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Identifying microfoundations of dynamic managerial capabilities for business model innovation

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Abstract

Research Summary: Although business model innovation (BMI) is said to be underpinned by managerial capabilities, there is a lack of studies that delve into the mechanisms through which these capabilities support BMI. In this study, we highlight internal and external advice seeking as underlying microfoundations of dynamic managerial capabilities for BMI and examine the mediating role of coordination flexibility capabilities (CFCs). With a survey dataset of 254 senior managers, our research reveals that external advice seeking capabilities positively influence BMI. Interestingly, the impact of internal advice seeking on BMI is fully mediated by CFC. Furthermore, our results indicate that the extent to which internal advice seeking impacts CFC is strengthened in firms with high levels of digitalization.

Managerial Summary: While business model innovation (BMI) is often linked to the skills of managers, there is a lack of research exploring which particular skills actually drive BMI. In our study, we focus on how

seeking advice internally and externally are crucial skills for managers in contributing to BMI, with coordination flexibility capabilities (CFC) playing a mediating role. Using data from a survey of 254 senior managers, we found that seeking external advice has a positive impact on BMI. Surprisingly, the influence of seeking internal advice on BMI is only significant when firms have high CFC at the organizational level. Additionally, we discovered that the relationship between internal advice seeking and CFC is stronger in highly digitalized firms.

KEYWORDS

advice seeking capabilities, business model innovation, dynamic managerial capabilities, managerial social capabilities, structural equation modeling

"If HP knew what HP knows, we'd be three times more productive."
—*former Hewlett-Packard CEO, Lew Platt.*

1 | INTRODUCTION

Harnessing the collective knowledge within a company, including managerial expertise, is pivotal to a company's success. This is particularly crucial for business model innovation (BMI), as transforming a firm's business model (BM) is a knowledge-intensive process that entails strategic decision-making, along with operational and resource-intensive aspects. A firm's dynamic capabilities (DCs) are regarded as essential for developing the necessary proficiency for innovating and transforming the BM (Teece, 2018). These capabilities encompass higher-order activities that drive variation among firms in their ability to sense value generating opportunities, understand threatening developments coming from the business environment, seize new opportunities, and reconfigure the BM (Teece et al., 1997).

Moreover, organizational DCs are believed to be underpinned by managerial skills in strategic decision-making regarding BM design and the ability to orchestrate assets to generate new competences. Adner and Helfat (2003) refer to this as dynamic managerial capabilities (DMC). While the DCs perspective emphasizes strategic change, the concept of DMC places particular emphasis on managerial influence on strategic change (Helfat et al., 2007; Helfat & Martin, 2015). Accordingly, managers play a crucial role in identifying BM growth opportunities and in transforming the BM. Therefore, an increasing number of studies analyzing the microfoundations of DCs have paid great attention to the role of the individual manager and his or her ability to develop the DCs necessary for organizational change and adaptation (Helfat & Martin, 2015). Recent studies suggest that the manager's ability to sense future developments (e.g., customer demand and technological trends) and the ability to transform the BM

is in part dependent on the DCs of managers and the particular microfoundations that underpin them (Achtenhagen et al., 2013; Aspara et al., 2013; Martins et al., 2015; Osiyevskyy & Dewald, 2015).

As noted by Helfat and Martin (2015), substantial knowledge gaps exist regarding microfoundations of DMC. Although prior studies on the underlying processes of BMI have advanced significantly in identifying critical microfoundations of organizational DCs (Achtenhagen et al., 2013; Doz & Kosonen, 2010; Hock et al., 2016; McGrath, 2010), there remains a lack of comprehensive understanding regarding the specific microlevel factors of DMC that drive effective BMI (Loon et al., 2020). Exploring this micro-perspective is crucial for formulating, implementing, and successfully pivoting innovation in BMs (Teece, 2010).

This study seeks to identify two critical underlying microfoundations of DMC rooted in managerial social capital that enable managers to sense and seize BM opportunities and to reconfigure the firm's BM. Drawing on the advice seeking literature, which has shown that managers refer to internal and external sources of advice for strategic decision-making (Alexiev et al., 2010; Brooks et al., 2015; Heyden et al., 2013; van Doorn et al., 2017), this study conceptualizes internal and external advice seeking capabilities as critical components of managerial social capital underpinning DMC for BMI. Prior studies have highlighted the importance for the firm to orchestrate an operational environment with high coordination flexibility. The firm's ability to develop coordination flexibility capabilities (CFCs) enables organizations to mobilize and integrate resources for new means of value creation (Sanchez, 1995; Wei et al., 2014). Therefore, we introduce CFC as an organizational DC for reconfiguring the firm's BM, which can serve as a mediator. Taken together, this study empirically analyzes the effect managerial internal and external advice seeking capabilities have on BMI and whether this effect is further mediated by organizational level CFC.

We believe that this research makes several contributions. First, it expands on the DCs-based view of BMI (e.g., Foss & Saebi, 2018; Teece, 2010) by approaching it from a microlevel perspective. Since DCs are essential for shaping, refining, and transforming BMs that are deeply intertwined with change, researchers frequently employ the DCs framework to investigate BMI (Teece, 2007; Teece, 2018). However, many studies focus on systems and processes at the organizational level, such as organization design (e.g., Fjeldstad & Snow, 2018; Leih et al., 2015; Teece, 2018), which may reflect the general tendency that specific roles played by managers are still relatively less discussed in corporate strategy formulation (Choudhury et al., 2020). Although limited research has addressed the microfoundations of DCs for BMI, some studies have identified specific organizational practices (e.g., Santa-Maria et al., 2021) and cognitive managerial behaviors (Aspara et al., 2013; Schneckenberg et al., 2016). To the best of our knowledge, no studies have directly linked underlying DMC, especially managerial social capital, to BMI and organizational DCs. The concept of social capital holds significant potential for enhancing our understanding of multilevel organizational phenomena inherent in social relationships, such as BMI (Payne et al., 2011). By exploring the managerial social capital that underpins DMC, we contribute to this body of literature.

Furthermore, through an examination of advice seeking capabilities as underlying DMC and CFC as organizational DCs, our study elucidates the relationship between managerial and organizational DCs both theoretically and empirically. Helfat and Martin (2015) call for further multilevel research to explore the relationship between DMC and organizational DCs, as well as their combined impact on strategic change and organizational performance (p. 846). Previous studies (e.g., Dyer & Singh, 1998) alluded to the importance of managers in organizational

social networks but did not explicitly investigate cross-level variables (Martin & Bachrach, 2018).

Finally, this research contributes to the literature that examines the relationships between digitalization and DCs (e.g., Mikalef et al., 2019). While this literature typically considers organizational DCs and its role in facilitating digitalization, our study accounts for how digitalization shapes the relationship between DMC and organizational DCs, which ultimately leads to BMI. Recognizing the substantial potential of digital technologies, it is crucial to comprehend their effects. According to Amabile (2020, p. 5), organizational researchers are overlooking a critical opportunity if they fail to dedicate substantial effort to investigating artificial intelligence and other digital technologies and how they can drive innovation.

2 | THEORY AND HYPOTHESES

2.1 | Microfoundations of DMCs and BMI

BMs and the process of designing and implementing innovative BMs have gained significant attention in research in recent years (Foss & Saebi, 2017). Many scholars describe BM as the architecture of a firm's underlying logic of how the value proposition is created, delivered, and captured (Teece, 2010; Velu & Jacob, 2016). With the advent of digitalization and new technological developments, the BM itself has become a central focus for innovation (Mitchell & Coles, 2003).

The process of innovating a firm's BM is strategic and operative in nature (Doz & Kosonen, 2010; Teece, 2018). It is strategic because it requires changes in the underlying logic of the firm (Bucherer et al., 2012) and it is operational, involving the transformation process of reconfiguring resources and developing new capabilities (Doz & Kosonen, 2010). Strategic challenges include identifying threats and opportunities, designing new BMs and making long-term investment decisions under conditions of uncertainty (Helfat & Peteraf, 2015). The operative side of BMI includes all actions required for implementing the new BM. These actions can be accomplished through new organizational structures, new key activities, routines and skills (Doz & Kosonen, 2010).

