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A social-cognitive perspective on business model diversification

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ABSTRACT

Existing research on business model (BM) diversification primarily explains diversification through demand–side and supply–side relatedness. While these perspectives clarify the economic and operational conditions under which diversification may be advantageous, they tend to treat BM diversification as a direct outcome of observable structural characteristics, overlooking the social–cognitive processes through which top management teams (TMTs) recognise, evaluate, and legitimise diversification opportunities. To address this gap, we propose a theoretical framework that conceptualises BM diversification as an inherently social–cognitive process. By integrating concepts from alliance research, network embeddedness theory, and social–cognitive theories of strategy, the framework explains how TMT social–cognitive capacities shape the dominant logic through which managers interpret BM portfolio configurations and their innovation potential. Specifically, we argue that cognitive consensus and cognitive complexity shape the dominant logic through which TMTs attend to, interpret, and legitimise diversification opportunities. We conceptualise cognitive distance, BM centrality, and BM portfolio density as cognitively enacted BM portfolio characteristics that shape how TMTs identify, evaluate, and integrate diversification opportunities across new and existing BMs. By conceptualising cognition as collective, socially embedded, and recursive, we explain how the TMT's dominant logic both shapes and is shaped by the BM portfolio characteristics and innovation outcomes over time. The framework is particularly relevant for firms operating in digitally dynamic environments, where technological disruption, platform competition, and ecosystem interdependencies continuously reshape the conditions under which BM diversification occurs. The proposed framework moves beyond static and individual–level cognitive explanations of BM diversification and provides a dynamic explanation of why firms facing similar environmental and structural conditions may pursue distinct diversification trajectories and achieve divergent outcomes.

1. Introduction

Technological innovations, climate change, and increased competition require firms to rethink how they create and capture value or redesign their business models (BMs) even in relatively stable markets (Karki & Porras, 2021; Konopik et al., 2022; Rifkin, 2011). To cope with this complexity and mitigate the risk of failure, many firms increasingly develop and operate multiple BMs (Aversa et al., 2017; Schwarz et al., 2017; Snihur et al., 2023). These multiple BMs can complement and reinforce one another, leading to improved business performance and competitive advantage (Sohl & Vroom, 2014; Westerveld et al., 2023), yet also create conflicts over critical resources or cannibalise the original BM (Aversa et al., 2015; Aversa et al., 2017; Guyader & Piscicelli, 2019; Heshmatisafa & Seppänen, 2023).

BM diversification refers to the concurrent operation of multiple, distinct activity systems through which a firm creates and captures value (Bosbach et al., 2020; Harren et al., 2022; Markides, 2013; Markides & Charitou, 2004; Snihur & Tarzijan, 2018; Sohl et al., 2020, 2022; Sohl & Vroom, 2014). The literature on BM diversification has primarily focused on supply–side and demand–side perspectives to explain why and how firms expand into multiple BMs (Aversa et al., 2021; Harren et al., 2022; Sohl et al., 2022; Sohl & Vroom, 2014). While these perspectives have generated valuable insights, both share a common limitation: they position BM diversification as a direct outcome of observable structural characteristics and leave managerial agency and its underlying cognitive processes largely implicit (Gavetti & Rivkin, 2007; Martins et al., 2015; Rajagopalan & Spreitzer, 1997; Zott & Amit, 2010). This is of concern since BM diversification does not arise

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automatically from the demand and supply relatedness—it is also a cognitive construct shaped by the top management teams' (TMTs) interpretation of their firm and its businesses (Bettis & Prahalad, 1995; Ginsberg, 1990; Prahalad & Bettis, 1986). Although emerging studies are starting to acknowledge the role of cognition in BM diversification (Ringvold et al., 2023), this literature remains limited and incomplete in three important aspects.

First, cognition is conceptualised at the individual level such as executive beliefs, identities, or mental models, without explaining the social and collective processes that guide the TMT's shared understanding of its BM portfolio and new BM opportunities (Bettis & Prahalad, 1995; Ginsberg, 1990; Prahalad & Bettis, 1986). Second, existing studies describe BM diversification primarily as a linear causal structure in which environmental conditions shape managerial cognition and produce strategic outcomes, paying limited attention to the dynamic and recursive nature of cognition in which TMT interpretations, actions, and learning outcomes co–evolve during diversification trajectories (Bettis, 2000; Gavetti & Rivkin, 2007; Rajagopalan & Spreitzer, 1997). Third, existing studies primarily explain entry decisions into new domains or the initiation of individual BM innovations, while paying limited attention to how TMTs' cognition continuously influences the reconfiguration and innovation of the BM portfolios over time (Aspara et al., 2013; Ringvold et al., 2023).

To address these limitations and advance the cognitive view of BM diversification, we develop a social–cognitive framework that conceptualises BM diversification as an inherently social–cognitive process. The framework integrates concepts of alliance research and network embeddedness theory with social–cognitive theories of diversification (Gilsing et al., 2008; Granovetter, 1985; Gulati & Gargiulo, 1999; Rowley et al., 2000), applying them to the context of BM portfolios. To guide the development of the framework, we address the following research questions:

RQ1. How do TMT social–cognitive capacities, specifically cognitive consensus and cognitive complexity, shape the dominant logic through which BM diversification opportunities are recognised and pursued?

RQ2. How does the TMT's dominant logic influence cognitively enacted BM portfolio characteristics, specifically cognitive distance, BM centrality, and BM portfolio density, and their innovation potential?

RQ3. How do BM portfolio characteristics and innovation outcomes recursively reshape the TMT's dominant logic over time?

The framework contributes to the BM diversification literature in three main ways. First, it shifts the explanation of diversification away from objective supply–side and demand–side relatedness toward social–cognitively perceived relatedness, by introducing cognitive distance, BM centrality, and BM portfolio density as cognitively enacted portfolio characteristics that shape how TMTs recognise, evaluate, and coordinate diversification opportunities. Second, it advances the cognitive understanding of BM diversification by moving from individual–level constructs toward a social–cognitive, group–level perspective centred on cognitive consensus and cognitive complexity within the TMT and their influence on dominant logic formation. Third, it develops a recursive perspective in which TMT interpretations, BM portfolio structures, and innovation outcomes continuously co–evolve over time, replacing the current linear causal understanding with a dynamic cognitive view.

This paper is organised into five sections. Next, we discuss the literature on BM diversification. We then examine social–cognitive perspectives on strategy and diversification. Subsequently, we explain how cognitive and structural dimensions from alliance and network theory can inform the innovation potential of BM portfolio. Finally, we present the social–cognitive framework of BM diversification and discuss its implications for research and practice.

2. Theoretical background

2.1. Business model diversification

Zott and Amit (2010) describe a BM as a system of interdependent activities that connects factor and product markets. Complementing this view, Teece (2010) emphasises that the essence of a BM lies in how a firm delivers value to customers and captures value in return. Building on these perspectives, BM diversification extends the concept of a single activity system to the simultaneous operation of multiple, distinct activity systems within one firm, each designed to create and capture value in different ways (Sohl et al., 2022). Examples include newspaper companies operating ad–sponsored BMs alongside traditional subscription–based models (Casadesus–Masanell & Zhu, 2010), retailers combining both bricks–and–mortar stores with e–commerce (Ahuja & Novelli, 2016; Kim & Min, 2015), and airlines operating full–service carriers alongside no–frills or discount carriers (Casadesus–Masanell & Tarzijan, 2012; Markides & Charitou, 2004).

The literature on BM diversification has primarily focused on supply–side and demand–side perspectives (Aversa et al., 2021; Sohl et al., 2022; Sohl & Vroom, 2014). The supply–side perspective emphasises how firms leverage existing resources, capabilities, and operational synergies to diversify the firm into areas where the firm can extend its existing knowledge, skills, and infrastructure (Penrose, 1959; Sohl et al., 2022; Teece, 1982). Scholars advancing this perspective have argued that a firm's existing assets influence the potential performance of new BMs (Kim & Min, 2015); that resource and capability variety positively moderates the relationship between BM diversification and performance (Aversa & Haefliger, 2017), and that a balanced BM portfolio can support new activities while preserving strategic distinctiveness (Sabatier et al., 2010). Yet this perspective risks overstating the ease with which firms can redeploy resources across distinct BMs. Synergies are often contingent, fragile, and subject to organisational inertia, while path dependencies may lock firms into resource configurations that inhibit rather than enable diversification (Bettis et al., 2011; Ginsberg, 1990).

The demand–side perspective, by contrast, emphasises market–based synergies such as leveraging brand recognition, customer relationships, and distribution channels to address new but related customer needs (Aversa et al., 2021; Mawdsley & Somaya, 2018; Sohl et al., 2020, 2022). Scholars in this tradition have shown that demand–related BMs are generally more profitable due to greater demand–side synergies (Sohl et al., 2020); that demand–side synergies affect the performance and entry sequence of BM diversification (Sohl et al., 2022), and that customer complementarities such as network effects can drive firm growth and competitive advantage (Aversa et al., 2021). This perspective may understate the interpretive and strategic risks that arise when demand–side synergies are stretched too far, including brand dilution, cannibalisation, or customer confusion (Bettis & Prahalad, 1995).

