



Strategic leadership in liminal space: Framing exploration of digital opportunities at hierarchical interfaces

Fathiro H. R. Putra^{1,2} | Krsto Pandza³ | Saeed Khanagha⁴

¹Industrial Engineering & Management, Bandung Institute of Technology, Bandung, Indonesia

²Institute for Manufacturing, University of Cambridge, Cambridge, UK

³Leeds University Business School, University of Leeds, Leeds, UK

⁴School of Business and Economics, Vrije Universiteit Amsterdam, HV Amsterdam, The Netherlands

Correspondence

Fathiro H.R. Putra, Industrial Engineering & Management, Bandung Institute of Technology, Jl. Ganesa No.10, 40132, Bandung, Indonesia
Email: fathiro@itb.ac.id

Funding information

H2020 Marie Skłodowska-Curie Actions, Grant/Award Number: 675866

Abstract

Research Summary: We investigate how strategic leaders of an incumbent firm frame exploration of digital opportunities at the interfaces of organizational hierarchy. Digital technologies create an unbounded array of opportunities that may pose challenges to the strategic coherence of corporate entrepreneurship activity. Our analysis reveals that top management teams (TMTs) adopt a paradoxical framing of exploration, thereby creating a liminal space with unstable boundaries between exploration activities aligned with core resources (i.e., convergent) and those perceived as divergent. We show that middle managers (MMs) skillfully navigate this space by combining framing with substantive and symbolic actions to blur the boundaries of exploration. Drawing on our findings, we theorize the role of framing at the interfaces between the TMT and MMs in setting boundaries for exploration.

Managerial Summary: The process of digital transformation can be overwhelming for established companies as managers encounter a myriad of new opportunities. Our study of a large telecommunications company found that both senior and MMs play important roles in guiding the development of new digital businesses. Senior managers encourage creative thinking and promote exploring multiple innovation opportunities. However, they also set

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2023 The Authors. *Strategic Entrepreneurship Journal* published by John Wiley & Sons Ltd on behalf of Strategic Management Society.

boundaries to prevent innovation activities from becoming too risky by venturing into very distant domains. This contradictory requirement creates a “gray zone” for MMs to imaginatively use their skills to navigate restrictions without compromising exploration of new opportunities. This approach involves both top-down and bottom-up communication between senior and MMs that helps avoid shortsightedness and overspending when it comes to innovating with digital technologies.

KEYWORDS

corporate entrepreneurship, digital innovation, exploration, interfaces, middle managers, strategic framing, top management teams

1 | INTRODUCTION

The myriad of opportunities created by advances in digital technologies (Amit & Han, 2017; Autio et al., 2018) force managers in large organizations to explore liminal spaces between what they do and do not know (Alvarez & Porac, 2020). Importantly, the generativity of digital technologies creates challenges for those involved in corporate entrepreneurship (CE) activities. Establishment of clear boundaries for CE (Nambisan et al., 2019) and efficient allocation of sufficient yet often limited resources for exploratory initiatives (Burgelman, 1985; Hanelt et al., 2021; Ling et al., 2008) contrast with the construction of highly uncertain and imaginative scenarios of the future (Arikan et al., 2020). The uncertainty of digital exploration requires strategic framing, that is, the skillful use of communication (Cornelissen & Werner, 2014; Fiss & Zajac, 2006) and substantive action, such as restructuring and resource deployment, to influence the collective interpretation of a firm's strategic direction, mobilize support for exploration, and justify resource commitments (Rindova & Courtney, 2020).

Although managers at various levels participate in CE and shape the development of new lines of business in large organizations (Lovas & Ghosal, 2000; Noda & Bower, 1996), it is commonly assumed that top management teams (TMTs) play a critical role in strategically steering exploration and transformation initiatives (Eggers & Kaplan, 2009; Gavetti, 2012; Helfat & Peteraf, 2015; Heyden et al., 2020; Taylor & Helfat, 2009). They are seen as responsible for formulating and communicating exploration strategies (Gerstner et al., 2013; Ling et al., 2008), tasks that require skillful discursive and symbolic action (Dalpiaz & Di Stefano, 2018; König et al., 2018; Sonenshein, 2010). However, the generativity of digital technology makes the locus of opportunities more dispersed and distant from firms' core expertise (Nambisan, 2017; Nambisan et al., 2019; Vial, 2019). Therefore, middle managers (MMs) and those in direct contact with potential partners from emerging industrial fields may have a better understanding of particular avenues for exploration (Burgelman, 1983a; Chen et al., 2021; Khanagha et al., 2018). The use of discursive tactics by MMs to make sense of such specific opportunities and foster autonomous initiatives (Burgelman, 1983a; Burgelman, 1985; Ren & Guo, 2011) has been recognized (Heyden et al., 2017; Raes et al., 2011; Rouleau & Balogun, 2011). However, the rapidly changing digital landscape (Dattee et al., 2018) highlights the interdependency between TMTs' broader strategic framing and MMs' framing, which influences the development of specific exploration opportunities.

This interdependency is especially important, given the challenges in managing multiple exploration initiatives strategically. TMTs may encourage broad exploration to maximize the scope of opportunities and their growth



potential. This approach is fraught with risks because, given the generativity of digital opportunities, MMs may explore multiple and strategically divergent directions and consequently deplete limited organizational resources (Siggelkow & Rivkin, 2006). In contrast, framing exploration boundaries too narrowly introduces the risk of myopic innovation (Levinthal, 1997) and missing out on distant opportunities that could be critical to a firm's success in the digital landscape (Yu et al., 2019). Furthermore, such a narrow framing may obstruct MMs' autonomous actions (Ansari et al., 2014) which are critical for pursuing digital opportunities. Considering these issues, we investigate the following research question: How do strategic leaders from TMT and MMs involve in CE frame boundaries for exploring digital opportunities at the intersection of the organizational hierarchy?

We address this question through an in-depth case study of an entrepreneurial initiative by NETCO (a pseudonym), a Fortune 500 provider of telecommunications infrastructure, to explore emergent opportunities introduced by digital technologies. NETCO established a dedicated business unit called Technology and Emerging Business (TEB) in 2017 with the mission of exploring new growth opportunities beyond the firm's core businesses. The goal of the unit was to create new businesses using emerging digital technologies such as 5G, IoT, and Cloud computing. Surprisingly, despite the unit's focus on exploring emerging opportunities, NETCO's corporate strategy placed restrictions on the unit that seemed to hamper exploration. This enabled us to study efforts made by TMT and MMs to shape and reshape the boundaries of exploration. Findings from our field study based on multiple types of data reveal how strategic leaders at interfaces between different levels of the organizational hierarchy (i.e., the TMT and MMs) used framing as well as strategic actions to direct the exploration of digital opportunities.

Drawing on our findings, we develop a model of how strategic framing by leaders at different levels of the organizational hierarchy shapes the exploration of digital opportunities in an incumbent firm. We argue that the strategic boundaries of exploration are established through interactions between the TMT's paradoxical framing and MMs' liminal framing and actions. Paradoxical framing enables leaders to call for the expansion of exploratory searches and to emphasize the transformative potential of digital opportunities while also requiring that exploration should be confined by anchoring it around the firm's core resources. This paradoxical strategic framing creates a liminal exploratory space characterized by unstable boundaries between exploration activities perceived to be aligned with core resources (i.e., convergent) and those perceived as being divergent and thus less strategically relevant. MMs skillfully navigate this "in-between" space by employing framing to create ambiguity around strategic boundaries that are supposed to confine exploration within certain limits. In particular, they offer alternative interpretations of the strategic directions set by the TMT and identify aspects of the exploration strategy that should be followed strictly and those that are negotiable and open to skillful manipulation. As such, MMs are able to transform exploratory searches that were initially perceived as too divergent into exploratory initiatives that are seen as optimally related to the firm's core technology and markets. This transition is aided by both substantive and symbolic actions.

We make three contributions to literature. First, by combining literature on strategic framing and CE, we contribute to debates about how managers steer digital transformation by organizing the exploration of distant opportunities and managing dispersed entrepreneurial initiatives (Nambisan, 2017; Nambisan et al., 2019; Siggelkow & Rivkin, 2006). An organizational unit dedicated to the development of new digital businesses requires an exploration strategy that strikes a balance between allowing MMs to conduct broad searches at their discretion and anchoring exploration to prevent organizational resources from being stretched too thin. Balancing these challenges goes beyond typical contradictions between exploitation and exploration (March, 1991; O'Reilly & Tushman, 2008) and necessitates an acknowledgment that exploration itself is fraught with contradictory requirements. As a result, the exploration strategy creates a liminal space in which myriad digital opportunities exist between boundaries that frame exploration as either divergent or convergent with the firm's core resources. Second, we contribute to the literature on strategic leadership interfaces (Raes et al., 2011; Simsek et al., 2018; Simsek, Heavey, & Fox, 2022) by highlighting that the framing of exploration strategy unfolds at the interfaces between the TMT and MMs. Strategic framing and symbolic actions at the intersection of the TMT and MMs create a socio-cognitive interface (Simsek, Heavey, & Fox, 2022). This type of interface is neither entirely directive (top-down) nor predominantly concerned with issue selling (bottom-up). It is interactive and bidirectional, enabling both TMT and MMs to influence

interpretations and set or redefine the boundaries of exploration. Third, we contribute to the debate over the role of MMs in pursuing digital transformation and CE in established firms (Burgelman, 1983a; Chen et al., 2021; Ren & Guo, 2011). We demonstrate how they play a critical role, not only in strategically conceptualizing and driving the development of new lines of digital businesses in large firms but also in navigating the contradictions inherent in exploring divergent opportunities, thereby influencing the overall strategic direction of exploration. Our findings suggest that TMTs' paradoxical framing and actions are reciprocated by MMs, who intentionally create ambiguity regarding the boundaries and direction of exploration to gain strategic acceptance of initiatives that were initially perceived as divergent. Hence, our study highlights the key role of MMs in influencing digital transformation characterized by dispersed and ambiguous opportunities that diverge from the firm's core strategy, resources, and capabilities.

2 | THEORETICAL BACKGROUND

Investigating the framing of exploration strategy and digital opportunities with the potential for strategic transformation requires consulting two distinct, but interconnected bodies of literature on framing strategic change and managing CE. The literature on strategic framing emphasizes the use of discursive devices and symbolic actions to mobilize support and minimize resistance to organizational transformation (e.g., Cornelissen & Werner, 2014; König et al., 2018). CE research emphasizes the role of managers across the organizational hierarchy in driving the exploration of new opportunities that fall outside the focal firm's core business (e.g., Corbett et al., 2013; Stopford & Baden-Fuller, 1994). We broadly review articles on strategic framing and CE research in prominent strategy and management journals before focusing on a narrower set of relevant papers that motivate our research question and inform our field study (see Table 1). We focus on studies that examine how framing is used to influence the meaning of strategic transformation within a focal organization (e.g., Cornelissen et al., 2011; Sonenshein, 2010), and pay less attention to studies that explore how radical innovation is framed to external audiences or stakeholders (e.g., Ansari et al., 2016; Garud & Giuliani, 2013; Rindova & Courtney, 2020). Moreover, when reviewing the CE literature, we focus on studies that explicitly address the actions of managers in encouraging exploration and entrepreneurial initiatives (e.g., Burgelman, 1983b; Ren & Guo, 2011).