Given the dynamic nature of BMI, studies have explicated the role of firm-level DCs on BMI. The DCs-framework can help analyze the underlying processes that enable these strategic and operational changes in BMs (Foss & Saebi, 2017). DCs are higher-order organizational capabilities that enable firms to sense new opportunities and threats, seize new BM opportunities, and continuously reconfigure the BM (Teece, 2018; Teece et al., 1997). These studies generally suggest that organizational DCs can help integrate strategy and organizational design issues to show how companies can stay in sync with the business environment.

In addition to the macro-level research on BMs, a growing body of the literature in the BM domain has highlighted the impact of managerial-level factors on BMI, which is recognized as a managerial task (Aspara et al., 2013; Teece, 2010; Zott & Amit, 2010). Managers play an important role in defining the firm's strategic orientation, its BM, and the underlying operational activities of BMs (Teece, 2010). Consequently, BMI is also reliant on managers' DCs—"the capabilities through which managers build, integrate, and reconfigure organizational resources and competencies" (Adner & Helfat, 2003, p. 1012). It is acknowledged that managerial capabilities are subjective, leading to heterogeneous decisions and leadership styles (Felin et al., 2012). As a result, heterogeneous managerial capabilities contribute significantly to variations in firm

innovation and overall performance (Alexiev et al., 2010; Quigley & Hambrick, 2012). The ways in which managers interpret their environment and seize certain business opportunities are influenced by the microfoundations that underlie DMC (Adner & Helfat, 2003; Helfat & Peteraf, 2015).

To better understand the underlying behaviors leading to differences in managerial decisions and actions of strategic change, scholars have turned their attention to studying the underlying drivers of DMC (Adner & Helfat, 2003; Laamanen & Wallin, 2009). Adner and Helfat (2003) put forward three core underpinnings of DMC: managerial human capital, managerial social capital, and managerial cognition. They are interdependent and determine the key functions of managerial sensing, seizing and reconfiguring capabilities (Helfat & Martin, 2015).

Specifically, managerial social capital can play a crucial role in facilitating BMI processes, as such innovation entails co-creation, necessitating firms' relational capabilities (Day & Schoemaker, 2016). Blyler and Coff (2003: 680) even argue that "firms would be unable to acquire, recombine, and release resources" without the social capital of managers. The concept of social capital reflects the idea that managers use their formal and informal social ties (e.g., relationship with stakeholders, friendships, membership in social clubs) to obtain resources and important information and then transfer them to the organization (Adler & Kwon, 2002; Adner & Helfat, 2003). Thereby, Adler and Kwon (2002) make a distinction between external social capital and internal social capital, which stem from formal and informal ties outside of and within an organization.

Despite the importance of managerial social capital in BMI, few studies have analyzed managerial social capital capabilities as underlying microfoundations of DMC for BMI, especially when considered alongside organizational DCs. For example, while studies have demonstrated how managers' cognition contribute to a successful organizational transition to a new BM (Taylor & Helfat, 2009), they did not investigate the role of managerial social capital. Furthermore, there is still a limited understanding of how the interplay between DMC and organizational DCs affects BMI (Helfat & Peteraf, 2015). As advice seeking is rooted in an individual's social capital, functioning as a social exchange between those seeking advice and those providing it (Agneessens & Wittek, 2012; Burmeister et al., 2022; Renzini et al., 2024), we have chosen to emphasize managerial social capital within the three categories of DMC (Adner & Helfat, 2003). Moreover, managerial social capital is likely to play a key role in the context of BMI (Blyler & Coff, 2003).

2.2 | Advice seeking capabilities (managerial social capital) and BMI

Generally, advice seeking behaviors involve gathering of information, opinions, and attitudes in order to improve the accuracy of decision-making (McDonald & Westphal, 2003). These behaviors relate to a manager's capability to utilize internal and external network ties for information and advice (Geletkanycz & Hambrick, 1997). Therefore, advice seeking represents a social exchange process underpinned by a manager's social capital (Lee, 1997). Managerial social capital, an underlying factor of DMC (Adner & Helfat, 2003), empowers managers to utilize their advice seeking capabilities to sense opportunities and threats, seize opportunities, and reconfigure organizational resources, capabilities, and structure (Helfat & Martin, 2015).

Differences in the source of advice (external vs. internal) can lead to different kinds of information that shape the decision-making process of managers (Adner & Helfat, 2003). While internal advice seeking refers to gathering knowledge and information within the firm, external

advice seeking focuses on capturing information from formal and informal ties outside of the company. Both sources of advice seeking can be used for strategic decision-making (Alexiev et al., 2010; Brooks et al., 2015; Heyden et al., 2013; van Doorn et al., 2017).

More specifically, internal advice seeking enables fast and efficient access to relevant firm-specific knowledge. It can be used for scanning and identifying BMI opportunities departing from internal stimuli (Heyden et al., 2013). In particular, multinational companies have rich internal networks and R&D hubs from which managers can seek advice for leveraging innovative opportunities arising from within the firm (Almeida & Phene, 2004). Internal advice seeking allows managers to get a holistic view of the firm's resources, processes, and knowledge assets, including intangible knowledge obtained from employees who have insights into the firm's internal and external value creation activities (Grant, 1996). Thus, internal advice seeking provides valuable guidance with regard to the feasibility of potential BM opportunities, as managers exchange ideas on value proposition, value creation, and value capture necessary for BMI.

In addition to seeking internal advice, a manager can seek external advice from sources like their social networks, including external mentors, or from professional networks such as consulting firms, where the manager has no personal connection (Geletkanycz & Hambrick, 1997). External advice seeking provides managers access to unique and tacit knowledge that is not available to the public (Heyden et al., 2013). Thereby, the manager may get access to insights of exclusive knowledge about the firm's ecosystem to which managers would otherwise not have access to (McDonald & Westphal, 2003). Having access to experts' opinions and recommendations regarding market dynamics and emerging trends may also allow managers to identify opportunities before they become obvious to others (van Doorn et al., 2017).

Both sources of advice seeking provide managers with valuable information for opportunity recognition and shape the decision-making process of managers (Adner & Helfat, 2003). BMI is driven by internal and external opportunity recognition (Bucherer et al., 2012). Sensing, seizing, and reconfiguring new BMs relies partly on the DMC of scanning the firm's internal and external environment for information, making sense of potential threats and opportunities, and developing solutions and reconfiguring resources for new means of value creation (e.g., the design of a new BM) (Teece, 2007).

In sum, we posit that the external and internal advice seeking behaviors of managers enable BMI.[1] This leads to the following two hypotheses:

Hypothesis (H1a). The manager's internal advice seeking capabilities positively influence BMI.

Hypothesis (H1b). The manager's external advice seeking capabilities positively influence BMI.

2.3 | Advice seeking capabilities, CFCs, and BMI

Research suggests that the underlying activity system of a BM is shaped by interdependent operational processes, routines, and relationships both within the firm's boundaries and

[1]It is noteworthy that some studies have found interpersonal costs associated with seeking advice, as advisors may penalize individuals who consult multiple sources or fail to follow their suggestions (e.g., Blunden et al., 2019). Nonetheless, we assert that these interpersonal costs are unlikely to directly influence organizational outcomes, notably business model innovation in our context. Therefore, these studies are beyond the scope of our current focus.

externally with its stakeholders (Zott & Amit, 2010). Over time, BMs can evolve into inflexible frameworks (Saebi et al., 2017). Doz and Kosonen (2010, p. 376), for example, found that although managers are well aware of how to innovate their BM, some managers feel "powerless in their being able to change course." Thus, although managers can successfully sense potential threats or innovative BM opportunities, they may not always be able to respond appropriately (Tripsas & Gavetti, 2000). Hence, the extent to which advice seeking capabilities lead to BMI may further be influenced by the firm's ability to orchestrate an operating environment with a high degree of coordination flexibility. For example, CFC enable managers to break resource dependency and decrease resistance to change (Wei et al., 2014). They can connect the dots in order to develop smooth and trustworthy solutions for relaxing rigid structures. Further, they can assist managers in synthesizing and orchestrating critical interdependencies in the firm's operational processes for new means of value creation (Sanchez, 1995).