Understanding why firms facing similar structural conditions pursue markedly different diversification trajectories therefore requires moving beyond supply–side and demand–side accounts toward an understanding of how TMTs collectively interpret, negotiate, and enact BM diversification opportunities. We develop this argument in the following sections.

2.2. Dominant logic

The dominant logic describes the way in which the TMT conceptualises the organisation and makes critical resource allocation decisions. The concept of a dominant logic can be defined in terms of its absolute and relative dominance. In absolute terms, it refers to a shared organisational knowledge structure that has reached a certain level of maturity and stability and is highly dominant across a defined set of businesses within the firm's portfolio, thus dominating the logics of those businesses (Franke & Zu Knyphausen–Aufsess, 2014). In relative terms, it refers to the degree to which the logic of one business, typically

the core or historically dominant BM, prevails over the logics of the other BMs in the portfolio (Franke & Zu Knyphausen–Aufsess, 2014). These two dimensions help explain why a single dominant logic can govern a BM portfolio that spans multiple distinct activity systems, and why its influence may strengthen or weaken as the composition of the portfolio evolves over time.

Dominant logic can be understood as a socially shared cognitive schema, as it is shaped by TMT–level interpretations and becomes institutionalised across the organisation over time (Walsh, 1995). It is typically shaped by the firm's largest or core business, which historically served as the foundation for the firm's growth (Dess et al., 1990; Prahalad & Bettis, 1986; Von Krogh et al., 2000). It can additionally be influenced by the collective experience of the TMT and is considered a part of the team's administrative heritage (Collis, 1991), which can in turn constrain future strategic choices (Franke & Zu Knyphausen–Aufsess, 2014; Zyglidopoulos, 1999). A particular dominant logic is deemed appropriate for a portfolio of strategically similar BMs as long as it aligns with the external environment (Franke & Zu Knyphausen–Aufsess, 2014). However, in a diversified firm, strategic similarity can evolve due to changes in the mix of BMs caused by acquisitions or internal development or alterations in the structural characteristics of the existing portfolio (Prahalad & Bettis, 1986, p. 495). The primary challenge for the TMT therefore lies in determining whether the existing dominant logic remains suitable as BMs are added or existing ones are reconfigured (Côté et al., 1999; Prahalad & Bettis, 1986).

Moreover, a dominant logic not only filters environmental data, which by definition reflects past events, but also provides the interpretive categories through which strategists make sense of this information and envision possible futures (Barr et al., 1992; Von Krogh et al., 2000; Weick & Bougon, 1986). When a new BM cannot be understood through the existing interpretive categories embedded in the dominant logic, it will likely be dismissed as irrelevant by decision–makers (Christensen, 2015; Von Krogh et al., 2000). Following Von Krogh et al. (2000), we therefore conceptualise dominant logic as operating along two dimensions: the funnel, which focuses organisational attention through the lens of past experiences and established assumptions, and the lens, which shapes the range of strategic futures that the TMT is able to imagine and pursue.

To illustrate, consider a TMT tasked with adding a new BM to its portfolio. Over time, the team may have developed a dominant logic shaped by its existing BM activities, leading managers to privilege information that aligns with established assumptions while overlooking signals that fall outside them (Amason, 1996; Miller et al., 1998; Starbuck & Milliken, 1988; Sutcliffe & Huber, 1998). In such cases, diversification options that appear inconsistent with the existing BM portfolio may be dismissed before they are fully evaluated, not because they lack strategic potential, but because they cannot easily be interpreted through the TMT's prevailing dominant logic (Von Krogh et al., 2000).

This dual nature gives dominant logic a double–edged quality. On the one hand, it is a valuable intangible resource that provides strategic coherence and competitive advantage (Barney, 1991; Obloj et al., 2010). On the other hand, it can generate significant blind spots and inertia, causing the TMT to overlook novel opportunities or misread environmental signals (Gilbert, 2005; Prahalad, 2004). It is therefore the TMT's responsibility to continuously adapt the dominant logic to avoid the hidden costs of diversification, including inadequate oversight of the BM portfolio and slow responses to environmental change that arise from its inappropriate application (Franke & Zu Knyphausen–Aufsess, 2014; Prahalad & Bettis, 1986). The social–cognitive capacities that enable such adaptation, particularly cognitive consensus and cognitive complexity, are described in the following section.

2.3. Social–cognitive capacities

Dominant logic is not imposed unilaterally by a single executive but is socially constructed and continuously negotiated through interaction and internal power dynamics among TMT members (Engelmann et al., 2020; Franke & Zu Knyphausen–Aufsess, 2014). The extent to which executives participate in strategic dialogue affects how individual knowledge structures are incorporated into group–level reasoning, a process Walsh and Fahey (1986) conceptualise as a negotiated belief structure through which individual interpretations and influence dynamics interact to produce shared interpretive frames. Organisations therefore differ not only in the content of their dominant logic but also in the social–cognitive capacities through which TMTs construct, interpret, and enact strategic understanding (Ginsberg, 1990). These social–cognitive capacities can be defined as the collective capacities through which TMTs interpret information, construct shared meanings, and learn in ways that support diversification and strategic adaptation (Ginsberg, 1989, 1990). Following Ginsberg's (1990) sociocognitive view of diversification, we argue that two TMT social–cognitive capacities are central to BM diversification: cognitive consensus and cognitive complexity.

Cognitive consensus refers to the extent to which diverse assumptions and interpretations are integrated into a common understanding within the TMT (Eisenhardt & Bourgeois III, 1988; Ford & Baucus, 1987). A certain amount of shared understanding must exist for a group to draw upon the interpretations of its members and effectively resolve individual differences (Eisenhardt & Bourgeois III, 1988; Ford & Baucus, 1987). Cognitive consensus facilitates coordinated action by reducing communication and coordination costs and by aligning organisational members around a shared strategic logic (Camerer & Vepsalainen, 1988). However, excessive consensus may inhibit learning and adaptation, increase the risk of groupthink, and reinforce a rigid dominant logic that resists novel information (Ginsberg, 1989, 1990).

Cognitive consensus is distinct from several related concepts. It differs from shared cognition, which broadly refers to collectively held knowledge structures including shared mental models, role understandings, and situational awareness (Cannon-Bowers & Salas, 2001; Thompson & Fine, 1999). Cognitive consensus is a more specific form, concerned with convergence in the strategic interpretive frameworks through which TMTs make sense of organisational and environmental conditions, rather than encompassing all shared knowledge structures (Ginsberg, 1990). It also differs from strategic consensus, which refers to agreement on strategic goals, priorities, or courses of action (Dess & Origer, 1987; Knight et al., 1999), that is, alignment around what should be done. Cognitive consensus, by contrast, concerns convergence in the underlying interpretive structures through which managers understand strategic issues, that is the alignment around how reality is interpreted. TMTs may agree on a strategic decision while relying on entirely different assumptions and causal beliefs to justify it (Ginsberg, 1990, 1989). Finally, it differs from behavioural integration, which refers to the extent of collaborative interaction, information exchange, and joint decision–making among executives (Carmeli & Schaubroeck, 2006; Hambrick, 1997). Behavioural integration describes how executives work together; cognitive consensus concerns whether they interpret organisational and environmental realities similarly. Although the former may facilitate the latter through repeated interaction, the constructs remain analytically distinct (Carmeli & Schaubroeck, 2006; Ginsberg, 1990; Hambrick, 1997). These distinctions, collectively, position cognitive consensus as a construct that specifically captures convergence in the interpretive knowledge structures underlying strategic decision–making within TMTs.

Cognitive complexity reflects the degree to which TMT members collectively differentiate among multiple knowledge structures and integrate them into coherent interpretations (Bartunek, 1984; Bartunek et al., 1983). It is determined by two interdependent aspects: (i)

differentiation; referring to the number of distinct knowledge structures the team can draw upon, and (ii) integration; referring to the rules through which those structures are combined into coherent understanding (Bartunek et al., 1983; Coman & Fodor, 2022; Ginsberg, 1990; Stabell, 1978). To be effective, TMTs must generate sufficient interpretive variety to match the variety inherent in their strategic environment (Bartunek et al., 1983). Cognitively complex teams can distinguish environmental elements on many dimensions and simultaneously hold and apply multiple theoretical frameworks to describe them (Bartunek et al., 1983; Ginsberg, 1990). High cognitive complexity therefore enhances the TMT's ability to recognise environmental cues, interpret ambiguity, and engage with competing perspectives (Ford & Baucus, 1987). However, excessive complexity may hinder implementation if ambiguity prevents convergence and coordinated action (Ginsberg, 1990; Kazanjian & Drazin, 1987). At the group level, cognitive complexity enables the TMT to move beyond simplified or historically anchored knowledge structures, supporting strategic adaptation in uncertain and dynamic environments (Coman & Fodor, 2022; Ginsberg, 1990).