Our review suggests that framing for strategic transformation is primarily studied from the perspective of senior leaders (i.e., CEOs and TMTs). The literature on CE, on the other hand, emphasizes the importance of MMs while paying less attention to their framing practices in shaping a firm's exploration strategy. As a result, the complex interface of TMTs' and MMs' framing that shapes the direction and scope of exploration remains poorly understood. Here, we explain the key findings of these studies which inform our research.

Strategic framing refers to leaders' deliberate communication efforts to shape organizational members' interpretations so that they collectively accept and support transformation (Cornelissen & Werner, 2014; Gioia & Chittipeddi, 1991). As the prime drivers of transformation, senior leaders (i.e., CEO, and TMTs) are responsible for creating a shared understanding of what must be done and influencing a collective interpretation of appropriate organizational actions to achieve desired strategic outcomes (Balogun et al., 2015; Gioia & Chittipeddi, 1991; Sonenshein, 2010).

Previous research has appreciated managers as skilled rhetoricians capable of shaping and directing others' interpretations through strategic framing tactics in their communications (e.g., speeches, letters, and reports) (e.g., Dalpiaz & Di Stefano, 2018; Gioia & Chittipeddi, 1991; Rouleau & Balogun, 2011). Indeed, there is enough evidence in the literature to suggest that leaders' framing tactics effectively drive strategic change (e.g., Balogun et al., 2015; Logemann et al., 2019; Sonenshein, 2010). For example, in a study of strategic change within a large corporation, Balogun et al. (2015) showed how senior managers framed larger organizational change and local change actions by constructing two sets of change narratives over time. Dalpiaz and Di Stefano (2018) explored in greater

TABLE 1 List of related studies on strategic framing and corporate entrepreneurship (CE).

Author (year) and method	Focus of the study	Main findings	Implications for this study
Gioia et al. (1994); Empirical (Qualitative)	Framing strategic transformation	The uses of sensemaking, symbolism, and metaphors in instigating strategic change	Strategic leaders utilize symbols and metaphors for both sensemaking and influence of strategic change
Rouleau (2005) Empirical (Qualitative)	Framing implementation of strategic transformation	Introduction of four practices of framing by MMs in selling strategic change in their organizations	MMs engage in framings activities to interpret and sell change in their day-to-day activities
Kaplan (2008) Empirical (Qualitative)	Framing contests in strategy making	A process model of framing contests in a firm, elucidating how cognitive frame influences strategy making and actors' framing practices	Managers can involve in highly political framing practices in a bid to win over others and influence a firm's choice of technology
Sonenshein (2010) Empirical (Qualitative)	Framing strategic transformation	Managers use strategic ambiguity to influence employees' sensemaking. Employees respond to these efforts by reconstructing meaning	There is a dynamic interplay between managers' and employees' meaning constructions in strategic change implementation
Cornelissen et al. (2011) Conceptual	Framing strategic transformation	Specific context and conditions in which analogies and metaphors may be effective to legitimize strategic transformation	Analogies and metaphors can be used in different ways to frame strategic changes
Rouleau and Balogun (2011) Empirical (Qualitative)	Framing implementation of strategic transformation	Language use is key in framing but needs to be combined with an ability to "setting the scene"	MMs draw on contextually relevant verbal, symbolic, and sociocultural systems to implement strategic change
Balogun et al. (2015) Empirical (Qualitative)	Framing strategic transformation	Senior managers construct two sets of interwoven change narratives because they have a complex dual recipient/change agent role	Senior managers' change narratives mediate the relationship between the wider organizational change and local change action
Smith (2014); Empirical (Qualitative)	Framing competing demands	TMT's strategy to manage strategic paradoxes through dynamic decision-making	TMT can frame competing demands and enact paradoxical thinking
Dalpiaz and Di Stefano (2018) Empirical (Qualitative)	Framing strategic transformation	Strategy-makers orchestrate the production of captivating narratives for a successful transformative change	Narratives can be used to influence the acceptance of an organizational transformation by balancing novelty and familiarity within them
Logemann et al. (2019) Empirical (Qualitative)	Framing strategic transformation	Managerial sense giving about a strategic change can be effective by combining framing and narratives	Effective framing is about providing the organizational member with a pragmatic form, a way of making sense
Fraser and Ansari (2021) Empirical (Qualitative)	Framing digital disruptions	Multiple nonbinary framing in incumbent responses to digital disruption	Multiple framings beyond threat versus opportunity exist in organizations facing digital disruption

(Continues)

TABLE 1 (Continued)

Author (year) and method	Focus of the study	Main findings	Implications for this study
Schneider and Sting (2020) <i>Empirical (Quantitative)</i>	Framing digitalization	Heterogenous perceptions and attitudes of lower-level employees toward digitalization	Framing by managers across the hierarchy is needed to shape employees' acceptance of digitalization
Burgelman (1983a) <i>Empirical (Qualitative)</i>	CE	A process model of internal corporate venturing (ICV) in a diversified firm, highlighting key activities of managers at different levels in supporting ICV	Successful ICV efforts depend on the ability of MM to conceptualize strategic implications of the ICV and the capacity of TMT to allow entrepreneurial initiatives to change the corporate strategy
Burgelman (1983b) <i>Conceptual</i>	CE	A process model of CE in large organizations as a process of experimentation and selection, highlighting the interaction between autonomous and induced strategic behaviors	Firms need both diversity and order in their strategic activities. MMs play a crucial role in supporting CE. TMT plays an important role by making sure that the CE corresponds to the firm's strategic vision
Burgelman (1985) <i>Empirical (Qualitative)</i>	CE	Managerial challenges of organizing a new venture division in a large, diversified firm	TMT demands MM to create a synergy between new and existing businesses
Floyd and Wooldridge (1992) <i>Empirical (Quantitative)</i>	CE	Middle managers do involve in the strategy process, that is, creation and implementation	MM can play strategic roles in championing alternatives, facilitating adaptability, implementing deliberate strategy, and synthesizing information
Siggelkow and Rivkin (2006) <i>Empirical (Simulation)</i>	CE/Exploration	In multilevel organizations, increased exploration at lower levels can backfire, reducing overall exploration and diminishing performance.	The more extensive exploration at a low level can reduce exploration for a firm as a whole. Hence a very broad exploration can hamper a firm's performance
Zahra (2008) <i>Conceptual</i>	CE	Firms both discover and create opportunities, stimulating an ongoing virtuous cycle	Both senior and middle managers are crucial in creating and discovering entrepreneurial opportunities
Ren and Guo (2011) <i>Conceptual</i>	CE	MM plays a strategic role in the corporate entrepreneurial process	MM can influence corporate entrepreneurship by evaluating and selling entrepreneurial opportunities
Raes et al. (2011) <i>Conceptual</i>	CE/TMT-MM interface	A process model of the interface between TMT and MMs in strategy formulation and implementation	The TMT and MM's interactions influence the quality of strategic decisions and implementations
Behrens et al. (2014) <i>Empirical (Quantitative)</i>	CE	Experienced MM diverge from experienced senior managers in their decisions to exploit opportunities by placing greater emphasis on strategic context and less on uncertainty	MM may diverge from senior managers in their assessments of the attractiveness of an innovation project



TABLE 1 (Continued)

Author (year) and method	Focus of the study	Main findings	Implications for this study
Nambisan et al. (2017) <i>Conceptual</i>	CE and Digital transformation	Emerging digital technology transforms the nature of uncertainty inherent in innovation and entrepreneurship	Digitalization holds implications for innovation and entrepreneurship across levels within organizations
Grimpe et al. (2019) <i>Empirical (Quantitative)</i>	CE	MM is positively related to introducing product innovations and drives innovation performance	MM can increase organizations' processing information and innovation performance especially when many opportunities exist in the industry
Kannan-Narasimhan and Lawrence (2018) <i>Empirical (Qualitative)</i>	CE and Framing innovations	Innovators gain approval for their innovations by reconceptualizing their organizational resources	Innovators can gain adoption even when their ideas do not readily fit their firm's strategy
Snihur et al. (2022) <i>Conceptual</i>	CE and Framing entrepreneurial initiatives	A systematic review on entrepreneurial framing research	Framing can be effective to construct meaning around novel endeavors and legitimize entrepreneurial actions
Chen et al. (2021) <i>Empirical (Quantitative)</i>	CE and Framing digital innovations	The effectiveness of issue selling by chief information officers (CIOs) influences digital innovation in their firms	MM can influence digital innovation initiatives in their firms through issue selling

detail how strategy-makers in a large incumbent firm framed transformative change by mobilizing narratives that capitalize on tensions between novelty and familiarity.

Although these studies do not directly address how managers frame digital transformation, they suggest that strategic framing may be important in understanding how leaders of large incumbent firms guide the exploration of digital opportunities. Strategic framing becomes increasingly important because the uncertainty surrounding digital innovations can lead to competing interpretations of opportunities and appropriate organizational responses (Fraser & Ansari, 2021; Khanagha et al., 2018; Schneider & Sting, 2020). As a result, providing guidance on what, where, and how to explore such opportunities enables the construction of meaningful boundaries for exploration (Ahuja & Lampert, 2001; Bhardwaj et al., 2006). However, in advanced technological domains, entrepreneurial exploration is resistant to boundaries, and any constraints on exploration activities are very likely to generate tensions in organizational units focused on developing new lines of business (Zahra, 2008). As a result, guiding the exploration of digital opportunities often requires managers to be able to deal with strategic contradictions (Khanagha et al., 2018). Previous research has shown that TMTs play a significant role in framing contradictory demands and inducing paradoxical thinking (Smith, 2014; Smith & Tushman, 2005). For example, Sonenshein (2010) demonstrated how leaders are intentionally equivocal and shun strategic clarity. By employing strategic ambiguity, they create conditions that enable organizational members to develop different and often contradictory interpretations of something while believing that they all agree on the meaning. The goal of strategic framing is thus to provide a cognitive framework that allows organizational members to embrace paradoxes and contradictions (Smith, 2014).