Coordination flexibility pertains to the adjustment of a flexible operating environment that reduces rigid structures and inertia in routines (Wei et al., 2014). Such capabilities are closely related to the asset orchestration function of organizational DCs, which Teece (2012, p. 1397) defines as "identifying complementarities, buying or building missing assets and then aligning them." The underlying activities include re-designing new routines and processes for crafting new value offerings, developing new activities of value creation, and finding new ways of value capture (Casadesus-Masanell & Zhu, 2013).

This coordination flexibility can also be positively influenced by managers seeking advice. Employees who are regularly exposed to new ideas and perspectives are more likely to question widely held assumptions (Greul et al., 2023; Zajonc, 1968) and are better equipped to identify, develop, and implement higher quality strategies, ultimately enhancing the organization's flexibility to address challenges in a dynamic environment. For example, seeking advice from employees in various departments or with diverse expertise can foster cross-functional collaboration. This collaboration can provide a more comprehensive view of challenges and opportunities, promoting coordination across the organization. Furthermore, CEOs who are exposed to a variety of ideas and solutions are more inclined to integrate diverse perspectives with their own viewpoint to devise creative solutions to significant challenges (Burt, 2004; Hansen, 1999).

Enhanced coordination flexibility can be instrumental in enabling BMI. Particularly in dynamic environments, the speed of adaptation is critical for the success of a firm's BM (Weber & Tarba, 2014). Thus, coordination flexibility can aid in reducing the time taken from receiving valuable advice to internally acting on it (Wei et al., 2014). Additionally, establishing a flexible operating environment where roles and tasks are adaptable and decoupled from underlying business processes increases resource accessibility (Sanchez, 1995). This, in turn, allows resources to be used more efficiently for new purposes, thus decreasing search and switching costs associated with implementing new BM designs (Liu et al., 2009). Finally, as innovating a firm's BM involves a continuous process of experimentation (McGrath, 2010) marked by trial and error (Demil & Lecocq, 2010; Sosna et al., 2010), organizations with high coordination flexibility are better positioned to empower managers to experiment with innovative concepts.

Collectively, the aforementioned arguments indicate that the successful integration of valuable advice into BMI is mediated by the firm's ability to cultivate an environment with high coordination flexibility. In this context, the ability to seek advice plays a role in driving BMI, partly through leveraging the company's strong CFC.

Hypothesis (H2a). CFC will mediate the relationship between a manager's internal advice seeking capabilities and BMI.

Hypothesis (H2b). CFC will mediate the relationship between a manager's external advice seeking capabilities and BMI.

2.4 | Organizational digitalization, advice seeking capabilities, and CFCs

Helfat and Peteraf (2015, p. 846) argue that DMC help organizations to create, extend, or modify organizational DCs, consistent with the argument that managerial decisions determine how the firm "creates, shapes, and deploys capabilities" (Teece et al., 2016, p. 19). We support this viewpoint and further propose the moderating role of organizational digitalization on the link between DMC and DC.

Scholars point out the important role of a social mechanism in harnessing and mobilizing the DCs of managers for firm-level DCs. Theories of collective learning highlight the social dimension of the creation and transfer of knowledge in organizations (Grant, 1996). Relational engagement among employees allows them to collectively identify improvements that are needed to the specific contexts where they perform (Feldman & Pentland, 2003). Therefore, focusing on interpersonal connections helps to explain how individual contributions can aggregate into firm-level DCs (Felin & Hesterly, 2007). For example, productive dialogue can serve as the means through which employees' proposals for change can be incorporated at the firm-level (Salvato & Vassolo, 2018). From a relational perspective, studies suggest that increasing interaction among co-workers helps firms adapt to shifting environmental requirements (Grant & Parker, 2009).

Social relationships can be enhanced by digital technologies, leading us to anticipate that organizational digitalization, which facilitates information exchange, will bolster the connection between DMC and CFC. By optimizing processes, organizations can enhance information accessibility among stakeholders, minimizing the time and effort needed for coordination. This efficiency can foster collaboration by simplifying the coordination of efforts and promoting collective work toward shared objectives (Adomako & Nguyen, 2024). Emphasizing the significance of digitalization in determining the scope of the firm, certain researchers posit that digital technologies have the capacity to expand the firm's scope by enhancing coordination and collaboration among diverse units (Yoo et al., 2012).

Another way in which organizational digitalization moderates the relationship between DMC and CFC is by influencing employee engagement. Digital technologies go beyond mere "informating and automating" (Bailey et al., 2019) as they facilitate the introduction of completely new "activities" (Teece, 2010) and enable pervasive connectivity (Lanzolla et al., 2021). Employee engagement leveraged by digital tools provides a valuable source of flexibility that enables companies to adapt to dynamic environments (Salvato & Vassolo, 2018). Utilizing digital tools like real-time online Q&A sessions fosters interfirm collaboration and promotes knowledge cocreation (Seidl & Werle, 2018). In a similar vein, Nambisan (2003) argues that computer-mediated communication technologies play a crucial role in facilitating communication, particularly among employees involved in new product development tasks. Prior research has indicated that employing digital tools for knowledge management, such as data integration tools, enhance knowledge sharing, thereby optimizing organizational processes to build DCs (e.g., Pauleen & Wang, 2017).

In summary, we anticipate that organizational digitalization facilitates the relationship between internal and external advice seeking capabilities and CFC. This leads us to propose the following two hypotheses:

Hypothesis (H3a). The degree of digitalization at the firm level moderates the effect of internal advice seeking capabilities on CFC.

Hypothesis (H3b). The degree of digitalization at the firm level moderates the effect of external advice seeking capabilities on CFC.

Our model of hypotheses is visualized in Figure 1.

3 | METHODOLOGY AND EMPIRICAL SETTING

3.1 | Sample and data collection

We used a computer aided telephone survey methodology for data collection, carried out from fall 2021 to spring 2022. We targeted German mid-sized firms in the manufacturing industry falling under NACE industry classification codes 20 and 30 (cp. https://nacev2.com/en). These codes encompass research-intensive manufacturing industries such as chemicals and automotive. We focused on German manufacturing companies for several reasons. First, research has highlighted the notably high level of innovation within German mid-sized enterprises (i.e., Mittelstand) (e.g., De Massis et al., 2018). Second, these firms are under increasing pressure to revamp their BMs due to recent advancements in manufacturing technologies, including the Internet of things and additive manufacturing (Bogers et al., 2016; Kiel et al., 2017). Third, by narrowing our focus to the manufacturing sector, we aimed to more effectively manage industry effects, and enhance internal validity.

The firms included in the study were sourced from the *Orbis* database by *Bureau Van Dijk*. Specifically, we identified those companies that met the following criteria: (1) belonged to the selected NACE categories, (2) were classified as mid-sized with 50 and 2999 employees (3) had been established for at least 10 years (thereby excluding start-ups), (4) and were not subsidiaries

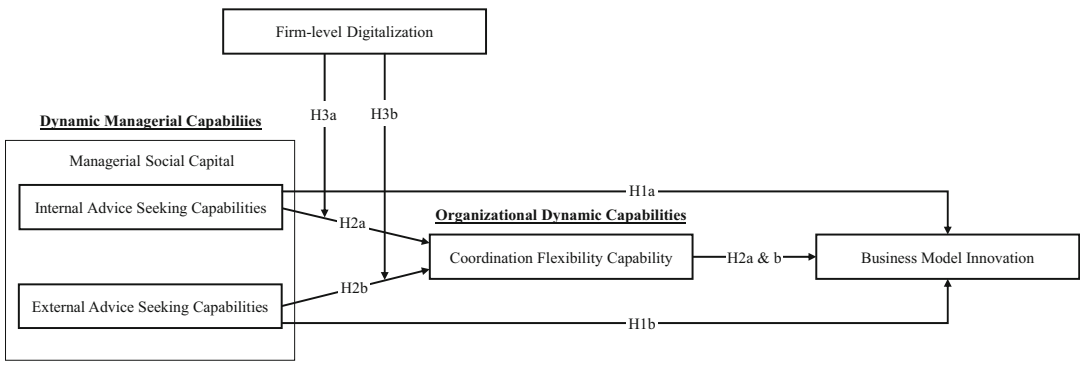

FIGURE 1 Dynamic managerial capabilities, Organizational dynamic capabilities, and Business model innovation.

of foreign firms, public institutions, or non-profit organizations. Through this initial screening process, we identified 10,765 firms that aligned with our criteria. Data pertaining to the financial performance of these firms for the years 2018–2022 were extracted from the Orbis database.