Cognitive complexity differs from several related concepts. It differs from cognitive diversity, which refers to differences in perspectives or knowledge among individual members. Cognitive complexity reflects the team's collective capacity to integrate these differences into coherent and usable shared interpretations (Coman & Fodor, 2022; West III, 2007). Diversity may exist without complexity if individual perspectives remain fragmented rather than integrated; for instance, when power asymmetries prevent synthesis (Franke & Zu Knyphausen–Aufsess, 2014; Walsh & Fahey, 1986). It also differs from upper echelons theory, which explains how executive background characteristics influence strategic outcomes (Carpenter et al., 2004; Hambrick, 2007; Hambrick & Mason, 1984). Cognitive complexity captures not the characteristics of individuals but whether and how their differing perspectives become integrated into coherent collective understandings at the group level. Demographic or cognitive heterogeneity within a TMT does not necessarily produce high cognitive complexity unless the team is able to synthesise these perspectives into shared interpretive structures (Ginsberg, 1990). Finally, it differs from sensemaking, which focuses on the processes through which organisational actors construct meaning under conditions of ambiguity and uncertainty (Gioia & Thomas, 1996; Maitlis & Christianson, 2014; Weick, 1995a, 1995b; Weick et al., 2005). Cognitive complexity provides the structural properties of collective cognition that enable sophisticated sensemaking to occur; specifically, the extent to which a TMT can maintain differentiated interpretations while simultaneously integrating them into coherent collective frameworks (Ginsberg, 1990). These distinctions position cognitive complexity as a construct that specifically captures differentiation and integration in the knowledge structures underlying strategic decision–making within TMTs.

To summarise, cognitive consensus and cognitive complexity represent complementary capacities. While cognitive consensus provides coherence and enables coordinated strategic action, cognitive complexity fosters openness to alternative interpretations and emerging possibilities. The interaction between these two capacities determines whether a firm's dominant logic operates as a rigid or an adaptive funnel and lens. In the following section, we draw on alliance research and network embeddedness theory to conceptualise the cognitively enacted BM portfolio characteristics through which dominant logic shapes the firm's innovation potential.

2.4. *Cognitively enacted BM portfolio characteristics and innovation potential*

Existing research on BM diversification has largely focused on the presence and relatedness of multiple BMs in relation to performance, thereby paying less attention to how firms recognise and renew their BM portfolio over time. We propose that the innovation potential of a diversified firm depends not only on the presence of multiple BMs, but also on how relationships among these BMs are cognitively interpreted and structurally configured within the portfolio. To capture this perceived relatedness and configuration, we draw on insights from alliance research and network embeddedness (Gilsing et al., 2008; Granovetter, 1985; Gulati & Gargiulo, 1999; Rowley et al., 2000). Alliance studies show that innovation depends not only on the characteristics of individual partners, but also on the configuration of relationships among them. Gilsing et al. (2008) demonstrate that exploration is shaped by three interrelated dimensions: cognitive distance, network centrality, and network density. We translate these dimensions into the BM portfolio context as cognitive distance, BM centrality, and BM portfolio density. These dimensions jointly shape how firms balance two fundamental innovation tasks: novelty creation and novelty integration (Gilsing et al., 2008; Nooteboom et al., 2007). We argue that these dimensions are theoretically transferable to the BM portfolio context, although their manifestation differs because BMs are embedded within a single firm rather than distributed across independent alliance partners.

Although alliance networks differ in their empirical setting and governance arrangements, they address the same underlying theoretical problem: how the configuration of heterogeneous knowledge domains influences the firm's ability to generate and integrate novel recombinations. In alliance networks, the nodes are legally independent firms, and the ties are collaborative agreements through which knowledge and resources flow (Gilsing et al., 2008). In BM portfolios, we propose that the nodes are distinct BMs, each representing a configuration of activities, resources, partners, logics, and revenue mechanisms (Aspara et al., 2013; Martins et al., 2015; Snihur & Tarzijan, 2018; Zott & Amit, 2010), while the ties are interdependencies created through shared resources, technologies, customers, organisational capabilities, knowledge flows, and managerial attention (Aversa et al., 2021; Berntsen, 2026; Paiola, Agostini, et al., 2022; Sohl et al., 2022; Wiener et al., 2018). In this way, a BM portfolio can be conceptualised as an intra–organisational network of multiple interdependent activity systems that create and capture value (Snihur & Tarzijan, 2018; Sohl et al., 2022; Westerveld et al., 2023). This logic is consistent with scholars who conceptualise BM portfolios as interconnected systems of complementary and interdependent BMs rather than isolated strategic units (Aspara et al., 2013; Snihur & Tarzijan, 2018).

Although distinct BMs are embedded within a single firm, they often differ in their knowledge, resources, customers, and value logic (Aversa et al., 2021; Visnjic et al., 2022; Winterhalter et al., 2016), creating opportunities for recombination analogous to those found between alliance partners, while resource and activity interdependencies simultaneously create channels for synergy and knowledge transfer (Kuo, 2017; Velu & Stiles, 2013; Wiener et al., 2018).

However, there are also significant differences between alliance networks and BM portfolios that must be acknowledged. First, governance differs fundamentally. Alliance partners are autonomous actors whose interactions are governed through contracts, negotiations, and trust, whereas distinct BMs within a firm are linked through ownership, managerial authority, and shared resources (Snihur & Tarzijan, 2018; Westerveld et al., 2023). This reduces transaction hazards and opportunism, but increases internal tensions such as resource allocation conflicts, cannibalisation, and competition for managerial attention (Smith et al., 2010;Velu & Stiles, 2013; Visnjic et al., 2022). Second, the nature of ties is more fluid and diverse. Alliance ties are typically discrete and contractually defined, whereas ties among BMs may emerge autonomously through shared technologies, capabilities, and data (Groeger et al., 2019; Höök et al., 2015; Kuo, 2017). Third, information transparency is generally higher within a firm's BM portfolio, as distinct BMs typically exhibit tighter intra–organisational linkages and more direct visibility into each other's activities compared to independent alliance partners (Snihur & Tarzijan, 2018). This can enhance knowledge transfer and coordination, but may also lead to convergence,

redundancy, and a reduction in strategic variety (Gilsing et al., 2008; Montgomery, 2011; Prahalad, 2004). Importantly, however, these differences do not invalidate the transfer of alliance–network dimensions to the BM portfolio context; rather, they suggest that these dimensions may operate through different organisational mechanisms and vary in strength across a BM portfolio.

The directional logic of alliance–derived effects is maintained within BM portfolios for the following reasons. First, while alliance partners rely on contracts, trust, and reputation to govern knowledge exchange, BMs within a firm are governed through managerial authority, ownership unity, and shared organisational culture–mechanisms that substitute for alliance governance and preserve the directional relationship between portfolio configuration and innovation potential, even if the magnitude of effects differs (Snihur & Tarzijan, 2018; Westerveld et al., 2023). Second, internal cannibalisation and resource conflict, while real risks, represent boundary conditions rather than direction—reversing forces. They are most likely to arise when cognitive distance is excessive, BM centrality is poorly managed, or portfolio density creates resource lock–in–conditions that the framework explicitly identifies as suboptimal configurations. Within the optimal range of each dimension, the governance advantages of intra–firm ownership reduce opportunism and coordination costs sufficiently to preserve the directional logic derived from alliance research (Velu & Stiles, 2013; Visnjic et al., 2022). The framework therefore does not claim that intra–firm dynamics are equivalent to alliance dynamics, but that the directional relationships among portfolio configuration, cognitive enactment, and innovation potential remain theoretically coherent within a single firm.

By adopting the logic of alliance research and network embeddedness, we aim to better understand how firms generate innovation potential with a BM portfolio. We conceptualise the innovation potential of a BM portfolio through three cognitively enacted BM portfolio characteristics, cognitive distance, BM centrality, and BM portfolio density (Gilsing et al., 2008). The following sub–sections elaborate on each dimension in turn.