The role of the CEO or TMT in framing strategic transformation is frequently emphasized in studies on strategic framing. The CE literature, on the other hand, suggests that MMs play a critical role in exploring new opportunities and driving entrepreneurial initiatives (e.g., Burgelman, 1983b; Floyd & Wooldridge, 1994; Zahra, 2008). According to this stream of research, MMs take advantage of their unique hierarchical position between the operational and corporate levels to create and integrate knowledge, identify opportunities, develop initiatives, and renew organizational capabilities (Behrens et al., 2014; Floyd & Wooldridge, 1992; Grimpe et al., 2019). MMs who are closer to external stakeholders and internal entrepreneurial initiatives than TMTs may have a better understanding of which avenues for exploration may be fruitful (Behrens et al., 2014; Grimpe et al., 2019). Furthermore, MMs conduct exploration in an organizational space that is highly ambiguous and filled with contradictory requirements. According to Burgelman (1985), TMTs often demand synergies between new and existing businesses, and MMs are thus constantly exploring areas with ambiguous boundaries and partial relatedness between existing and new markets and technologies. In other words, while they are encouraged to explore distant domains to take advantage of superior opportunities (Katila & Ahuja, 2002), they are also warned that any exploration that is unrelated to current capabilities and markets may be regarded as strategically inconsistent (Breschi et al., 2003).

Navigating the ambiguous organizational space of CE and innovation requires conceptual thinking as well as political astuteness on the part of MMs (Burgelman, 1983a; Kaplan, 2008; Ren & Guo, 2011). They must be capable of skillfully framing a broader strategy in relation to new businesses (Burgelman, 1983a), as well as fostering entrepreneurial initiatives through symbolic resources and communication (Heyden et al., 2017; Kannan-Narasimhan & Lawrence, 2018; Snihur et al., 2022). To attract the attention of senior management, organizational championing of new business development initiatives in a corporate context requires issue-selling (Dutton, 1993; Raes et al., 2011). Furthermore, MMs are frequently involved in “framing contests” which involve highly political framing practices aimed at gaining support and influencing a firm’s strategic decisions (Kaplan, 2008). Kaplan (2008) further suggested that framing contests among managers intensify during periods of high uncertainty which trigger a plethora of interpretations of what is going on and what should be done.

Overall, research on both strategic framing and CE informs an understanding of the role of leaders at the interfaces between different levels of the corporate hierarchy in directing digital transformation. Prior research has shown the important role played by strategic leaders in framing strategic transformation and exploring new opportunities, as shown in Table 1. Additionally, the breadth of potential digital opportunities, the speed of change, and the inherent contradictions in balancing innovation initiatives that are either “too distant” or “too local” highlight the



importance of investigating strategic framing at the interfaces between the TMT and MMs (Raes et al., 2011; Simsek, Heavey, & Fox, 2022). To advance knowledge in this area, we examine how the TMT and MMs use strategic framing to establish boundaries for the exploration of digital opportunities.

3 | METHOD

We conducted a single case study of a digital transformation initiative in NETCO, a global telecommunications firm, to investigate how strategic leaders in incumbent firms frame the boundaries for exploring digital opportunities. NETCO was operating in 180 countries and had over 90,000 employees at the time of our field study. NETCO's core business model is primarily based on a business-to-business linear value chain, that is, the firm creates and sells telecommunication equipment and related services to mobile operators in various countries (see Appendix A for an illustration [Figures A1, A2]). A single case design is thought to be better for understanding the details of change processes in large organizations and capturing the perspectives of managers at different levels who are affected by the change (Dyer & Wilkins, 1991).

We focused our investigation on a business unit called TEB responsible for implementing NETCO's CE initiatives in the development of new businesses enabled by emerging digital technologies (e.g., 5G, IoT, and Cloud computing). The unit was established in early 2017 as part of a larger organizational restructuring, with the goal of "identifying new revenue sources and seeking new growth beyond the core businesses" (Strategy document, 2017). Prior to the formation of TEB, NETCO's various business units were involved in the exploration of emerging businesses. Having a dedicated exploration unit was thought to be a more "effective approach for exploring new businesses" (CEO, 2017). The unit had approximately 3600 employees at the time of data collection. As illustrated in Appendix A, TEB included NETCO's corporate accelerator, an independent operating unit (IOU), and general business functions (e.g., human resources, finance, marketing, and communications) (Figures A3). The corporate accelerator hosted new exploration projects in the early stages of development, whereas the IOU was responsible for projects that had reached a certain level of maturity and could be scaled. Hence, the organizational structure of the TEB unit provides a fertile ground for investigating how members of the TMT and MM involved in exploration activities interact and influence boundaries of exploration from different positions in the organizational hierarchy.

Interestingly, TEB was established when NETCO introduced a "focused strategy" aimed at restoring the firm's profitability following losses in its core businesses. This firm-wide strategy emphasized internal efficiency and revitalization of the firm's technology and market leadership (Letter from CEO, 2017). As such, despite the stated objective of exploring emerging businesses, TEB was being steered strongly toward areas of exploration connected to NETCO's "core businesses and building on our technology leadership and strong customer relationships with mobile operators" (Strategy document, 2017). Specifically, TEB was directed to explore new businesses that were (a) product-led (as opposed to service-led), (b) built on the firm's technological leadership in connectivity based on the 3GPP wireless standard, and (c) focused on mobile operators (Letter from CEO, 2018). In addition, TEB was assigned an ambitious sales target of \$500 million by 2020. This indicates the use of strategic framing by NETCO's strategic leaders to simultaneously expand and confine the exploration of digital opportunities. This setting, therefore, provided fertile ground for examining how the boundaries of exploration are established and how multiple organizational actors use strategic framing to guide the exploration of digital opportunities.

3.1 | Data collection

We obtained data from a variety of sources, beginning in 2017 with the creation of TEB and concluding in August 2019 (see Table 2 for a detailed summary). Our primary goal was to glean insights from qualitative data gathered through field observations and interviews. In addition, we were granted access to an extensive number of internal

TABLE 2 Details of data sources.

Data sources	Details	Use in the analysis
Field observations	18 months' presence at the firm's headquarters, 5 days a week, following standard working hours 139 files of field notes (205 pages) from observations of internal meetings and presentations	Providing an in-depth understanding of the organizational context and the communication of internal strategy Identifying how exploration strategy was communicated by the CEO and how middle managers and employees perceived the strategy. Capturing middle managers' framing activities and actions on a day-to-day basis
Semi-structured interviews and workshops	27 semi-structured interviews with 14 middle-level managers (i.e., innovation managers) and seven employees involved in TELECO's IoT platform initiatives Two focus group workshops, conducted in 2018 and 2019	Gaining insights into managers' interpretations of the exploration strategy, their framing activities and managerial/symbolic actions, and the rationale behind these actions Acquiring additional perspectives on the firm's digital transformation and exploration strategy. Presenting the preliminary findings for the purpose of triangulation
Internal archives	56 letters from the CEO, dating from March 2017 to August 2019 34 letters from the Head of TEB, dating from June 2017 to July 2019 15 video recordings of CEO presentations and interviews, ranging from two to 26 min of recording 102 files of internal documents, including TEB's newsletters (36), presentations of strategy at the firm and business unit level (26), and project presentations by middle managers (40)	Gaining an understanding of the CEO's framing of digital transformation and exploration strategy Complementing the understanding of the CEO's framing of and the rationale of TEB's exploration strategies Providing a detailed description of the middle managers' framing activities and their managerial actions within the business unit

documents, which provided us with a thorough understanding of the TMT's framing activities as well as the responses of MMs.

3.1.1 | Field observations

From September 2017 to February 2019, one of the authors conducted field research at NETCO's headquarters, where he spent 5 days a week on the premises during the firm's standard working hours. He was assigned to the TEB business unit and attended various internal meetings and presentations as a participant observer. Furthermore, as a part of the research agreement, two coauthors attended meetings at the headquarters on a regular basis. The field observation resulted in approximately 139 files of field notes. The field notes documented key events, observations, perceptions, and reactions of employees as well as interactions between MM and TMT. Hence, the field observation provided a unique opportunity to observe the firm's exploration activities and provided powerful insights into the organizational context, framing activities, rising tensions, and MMs' responses to such tensions.



3.1.2 | Internal documents

We were granted complete access to NETCO's internal archives. We gathered 57 letters from the CEO, dated March 2017 to August 2019, as well as letters from the head of TEB (HoB) who also was a member of the TMT, dated June 2017 to July 2019. These letters were one of the tools used by the TMT to communicate the strategic directions of the firm and the business unit to employees. Additionally, the letters were sent to all employees' email addresses and highlighted on the firm's intranet. The letters were frequently discussed in weekly meetings which we attended and thus were one of the most visible artifacts evoking the TMT's framings. We also obtained 15 video recordings in which the CEO discussed the exploration strategy and its rationale, and gathered 97 internal documents, including the TEB newsletter, firm and business unit strategy presentations, and MMs' project presentations. These documents contained detailed descriptions of MMs' framing activities and managerial actions within the unit, which helped us understand the role these managers played in navigating the CEO's framing.

3.1.3 | Semi-structured interviews

We conducted 27 semi-structured interviews with 21 TEB employees: 14 innovation managers (i.e., MMs) and 7 lower-level employees. Typically, innovation managers directed the development of exploration projects and reported directly to the HoB and the unit's leadership team. The interviews were recorded (except for a few that were not due to lack of consent) and ranged in length from 30 to 70 min. These interviews provided critical information that helped us understand how the MMs interpreted the TMT's framing. We also conducted interviews with lower-level employees who are actively involved in the projects and attend all project meetings. The employee interviews were especially important because they revealed the tensions experienced during exploration and the approaches used by MMs to resolve those tensions. We also held two focus groups to present our preliminary findings, solicit participant feedback, test our findings, and refine the theoretical model.

3.2 | Data analysis

3.2.1 | Step 1: Analyzing the TMT's framing of exploration

We examined the CEO's and HoB's linguistic forms and communications because they had a significant impact on the organization and influenced the firm's course of action (Kuhn, 2008). As a result, we began the investigation by reviewing internal letters written by the CEO and HoB, as well as internal strategy documents that described the unit's approach to exploring digital opportunities. We also analyzed the first author's field notes, which captured how the TMT communicated the strategy during meetings with employees, to better understand the context and nuances of the strategic directions. As a first step, we performed content analysis (Corbin & Strauss, 2008) using qualitative analysis software (NVivo) to examine the TMT's written and oral language when interpreting and framing the exploration of digital technologies. We noticed that the CEO and HoB used forward-looking words (e.g., will, going to) as well as words like "opportunity," "growth," "change," "investments," and "new bets" to motivate the exploration of digital opportunities. At the same time, they used contrast conjunctions (e.g., however, but) and words like "focused," "profitable," "disciplined," and "stability" when describing strategic directions and rules for exploring digital opportunities. Based on these findings, we developed the first-order concepts (Gioia et al., 2012).