We reached out to 7000 of these companies randomly to gauge their interest in participating in the research. Among the possible 7000 firms, initial contact could not be established in 19.6% of cases. As an incentive for participation, we offered each firm a personalized report comparing their performance with that of other companies in our study. Of the remaining 5630 firms, 68.5% declined to participate. In 18% of the contacted companies, appointments were successfully arranged with potential respondents. Ultimately, survey-based interviews were completed with senior management representatives from 254 companies. The response rate of 4.5% among the initially reached firms falls within the typical range for survey studies involving senior executives (Carpenter et al., 2004). The characteristics of the firms and respondents in our sample are summarized in Table I of our online supplement.

3.2 | Representativeness and nonresponse bias

Potential issues related to nonresponse bias were investigated prior to conducting our primary analysis. First, the data were evaluated based on firm size to determine the representativeness of the sample in comparison to the population and to determine the similarity between nonrespondents and the sample. In both cases, t tests indicated no significant differences in firm size, as measured by the number of employees ($t = 0.175$, d.f. = 4196, $p = .861$; and $t = 1.514$, d.f. = 10,107, $p = .130$ respectively). Subsequently, we examined the groups based on subindustry distribution. Employing a Mann–Whitney U test, we found no significant differences between the sample and the population, as well as between the sample and the nonrespondents ($p = .331$; and $p = .699$, respectively).

Finally, we conducted a comparison of the groups based on innovativeness, as indicated by the number of granted patents. Two t tests ($t = -1.431$, d.f. = 6496, $p = .153$; and $t = -0.770$, d.f. = 2–631, $p = .441$, respectively) revealed no difference in innovativeness between the sample and the population, as well as between the sample and nonrespondents. Collectively, these three tests provide evidence that our sample is representative, and that nonresponse bias is not a significant issue.

3.3 | Measures

All survey measures used in this study are detailed in Table 1.

3.3.1 | Dependent and independent variables

We employed the BMI measure by Von Delft et al. (2019), which was specified as a type II reflective-formative second-order measure (Ringle et al., 2012). This measure includes four first-order constructs (customer value proposition, profit formula, key resources, and key processes) that make up the higher-level construct.

We opted to use the scales developed by Kump et al. (2019) and Yuan et al. (2010) as they closely align with the concept of CFC as defined in our study. As mentioned earlier, *CFC* entails

TABLE 1 Assessment of the reflective measurement items.

Construct	Sub-construct	Measurement item	Factor loading	CR	AVE
Internal advice seeking capabilities Borgatti and Cross (2003); McDonald and Westphal (2003)		For the following questions, please refer to people within your company from whom you seek knowledge and advice.		0.834	0.559
		How would you rate your ability to obtain knowledge and advice from people in your organization (e.g., members of top management, department heads, and employees)? (1 = very poor, 2 = rather poor, 3 = neither good nor bad, 4 = rather good, 5 = very good)	0.724		
		These people possess important and helpful expert knowledge for the strategic development of the company.	0.829		
		I understand what skills these people have and in what areas you have knowledge.	0.765		
		In the past 12 months, how often have you relied on the expertise of these people to provide information and knowledge for the strategic development of the company? (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often)	0.662		
External advice seeking capabilities Borgatti and Cross (2003); McDonald and Westphal (2003)	External advice seeking with personal attachment	For the following questions, please refer to people outside of the company to whom you have a personal relationship from whom you seek knowledge and advice.		0.881	0.649
		How would you rate your ability to obtain knowledge and advice from people who are external to the company but with whom you have a personal relationship (e.g., former colleagues, club members, classmates, and friends and family)? (1 = very poor, 2 = rather poor, 3 = neither good nor bad, 4 = rather good, 5 = very good)	0.827		
		These people possess important and helpful expert knowledge for the strategic development of the company.	0.856		
		I understand what skills these people have and in what areas you have knowledge.	0.770		
		In the past 12 months, how often have you relied on the expertise of these people to provide information and knowledge for the strategic development of the company? (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often)	0.766		
	External advice seeking without personal attachment	For the following questions, please refer to people outside of the company to whom you do not have a personal relationship from whom you seek knowledge and advice.		0.887	0.662

TABLE 1 (Continued)

Construct	Sub-construct	Measurement item	Factor loading	CR	AVE
		How would you rate your ability to obtain knowledge and advice from people who are external to the company and with whom you do not have a personal relationship (e.g., consulting firms, customers, and suppliers)? (1 = very poor, 2 = rather poor, 3 = neither good nor bad, 4 = rather good, 5 = very good)	0.811		
		These people possess important and helpful expert knowledge for the strategic development of the company.	0.847		
		I understand what skills these people have and in what areas you have knowledge.	0.814		
		In the past 12 months, how often have you relied on the expertise of these people to provide information and knowledge for the strategic development of the company? (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often)	0.779		
Business model innovation Von Delft et al. (2019)	Customer value proposition	Over the last 5 years we have significantly changed ...		0.833	0.501
		... our target customers and/or customer segments.	0.714		
		... our way of satisfying important customer needs.	0.789		
		... our product and service offerings.	0.735		
		... the design of our product and service offerings.	0.667		
		... the price of our product and service offerings.	0.621		
	Profit formula	... our pricing and sales strategy.	0.711	0.867	0.568
		... our commercialization strategy (e.g., subscription fees, leasing, licensing).	0.769		
		... the cost structure of our product and service offerings.	0.674		
		... the calculation of strategically important costs.*	-		
		... our manufacturing/operations strategy.	0.805		
		... the cost structure of our operational processes.	0.799		
	Key resources	... the key resources for manufacturing and distribution of our product and service offerings.	0.719	0.815	0.525
		... our used technologies.	0.758		

TABLE 1 (Continued)

Construct	Sub-construct	Measurement item	Factor loading	CR	AVE
		... our brand.	0.708		
		... our network of suppliers and partners.	0.711		
	Key processes	... our distribution and sales processes.	0.696	0.860	0.554
		... our manufacturing and logistics processes.	0.679		
		... the research and development process.*	-		
		... the way we communicate and interact with our customer.	0.681		
		... financial metrics.	0.826		
		... operational metrics.	0.823		
Coordination flexibility capabilities Kump et al. (2019)	Sensing	Our company knows the best practices in the market.	0.652	0.826	0.544
		Our company is up-to-date on the current market situation.*	-		
		Our company systematically searches for information on the current market situation.	0.811		
		As a company, we know how to access new information.	0.705		
		Our company always has an eye on our competitors' activities.	0.772		
	Seizing	Our company can quickly relate to new knowledge from the outside.	0.764	0.834	0.557
		We recognize what new information can be utilized in our company.	0.762		
		Our company is capable of turning new technological knowledge into process and product innovation.	0.793		
		Current information leads to the development of new products or services.	0.660		
Risk taking Karimi and Walter (2016)		We are willing to pursue ideas for new noncore products based on gut feel, even if hard data (e.g., market research) is sketchy or unavailable.	0.803	0.840	0.634
		We are willing to fund new noncore products even if the initial projection of earnings maybe low compared to the core business and future growth is uncertain.	0.863		

TABLE 1 (Continued)

Construct	Sub-construct	Measurement item	Factor loading	CR	AVE
		We are willing to develop and commercialize new noncore products even if they are likely to cannibalize our core business.	0.724		
Management openness		In our company, employees can communicate suggestions for change directly to management.*	-	0.941	0.888
		Good ideas from the workforce are seriously considered by our management.	0.927		
		Our management is always open to suggestions from employees.	0.957		

Note: * removed from the final measurement model due to a standardized factor loading below 0.6.

an organization's capability to orchestrate assets (Teece, 2012). Asset orchestration includes both sensing and seizing capabilities, empowering companies to better respond to unknown futures (Teece & Leih, 2016).

Internal advice seeking capabilities and *external advice seeking capabilities* were measured using a scale adapted from Borgatti and Cross (2003) and McDonald and Westphal (2003). The scale was designed to capture the various sources that managers use to obtain information. Building on the work of Adler and Kwon (2002), who distinguish between external (outside of the organization) and internal (within an organization) knowledge ties, we expand on external advice seeking capabilities by categorizing them into informal ties with a personal attachment (e.g., social club memberships and friendships) and formal network ties without a personal attachment (e.g., key suppliers, key partners and external consulting) (Adler & Kwon, 2002; Adner & Helfat, 2003).

While measures such as the *digitalization* of products and services (e.g., Proksch et al., 2021) exist, a comprehensive measure of firm-level digitalization has not yet been introduced (BarNir et al., 2003). Consequently, we have developed a new measure to evaluate the extent of digitalization across eight functional areas in an organization as outlined by Porter (1985).

We operationalized *performance* in terms of growth in sales and the number of employees. Utilizing secondary data on revenues and employees compiled by Orbis, we calculated the annual growth in sales and the number of employees for the period spanning 2021–2022, corresponding to the survey period.

3.3.2 | Control variables

We controlled for the other two underpinnings of DMC that could have influenced the outcome, namely managerial human capital and managerial cognition. Human capital generally refers to learned skills that individuals advanced through their previous experience and education (Becker, 1964). *Education in business* (dummy) pertains to whether the respondent has received formal education in the field of business. This was assessed using a binary variable where 1 indicates "yes" and 0 indicates "no." When it comes to managerial cognition, the challenge in measuring it arises from the personalized and imperfect nature of these cognitive frameworks (Walsh, 1995), which are context and domain-specific (Helfat & Martin, 2015). Despite the intricacies involved in measurement, some studies propose that prior experience could serve as a substitute. This is because the effectiveness of cognitive capabilities is influenced by prior experiences within a particular application domain (Ericsson & Lehmann, 1996; Helfat & Martin, 2015). Therefore, we use years of *tenure at the company* as a proxy for managerial cognition. We included controls pertaining to the skills-related variables *expertise in digitalization*, *expertise in business development*, and *expertise in start-up creation*, using a 5-point scale specifically designed for this study (1 = no expertise to 5 = high expertise).

Moreover, we included a range of control variables that could influence BMI. For instance, Soluk et al. (2021) highlight the role of family influence in BMI. Therefore, we manually coded the ownership structures and data of the top management team of each firm, considering *family ownership* (the percentage of shares owned by one or more owning families) and *family management* (the percentage of family members in the top management team). Considering the potential impact of the Covid-19 pandemic on fostering BMI (e.g., Clauss et al., 2022), we also

factored in *Covid severity* by assessing how much the company was affected by the pandemic. Additionally, to assess a firm's innovativeness, we also considered the *number of granted patents* held by the firm based on patent data from the *PATSTAT* database. Furthermore, we controlled for *top management openness* with a three-item scale specifically developed for our study, as BMI is partly reliant on top management support (e.g., Bucherer et al., 2012; Foss & Saebi, 2017). *Risk taking*, another important factor, was assessed using a three-item measure developed by Karimi and Walter (2016), building on prior studies (e.g., Hock-Doepgen et al., 2021).

Subindustry controls, along with firm-level characteristics such as firm size and firm age, were included as well. Environmental turbulence, known to impact BMI (e.g., Clauss et al., 2021), was addressed by calculating the average sales variance in each relevant industry segment over the past 5 years (Dess & Beard, 1984). Given that our sample companies operate in 10 different subindustries within the manufacturing sector, we included respective subindustry dummies.

3.4 | Analytic methods

We evaluate our hypotheses using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4. We chose PLS-SEM as the most appropriate technique due to its ability to handle models that include both first-order formative and second-order reflective-formative constructs (Becker et al., 2012). Additionally, PLS-SEM is advantageous for models with latent moderators assessed through multi-item scales, as it provides a more precise analysis of interaction effects (Chou & Yang, 2011). Since we defined the higher-order constructs (e.g., BMI) as type II reflective-formative models, we applied the two-step approach, specifically the sequential latent variable score method, for the estimation (Ringle et al., 2012). This approach is recommended when the model integrates hierarchical latent variables in an endogenous position (Becker et al., 2012).

3.5 | Common method bias

We implemented several strategies to mitigate potential issues associated with common method bias. Following suggestions by Podsakoff et al. (2003), we developed a questionnaire aimed at minimizing the likelihood of systematic bias. Specifically, we were careful to (1) pay close attention to the order and the quality of the measures used, (2) ensure that particular measurement items were not adjacent to each other, and (3) employ second-order measurement models for the dimensions of BMI, consisting of several subconstructs that were not obviously correlated with each other. Furthermore, we guaranteed respondent anonymity and maintained confidentiality by openly sharing our data storage and handling protocols.

In addition to these ex ante measures, we employed econometric techniques to evaluate the potential presence of common method bias, specifically utilizing the correlational marker technique (Lindell & Whitney, 2001). As part of this assessment, we introduced an additional variable that is theoretically unrelated to the main variables in our model ("I feel that addressing environmental issues is the most important challenge of our time," 1 = do not agree, 5 = fully agree). Incorporating this variable as a control variable yielded no significant alterations to the magnitude or the *p*-values of the zero-order correlations. These findings suggest that common

method bias was not a notable concern in our analysis. Furthermore, the model included interaction terms that are deemed to be insensitive to common method bias, as outlined by Siemsen et al. (2010).

4 | RESULTS

4.1 | Assessment of the measurement model

Table 1 presents the results concerning the reliability and validity of the reflective measurement model. Internal consistency was examined using indicator reliability and composite reliability (CR) (Hair et al., 2011). To ensure sufficient item reliability, items with a loading of less than 0.6 were removed. Construct validity is confirmed by average variance extracted (AVE) values above 0.5. Discriminant validity was evaluated using the Fornell–Larcker criterion. The square roots of all AVE values exceeded the inter-construct correlations, supporting discriminant validity on the item level (Fornell & Larcker, 1981). Table 2 displays the construct correlations. Moreover, the heterotrait-monotrait ratio of correlations except for the two first-order constructs, key resources, and key processes of the higher-order measure of BMI, were below the threshold of 0.9.

With regard to the first- and second-order formative constructs (shown in Table II of the online supplement), we examined potential multicollinearity by assessing the variance inflation factor (VIF) for each formative indicator. The VIF values for all indicators were found to be comfortably below the threshold criterion of 10, suggesting that multicollinearity is unlikely to be present in our analysis. In addition, we evaluated the relative importance of each formative indicator by considering the weight of each indicator (Becker et al., 2012). While all indicators, except for two first-order constructs, significantly contribute to their second-order constructs, we opted to retain these two constructs in the model. This decision was made because even formative indicators with insignificant weights still hold conceptual relevance to their respective constructs (Hair et al., 2011).

4.2 | Structural model results

We ran multiple models to test our assumptions (Table 3). In Model 1, we estimated the effects of the control variables on the two endogenous constructs, CFC and BMI. In Model 2, which examines the main effects, we found that it explains 34.3% of the variance of CFC and 30.8% of the variance of BMI. Furthermore, the standardized root mean square residual (SRMR) of this model is 0.081, indicating a good overall model fit. The predictive relevance of the model is satisfactory, as indicated by Q^2 values for all endogenous constructs being greater than zero. The model indicates that there is no significant relationship between internal advice seeking capabilities and BMI ($\beta = -.031$, $p = .613$), thereby failing to support H1a. However, our data weakly support H1b, indicating a notable effect between external advice seeking capabilities and BMI ($\beta = .129$, $p = .035$) with an effect size of 1.5%.