2.5. Cognitive distance between business models

The following discussion draws on structural and empirical illustrations to introduce cognitive distance; in Section 3 this dimension is reconceptualised as cognitively enacted through the TMT's dominant logic rather than as an objective property of the BM portfolio. Within research on alliances and network embeddedness, cognitive distance refers to differences in the organisational knowledge bases, perceptions, and underlying assumptions of the firms engaged in collaborative innovation, particularly regarding how value is created and captured (Enkel & Heil, 2014; Nooteboom, 2000, 1999; Nooteboom et al., 2007). Alliance and network studies have emphasised both the challenges associated with cognitive distance, particularly coordination difficulties, misunderstandings, and limited mutual comprehension between partners (Mowery et al., 1996; Stuart, 1998), and its positive role in exploratory innovation, showing that cognitive distance can stimulate learning, experimentation, and creative recombination when organisations engage with diverse knowledge effectively (Gilsing et al., 2008; Nooteboom et al., 2007). Differences in technological and knowledge domains expand the space of potential recombinations and increase the likelihood of generating novel ideas (Ahuja & Morris Lampert, 2001; Schumpeter & Opie, 1934). At the same time, excessive distance between partners may hinder mutual understanding and absorptive capacity, resulting in diminishing returns for learning (Miller et al., 2007; Sampson, 2007). Conversely, insufficient cognitive distance may lead to cognitive lock–in, reinforcing existing schemas and suppressing radical innovation (Boschma, 2005).

We argue that a similar logic applies within BM portfolios. Although BMs within a portfolio operate under common ownership, they may embody substantially different knowledge domains, operational logics, and assumptions about how value is created and captured. For instance, a firm operating multiple digital servitization BMs such as a platform–based BM, a product–oriented BM, and a subscription–based service model must manage fundamentally different knowledge bases, organisational logics, capabilities, pricing mechanisms, customer relationships, and governance structures (Huikkola & Kohtamäki, 2018; Kohtamäki et al., 2019). These differences create cognitive distance between BMs because each model embodies different technological, commercial, and organisational logics, making cross–model integration and coordination more complex (Gebauer et al., 2020; Paiola, Agostini, et al., 2022; Paiola, Khvatova, et al., 2022).

Similar to alliance settings, such diversity can become an important source of innovation. Exposure to heterogeneous BMs increases the range of available knowledge combinations and enables firms to experiment with practices, technologies, and value creation mechanisms that would otherwise remain disconnected (Martins et al., 2015). In this sense, the coexistence of multiple digital servitization BMs may function as an internal source of variation that enhances organisational learning, as firms transfer insights, digital capabilities, and service practices across different value creation logics (Huikkola & Kohtamäki, 2018; Kohtamäki et al., 2019). For example, firms combining a product–oriented BM with a digital platform BM may generate innovations by integrating industrial operations with data–driven service capabilities, enabling the emergence of advanced solutions such as product–as–a–service offerings, predictive maintenance systems, and outcome–based service models (Paiola, Agostini, et al., 2022; Paiola & Gebauer, 2020; Paiola, Khvatova, et al., 2022).

Portfolios composed of highly similar BMs, by contrast, may suffer from cognitive lock–in. When BMs rely on similar technologies, customer relationships, and revenue mechanisms, they may reinforce established assumptions and limit the range of possible recombinations. The airline industry illustrates this tension. Legacy carriers and low–cost carriers have increasingly adopted elements from one another, yet they continue to display persistent structural and performance differences despite convergence in practices (Chiambaretto & Combe, 2023). This suggests that surface–level similarity does not necessarily eliminate deeper cognitive and structural differences between BMS. More generally, when cognitive distance is too low, BM portfolios are more likely to support incremental adaptation than transformative recombination. Accordingly, the innovation potential of a BM portfolio is likely to be highest when cognitive distance between BMs is neither too low nor too high. Moderate levels of cognitive distance provide sufficient diversity to stimulate experimentation and recombination, while still allowing managers to maintain shared understanding across BMs. The innovation value of cognitive distance is therefore contingent on the firm's ability to interpret, integrate, and recombine diverse knowledge across its BM portfolio; a capacity shaped, as we argue in Section 3, by the TMT's dominant logic.

2.6. Business model centrality

As with cognitive distance, BM centrality is introduced here through structural illustrations; its role as a cognitively enacted portfolio characteristic, shaped by the TMT's dominant logic, is developed in Section 3. In alliance and network embeddedness research, centrality refers to an actor's structural position within a network and the extent to which it is connected to, or positioned between, other actors. Central actors occupy advantageous network positions because they maintain numerous ties that link distinct groups of organisations (Granovetter, 1985; Rowley et al., 2000). While cognitive distance captures relational differences along individual ties, centrality captures the overall configuration of connections surrounding an actor. Network research therefore distinguishes between (i) relational embeddedness, which concerns the properties of individual relationships, and (ii) structural embeddedness, which concerns the properties of the network position itself. A central actor may function as a hub that connects diverse partners, and in some cases, spans structural holes between otherwise

unconnected groups (Burt, 1992). By bridging these structural holes, central actors gain access to heterogeneous information flows that are unavailable to more peripheral network participants (Gilsing et al., 2008). Centrality is therefore treated as a property of an individual firm's structural position inside an alliance network.

Research on alliance portfolios shows that centrality plays a crucial role in exploratory innovation (Gilsing et al., 2008). Central firms are better informed about emerging opportunities and are more capable of initiating new alliances (Gnyawali & Madhavan, 2001). In this sense, centrality enhances novelty creation since central actors enjoy privileged exposure to diverse knowledge sources that stimulate experimentation and innovation. At the same time, central firms are exposed to higher information loads and must coordinate across more heterogeneous domains, which can stretch cognitive resources and slow absorptive processes (Ahuja & Katila, 2004; Fleming & Sorenson, 2001). Moreover, an excessive emphasis on novelty creation through central positions may result in unfocused experimentation or random knowledge drift, undermining coherence and strategic direction (Gilsing et al., 2008; Miller et al., 2007).

We argue that a similar logic applies within BM portfolios. In diversified firms, BMs are rarely isolated configurations; instead, they interact through shared resources, technologies, customer relationships, and capabilities (Aversa et al., 2021; Groeger et al., 2019; Guyader & Piscicelli, 2019). Some BMs occupy more central positions because they coordinate or connect multiple other BMs within the portfolio (Aversa et al., 2021; Bagnoli et al., 2022). BM centrality therefore refers to the extent to which a specific BM functions as an integrative hub within the internal portfolio structure. In many firms, the historically dominant or economically core BM occupies such a central position because it controls key assets, customer interfaces, or operational infrastructures upon which other BMs depend (Aversa et al., 2021; Bagnoli et al., 2022). For example, Amazon's original e–commerce BM occupies the central position within the company's BM portfolio, built around logistics infrastructure, customer relationships, data resources, and operational capabilities that have supported the development of related BMs such as Marketplace, Prime subscriptions, Amazon Go stores, and more indirectly, Amazon Web Services. Some of these BMs, such as Marketplace and Prime, depend strongly on the central e–commerce BM for customer traffic, logistics, operational capabilities, and behavioural data, while others, such as AWS, draw more indirectly on technological and infrastructural capabilities developed within the wider Amazon system. Because the e–commerce BM connects multiple complementary models, Amazon can orchestrate knowledge and capability recombination across the portfolio, enabling experimentation with novel offerings and rapid scaling of innovations (Aversa et al., 2021). Consequently, while BM centrality increases exposure to innovation opportunities, its contribution to innovation potential depends on the firm's ability to absorb, interpret, and integrate the knowledge it channels across the portfolio. The extent to which BM centrality supports innovation potential therefore depends on the interpretive and coordination mechanisms through which the TMT governs the BM portfolio, an argument we develop in Section 3.

2.7. Business model portfolio density

BM portfolio density is similarly presented here in structural terms for expository clarity; Section 3 reconceptualises it as a cognitively enacted characteristic whose configuration is shaped by the TMT's dominant logic. In alliance and network embeddedness research, network density refers to the extent to which actors within a network are interconnected with one another (Gilsing et al., 2008; Gulati & Gargiulo, 1999). Density captures the proportion of realised ties among all possible ties and therefore reflects the overall level of closure within an alliance network. Dense networks provide relational pathways that help firms process novel knowledge. That is, when partners are mutually connected, firms can compare interpretations, triangulate information, and rely on shared contacts to evaluate unfamiliar technologies or ideas (Gilsing & Nooteboom, 2005). Both direct and indirect ties therefore contribute to learning by supporting screening, validation, and interpretation processes. Density also facilitates trust, reputation mechanisms, and coalition formation that reduce relational risk (Gulati, 1995). Through repeated interactions and shared connections, dense networks build collective absorptive capacity that allows firms to assimilate and integrate complex or tacit knowledge.

However, alliance research simultaneously highlights important drawbacks of dense structures (Gilsing et al., 2008). High density may reduce diversity and limit the inflow of novel information, as overlapping ties tend to circulate redundant knowledge (Burt, 1992). This redundancy can constrain radical recombination and reduce a firm's ability to appropriate innovation returns due to faster diffusion and imitation (Gilsing & Nooteboom, 2005). Dense interconnections may enforce conformity pressures and discourage experimentation with unfamiliar or disruptive approaches (Gulati et al., 2000; Kraatz, 1998). As a result, while network density enhances absorptive capacity, it may suppress novelty creation when it becomes excessive.

We argue that a similar logic applies within BM portfolios. BM Portfolio density reflects the extent to which BMs within a portfolio are interconnected through overlapping and mutually reinforcing relationships, rather than operating as isolated or loosely coupled activity system (Aversa et al., 2021; Guyader & Piscicelli, 2019). For example, in the case of GoMore, BM portfolio density emerges through the close integration of its ridesharing, peer–to–peer car rental, and consumer leasing BMs (Guyader & Piscicelli, 2019). Each newly introduced service was designed to strengthen the existing models by increasing the supply of vehicles and users across the platform. GoMore redeploys six shared resources across all three BMs: its member community, platform technology, user data, customer support, local management teams, and partner relationships.

This high density allows the company to transfer learning quickly between BMs: data and experience gained from ridesharing improve matching quality and trust mechanisms in car rental and leasing, while leasing increases the number of cars available for peer–to–peer rental, reinforcing the original platform (Guyader & Piscicelli, 2019). Shared users, resources, and routines therefore create strong relational overlap among BMs, enabling GoMore to build portfolio–level absorptive capacity and refine its services continuously. However, this high density also creates rigidity. More distance or disruptive BMs may be difficult to introduce, since such could disrupt existing complementarities, compete for shared resources, or undermine the trust mechanisms and network effects that support the current portfolio (Guyader & Piscicelli, 2019).

Moreover, highly dense portfolios may reduce strategic diversity because strong interconnections promote convergence and redundancy, limiting exposure to alternative value creation approaches and constraining the scope for generating genuinely novel recombinations (Gilsing et al., 2008; Prahalad, 2004; Von Krogh et al., 2000). The contribution of BM portfolio density to innovation potential therefore depends on achieving an appropriate balance. It should be sufficiently dense to support comprehension, trust, and integration, yet not so expansive that it undermines variety and experimental space. The extent to which this balance is achieved depends on how the TMT's dominant logic guides the selection, interpretation, and integration of new BMs, an argument we develop in Section 3.

3. Conceptual model development

The proposed framework is multi–level (see Fig. 1). TMT social–cognitive capacities shape the dominant logic at the group level, which in turn influences cognitively enacted BM portfolio characteristics at the portfolio level. These characteristics shape the firm's innovation potential by affecting the extent to which the BM portfolio enables novelty creation and integration. The framework also includes a recursive feedback loop, through which enacted BM portfolio characteristics of

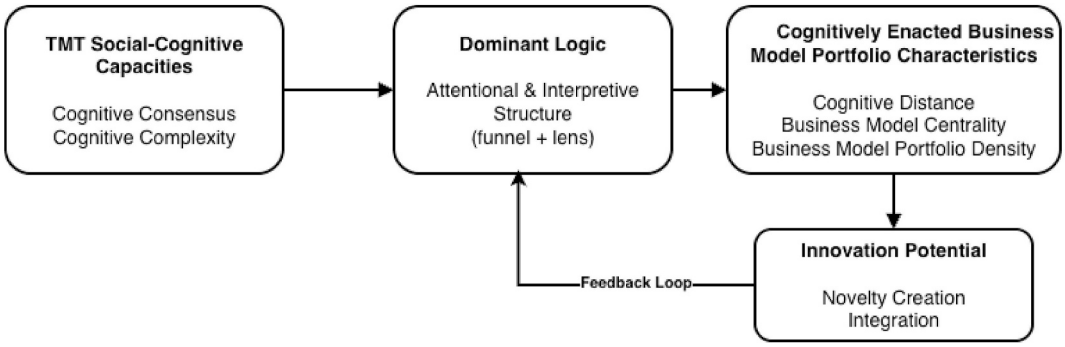

Fig. 1. A social–cognitive framework of business model diversification.

the BM portfolio and resulting innovation outcomes reshape the TMT's dominant logic over time. The following sub–sections develop the theoretical logic underlying these relationships and derive several propositions.

3.1. TMT social–cognitive capacities shape the dominant logic

The dominant logic is shaped by the interplay between cognitive consensus and cognitive complexity. These two capacities jointly shape whether dominant logic operates as more selective or adaptive funnel, and as a restricted or expansive lens, and therefore whether it supports strategic coherence, adaptive renewal, or both.

When cognitive consensus is high, the TMT develops a unified understanding of what information is strategically relevant and how it should be interpreted. This strengthens the funnel function of dominant logic by creating a coherent and efficient mechanism for filtering incoming information through established organisational experiences. Decision–making becomes faster and more coordinated as the TMT applies shared evaluative criteria. However, this coherence simultaneously increases the risk that information contradicting prevailing assumptions will be discounted. Over time, the dominant logic may become increasingly selective, reinforcing familiar patterns and reducing the organisation's sensitivity to discontinuities, novel BMs, and weak environmental signals. When cognitive complexity is high, the TMT considers multiple perspectives, integrates competing interpretations, and recognises a broader set of causal relationships. This expands the lens function of dominant logic, enabling the organisation to imagine a wider array of strategic options and BM configurations and enhancing its capacity to identify novel BMs and recombine resources in unconventional ways. At the same time, the inclusion of numerous perspectives can generate ambiguity, slow decision–making and make it more difficult to establish a common strategic direction.

When both cognitive consensus and cognitive complexity are high, dominant logic becomes simultaneously coherent and expansive. The funnel efficiently filters prior experience through shared evaluative criteria, while the lens broadens managerial vision to encompass diverse BM possibilities. This combination enables the TMT to balance strategic alignment with adaptability, fostering both disciplined integration and exploratory innovation. When cognitive complexity is low, dominant logic risks becoming rigid and path–dependent; when cognitive consensus is low, it risks becoming fragmented and directionless. The effects of consensus and complexity are therefore not strictly linear. The relative value of each capacity also depends on environmental conditions. In highly dynamic environments, characterised by technological disruption, shifting market boundaries, and digital transformation, greater cognitive complexity becomes more valuable because TMTs must interpret ambiguous signals and envision a broader range of BM responses, while sufficient consensus is needed to coordinate timely action. In more stable environments, stronger consensus and lower complexity may be advantageous because efficient execution takes precedence over maintaining wide interpretive variety. These arguments lead to the following propositions:

Proposition 1. The higher the cognitive consensus within a TMT, the more coherent and selective the funnel function of dominant logic becomes, ensuring coordinated filtering of past experiences while increasing the risk that non–conforming information is overlooked.

Proposition 2. The greater the cognitive complexity within a TMT, the broader the lens function of dominant logic becomes, enabling the organisation to envision a wider range of possible futures while also increasing the risk of ambiguity, slower decision–making, and difficulty reaching agreement on strategic directions.

Proposition 3. The interaction of cognitive consensus and cognitive complexity determines the adaptive quality of dominant logic. When both capacities are high, dominant logic combines coherent filtering with expansive interpretation, producing a dynamic and adaptive dominant logic. When cognitive consensus is high but cognitive complexity is low, dominant logic risks becoming rigid and path–dependent; when cognitive complexity is high but cognitive consensus is low, it risks becoming fragmented and directionless.

It is important to note that the risks associated with a selective funnel, identified in Proposition 1, are contingent on the degree of cognitive complexity present within the TMT. When paired with high cognitive complexity and a broad lens, selective filtering becomes a coordination asset rather than a source of rigidity, because the lens has already expanded the TMT's interpretive attention space before the funnel disciplines and focuses it. The apparent tension between the risks of selectivity and the benefits of the narrow funnel and broad lens configuration is therefore not a contradiction but reflects the compensatory and interdependent nature of cognitive consensus and cognitive complexity as social–cognitive capacities (Ginsberg, 1990).

3.2. Dominant logic and cognitively enacted BM portfolio characteristics

The dominant logic influences how TMTs attend to, interpret, and enact the characteristics of their BM portfolio. Rather than treating cognitive distance, BM centrality, and BM portfolio density as objective properties, we argue that these characteristics are cognitively mediated through dominant logic, which shapes how similarities and differences, interdependencies, and connections between new and existing BMs are perceived, evaluated, and coordinated. The transition from dominant logic to BM portfolio characteristics therefore represents a strategic enactment process. The relationships described in the following propositions are inherently non–linear; the effects of the funnel and lens on each portfolio characteristic are probabilistic and bounded by environmental conditions, such that the optimal range of each dimension depends on the broader portfolio configuration and degree of environmental dynamism (Gilsing et al., 2008; Ginsberg, 1990; Nooteboom et al., 2007). Dominant logic does not directly alter portfolio

characteristics; rather, through repeated strategic decisions regarding which BMs to add, retain, connect, or separate, the TMT's dominant logic becomes progressively embedded in the configuration of the BM portfolio.

3.2.1. Dominant logic and cognitive distance

Cognitive distance between BMs refers to knowledge heterogeneity: the degree to which distinct BMs within the portfolio embody different knowledge domains, operational logics, and underlying assumptions about value creation and capture. This heterogeneity shapes the recombination potential available to the firm: greater differences between BMs expand the space of possible novel combinations, while smaller differences constrain it. Dominant logic shapes the level of cognitive distance the TMT is willing and able to perceive, pursue, and manage within the portfolio.