To further scrutinize the data and validate our first-order concepts, we analyzed the text of the letters written by the CEO and HoB using the Linguistic Inquiry and Word Count (LIWC) program. The LIWC analysis confirmed that members of the TMT used keywords with a temporal focus on both the present and the future. It also showed that they used reward-focused (e.g., "opportunities," "gain," and "benefits") and risk-focused (e.g., "secured,"

“protect,” and “defend”) words when communicating the exploration strategy. Overall, the LIWC analysis (see Appendix B, Table B1) confirmed that every letter in our analysis included elements of both present- and future-focused words, as well as a reward- and risk-focused words. These results corroborated findings from our content analysis that the TMT used two contrasting categories of words concurrently when outlining directions for exploration.

Next, we focused on specific meanings and contexts associated with the first-order concepts and grouped them into second-order themes based on conceptual similarity. The second-order themes captured two contrasting types of framing of exploration used by the TMT. We then clustered the emergent second-order themes into aggregate dimensions representing the TMT's paradoxical framing of exploration. We triangulated the coding process by assigning codes independently at first and then comparing our codes and interpretations. We resolved disagreements by engaging in discussion, seeking verification, and asking for clarification from informants, as well as re-coding or relabeling when necessary. We also presented our findings to practitioners (i.e., senior managers) to validate our interpretations. We used negative case analysis to see if we could find outlier evidence, for example, the CEO attempting to clarify seemingly contradictory elements of his framing, or some MMs not perceiving the framing as paradoxical. This analysis yielded no evidence of outlier cases, confirming our conclusion that the CEO's framings of exploration were indeed paradoxical and perceived as such by MMs.

3.2.2 | Step 2: Examining implications of the TMT's framing of exploration and MMs' strategic responses

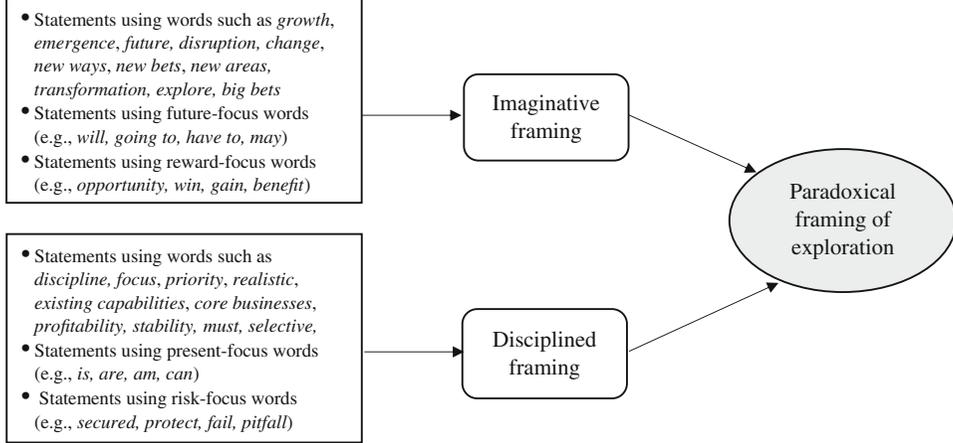
We concentrated our investigation on understanding the implications of the TMT's framing for NETCO's exploration activities. In particular, we were interested in learning how MMs interpreted the exploration strategy. We analyzed interview transcripts, field notes, and internal documents (e.g., slides from project presentations), using open coding to identify relevant concepts and cluster them into categories (Gioia et al., 2012). From this exercise, we identified a *double bind* problem of exploration in which employees faced dilemmas due to contradictory demands that were presumably impossible to reconcile. We also discovered that, in response to the TMT's framing, TEB pursued different types of exploration projects: those that fit neatly within the defined boundaries and those that did not fully align with the defined boundaries. We then analyzed interviews with managers affiliated with both types of projects in a balanced manner. Ultimately, we discovered that *liminal actions* and *liminal framing* were used by MMs to navigate tensions arising from the TMT's framing. In doing so, we uncover how framing at the interface between MM and TMT influences setting the boundaries for exploration. Because all coauthors attended numerous project meetings, field observations enabled us to capture the framings and actions of MMs in real-time.

3.2.3 | Step 3: Theorizing how an incumbent firm's exploration is framed at different hierarchical levels

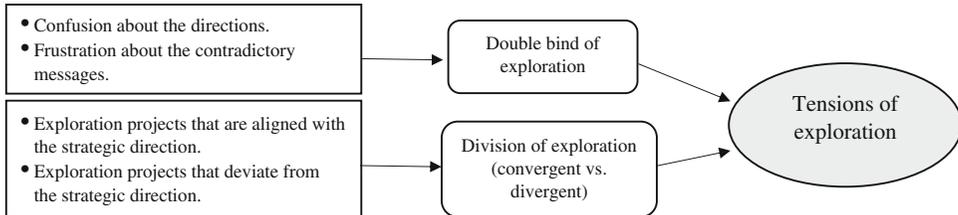
In the final step of our analysis, we validated the emerging theoretical constructs and systematically analyzed causal interactions between them (Gioia et al., 2012). To ensure the reliability of the coding process, we used coding triangulation and repetition, as in the previous stage. The data structure of the core concepts based on the analysis is depicted in Figure 1. We assumed, based on prior research, that the TMT would use framing to guide the exploration of digital opportunities. We also anticipated that MMs would play a crucial role in executing the strategy through interactions with TMT. However, we discovered that the TMT used paradoxical framing to guide exploration. Employees were put in a double bind because they were instructed to expand their exploration into potentially profitable new areas of business but to limit their exploration to areas directly related to the firm's core strategic resources, which were not necessarily aligned with emergent opportunities. Furthermore, they were sometimes expected to prioritize short-term profitability in an emerging field. We also discovered that MMs helped resolve



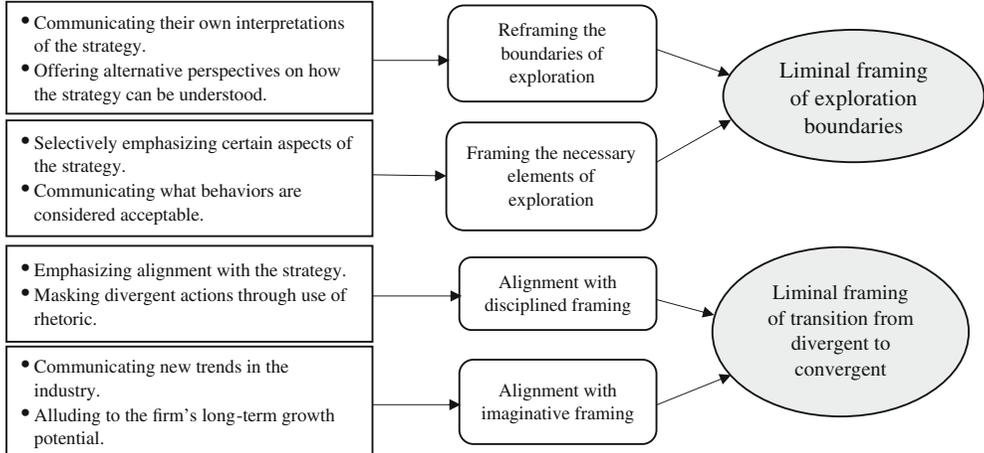
Framing used by the TMT (CEO and HoB)



Implications of the TMT's Paradoxical Framing



framings used by the MMs



MMs' Actions

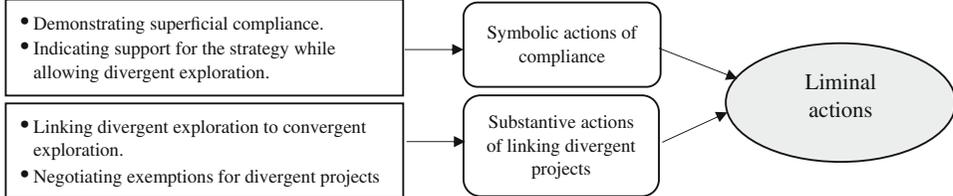


FIGURE 1 Data structure.

contradictory requirements by skillfully framing alignment between the exploration strategy and multiple exploration initiatives. These insights prompted us to use abductive reasoning, iterating back and forth between the data and the conceptual model to make a conceptual leap toward theorizing the findings in our case study (Van Maanen et al., 2007).

4 | FINDINGS

Our in-depth analysis of NETCO's TEB business unit's exploration strategy and activities enables us to dissect the role of strategic leaders across hierarchical levels in shaping and directing the exploration of digital opportunities. We describe in detail the strategic framing used by the TMT to establish the boundaries of exploration, the implications of the TMT's framing of exploration, and the role of MMs in resolving contradictions in this framing and navigating the boundaries of exploration.

4.1 | TMT's paradoxical framing of exploration

While TEB was established to explore new businesses outside NETCO's core businesses, the CEO framed the strategic direction for this exploration as “disciplined growth” (Letter from CEO, 2018). The TMT used two types of framing that were contradictory but interrelated when explaining the strategic direction (see Table 3).

4.1.1 | Imaginative framing

This first type of framing emphasized the imaginative, aspirational, and future-oriented aspect of exploration to motivate managers and provide a rationale for the firm to explore emerging businesses. The main focus was on what the firm could and should accomplish, based on how the TMT interpreted digital opportunities and on the firm's long-term vision. The following statement highlights the CEO's framing of the long-term goal of exploration:

We aim to grow in new businesses by tapping into the new value pools driven by emerging technologies ... We must be at the forefront of next-generation technology, opening up new opportunities for the industry, our customers, and potentially billions of people around the world. (CEO in Annual Report, 2018).

The TMT frequently used forward-looking and transformation-related words such as “strategic,” “predict,” “potential,” and “growth” when using this imaginative framing of exploration. These terms are commonly used to indicate the potential opportunities provided by emerging technologies (i.e., 5G and IoT) as well as to convey the firm's perspective on industry trends. In his letters to employees, for instance, the CEO stressed the importance of exploring emerging businesses and articulated his ambition to be a market leader, stating that “5G has potential to facilitate new use cases across industries” and that NETCO should thus “take a leading role on markets that are transforming” (Letter from CEO, 2018). Furthermore, the TMT frequently used strategic management terminology (Logemann et al., 2019) referring to terms like “big bets,” “long-term future,” and “competitive advantage” to establish links between the firm's exploration activities and its business performance.

4.1.2 | Disciplined framing

TMT members also used disciplined framing alongside imaginative framing in their communications, as shown in Table 3. Disciplined framing is characterized by continuity and adherence to prescribed patterns of action. This



TABLE 3 Illustrative examples of the TMT's paradoxical framing of exploration.

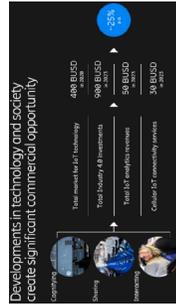
Illustrative examples			
No.	Data sources	Date	Disciplined framing
			Imaginative framing
1	CEO at employee meeting (Field note)	December 2017	New network capabilities such as 5G and IoT open up new opportunities to create emerging businesses [based] on the digitalization of other industries
2	HoB at an employee meeting (Field note)	September 2017	The pace of change and innovation in our industry has never been higher. This is obviously a threat, but at the same time also our single largest opportunity to regain our leadership position TEB spans across some of our most forward-leaning and innovative teams in various units, which will allow us to aggressively drive technology and business innovation in entirely new ways
3	Letter from CEO	April 2018	In line with our strategy, we have also continued to invest in technology leadership and innovation. We make investments in innovation and our future business. We have many good things going on here, so keep the pace up!
4	Letter from HoB	July 2018	When it comes to Emerging Business, there is no better time to build our future: We have plenty of opportunities in the market combined with strong offerings in our portfolio We will build one community for disruptive innovation across the whole company, learning from already existing groups and engagements
6	Letter from CEO	September 2018	We will look for growth in new areas. These opportunities will be based on our leadership and insights in 5G and IoT and leverage our technology leadership and strong customer relationships. We want to find the next new bet!
			When developing strategies, it is critical to start with the customer perspective. Let me clarify right away that our primary customers are the operators We have one type of customer, that is, mobile operators. Every motion should be directed to how we make the mobile operators successful in the new value pools We have spread our resources too thin; we have not responded to change with the appropriate sense of urgency. [therefore] We need to be more focused. We will invest only in areas where we can and must win TEB's strategic priorities are to build and incubate new businesses in the next big growth areas, together with the operators I have said this before, but we have to make sure that our investment in R&D and innovations generate a return on those investments. Only profitable companies have the freedom to invest in new opportunities Selective investments will continue in TEB to build a position and grow sales in new areas. This is critical for TEB but not the least for NETCO as a company. This work will be focused on selected themes. It is important that we focus our efforts, and not be caught up by the common pitfall of trying to address everything and everyone at once Profitable growth creates a stronger company but also increases the value of the company [...] We have tried to go after growth in new areas before—and we have failed. This time we are doing it differently, with new ways of working that will make us faster and more agile and a technology leadership-based approach

(Continues)



TABLE 3 (Continued)

Illustrative examples		Disciplined framing
No.	Data sources	Date
7	TEB strategy document	September 2018
	<p>A key objective of the growth strategy is to identify growth opportunities that can generate significant and meaningful revenues for NETCO from new businesses by 2023 [...] The starting point for our growth strategy is the conviction that 5G and IoT, in combination with technologies such as AI, VR/AR [virtual reality/augmented reality], and edge computing, will change the way we work and live</p> <p>Depending on specific circumstances, we may find cases both where we can take a bigger role or where our offerings are considered as competing alternatives to Mobile operators' offerings</p> <p>We have now completed the first phase in our turnaround—achieving stability and profitability. This gives us a foundation to go for growth [...] Our ambition is to find the next big bet</p> <p>We need to dare to take the right risks [...] A ship in harbor is safe, but that is not what ships are built for</p> <p>Developments in technology and society create significant commercial opportunity</p>	<p>We want to do so, in a disciplined way, by building on our technologies and skills in relevant growth areas [...] This means that we need to build on our existing assets and capabilities to ensure a realistic plan for achieving both scale and profitability. The growth strategy has not considered transformational M&A that would redefine what kind of company NETCO is</p> <p>Our priority is to increase the relevance of the operator-centric IoT ecosystem by implementing win-win business models where ecosystem benefits are shared with all partners</p> <p>It is important to highlight that we need to stay focused on only developing services ourselves if we have unique insights and scale that allow for a global top-3 position</p> <p>We aim to grow in new business, driven by the TEB unit. Growth in new areas is connected to our core business—building on 5G and IoT insights, technology leadership, and strong customer relationships</p> <p>Discipline is fundamental to picking the right ideas, the right people, and the right way to go to market. Progress will be continuously evaluated. We will not proceed with ideas that are not working</p> <p>Our approach to growth</p>
8	Letter from CEO	October 2018
9	TEB strategy presentation	November 2018





framing implied a set of rules to ensure exploration remained aligned with NETCO's corporate strategy, which emphasized profitability. As a result, disciplined framing was used to define the scope of exploration and anchor it to a specific set of resources. They referred to the firm's organizational identity and legacy as the point of departure as well as the boundaries for exploration when articulating a disciplined framing. They also used words that seemed at odds with the nature of exploration to describe the firm's "disciplined growth" approach, such as "selective," "profitable," "discipline," and "focused." The TMT also cited NETCO's previous failures and mistakes to justify experimenting with disciplined approaches, as evidenced by the quotation below:

We all know that we've tried before [to explore emerging businesses]. We were spreading ourselves too thin and we've failed. What's different this time? With disciplined growth as our non-negotiable starting point, the difference is in the how. (CEO, in an internal meeting, 2018).

Furthermore, the TMT emphasized NETCO's legacy as a product-based firm (rather than a service or systems integration firm) to rationalize the types of innovations the firm should prioritize (Letter from CEO, 2018). As highlighted in the quotation below, the CEO also emphasized NETCO's technological competence in network and telecommunications technology as its primary source of competitive advantage in exploring emerging businesses:

The growth in new areas should be connected to our leadership in connectivity and networking. We can build on our existing assets and capabilities to achieve both scale and profitability ... We do not consider transformational change through mergers and acquisitions that would redefine what kind of company NETCO is. (Strategy document, 2018).

In addition, the TMT had clearly identified which customers and markets to target. The CEO stated at an employee meeting in 2017 that "every activity [of exploration] should be directed toward making mobile operators successful in the new value pools." Furthermore, the HoB prohibited any exploration initiative that did not involve mobile operators (Employee meeting, 2018). This directive implies that TEB's exploration activities were limited to opportunities associated with the firm's traditional customers, despite the "huge potential to serve new types of customers" (Innovation manager, 2018) such as automakers, manufacturers, and energy providers. In stressing the importance of mobile operators, the TMT made an association between the firm's success in emerging businesses and its current business model. The CEO also used the metaphor of being "on a long journey together" (Letter from CEO, 2018) to emphasize the strategic importance of mobile operators to the firm's long-term growth. On a few occasions, the TMT also attempted to create the impression of a "shared fate" by equating the success of mobile operators in emerging markets to the firm's success: "Our priority is to increase the relevance of the operators in the new [IoT] ecosystem. Our success in emerging businesses is when we help the operators move up in the value chain" (HoB, 2018).

It was clear that the use of both imaginative and disciplined framing was intended to broaden exploration and entrepreneurial initiatives while establishing boundaries for the exploration of emerging businesses. Furthermore, the TMT's definition of "disciplined growth" as the goal of exploration suggests a paradoxical framing in which value is placed on exploration as an attempt to achieve significant growth in emerging areas while maintaining the firm's technological capabilities and relationships with core customers. The first necessitates imaginative and transformational initiatives, whereas the second necessitates the preservation of existing markets and capabilities. The goal of the TMT's framing was thus to help members of TEB understand what was required and to provide guidance on exploration.

4.2 | Implications of the TMT's framing: Increased tensions regarding exploration

While the TMT's paradoxical framing provided a strategic direction and established boundaries for exploration, it also created tensions within TEB stemming from the double bind experienced by employees and the classification of exploration projects as either convergent or divergent.

4.2.1 | Double bind of exploration

We discovered that using paradoxical framings resulted in a double bind (Bateson, 1972; Hennestad, 1990)—that is, TEB employees received contradictory messages, leaving them unsure of what to do. Informants felt that the TMT messages contradicted each other, making exploration “impossible to do” and “extremely difficult to execute” (Project manager, 2018). For example, the instruction to seek out new growth opportunities while focusing on mobile operators was perceived as inconsistent. As one of our respondents pointed out, mobile operators at that time were considered slow and uninterested in exploring new businesses, which could impede NETCO's exploration and limit the markets it could serve:

They decided that we should only work with the mobile operators, but it doesn't really make sense, because we have to work with the enterprises [industry customers]. Many of the mobile operators don't have proper capabilities ... It reduces our addressable market substantially. (Sales manager, 2018).

TEB members were also perplexed by the TMT's contradictory messages. They believed that the TMT had set contradictory and difficult-to-attain goals by telling them “to explore new opportunities while not breaking any rules” (Business developer, 2017). These conflicting messages also made it difficult for employees to understand which direction the exploration should take. Managers were confused and frustrated by the TMT's framing:

At one time, we are told to talk to the enterprises [to] find new opportunities. At another time [we are told], “No, don't speak to the enterprises. If they call, tell them to talk with operators and help the operators.” ... It doesn't seem clear in that sense. (Solution developer, 2018).

I agree that it should be clear what we are exploring and where should we go. But it seems that they put a lot of restrictions [on us]. We [are told to] focus on connectivity and the operators instead of on applications and enterprises where the biggest value is. ... We are trying to build on the strengths of NETCO, but we are also hindered by them. That is tricky. (Product manager, 2018).

4.2.2 | Convergent and divergent exploration projects

The TMT's paradoxical framing also resulted in a different prioritization of exploration projects and called into question the existence of some projects that did not entirely align with the strategic direction. We discovered that the paradoxical framing resulted in distinctions between projects, with some now being viewed differently (see Table 4 for a list of projects). Some fit neatly within the defined boundaries and the TMT's disciplined framing (i.e., convergent exploration projects). Others, on the other hand, did not always fit the TMT's strategic framing and extended beyond the focus area (i.e., divergent exploration projects). For example, exploration projects such as IoT connectivity and data monetization platforms were considered convergent exploration activities since they focused on mobile operators and built on NETCO's technological legacy. Nevertheless, projects such as smart buildings and smart cities that were not directly connected to the firm's technological legacy and did not target existing customers were considered divergent exploration.

Because of the TMT's framing, convergent exploration projects rose to the top of the strategic agenda and were regarded as TEB's *must-win bets* (Internal document, 2018). They also attracted more support in terms of resources and recognition. We found that the managers and members of convergent exploration projects supported the TMT's directives and viewed them positively, as expectations about their projects had not changed, as noted by a manager involved in the IoT platform project:

**TABLE 4** Examples of exploration projects in the TEB unit.

Examples of exploration projects at TEB (2017–2019)		
Convergent exploration*	Divergent exploration**	Status of divergent projects
IoT connectivity platform	Smart manufacturing	Became a new strategic area in 2018
Data monetization platform	Connected logistics	Became a new strategic area in 2019
Edge Cloud platform	Connected mining	Still progressing as part of TEB's exploration project in 2019
	Connected environmental offering (Smart City)	Discontinued in 2019
	Smart building	Discontinued in 2018
	Connected urban transport	Discontinued in 2018

*Projects that leverage connectivity technology and target mobile operators.

**Projects that leverage other technology than connectivity and do not target mobile operators.

When they said, “Let's forget about others [customers] and focus on mobile operators,” we said, “That's a good constraint. We are selling already to operators, so let's sell what makes sense for them [in terms of new products].” After all, strategy is a process of deciding what you're not going to do. (Project manager, 2018).

Divergent exploration projects, on the other hand, were seen as being at odds with the unit's strategy because they did not fully align with the TMT's disciplined framing. Managers and employees involved in these projects began to have doubts about their futures. Members of the connected urban transport and smart cities project, for example, began to feel insecure because they were developing a solution-based offering (i.e., a systems integration service) rather than a product-based offering, and they were targeting cities and local governments rather than mobile operators. The following quote exemplifies some of the concerns expressed by members of the connected urban transportation project:

We recognize that the angle is completely changed and that we should be more product-driven rather than solution-driven, and more focused on operators. ... I think the ambition [for the project] is decreasing. I don't understand how this will work. (Project member, 2018).

To summarize, the TMT's paradoxical framing, while providing meaning and direction for exploration, also created organizational tensions. The contradictory messages conveyed by the paradoxical framing created a double-bind situation that created a dilemma for MMs regarding how to respond. The paradoxical framing also called into question the legitimacy of exploration initiatives that did not adhere to the defined boundaries of exploration. We discovered that MMs played a critical role in resolving these tensions through their framing and actions.

4.3 | MMs' liminal framing and actions

The MMs in TEB navigated tensions caused by the TMT's paradoxical framing by blurring the boundaries of exploration and legitimizing divergent exploration. We show how MMs discursively and symbolically respond to strategic framing by the TMT and how they use framing for navigating this transitional state without contradicting the TMT's strategic directives or sacrificing divergent exploration. Our analysis reveals two types of framing used by MMs to

create strategic ambiguity around exploration boundaries and to champion divergent exploration, as shown in Tables 5, 6.

4.3.1 | Liminal framing of exploration boundaries

First, MMs used liminal framing to create ambiguity regarding the boundaries of exploration set by the TMT. When explaining the exploration strategy to employees, MMs provided their own interpretations of the TMT's disciplined framing. For example, MMs associated with a convergent project emphasized their compliance with the disciplined framing to gain support. MMs associated with divergent projects, on the other hand, purposefully used the TMT's paradoxical framing as a source of strategic ambiguity that allowed for multiple interpretations, particularly regarding which areas to explore and how to conduct exploration. In a program meeting, for example, an MM persuaded an employee to interpret the direction to focus on mobile operators as a short-term strategy that should not prevent them from undertaking broad exploration initiatives aimed at long-term growth, as noted below:

We should not interpret the strategy in the way that we will only work with mobile operators. It is a bit subtle, because actually the strategy says we do not sell to industries. So, we can still talk to industries and enterprises to work through the ecosystem. (Innovation manager, 2018).

By reframing the strategic direction and offering an alternative interpretation of it, MMs blurred the boundaries of exploration set by the TMT.

Nonetheless, MMs encouraged employees to adhere to some key aspects of the exploration strategy. We discovered that managers emphasized which elements of exploration were to be regarded as essential by referring to some core strategic principles (see Table 5). That is, MMs expressed their own opinions about which aspects of the strategy should be followed strictly or considered to be more negotiable. For example, the direction to sell “to and through mobile operators” was intended to make mobile operators the sole sales channel for any products/services developed as a result of exploration. Nevertheless, managers interpreted the essence of the directive as being that they should work *closely* rather than *solely* with mobile operators (Field note, 2018). During project meetings, MMs frequently communicated the core principle of any exploration initiative (i.e., collaborating with mobile operators) and indicated what types of deviant behavior might be tolerated (i.e., not selling directly to mobile operators). As a result, MMs could ensure that the TMT's framing was respected, while still retaining the flexibility needed to explore new areas.

In sum, MMs' liminal framing of exploration boundaries enabled TEB members to navigate between the TMT's imaginative and disciplined framing. MMs reframed the strategic direction in ways that blurred the boundaries established by the TMT. They did, however, ensure that the core directions could be followed by focusing on the elements of exploration they deemed essential.

Liminal framing of transition from divergent to convergent. MMs also played a role in legitimizing divergent exploration and incorporating it into the unit's new strategic agenda. In this case, MM influenced the TMT to gain support. In particular, they used liminal framing to take actions that seemed to deviate from strategic goals perceived to be aligned with the TMT's framing. To accomplish this, MMs framed divergent exploration in ways that indicated compliance with the disciplined framing or alignment with the imaginative framing. For example, one innovation manager persuaded senior executives to allow the connected logistics team to enter into a commercial agreement with a major logistics firm, despite the TMT's clear directive to sell IoT solutions only to mobile operators. The manager framed this commercial engagement as a “collaboration with enormous learning opportunities,” with the main goal of “bringing industry expertise to the mobile operators” (Field note, 2018). Managers referred to the activities as a “proof of concept” that might not necessarily be implemented in the future when explaining the rationale for engaging with nonoperators or for using different technology standards. We also discovered that many MMs began

**TABLE 5** Illustrative examples of MMs' liminal framing of exploration boundaries.

Framing activities (second-order codes)	Illustrative quotes (first-order quotes)
<p>Reframing the boundaries of exploration (Redefine the strategy and relax some of the assumptions about the boundaries of exploration i.e., how to explore, with whom)</p>	<ul style="list-style-type: none"> • “She [the head of TEB] communicates the short-term strategy that is very clear. Let's go to operators, don't lose focus now. That's what she communicates. But when you speak to Ani in a smaller context, she is very clear that she is a few steps ahead in terms of how we can also move up the value chain.” (Innovation manager, 2018) • “Our immediate customers continue to be service providers. The only one we sell to is the mobile operator. However, the real customers, the ones we expect to use our service, are enterprises. So, we still can engage with them.” (Product manager, 2018) • “Now, we play Brazilian style. We create short passes for our customers and adjacent businesses. Maybe we learn to shoot the long pass along the way, it is of course allowed (Head of Marketing, 2018) • “The direction is clear. [But] be mindful that this is the place [emerging industries] that is changing so much. We may change the execution of strategy, we may [need to] pivot and adjust.” (Innovation manager, 2018) • “So, we are exploring this too, and in line with what we want to do as a company we want to see what the role for an operator can be here, how can they provide these solutions, and then we will help them as much as possible because they don't know” (Project manager, 2018)
<p>Framing the necessary elements of exploration (Create a minimum level of agreement about which aspects of the directions should be followed strictly and which are more negotiable)</p>	<ul style="list-style-type: none"> • “I mean the mainline is that we need to have an operator involved. In the end, the operators may not be our only sales channel, but we have to put operators in our mind.” (Ecosystem manager, 2018) • “Well, at least, we have to build a solution based on 3GPP [a mobile technology standard]. If customers ask for solutions that bridge Wi-Fi, we are happy with it if the core is still the mobile network [3GPP]. But, if they only want to have Wi-Fi devices, we shouldn't pursue them.” (Innovation manager, 2018) • “We can [still] work with a lot of new partners. The discipline means working with enterprises, but if they don't prove themselves by bringing the operator to the table, then we drop it.” (Innovation manager, 2019) • “We have a set of strategic criteria [for industrial partnership], but at the same time we need numbers, therefore we need to keep in account the low-hanging fruits.” (Business developer manager, 2018)

project presentations with a slide demonstrating the project's alignment with the strategy. They were thus able to frame it as compliant, even though some elements deviated from the guidelines in some ways, such as by targeting industry customers and supporting other network technology standards.

Furthermore, MMs reframed divergent exploration projects not only to gain legitimacy but also to persuade the TMT to make them a strategic priority. In this case, they reframed divergent exploration projects by alluding to the TMT's imaginative framing. For instance, an MM referred to smart manufacturing and connected logistics as “the next big thing” to emphasize the long-term benefit for NETCO's growth in emerging businesses (Field note, 2017). To persuade the TMT, they also presented industry trends and competitors' strategies. When describing these opportunities, an MM also used hyperbolic statements (e.g., “We could revolutionize the entire industry”) and used

TABLE 6 Illustrative examples of MMs' liminal framing of transition.

Framing activities (second-order codes)	Illustrative quotes (first-order quotes)
<p>Alignment with disciplined framing (Focusing on certain aspects that indicate compliance and masking the seemingly deviant actions through the use of rhetoric)</p>	<ul style="list-style-type: none"> The MMs framed commercial engagements with industrial partners as “learning opportunities”: “This collaboration [a commercial deal with a logistic company] offers huge learning opportunities to understand the end-customers requirement, which can also be valuable for the operators.” (Innovation manager, 2018) <p>ALIGNMENT WITH STRATEGY</p> 
<p>Alignment with imaginative framing (Appealing to the imaginative framing by alluding to the potential benefits and the firm's long-term vision)</p>	<ul style="list-style-type: none"> A project manager starts the presentation about a seemingly divergent project by first emphasizing its alignment with the strategic direction. (Field note, 2018) “To get support for exploration in smart manufacturing, the project manager continuously referred to NETCO as a ‘manufacturing firm’ (as opposed to purely telecommunication firm) that manufactures network equipment.” (Field notes, 2018) There is a tremendous request from the industry right now because everybody has seen the big potential of IoT for logistics. Also, logistics is one industry that is growing. It is a huge market and untapped by both operators and NETCO. We could revolutionize the whole logistics industry. (Innovation manager, 2018) It is never easy to always be in sync with the strategy in this emerging industry. [...] The point is to be able to do proper internal marketing by highlighting the long-term benefit. (Innovation manager, 2018) MMs used the analogy of a submarine to encourage the TMT to act faster in exploring the smart manufacturing area by giving more support/resources to the team. (Field note, 2018) 

visual analogies (e.g., the submarine analogy shown in Table 6). Finally, the smart manufacturing and connected logistics projects were viewed as convergent exploration activities because they targeted new strategic areas. MMs championed divergent exploration projects to the TMT through the liminal framing of transition and even contributed to the modification of the exploration strategy.

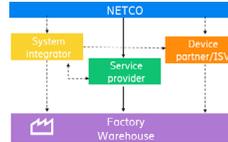
As shown in Table 7, in addition to this liminal framing, our analysis identified two types of actions taken by MMs to reframe divergent projects as convergent.

Substantive actions of linking. We discovered that MMs went to great lengths to connect divergent initiatives with the TMT's framing through a process of negotiation and adjustment. For example, we observed MMs engaging in a series of both formal (i.e., meetings and presentations) and informal (i.e., chats over coffee) negotiations to persuade TMT members to be more flexible or to make exceptions for divergent projects (Field note, 2018). MMs also linked convergent projects to incubated projects in the corporate accelerator. They hoped to combine new elements from the incubated projects with some established elements from the IOU. By integrating these various elements, they not only created synergies but also prevented incubated projects from deviating too far from the TMT's



TABLE 7 Illustrative examples of MMs' liminal actions.

Framing activities (second-order codes)	Illustrative examples quotes (first-order quotes)
<p>Substantive actions of linking divergent projects</p>	<ul style="list-style-type: none"> • MMs organized “co-creation workshops” in August and October 2018 to explore collaboration opportunities between operators and enterprises (Internal document, 2018) • MMs linked incubated projects (e.g., precise location projects) with existing projects (e.g., smart manufacturing) to make them in line with the strategic agenda (Field note, 2019) • MMs engaged in a series of negotiations with the senior management both formally (in meetings) and informally (in coffee chats) to make exemptions for deviant behaviors (Field note, 2017)
<p>Symbolic actions of compliance</p>	<ul style="list-style-type: none"> • MMs modified the go-to-market strategy for the smart manufacturing project, which put mobile operators at the center of the operation (Internal document, 2019) • “Yeah, well, in the end, we brought the ugly kids [the operators] to the table because we have to. At least, we won't have any questions about operators' involvement in our offering.” (Innovation manager, 2018) • MMs endorsed the disciplined approach as a way of exploring opportunities in the focus areas, yet encouraged employees to submit new ideas [beyond the focus area] to the corporate accelerator (Field note, 2018) • MMs communicated their support for the “disciplined growth” approach while creating online threads in Yammer (an internal social network) to discuss the potential drawbacks of the strategy (Field note, 2018)



framing. Furthermore, the MMs organized *co-creation workshops* that brought together mobile operators and industry customers to kickstart new collaborations. They also modified some aspects of the divergent projects (e.g., business model, technological design) to conform to the TMT's disciplined framing. For example, the smart manufacturing project's innovation manager changed the project's business model to place the mobile operator at the center of the operation, as illustrated in Table 7.

Symbolic actions of compliance. When it was difficult to make changes to the strategic direction, MMs used symbolic actions to demonstrate compliance. The symbolic actions were primarily used to make a favorable impression on the TMT and to demonstrate support for the strategic directions it had chosen. MMs, for example, frequently expressed their support for the disciplined approach in employee meetings. They did, however, facilitate open discussions about problematic aspects of the strategy on internal social networks such as Yammer. We also witnessed some MMs showing symbolic support for the TMT's directives while making no real effort to comply with them. For example, some MMs invited mobile operators to join a project or symbolically assigned them to a project as a partner simply for the sake of “following the rules” (Program manager, 2018). Such symbolic actions helped managers avoid potential conflict with the TMT while preserving many elements of their divergent exploration projects. One such action taken by an MM is depicted in the following quote:

We just put the operators on the paper [to align with the directions]. To be blunt, operators are great at selling SIM cards, but they don't have experience in solving industrial connectivity issues. They [mobile operators] have a lot of distrust; manufacturers don't want them, but we do it anyway [involving mobile operators]. (Innovation manager, 2017).

Overall, through their liminal framings and actions, MMs played critical roles in advancing exploration projects, particularly divergent ones. MMs affiliated with some divergent projects, such as smart manufacturing and connected logistics, actively applied liminal framings and took actions that enabled projects to progress; as such, some targets of divergent projects became new strategic areas for NETCO. In contrast, divergent projects whose managers did not actively articulate liminal framings and take supportive actions, such as smart buildings and smart cities, were terminated relatively quickly (see Table 4). This indicates the importance of MM's liminal framings and actions to influence the survival of (divergent) exploration projects.

4.4 | A model of strategic framing for exploring digital opportunities in a large firm

We began our research with the assumption that due to the generativity and uncertainty of exploring digital opportunities in a large organization, managers at various hierarchical levels must engage in strategic framing to guide multiple exploration initiatives. Establishing boundaries for exploration is critical—if the exploration strategy is too narrow, the firm could miss out on the most profitable opportunities; if it is too broad, multipronged, and strays too far from the firm's core competencies, exploration activities may be inefficient. Based on our findings, we propose a model (Figure 2) in which exploration occurs within a space created by interactions between the TMT's paradoxical framing and responses from MMs that include both framing and actions. We conceptualize this space as liminal (Bilgili et al., 2020; Garud et al., 2022) in that: (a) it has unstable boundaries that are negotiated between the actors involved; and (b) ongoing efforts are made, through strategic framing and action, to transition exploration initiatives across boundaries. Within this liminal space, it is difficult to determine whether exploration falls within or outside the boundaries set by the strategic direction.

Our evidence suggests that the members of TMT frame exploration strategy in a paradoxical way by using discursive actions that simultaneously call for exploration to be expansive while also requiring it to be confined to core resources. As a result, the paradoxical framing of exploration includes both articulating an imaginative vision for mobilizing exploration and establishing guidelines for such efforts. The imaginative dimension of paradoxical framing plays a critical role in making exploration a strategic imperative and giving a broad sense of multiple future possibilities (Rindova & Courtney, 2020). Such imaginative framing may be sufficient to influence external audiences (e.g., Garud & Giuliani, 2013), but strategically directing exploration within a large organization likely requires this to be accompanied by disciplined framing that specifies acceptable exploration directions and sets rules for resource allocation.

By anchoring exploration to the established organizational identity and the firm's core knowledge resources, the disciplined dimension of paradoxical framing limits how far exploration can go. Rindova et al. (2011) showed how such cultural and knowledge resources can help with strategy formulation. Our findings demonstrate how TMTs use similar types of resources to persuade MMs not to explore areas perceived to be too divergent and unrelated to core technologies and markets. Paradoxical framing frequently combines differentiation and integration (Smith, 2014). Our research offers an alternative interpretation. Imagination inevitably opens up multiple avenues for exploration and entrepreneurial opportunities. However, it also resists the discipline of following rules and pursuing predefined directions. Hence, paradoxical framing simultaneously expands *and* constraints exploratory searches. This paradoxical framing of exploration has three significant consequences.

First, despite TMT's best efforts to strike a balance between expanding and constraining a firm's exploration activities, this paradoxical framing could place MMs in a double bind (Bateson, 1972). This denotes a situation in which MMs receive incongruent communications from the TMT, which can lead to confusion when interpreting strategic directions. It makes it difficult for MMs to respond appropriately to apparent conflicting demands. Strategic framing that involves inconsistent messages creates tensions for those involved in exploration activities because it is difficult to fully understand which opportunities will be regarded as acceptable and which will not (i.e., exploration of emerging businesses without involving core customers). If discrepancies can be identified and discussed, the double

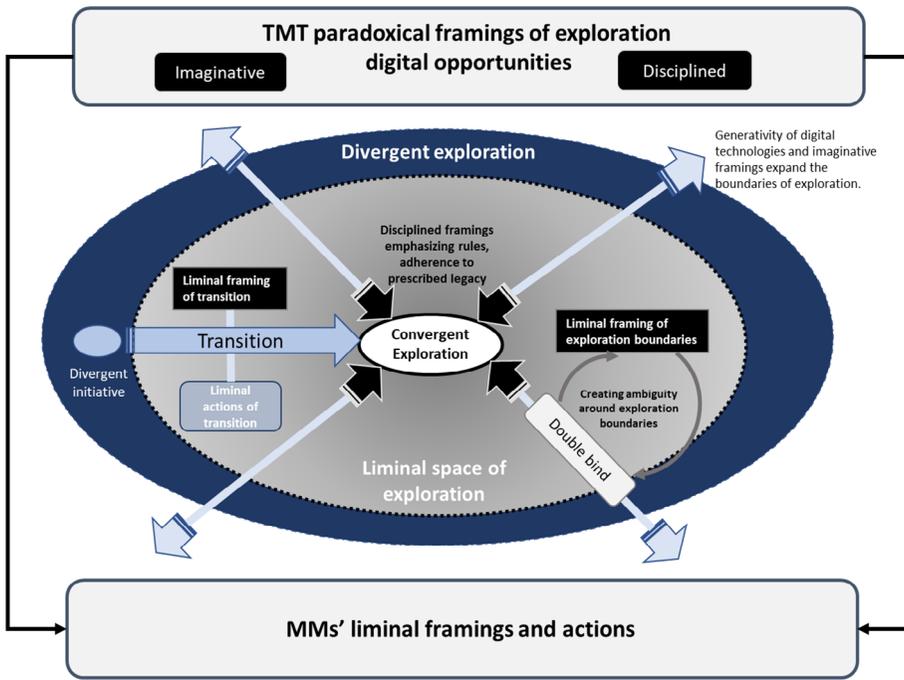


FIGURE 2 A model of strategic framings by strategic leaders across organizational hierarchy for exploring digital opportunities in an incumbent firm.

bind will not necessarily result in major tensions in organizations (Hennestad, 1990). As a result, MMs play a critical role in resolving the double bind.

Second, the paradoxical framing creates a liminal space for corporate exploration—a transitional space between initiatives perceived as convergent (i.e., optimally related to the firm's existing core resources) and those perceived as divergent and thus too risky to explore. We found that TMT's paradoxical framing creates a division between convergent and divergent exploration initiatives. Because convergent exploration is characterized by an optimal level of technological and market-relatedness, it is seen as being a “strategic fit” (Zajac et al., 2000). In other words, convergent exploration corresponds to both imaginative and disciplined dimensions of paradoxical framing of exploration. Divergent exploration, on the other hand, refers to initiatives that are perceived as straying too far from the firm's core competencies beyond the acceptable scope of new business development. These initiatives may be aligned with the imaginative dimension of paradoxical framing of exploration, but their fit with disciplined framing is problematic. Hence, convergent exploration establishes the inner boundaries of the liminal exploration space, while divergent exploration establishes the outer boundaries. However, because multiple digital opportunities exist or are transitioning into this in-between space, MMs play a critical role in ensuring that potentially lucrative opportunities are pursued.

Third, MMs' framing and actions are critical for navigating ambiguity and tensions within the liminal exploration space. To justify the importance of convergent exploration initiatives, they selectively highlight disciplined elements of strategic framing. If disciplined framing renders exploration divergent, MMs attempt to redefine the boundaries of the exploration space by creating strategic ambiguity around the boundaries and reframing divergent exploration initiatives as convergent. They employ liminal framing to blur the boundaries of exploration and alleviate the double bind caused by contradictory requirements. They reinterpret the TMT's paradoxical framing and employ discursive skills to create strategic ambiguity (Abdallah & Langley, 2014) while leveraging imaginative elements to make the strategic boundaries of exploration permeable. Unlike previous research that suggested strategic ambiguity was primarily a product of the TMT's framing (Sonenshein, 2010), our findings suggest that MMs also use ambiguity skillfully

to create multiple interpretations of the boundaries for exploration. Liminal framing also creates a minimum level of agreement among employees about the key elements of the exploration strategy, thereby reducing confusion about where the boundaries lie.

Furthermore, through liminal framing and actions, MMs play an important role in transforming divergent exploration into convergent exploration. They champion divergent initiatives and deftly conceptualize them (Burgelman, 1983b; Floyd & Wooldridge, 1992) so that they appear to fit with the TMT's strategic framing. They emphasize compliance with the TMT's disciplined framing after making exploration boundaries permeable by building on the TMT's imaginative framing. This creates legitimacy for divergent initiatives. To sell divergent exploration initiatives as convergent (Dutton et al., 2001), they must create the impression of compliance, which requires both substantive and symbolic actions (Rindova & Petkova, 2007). They modify exploration initiatives by changing specific elements (e.g., business model, technology design) or by linking divergent and convergent initiatives. When compliance proves particularly difficult, MMs employ symbolic actions to create the appearance of alignment with strategic constraints, even when a focal exploratory initiative only barely aligns with the strategic direction. Overall, MMs' liminal framing and actions allow members of the exploratory unit to navigate the liminal space of exploration. Their liminal framing can also shift the boundaries of exploration, especially if they successfully persuade the TMT to consider a divergent initiative as a new strategic priority.

5 | DISCUSSION

In this study, we have investigated how members of TMT and MM in a large incumbent firm together shape and direct the exploration of digital opportunities. The nature of digital technologies entails generativity in innovation and entrepreneurial endeavors, which complicate the establishment of exploration boundaries. Our research shows how the members of TMT frame strategic boundaries to manage technology generativity and direct the exploration of digital opportunities. They establish boundaries by using paradoxical framing that limits the exploration of digital opportunities while allowing exploration to be expanded beyond the scope of those boundaries. Our analysis reveals how MMs work around established boundaries to navigate exploration tensions. As such, our study differs from previous research, which frequently considers framing and strategic decision-making by top managers as means of resolving contradictory tensions (e.g., Knight & Paroutis, 2017; Smith, 2014). Instead, our model proposes a multi-level process whereby the TMT establishes seemingly conflicting expectations, such as exploring digital opportunities while focusing on the firm's core resources and markets. MMs must constantly consider conflicting expectations and find ways to organize and frame their activities so that they appear to be in alignment. As a result, exploration activities are not overly constrained but also do not stray too far from the organization's strategic objectives.

While there is an ongoing debate about whether or not MMs are becoming less important in modern organizations (Kerr et al., 2018), our research suggests that in the context of digital exploration, they play a critical role in refining the boundaries of exploration and finding a balance between promoting and constraining the generativity of digital technologies. Our findings also show that MMs' framing and actions play an important role in advancing exploration initiatives that are seemingly at odds with the TMT's direction, thereby preventing a myopic approach to exploration. Prior studies have introduced concepts such as bootlegging (Crisuolo et al., 2014) or divergent strategic behaviors (Floyd & Wooldridge, 1992) which explain how MMs can take initiatives without the approval of their superiors. However, these approaches are often related to sporadic activities that are not explicitly addressed by TMTs. Therefore, our conception of the MMs' liminal framing and action provides novel insights into the MMs' importance for strategy in the context of digital transformation where opportunities have to be systematically explored without violating seemingly contradictory instructions by TMT. Furthermore, our findings complement prior research that demonstrates the importance of interfaces and constructive interactions between the TMT and MMs during major change processes (Vuori & Huy, 2016). We have shown how both the TMT and MMs successfully change the environment by embracing inconsistencies in objectives and by using strategic framing to enable navigation of the liminal space for exploration purposes.



5.1 | Theoretical contributions

Our study makes three major contributions to ongoing debates on digital transformation, strategic framing research, and the CE literature by unpacking the roles played by strategic leaders at interfaces of hierarchical levels and their influence on digital transformation. First, we contribute to the literature on how incumbents steer and frame digital transformation and CE (Hanelt et al., 2021; Nambisan, 2017; Nambisan et al., 2019) by conceptualizing the role of TMTs in setting boundaries for the exploration of digital opportunities. While prior research suggests that TMTs play an important role in aligning exploration activities with strategic objectives, the generativity of digital technologies creates a unique challenge for managers to perform this function within established boundaries (Dattee et al., 2018). Our research shows how they sustain this role by establishing a liminal space between initiatives that are unproblematically aligned with the firm's current strategic direction (i.e., convergent) and those that are deemed too divergent. The liminal space is created through paradoxical framing, which provides discursive resources to managers at lower hierarchical levels to frame multiple exploration initiatives. Our findings suggest that the generative nature of digital technologies expands the boundaries of exploration which have been confined by strategic leaders, creating a liminal space of exploration. Balancing between enabling a broad search at the discretion of MMs and anchoring exploration to prevent organizational resources from stretching too thin goes beyond the typical tensions between exploitation and exploration (O'Reilly & Tushman, 2008). Hence, our research contributes to debates about how incumbent firms determine the scope of digital strategy and navigate the balance between promoting and constraining technological goals to realize their strategic goals (Nambisan et al., 2019).

Second, our findings contribute to the literature on strategic leadership interfaces, especially between the TMT and MMs (Raes et al., 2011; Simsek et al., 2018; Simsek, Heavey, & Fox, 2022). Prior research has yielded some valuable insights into how managerial interfaces influence strategy formulation and implementation, as well as competitive actions. We contribute to this research by demonstrating the importance of strategic framing at the interface between the TMT and MMs for overcoming innovation myopia and strategic misalignment in digital transformation. In particular, our research takes a cross-level approach to show how the generativity and uncertainty of digital innovations require bidirectional (i.e., top-down and bottom-up) interactions among strategic leaders. Our findings shed light on socio-cognitive interfaces (Simsek, Heavey, & Fox, 2022) between the TMT and MMs that enable a firm to both promote and constrain the exploration of digital opportunities.

Finally, this study contributes to ongoing discussions about the strategic role of MMs in digital transformation and the exploration of new opportunities in incumbent firms. Prior CE research (e.g., Burgelman, 1983a; Ren & Guo, 2011; Simsek et al., 2015) has highlighted the importance of MMs in championing entrepreneurial activities and strategically conceptualizing new business development. In the digital landscape, however, the role of MMs extends beyond evaluating entrepreneurial initiatives and selling them to the TMT (Ren & Guo, 2011). Instead, MMs play a key role in navigating strategic uncertainties and influencing the direction of exploration and its boundaries. While our findings support the effectiveness of strategic framing as a mechanism for meaning-making in relation to digital innovations (Nambisan et al., 2017), we have discussed how different types of strategic framing are used by multiple actors across the organization to (re)establish the strategic boundaries of exploration. Moreover, our study suggests that MMs are skillful agents who combine framing with symbolic and substantive actions to navigate the boundaries of exploration and alter the strategic direction of exploration established by the TMT. Our findings reveal that MMs play a crucial role in resolving organizational tensions at lower levels of the organizational hierarchy caused by the TMT's paradoxical framing. MMs use their discursive abilities (Rouleau & Balogun, 2011) to leverage strategic ambiguity in the TMT's framing to legitimize seemingly divergent exploration activities. By revealing the framings and actions of MMs in exploring entrepreneurial opportunities in a digital context, we have responded to a recent call for more research into the role of strategic leaders in promoting digital entrepreneurship (Nambisan et al., 2019).

5.2 | Practical implications

Our research yields applicable insights for TMTs and MMs in large and established firms that lead digital transformation. In particular, our findings provide instrumental and conceptual applications (Simsek, Li, & Huang, 2022) for strategic leaders of an incumbent firm in establishing the strategic direction and boundaries for exploring digital opportunities outside the firm's core businesses. Our study suggests that the TMT should consider combining imaginative framing with direction- and priority-setting (i.e., disciplined framing), even if the two may appear to contradict one another. Hence, instead of only adopting a disciplined framing of exploration that may hamper MMs' creative searches, TMTs should also adopt an imaginative framing to encourage broader exploration while safeguarding organizational priorities and overall objectives. Moreover, our findings highlight the importance of ongoing interactions between the TMT and MMs in formulating and implementing exploration strategies, and illustrate what managers can do to improve the quality of strategic endeavors. For example, the TMT should embrace seemingly divergent initiatives and facilitate open dialogue with MMs, thereby enabling them to shape exploration boundaries. Furthermore, MMs can creatively leverage the TMT's strategic framing and deploy elements of the exploration strategy as discursive resources to justify the importance of particular exploration initiatives that seem to deviate from the corporate strategy. By doing so, they can prevent myopic exploration while shaping the wider exploration strategy.

5.3 | Limitations and further research

While we acknowledge that this study has some limitations, we believe they open up some promising avenues for future research. First, caution should be exercised when generalizing our findings because this study is bounded to our research setting: a large incumbent firm in a high-tech industry. In particular, the proposed model of strategic framing may be mainly applicable to the case of strategic leaders steering exploration and transformation initiatives enabled by digital technologies, where opportunities are abundant, dispersed, and potentially distant from firms' core expertise (Nambisan et al., 2019). While a single case study was appropriate for addressing our specific research questions, subsequent studies based on multiple cases or quantitative methods may further reveal industry- and firm-level boundary conditions for strategic leaders' success in using paradoxical frames to steer digital transformation. The roles of formal and informal institutions, organizational culture (e.g., multinational, Western vs. Eastern culture), and centralization are some factors that may influence the efficacy of our proposed strategies to reconcile digital exploration paradoxes. Second, we only relied on advanced computer-aided linguistic techniques to analyze managers' strategic framing efforts in a limited way. In future studies, researchers may apply computer-based text analysis tools to a larger corpus of data to identify managers' framings and the psychological meanings of their communications. Finally, even though we focused on exploratory initiatives in the context of a large incumbent firm where MMs have a high degree of autonomy and direct contact with the external environment, it is important to understand how MMs may influence exploration in smaller firms or those where MMs interact mostly with internal stakeholders.

6 | CONCLUSION

Through an in-depth case study of a global telecommunication firm, we highlight the challenges of managing digital transformation and reveal managers' strategies to frame and direct exploration of digital opportunities. The generativity and uncertainty of exploring digital opportunities require both TMT and MMs to engage in strategic framing that jointly influences a wide array of exploration initiatives in order to maintain the strategic coherence of a CE activity. Our study indicates that interactions between TMT's paradoxical framing and MM's liminal framings and actions shape strategic boundaries of exploration. Those boundaries create liminal space which is characterized by



unstable boundaries between exploration activities perceived to be aligned with core resources and those perceived as being misaligned and hence strategically less relevant. Our findings suggest that MMs' role is crucial in (re)defining the boundaries of exploration in order to find a balance between promoting and constraining the exploration of digital opportunities. In sum, this study shows how framing at the interfaces between TMT and MMs is essential for directing exploration of digital opportunities.

ACKNOWLEDGMENTS

This research has received funding from the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska-