927	0.924	0.898	0.973	0.950	0.942	0.937
Overall Solution Coverage	0.637			0.764					
Overall Solution Consistency	0.932			0.884					

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