A narrow funnel causes the TMT to evaluate and select opportunities using a limited and well–established set of assumptions, categories, and decision criteria, so that only new BMs closely resembling existing ones are recognised as legitimate and pursued. Drawing on familiar value creation logics, knowledge, and resources, these BMs maintain low cognitive distance from the current portfolio. Low cognitive distance facilitates mutual understanding and enables managers to transfer knowledge and capabilities with limited interpretive effort, making integration easier. However, because more radical departures are filtered out, the potential for substantial novelty creation is constrained.

In contrast, a broad lens expands TMT attention to a wider range of opportunities, including BMs based on unfamiliar assumptions, technologies, customer relationships, and value creation mechanisms. These BMs introduce greater cognitive distance from the existing portfolio, increasing novelty creation potential by enabling the combination of previously unrelated ideas and practices. At the same time, managers must bridge differences in language, routines, and underlying assumptions, and existing organisational structures may not readily accommodate these unfamiliar BMs, making integration considerably more demanding. The effects of dominant logic on cognitive distance, novelty creation, and integration are therefore non–linear.

The optimal configuration requires a broad lens that surface diverse BM opportunities, including those cognitively distant from the current portfolio, combined with a coherent and selective funnel that retains opportunities whose cognitive distance is large enough to generate meaningful novelty yet not so large that integration becomes prohibitively difficult. This balance produces sufficient divergence to stimulate experimentation and recombination, while preserving enough conceptual overlap to enable coordination and integration within the existing BM portfolio. The optimal level of cognitive distance, however, depends on environmental dynamism. In highly dynamic environments, tolerating greater cognitive distance becomes essential for adaptation, while stable environments favour closer alignment with existing BMs. These arguments lead to the following propositions:

Proposition 4. The more selective the funnel function of the dominant logic, the lower the cognitive distance between new and existing BMs is likely to be, reducing novelty creation potential while facilitating integration within the BM portfolio.

Proposition 5. The broader the lens function of the dominant logic, the higher the cognitive distance between new and existing BMs is likely to be, increasing novelty creation potential while making integration within the BM portfolio more difficult.

Proposition 6. A dominant logic that combines an expansive lens with a coherent and selective funnel is more likely to balance novelty creation and integration potential across new and existing BMs within the BM portfolio.

3.2.2. Dominant logic and business model centrality

While cognitive distance concerns knowledge heterogeneity between individual BMs, BM centrality concerns the structural position of a BM within the portfolio as a whole, specifically, the extent to which a particular BM functions as an integrative hub that connects, coordinates, and channels knowledge and resources across multiple other BMs. Centrality is therefore about the structural position that enables coordination and integration across the BM portfolio. A central may connect otherwise loosely linked BM parts of the portfolio and creates access to diverse knowledge flows. Dominant logic shapes which BMs come to occupy central positions and how effectively the TMT uses these positions to coordinate and recombine knowledge across the portfolio.

A narrow funnel causes the TMT to evaluate and select new BMs according to a limited and consistent set of assumptions rooted in the firm's established dominant logic. Newly introduced BMs are therefore more likely to align with the resource, knowledge, and value creation mechanisms of the existing portfolio, reinforcing and stabilising the position of the central BM as an effective hub. Because new BMs remain closely connected to the hub, the central BM can efficiently channel and recombine novelty originating from peripheral BMs and diffuse it throughout the portfolio. However, because the TMT favours BMs that conform to existing assumptions, opportunities for fundamentally new BMs are constrained, resulting in lower levels of novelty creation.

In contrast, a broad lens expands the TMT's attention to a wider range of strategic opportunities, increasing the likelihood that the firm introduces BMs that diverge substantially from the structures, logics, and resource bases of the existing portfolio. As a consequence, the coordinating role of the central BM may become less stable, especially when novelty is generated in areas only weakly connected to the existing hub. The central BM, thus, has fewer opportunities to channel and recombine innovations across the portfolio, reducing its integrative potential, while novelty creation itself increases.

The optimal configuration again requires an expansive lens combined with a coherent and selective funnel. The expansive lens surfaces moderately novel BMs, while the coherent and selective funnel ensures that those introduced remain sufficiently compatible with the existing hub for the central BM to maintain its integrative function. This prevents both excessive conformity, where the portfolio remains overly anchored around a dominant hub, and excessive fragmentation, where novelty is generated in areas the central BM cannot reach or integrate. The optimal level of BM centrality, however, depends on environmental dynamism. In stable environments, higher centrality may enable efficient integration and exploitation of synergies, while in highly dynamic environments, lower or more distributed centrality may allow greater flexibility to experiment with more radically different BMs. These arguments lead to the following propositions:

Proposition 7. The more coherent and selective the funnel function of the dominant logic, the more likely the central BM is to remain stable as an integrative hub within the BM portfolio, facilitating the integration and recombination of knowledge across new and existing BMs while limiting novelty creation potential.

Proposition 8. The broader the lens function of the dominant logic, the more likely the TMT is to introduce BMs that diverge from the existing hub, increasing novelty creation potential while making integration through the central BM more difficult.

Proposition 9. A dominant logic that combines an expansive lens with a coherent and selective funnel is more likely to preserve the central BM's integrative function while allowing moderately novel BMs to enter the portfolio, thereby balancing novelty creation and integration potential.

3.2.3. Dominant logic and business model portfolio density

While cognitive distance captures the knowledge differences between individual BMs and centrality captures the structural position of a particular BM within the portfolio, BM portfolio density captures the overall level of interconnectedness across all BMs, that is the extent to

which BMs share resources, routines, capabilities, customer relationships, and knowledge with one another. High density creates relational closure that supports absorptive capacity and knowledge integration; low density preserves structural variety and recombination potential. Dominant logic shapes how densely interconnected the portfolio becomes by governing which BMs are selected, retained, and linked to existing ones.

A narrow funnel causes the TMT to evaluate and select new BMs using a limited set of established assumptions, performance criteria, and strategic priorities, so that only BMs fitting closely within the existing portfolio are retained and developed. These BMs are more likely to share resources, capabilities, customer relationships, and organisational routines with current BMs, increasing portfolio density through strong interdependencies and overlapping connections. High density strengthens portfolio–level absorptive capacity by enabling rapid transfer of knowledge, trust, and operational practices between BMs, thereby facilitating novelty integration. However, because selection favours alignment with established structures, the scope for introducing fundamentally different BMs is reduced, resulting in lower levels of novelty creation.

In contrast, a broad lens expands the TMT's attention to a wider range of market opportunities, technologies, and strategic alternatives, increasing the likelihood that the firm identifies and pursues BMs that differ substantially from the current portfolio. These BMs exhibit fewer overlaps and interdependencies with existing ones, reducing portfolio density. Lower density reduces redundancy and conformity pressures and increases novelty creation potential, but the limited connections with the existing portfolio may weaken opportunities for knowledge transfer, resource sharing, and coordination, making novel BMs more difficult to integrate.

The optimal configuration requires an expansive lens that exposes the TMT to diverse and novel BM opportunities, combined with a coherent and selective funnel that retains BMs sufficiently distinct to generate novelty yet sufficiently interconnected to leverage shared resources, routines, and learning mechanisms. This balance avoids both excessive closure, where redundancy and conformity suppress radical recombination, and excessive fragmentation, where novel BMs remain disconnected from the knowledge infrastructure needed to absorb and scale them. The optimal level of BM portfolio density, however, depends on environmental dynamism. In highly dynamic environments, lower density may preserve the flexibility needed to pursue diverse and novel BMs, while in stable environments, higher density may enhance coordination, efficiency, and effective integration. These arguments lead to the following propositions:

Proposition 10. The more coherent and selective the funnel function of the dominant logic, the higher the BM portfolio density among new and existing BMs is likely to be, increasing integration potential while limiting novelty creation potential.

Proposition 11. The broader the lens function of the dominant logic, the lower the BM portfolio density among new and existing BMs is likely to be, increasing novelty creation potential while reducing immediate integration potential.

Proposition 12. A dominant logic that combines an expansive lens with a coherent and selective funnel is more likely to produce an optimal level of BM portfolio density, balancing novelty creation and integration potential across new and existing BMs.

3.3. Innovation potential as an emergent outcome

Within the proposed framework (Fig. 1), innovation potential is conceptualised as the main emergent outcome of the framework. It refers to the BM portfolio's capacity to generate novel recombinations of BMs through novelty creation and to assimilate, transfer, and exploit new BMs across the portfolio through novelty integration. When both novelty creation and novelty integration are achieved simultaneously, the resulting innovation potential reflects what the broader strategy literature refers to as an ambidextrous outcome, reflecting the firm's capacity to explore new BM opportunities while exploiting and integrating them within the existing portfolio (Markides, 2013; Smith et al., 2010). Specifically, novelty creation and novelty integration are treated as two interrelated outcome dimensions. A portfolio high in innovation potential is one capable of generating meaningful novelty and successfully absorbing and scaling it within the existing BM portfolio.

Rather than residing in any single BM, innovation potential emerges from the configuration and interaction of cognitive distance, BM centrality, and BM portfolio density as shaped by the dominant logic of the TMT. When these three dimensions are well aligned, the portfolio achieves a productive balance between novelty creation and integration. A new BM may be sufficiently cognitively distant to introduce novel value creation mechanisms, connected enough to the central BM to access and influence the broader portfolio, and embedded within a structure that provides sufficient interconnectedness to support learning and coordination. Under these conditions, novelty is not isolated; it is systematically absorbed and recombined with the existing portfolio. Each dimension compensates for the limitations of the others: cognitive distance generates novel insights, centrality channels those insights toward strategically important BMs, and density provides the relational infrastructure necessary for assimilation and adaptation. The result is sustained portfolio renewal over time. This alignment logic implies a non–linear configuration. The highest innovation potential occurs when cognitive distance, BM centrality, and BM portfolio density are configured within mutually supportive range. Too little or too much of any dimension undermines the effectiveness of the others. When these dimensions are poorly aligned, the portfolio tends toward either redundancy or fragmentation. Redundancy occurs when BMs are overly similar and strongly interconnected, causing the portfolio to recycle existing practices rather than generate meaningful novelty. Fragmentation occurs when novel BMs remain weakly connected to the broader portfolio, preventing the transfer and recombination of new knowledge. In both cases, the full innovation potential of the portfolio is unrealised because novelty is either not created or cannot be effectively integrated.

Environmental dynamism shifts where the optimal range of each structural dimension lies, rather than whether alignment among them matters. In highly dynamic environments, higher cognitive distance, more distributed centrality, and moderate rather than high portfolio density is most conducive to innovation potential. In stable environments, lower cognitive distance, more concentrated centrality, and higher density better support efficiency and exploitation. These arguments lead to the following propositions:

Proposition 13. The greater the alignment among cognitive distance, BM centrality, and BM portfolio density, the higher the innovation potential of the BM portfolio, reflected in the combined capacity to generate meaningful novelty and achieve effective novelty integration across new and existing BMs.

Proposition 14. Misalignment among cognitive distance, BM centrality, and BM portfolio density reduces innovation potential through two distinct failure modes: redundancy, when BMs are overly similar and densely interconnected causing the portfolio to recycle existing practices rather than generate novelty; and fragmentation, when novel BMs remain weakly connected to the wider portfolio preventing the transfer and integration of new knowledge.

This alignment logic is particularly consequential in digitally dynamic environments, where three digital–specific mechanisms alter the cognitive demands placed on the dominant logic. First, modular value architectures—in which BM components such as platforms, APIs, and data infrastructure can be recombined and redeployed rapidly—compress the time available for cognitive distance assessment and make it harder for the TMT to judge whether a new BM is genuinely

novel or merely a reconfiguration of existing components (Baldwin & Clark, 2000). Second, ecosystem interdependencies link the firm's BMs to external platform partners, complementors, and digital infrastructure providers, such that BM centrality becomes embedded with ecosystem position—a central BM may channel knowledge not only from internal portfolio BMs but from a shifting set of external actors whose logics and incentives differ from the firm's own (Adner, 2017; Jacobides et al., 2018).

Third, the accelerating speed of BM experimentation in digital contexts—driven by low marginal costs of replication, rapid user feedback loops, and competitive imitation—increases information load on the dominant logic, requiring TMTs to interpret and act on portfolio signals at a pace that may exceed both their cognitive consensus and cognitive complexity, reducing their capacity to maintain effective portfolio alignment. Together, these mechanisms suggest that in digitally dynamic environments, the alignment among cognitive distance, BM centrality, and BM portfolio density must be actively managed rather than passively maintained, and that even small misalignments can propagate rapidly through the portfolio due to ecosystem interdependencies and digital information velocity. These arguments lead to the following proposition.

Proposition 15. Environmental dynamism shifts the optimal configuration of cognitive distance, BM centrality, and BM portfolio density. In digitally dynamic environments—where modular value architectures enable rapid BM recombination, ecosystem interdependencies embed BM centrality within external platform and partner logics, and accelerating BM experimentation increases information load on the dominant logic —higher cognitive distance, more distributed BM centrality, and moderate BM portfolio density are more conducive to innovation potential. In stable environments, lower cognitive distance, more concentrated centrality, and higher BM portfolio density better support integration and exploitation.

3.4. Feedback loop and adaptive renewal of dominant logic

As illustrated in Fig. 1, BM portfolio innovation outcomes do not represent the end of the process but feed back into the TMT's dominant logic, creating a recursive dynamic that evolves over time. As new BMs are integrated, interconnections develop, and novel knowledge circulates through the portfolio, the dominant logic is challenged and reshaped. Innovation outcomes therefore act as both consequences of, and inputs to, dominant logic. They expand the organisation's experiential base, introduce new interpretive categories, and prompt reconsideration of established BMs and strategic assumptions. Whether this feedback loop produces adaptive renewal or reinforces rigidity depends critically on the social–cognitive capacities of the TMT. High cognitive consensus ensures that insights generated through BM portfolio innovation are consolidated into shared organisational meaning rather than fragmenting into isolated or competing interpretations. High cognitive complexity ensures that diverse and potentially unfamiliar signals are recognised, interpreted, and incorporated rather than ignored or suppressed. Together, cognitive consensus and cognitive complexity shape whether the feedback loop drives progressive adaptation of the dominant logic or reinforces path dependence over time, and thereby whether the firm's BM diversification trajectory remains dynamic and responsive or becomes increasingly constrained by its own interpretive history. These arguments concerning the recursive nature of the feedback loop and its dependence on the TMT's social–cognitive capacities lead to the following propositions:

Proposition 16. BM portfolio innovation outcomes reshape the TMT's dominant logic by expanding the organisation's experiential base, introducing new interpretive categories, and challenging established assumptions about value creation and capture.

Proposition 17. The extent to which BM portfolio innovation outcomes renew rather than reinforce the TMT's dominant logic depends on the TMT's cognitive consensus and cognitive complexity: cognitive consensus supports the consolidation of learning into shared meaning, while cognitive complexity supports the recognition and integration of unfamiliar or contradictory signals.

4. Discussion

4.1. Theoretical contributions

By reframing BM diversification as a socially constructed, cognitively enacted, and recursively evolving process, the three research questions guiding this paper are addressed through three main theoretical contributions to the BM diversification literature. First, existing research has primarily explained BM diversification through supply–side and demand–side relatedness, treating diversification decisions as direct outcomes of observable structural characteristics (Aversa et al., 2021; Sohl et al., 2020, 2022). Our framework shifts this explanation by arguing that BM diversification depends not only on objective relatedness, but on how relatedness is socially and cognitively perceived by the TMT. By introducing cognitive distance, BM centrality, and BM portfolio density as cognitively enacted BM portfolio characteristics, shaped through the TMT's dominant logic, the framework shows that diversification opportunities are not simply available or unavailable to firms; they are recognised, legitimised, or dismissed through interpretive processes. This shifts the focus from what firms are structurally capable of doing toward what TMTs collectively perceive as strategically feasible, repositioning the explanation of BM diversification from structural determinism toward cognitive enactment.

Second, the paper extends existing cognitive research on BM diversification by moving from individual–level constructs such as executive beliefs, identities, or mental models (Aspara et al., 2013; Ringvold et al., 2023), toward a social–cognitive, group–level understanding. Existing studies acknowledge that cognition matters for diversification decisions but provide limited insight into the collective processes through which TMTs construct, negotiate, and sustain shared interpretations of their BM portfolios. Our framework addresses this by showing how two collective TMT capacities, cognitive consensus and cognitive complexity, shape the dominant logic of the firm and thereby influence its BM diversification trajectory. This shifts the explanation from static, individual–level cognitive antecedents toward a dynamic understanding of how group–level interpretive processes continuously configure and reconfigure the firm's approach to BM diversification.

Third, the paper advances the cognitive literature on BM diversification by replacing the linear causal logic that characterises existing studies with a recursive and adaptive understanding. Existing research portrays cognition primarily as a mediating mechanism that translates environmental conditions into diversification outcomes (Aspara et al., 2013; Ringvold et al., 2023). Our framework reconceptualises this relationship by showing that dominant logic both shapes and is shaped by cognitively enacted BM portfolio characteristics and innovation outcomes over time. Innovation outcomes feed back into the TMT's dominant logic, reshaping future interpretations, attention structures, and opportunity recognition processes. This recursive dynamic explains not only why firms diversify differently at a given point in time, but also why diversification trajectories diverge and evolve over time, a question that linear models of cognition cannot address.

4.2. Practical implications

The framework offers several practical insights for managers navigating BM diversification in digitally dynamic environments. First, the framework suggests that TMT composition and interaction processes matter as much as strategic content when managing a BM portfolio. Firms should invest in developing both cognitive consensus and cognitive complexity within their TMTs, not as opposing goals but as

complementary capacities. In practice, this means deliberately building teams that combine sufficient shared understanding to act decisively with sufficient cognitive complexity to recognise, compare, and integrate novel BM opportunities (Ginsberg, 1990; Hambrick, 1997). Structured dialogue mechanisms such as regular strategic reviews, devil's advocate roles, and cross–functional deliberation processes can help TMTs maintain this balance and prevent dominant logic from becoming excessively rigid or fragmented (Argyris & Schön, 1989; Eisenhardt & Bourgeois III, 1988; Prahalad, 2004).

Second, cognitive distance, BM centrality, and BM portfolio density provide managers with a practical diagnostic lens for assessing the innovation potential of their BM portfolio (Gilsing et al., 2008). Managers can ask whether the cognitive distance between BMs is sufficient to generate novelty or the portfolio has converged around a single dominant logic (Bettis & Prahalad, 1995; Nooteboom et al., 2007), whether the central BM effectively channels and integrates knowledge across the portfolio or has become a bottleneck (Aversa et al., 2021; Burt, 1992)?, and whether portfolio interdependencies are dense enough to support learning and integration without suppressing experimentation (Gilsing & Nooteboom, 2005; Gulati et al., 2000). These questions can guide deliberate portfolio reconfiguration decisions and inform how new BMs are interpreted, selected, positioned, and connected within the existing BM portfolio.

Third, the recursive feedback logic of the framework has important implications for how firms manage dominant logic renewal over time (Gavetti & Rivkin, 2007; Prahalad & Bettis, 1986). In digitally dynamic environments, where technological disruption and shifting market boundaries continuously alter the conditions under which BMs create and capture value (Konopik et al., 2022; Westerveld et al., 2023), firms cannot afford to allow their dominant logic to solidify around historically successful BMs (Gilbert, 2005; Prahalad, 2004). Managers should treat innovation outcomes, including failed BM experiments, as deliberate inputs into dominant logic renewal rather than isolated events (Argyris & Schön, 1989; Gavetti, 2005). Institutionalising structured BM portfolio reviews that explicitly surface interpretive assumptions, challenge established evaluative criteria and incorporate diverse perspectives can help firms sustain the adaptive dominant logic needed for continuous BM portfolio innovation (Franke & Zu Knyphausen–Aufsess, 2014; Von Krogh et al., 2000).

4.3. Future research

Future research could empirically investigate how TMTs construct, maintain, and adapt their dominant logic over time, particularly in response to innovation emerging from within their BM portfolios. Longitudinal case studies or process–tracing approaches could shed light on how diversification efforts challenge or reinforce existing interpretive categories, and whether such dynamics enable adaptive renewal or reinforce strategic rigidity (Pettigrew, 1990; Van de Ven, 1992). Such studies would be particularly valuable in digitally dynamic sectors, where the pace of BM experimentation and recombination puts persistent pressure on existing dominant logics.

Moreover, while we conceptualise cognitive consensus and cognitive complexity as TMT–level social–cognitive capacity, future research could unpack their microfoundations. What interaction patterns, decision routines, or power dynamics enable teams to sustain both shared understanding and the capacity to differentiate and integrate diverse interpretations? Ethnographic studies and behavioural strategy research could offer fine–grained insights into how interpretive structures are negotiated, stabilised, and transformed in practice (Gavetti, 2005, 2012; Helfat & Peteraf, 2015). Understanding these microfoundations would clarify the organisational conditions under which the social–cognitive capacities identified in this framework can be developed and maintained.

The proposed framework suggests that similar BM portfolio configurations may yield markedly different innovation outcomes depending on the dominant logic through which they are interpreted. Comparative studies across firms, industries, or institutional contexts could examine these interpretive contingencies more systematically. For instance, future research could explore whether highly regulated environments constrain interpretive variety and reduce the innovation value of cognitive distance, or whether innovation–driven sectors invest more deliberately in developing social–cognitive capacities to manage portfolio diversity. Such comparisons would help identify the boundary conditions of the framework and specify when social–cognitive processes are most consequential for BM diversification outcomes.

Finally, the framework raises practical questions that invite intervention–based investigation. Future research could examine whether and how TMTs can be supported in maintaining an effective balance between cognitive consensus and cognitive complexity. Experimental or design–oriented studies could explore whether structured BM portfolio reviews, decision–support tools or facilitated sensemaking processes enable cognitive renewal and an adaptive dominant logic in complex BM portfolios (Argyris & Schön, 1989; Rivard, 2002). Such research would translate the framework's theoretical arguments into actionable guidance for practitioners navigating BM diversification under conditions of uncertainty and change.

4.4. Limitations

This study has several limitations that should be acknowledged. First, as a conceptual paper, the framework developed here has not been empirically tested, and the propositions remain theoretical and require validation through quantitative, qualitative, or mixed–method research designs. Second, while we draw on alliance and network embeddedness theory to conceptualise BM portfolio characteristics and configuration, this transfer relies on analogical reasoning and may not fully capture the governance complexities and intra–organisational dynamics specific to BM portfolios within firms.

Third, the framework focuses primarily on the TMT as the locus of dominant logic formation, which may underestimate the role of middle management, organisational culture, and institutional pressures in shaping how BM diversification unfolds in practice. Fourth, the framework assumes that cognitive consensus and cognitive complexity can be meaningfully distinguished and measured at the group level, which presents non–trivial methodological challenges for future empirical work. Finally, the framework was developed with particular relevance to digitally dynamic environments, and its applicability to firms operating in more stable or less technologically intensive sectors may require adaptation and further theoretical development.

5. Conclusion

This paper addresses a fundamental but underexplored question in BM diversification research: why do firms facing similar structural conditions—comparable resources, market positions, and technological capabilities—pursue markedly different BM diversification trajectories and achieve divergent innovation outcomes?

Existing supply–side and demand–side accounts cannot adequately answer this question because they treat diversification as a direct function of observable structural characteristics, leaving the interpretive processes through which TMTs recognise, evaluate, and enact diversification opportunities largely unexplained. The proposed social–cognitive framework addresses this gap by showing that BM diversification is not only a structural outcome but an interpretive achievement, one that depends on how TMTs collectively construct, sustain, and adapt their dominant logic in relation to their BM portfolio.

The framework makes three specific theoretical moves that distinguish it from prior research. It introduces cognitive distance, BM centrality, and BM portfolio density as cognitively enacted BM portfolio characteristics rather than objective structural properties, explaining how the same portfolio can be interpreted and acted upon differently by

different TMTs. It locates the explanation of diversification at the group level through cognitive consensus and cognitive complexity, rather than at the level of individual executive cognition.

It also replaces linear, static accounts of diversification with a recursive dynamic in which dominant logic, cognitively enacted BM portfolio characteristics, and innovation outcomes continuously shape one another over time. These three theoretical insights answer the research questions guiding this study, explaining not only what diversification decisions firms make, but how TMT social–cognitive capacities shape diversification trajectories, how dominant logic shapes the enactment of BM portfolio characteristics, and why some firms sustain adaptive BM portfolio renewal while others become locked into rigid diversification paths.

Finally, we argue that these contributions are particularly relevant for digital business research. Digital environments are characterised by accelerating technological change, modular value architectures, platform–based competition, and ecosystem interdependencies that fundamentally alter the conditions under which firms diversify their BMs. In such environments, the challenge is no longer primarily one of identifying structurally related BMs or exploiting existing synergies. It is one of continuously interpreting a rapidly shifting opportunity landscape, recombining heterogeneous BMs in response to digital disruption, and sustaining the social–cognitive capacities needed to govern an increasingly complex and dynamic BM portfolio. Firms that develop high cognitive complexity to perceive and integrate distant BM opportunities, while maintaining sufficient cognitive consensus to coordinate timely action, are better positioned to sustain innovation and adapt their BM portfolios under conditions of digital transformation. Understanding BM diversification as a social–cognitive and dynamic process therefore provides a more realistic and practically relevant account of how firms manage strategic variety, cultivate innovation potential, and navigate the competitive demands of the digital economy.

Credit authorship contribution statement

Björn Rietdijk: Writing original draft, conceptualisation, visualisation, methodology, investigation, formal analysis.

Koen Dittrich: Writing, review and editing.

Erik Jan Hultink: Writing, review and editing.

Shahrokh Nikou: Writing, review and editing, conceptualisation, validation, methodology.

Declaration of generative AI in scientific writing

We hereby declare that a generative AI tool has been used during the writing process to improve the readability and language of the manuscript.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data will be made available on request.

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