We obtained strong empirical evidence for H2. In Model 2, we found significant positive main effects of internal advice seeking capabilities ($\beta = .260$, $p = .000$) and external advice seeking capabilities ($\beta = .148$, $p = .015$) on CFC. The effect sizes, however, are moderate. Internal advice seeking capabilities explain about 7.9% of the CFC, while external advice seeking

TABLE 2 Correlations.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	BMI																												
2	Change in employees	−0.103																											
3	Change in revenues	0.083	0.092																										
4	Covid severity	0.119	−0.114	−0.262																									
5	Digitalization	0.359	−0.036	−0.019	0.018																								
6	Education in business	−0.007	−0.015	0.029	0.096	−0.071																							
7	Environmental turbulence	−0.173	0.068	−0.089	−0.003	−0.129	0.024																						
8	Expertise in business development	0.021	−0.017	−0.031	−0.092	0.154	−0.247	−0.055																					
9	Expertise in digitalization	−0.009	−0.017	−0.228	0.037	0.123	0.044	0.015	0.162																				
10	Expertise in start-up creation	0.089	0.032	−0.068	0.012	0.012	0.04	−0.041	0.356	0.319																			
11	External advice seeking capabilities	0.241	−0.02	−0.034	0.049	0.046	0.154	−0.05	−0.01	0.18	0.115																		
12	Family management	−0.056	−0.049	0.018	−0.051	−0.08	0.045	0.063	0.015	−0.066	0.093	−0.104																	
13	Family ownership	−0.082	−0.032	−0.064	−0.022	−0.072	0.171	0.083	−0.013	−0.013	−0.024	−0.1	0.365																
14	Firm Age	0.041	−0.034	−0.147	−0.075	0.006	0.015	0.033	−0.002	0.124	0.017	0.019	0.041	0.186															
15	Firm size	0.003	0.157	−0.142	−0.039	0.096	−0.009	−0.067	0.043	0.147	0.134	0.064	−0.181	−0.197	0.043														
16	Gender	0.068	−0.008	0.015	0.022	−0.054	0.185	−0.104	−0.321	−0.134	−0.164	0.139	−0.007	−0.003	0.017	−0.024													
17	Internal advice seeking capabilities	0.215	0.13	0.031	0.029	0.202	0.083	−0.087	−0.065	0.041	0.12	0.382	0.007	−0.107	−0.019	0.051	0.187												
18	NACE20	0.02	0.053	0.051	−0.084	−0.013	0.099	−0.421	0.04	0.015	0.103	0.01	0.05	0.023	−0.045	0.012	−0.033	0.026											
19	NACE21	0.166	0.038	0.059	−0.105	0.116	−0.071	−0.283	0.016	−0.031	0.024	0.08	0.018	−0.065	0.03	0.088	0.106	0.066	−0.1										
20	NACE22	−0.003	−0.032	−0.037	0.024	0.013	−0.075	0.105	0.008	−0.025	0.045	−0.004	0.053	−0.051	0.046	0.025	−0.018	−0.044	−0.082	−0.055									

TABLE 2 (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
21 NACE23	0.052	−0.071	−0.029	−0.001	−0.001	0.124	0.156	−0.088	−0.015	−0.056	−0.019	0.012	0.08	0.084	−0.142	−0.047	−0.019	−0.227	−0.152	−0.125								
22 NACE25	0.023	−0.148	0.046	0.036	0.051	−0.114	−0.482	0.042	−0.05	−0.054	0.046	−0.082	−0.081	0.033	0.007	−0.035	0.08	−0.093	−0.063	−0.051	−0.142							
23 NACE26	0.059	−0.019	0.025	−0.001	0.078	0.001	−0.253	0.057	0.089	0.078	−0.023	−0.028	−0.098	−0.078	0.064	0.119	0.049	−0.113	−0.076	−0.062	−0.171	−0.071						
24 NACE27	−0.161	0.091	−0.152	0.04	−0.093	−0.051	0.588	0.079	−0.036	0.004	−0.017	0.009	0.079	0.003	0.031	−0.092	−0.061	−0.241	−0.162	−0.133	−0.365	−0.15	−0.182					
25 Management openness	0.136	0.016	0.038	0.051	0.123	0.123	0.036	0.081	−0.011	0.042	0.079	0.048	0.129	0.058	−0.024	−0.012	0.248	−0.025	0.004	0.049	0.034	0.031	−0.082	0.049				
26 Number of granted patents	0.055	−0.016	−0.226	−0.034	0.127	0.068	0.068	0.076	0.195	0.036	0.09	−0.146	−0.033	0.117	0.265	−0.012	0.052	−0.071	−0.01	−0.026	0.001	0.02	−0.045	0.125	0.06			
27 CFC	0.436	−0.011	0.03	−0.053	0.41	0.11	−0.062	0.144	0.098	0.192	0.288	0.007	0.06	0.08	0.089	0.1	0.369	0.023	0.09	0.03	−0.039	0.046	−0.03	0.02	0.458	0.175		
28 Risk taking	0.111	0.123	−0.065	−0.06	0.226	−0.039	0.039	0.285	0.193	0.185	0.054	0.016	0.045	0.057	0.075	−0.103	0.138	−0.012	0.004	−0.021	−0.018	0.038	−0.071	0.112	0.212	0.134	0.266	
29 Tenure at the company	0.072	0.038	0.06	0.03	0.03	−0.134	0.016	0.08	−0.129	−0.06	−0.084	−0.054	0.055	0.04	−0.047	−0.048	−0.086	−0.162	−0.076	0.114	0.02	0.06	−0.004	0.065	0.06	−0.028	0.046	0.049

TABLE 3 Structural model results.

	DV: Coordination flexibility capabilities			DV: Business model innovation		
	Model 1 (controls)	Model 2 (main effects)	Model 3 (interaction effects)	Model 1 (controls)	Model 2 (main effects)	Model 3 (interaction effects)
Controls						
Education in business (1 = yes)	0.099 (.077)	0.133 (.241)	0.065 (.252)			
Expertise business development (1 = yes)	0.104 (.068)	0.122 (.028)	0.124 (.027)			
Expertise in digitalization (1 = yes)	0.011 (.865)	−0.009 (.887)	−0.004 (.944)			
Expertise in start-up creation (1 = yes)	0.141 (.032)	0.084 (.163)	0.086 (.164)			
Gender (1 = male)	0.207 (.000)	0.419 (.018)	0.132 (.020)			
Tenure at the company (in years)	0.036 (.520)	0.055 (.267)	0.068 (.185)			
Family ownership (in %)	0.067 (.252)	0.230 (.049)	0.107 (.060)	−0.076 (.248)	−0.177 (.209)	−0.084 (.213)
Family management (in%)	−0.032 (.584)	−0.033 (.533)	−0.035 (.507)	−0.007 (.911)	0.010 (.874)	0.011 (.868)
Covid severity				0.131 (.026)	0.140 (.013)	0.140 (.015)
Firm age (in years)				0.053 (.379)	0.048 (.383)	0.048 (.372)
Management openness				0.095 (.090)	−0.013 (.805)	−0.013 (.812)
NACE22 (1 = yes)				0.038 (.769)	0.007 (.946)	0.004 (.974)
NACE23 (1 = yes)				0.131 (.190)	0.082 (.312)	0.079 (.430)
NACE25 (1 = yes)				0.078 (.439)	0.068 (.370)	0.064 (.510)
NACE26 (1 = yes)				−0.028 (.828)	−0.061 (.565)	−0.063 (.630)
NACE27 (1 = yes)				0.052 (.595)	0.035 (.669)	0.033 (.740)
NACE28 (1 = yes)				−0.029 (.768)	−0.035 (.698)	−0.039 (.690)
Firm size (Ln employees)				−0.057 (.403)	−0.060 (.425)	−0.060 (.430)

TABLE 3 (Continued)

	DV: Coordination flexibility capabilities			DV: Business model innovation		
	Model 1 (controls)	Model 2 (main effects)	Model 3 (interaction effects)	Model 1 (controls)	Model 2 (main effects)	Model 3 (interaction effects)
No. granted patents (Ln)				0.033 (.516)	−0.012 (.849)	−0.012 (.852)
Risk taking				0.043 (.510)	0.005 (.935)	0.005 (.935)
Environmental turbulence				−0.085 (.615)	−0.112 (.411)	−0.112 (.496)
Digitalization	0.410 (.000)	0.338 (.000)	0.348 (.000)	0.301 (.000)	0.197 (.008)	0.198 (.009)
Main effects						
External advice seeking capabilities (EAS)		0.148 (.015)	0.128 (.041)		0.129 (.041)	0.129 (.035)
Internal advice seeking capabilities (IAS)		0.260 (.000)	0.288 (.000)		−0.031 (.623)	−0.031 (.613)
Coordination flexibility capabilities						0.339 (.000)
Interaction effects						
IAS × digitalization			0.081 (.071)			
EAS × digitalization			−0.070 (.204)			
R^2	.240	.343	.351	.201	.308	.308
ΔR^2		.103	.008		.107	0
Adjusted R^2	.212	.313	.318	.143	.252	.252
Δ Adjusted R^2		.101	.004		.109	0
Q^2	0.149	0.398	0.398	0.038	0.153	0.153
ΔQ^2		0.249	0		0.125	0
SRMR	0.043	0.081	0.081	0.043	0.081	0.081

Note: *p*-Values are shown in parentheses. Standard errors were obtained through nonparametric bootstrapping with 5000 replications.

capabilities account for only 2.7%. Furthermore, a strong relationship exists between CFC and BMI ($\beta = .339$, $p = .000$), explaining 10.0% of the variance of BMI. The results also revealed that the indirect effects of internal and external advice seeking capabilities via CFC on BMI are positive and substantial ($\beta_{\text{internal}} = .088$, $p = .001$; $\beta_{\text{external}} = .050$, $p = .031$).

To assess the mediation effect's magnitude, we compared the direct effects of internal and external advice seeking capabilities on BMI in Model 2 with a model that only examines their

direct effects on BMI, excluding the mediator (Baron & Kenny, 1986). In this model, internal advice seeking capabilities do not show a significant relationship with BMI ($\beta = .041$, $p = .501$). However, they do support H2a through their indirect influence via CFC. According to Zhao et al. (2010), this signifies a case of indirect-only mediation, wherein only a mediated effect exists without a direct effect. Interestingly, external advice seeking capabilities yield a positive and substantial relationship with BMI ($\beta = .185$, $p = .005$). Although this relationship weakens upon the introduction of the mediator into the model, it remains statistically significant. Consequently, we observe a scenario of partial mediation, providing support for H2b.

In Model 3, the results suggest weak evidence for the moderating effect of digitalization on the relationship between internal advice seeking capabilities and CFC ($\beta = .081$, $p < .071$), confirming H3a while not supporting H3b. Nevertheless, the effect size of this moderation is merely 1.1% according to conventional standards (Aguinis et al., 2005), indicating that firm-level digitalization may strengthen the relationship between internal advice seeking capability and CFC, though not substantially.

4.3 | Assessment of endogeneity

Based on recommendations by Hill et al. (2021), we address various sources of endogeneity in our analysis, given that our use of cross-sectional data can be prone to endogeneity issues. This is essential because such issues could lead to an exaggerated estimation of the hypothesized association or potentially a spurious result.

First, we incorporate a set of control variables as a method to tackle endogeneity concerns (Hult et al., 2018; Lu et al., 2018). Omitted variables can lead to endogeneity problems since potential predictors not accounted for in our models may be linked to the constructs being studied as endogenous. Consequently, as outlined earlier, we thoughtfully selected and included theoretically relevant control variables to enhance the model's specification and effectively reduce the endogeneity problem stemming from omitted variables.

Moreover, we utilized the Gaussian Copula approach in SmartPLS 4 to confirm the robustness of our results (Hult et al., 2018). This method was chosen due to the potential presence of simultaneity (reversed causality) when the endogenous constructs (i.e., CFC and BMI) cause the exogenous constructs (i.e., internal and external advice seeking capabilities). Such a situation would violate the exogeneity assumption of ordinary least square estimation, suggesting a correlation between the independent variables and the regression error term. Prior to conducting the Gaussian copula analysis, we assessed the non-normality requirement of the endogenous constructs. Kolmogorov–Smirnov tests with Lilliefors correction (Sarstedt & Mooi, 2014) were conducted on the standardized composite scores of internal and external advice seeking, revealing significant deviations from normality ($p = .001$ and $p = .002$, respectively). Subsequently, we applied Gaussian copula analysis, incorporating copulas for each independent variable with the dependent variable (CFC). Results from 5000 iterations of a bootstrap procedure showed nonsignificant copulas in our model ($\beta = -.121$, $p = .293$, $f^2 = 0.005$, and $\beta = -.100$, $p = .784$, $f^2 = .000$, respectively), suggesting no concerns regarding simultaneity in the estimation.

Finally, as mentioned earlier, we obtained a random sample using multiple criteria that closely represents our targeted population. It is essential to note this as sample selection bias could potentially introduce endogeneity. Furthermore, our analyses revealed no statistically significant selection bias between the respondents and nonrespondents.

4.4 | Robustness checks

We conducted several follow-up analyses as robustness checks. First, we examined the potential influence of overconfidence bias among survey respondents (Huffman et al., 2022). For example, executive respondents may overestimate their companies' capabilities. To address this, we requested a self-assessment of the respondent's expertise in eight different business areas (e.g., law, finance, and marketing) (1 = no expertise, 5 = high expertise). Given the diverse nature of these areas, having a high level of confidence across all domains could suggest potential overconfidence in the capabilities of the respondent and their company. To explore this possibility, we constructed a model using a subset of the data that excludes values greater than the mean plus two standard deviations. The results from this modified model did not differ significantly from those of the original model, indicating minimal impact of overconfidence bias on our findings.

Second, we examined the nomological validity of BMI to further assess construct validity (e.g., Danneels, 2016). Two models were run incorporating objective performance measures (employment and revenue growth) from the Orbis database, as BMI is known to correlate positively with firm performance (Zhang et al., 2021). The initial analysis on the BMI- revenue growth relationship (2021–2022) revealed a weak positive correlation ($\beta = .149$, $p = .069$), indicating an effect size of about 2.3%. Although the effect size is modest, the positive relationship between this perceptual measure and revenue growth supports our hypothesis. Furthermore, considering that substantial organizational changes often involve employee redeployment, we examined employee growth (2021–2022) as an additional dependent variable. This analysis revealed a slight negative correlation between the variables ($\beta = -.106$, $p = .021$, $f^2 = 0.011$). These findings collectively confirm nonsignificant bias and establish the nomological validity of our perception-based BMI measure.[2]

5 | DISCUSSION AND CONCLUSION

We investigated how the microfoundations of DMC impact BMI based on Adner and Helfat's (2003) framework. By focusing on managerial social capital as a key microfoundation of DMC, we examined how internal and external advice seeking capabilities form the basis of DMC, and how CFC play a crucial role in reconfiguring BMs. Our research sends light on the interplay among managers' internal and external advice seeking capabilities, organizational DCs, and their influence on BMI, taking into account the moderating role of organizational digitalization.

Generally, this research finds support for positive relationships between advice seeking capabilities and BMI. The total indirect effects of internal advice seeking capabilities and the direct effect of external advice seeking capabilities are both positive and significant. Our findings are consistent with the argument that BMI is a process dependent upon managers' ability to actively seek advice from their internal and external network ties in order to sense and seize BM initiatives (Blyler & Coff, 2003; Helfat & Martin, 2015).

A possible explanation for this positive effect may lie in the richness of knowledge received from both sources of advice. While external advice offers more novel independent ideas, inter-

[2]Detailed results are available upon request.

nal advice provides managers with in-depth and firm-specific knowledge (Kyriakopoulos, 2011). More broadly, the empirical results are in line with prior studies emphasizing that strategic decision-making, such as responding to threats and innovative opportunities, is dependent on the manager's ability to leverage both internal and external sources of advice seeking (Alexiev et al., 2010; Heyden et al., 2013; McDonald & Westphal, 2003; van Doorn et al., 2017). Our findings imply that the mental processing of evaluating new knowledge and finding the right solutions for designing innovative BMs, is influenced by the opinions and advice that managers seek. In other words, this study provides strong evidence that BMI is a reflection of managers' personalized search for information. Thus, superior advice seeking capabilities appear to be translated into BMI.

The overall positive effect of advice seeking on BMI needs further clarification. In the case of internal advice seeking, we find that the effect on BMI is only positive when mediated by CFC. This contrasts with our initial expectations. Notably, the main effect of internal advice seeking capabilities was not significant.[3] One potential explanation for this unexpected result is that internal stimuli within the firm may align closely with the firm's established mindset or dominant logic (Argyris, 1976; Bettis & Prahalad, 1995) regarding its processes, routines, responsibilities, and belief system. As a result, internal advisors may be hesitant to challenge the perspectives of higher-ranking members such as the CEO. Additionally, recipients may experience ingratiation in the form of flattery and conformity of opinions (Boot et al., 2005; Park, 2011), potentially hindering BMI. Furthermore, managers may be in internal competition for promotion, leading them to be unwilling to support projects put forward by internal rivals (Menon & Pfeffer, 2003).

As expected, CFC was found as a mediator. Even if managers possess strong advice seeking capabilities, they may lack the superior reconfiguring capabilities necessary for effectively transforming the BM (Doz & Kosonen, 2010; Helfat & Peteraf, 2015). Our findings reaffirm that CFC increase the effectiveness that external advice seeking has on BMI, and additionally reveal that internal advice seeking has a significant positive effect on BMI only in the presence of CFC at the organizational level.

Interestingly, the moderation effect of organizational digitalization was only partially supported (H3a and H3b). While organizational digitalization has a positive moderating effect on the relationship between internal advice seeking capabilities and CFC, it does not on the relationship between external advice seeking capabilities and CFC. Organizational digitalization can help promote knowledge flows within firms and facilitate interactions among employees (Gavrila & de Lucas Ancillo, 2021). Internal and external sources lead to variations regarding the novelty of innovation output (Alexiev et al., 2010). External advice involves novel knowledge that is often rather difficult to implement, while internal advice catalyzes existing ideas, making them easier to integrate (Kyriakopoulos, 2011). Thus, knowledge acquired through external advice is more difficult to absorb (Feller et al., 2007), despite the availability of numerous digital tools for knowledge dissemination. However, the magnitude of the moderation effect was small, so caution must be exercised when interpreting the result.

[3]However, it is important note that the total effect of internal advice seeking capabilities is positive and significant via a full mediation effect of CFC. In other words, some firms may experience a positive role of internal advice seeking capabilities in BMI because they have strong CFC.

5.1 | Contribution to research

We contribute to several strands of the literature. First, we add to the literature that investigates BMI from a DCs-perspective. Drawing on Teece et al. (1997) and Teece (2007), the literature focuses on organizational DCs (Achtenhagen et al., 2013; Doz & Kosonen, 2010; Saebi et al., 2017) and identifies underlying microfoundations of organizational DCs such as organizational culture (Achtenhagen et al., 2013; Hock et al., 2016), which enable the necessary transformation and change processes for BMI (Foss & Saebi, 2017). Our study focuses on analyzing the underlying microfoundations of DMC for BMI. This approach is regarded as an important step toward gaining a better understanding of the heterogeneous outcomes of managerial decision-making and strategic change (Helfat & Martin, 2015).

Although some studies have identified DMC in the context of BMI, they have predominantly focused on managerial cognition (e.g., Demil & Lecocq, 2010; Martins et al., 2015; Sosna et al., 2010) and managerial human capital (Wright et al., 2014) and few studies have fully explored the potential of managerial social capital based on a multilevel model to predict BMI. In proposing multilevel analysis in social capital research, Payne et al. (2011) identify a significant gap in knowledge regarding the behavioral and other microfoundations of innovation. This gap could provide a more fine-grained understanding of the role of social capital in the relationship between innovation management and firm performance. Since BMI involves large amounts of boundary-spanning activities and depends highly on the external environment, managerial social capital can provide an important avenue for the firm to access external information and resources in support of BMI (Wang et al., 2017). Furthermore, previous studies on DMC frequently overlook the organizational elements that are crucial in translating the potential of microfoundations into tangible outcomes. Scholars in the field of networks have observed that while a network abundant in structural holes facilitates the generation of innovative ideas by employees, the transformation of a creative concept into a concrete innovation necessitates internal backing, alignment, and coordinated efforts (Kijkuit & Van Den Ende, 2007). This brings us to our next key point.

By conceptualizing managerial advice seeking capabilities as managerial social capital, representing microfoundations of DMC, and CFC as organizational DCs, we clarify the relationship between DMC and organizational DCs, as well as their combined impact on BMI. This contributes to the DCs literature, where researchers advocate for multilevel analysis (Helfat & Martin, 2015; Schilke et al., 2018). Although microfoundational approaches address the source of innovation inherent to DCs, they fail to explain how individual skills aggregate to firm-level DCs (Winter, 2013). As proposed by Foss and Saebi (2017) and Teece (2018), internal contextual factors have a moderating effect on DCs. Our research supports the argument by Salvato and Vassolo (2018) that the antecedents of how firms build capabilities to address changing markets are not located at the individual or macro levels of analysis.

In our multilevel model, we also considered organizational digitalization as a technological contextual factor facilitating interpersonal processes that helps individual actions get translated into organizational capabilities. Organizational level digitalization serves as a tool for knowledge sharing mechanisms that translate individual capabilities to organizational ones, consistent with the finding that emerging technologies play a positive role in driving DCs (Mikalef et al., 2019). In this regard, our cross-level analysis leads to a more nuanced understanding of how DMC grounding their social capital leads to BMI, which addresses the call for more research on parceling out the relationship between managerial and organizational capabilities both theoretically and empirically (Helfat & Peteraf, 2015). Thus, these empirical findings

contribute to the DCs literature by aiding in the progress of research and the development of multilevel theories for DCs (Salvato & Vassolo, 2018).

5.2 | Limitations and suggestions for future research

Similar to other studies, our research has limitations. First, the data in this study were collected at a single time point, thus failing to capture the dynamic nature of BMI (Demil & Lecocq, 2010). Nonetheless, our work indicates that future studies should consider both managerial and organizational capabilities to explore these dynamics further. Acquiring data at multiple time points enables a more comprehensive examination of advice seeking behaviors and CFC across different phases of BMI.

Additionally, we relied on self-reported survey data, a methodology employed by several authors (e.g., Osiyevskyy & Dewald, 2015; Von Delft et al., 2019). This type of data is inherently subjective, being biased on individuals' personal assessment. Consequently, the main concern in this context is endogeneity. While it is improbably that endogeneity significantly impacts our main findings, given our examination of cross-level interactions, we cannot completely dismiss the possibility of endogeneity. Hence, we recommend that future studies incorporate experiments to mitigate the risk of the ecological fallacy.

Finally, this study focused on internal and external advice seeking capabilities as an underlying DMC influencing BMI. Future research should expand on this investigation by identifying additional microfoundations of DMC that lead to BMI. Adner and Helfat (2003) argue that these underpinnings may interact with one another. For instance, social capital can enhance human capital by facilitating the exchange of knowledge among managers within their social networks (Castanias & Helfat, 2001). Similarly, when managers predominantly seek advice from the same sources repeatedly, the filtering of information may be biased (Heyden et al., 2013), potentially impacting mental processes and heuristics (McDonald & Westphal, 2003). Exploring the potential bias in managerial cognition when analyzing managerial social capital presents a promising avenue for future research endeavors.

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DATA AVAILABILITY STATEMENT

Data are available upon request due to privacy and ethical restrictions.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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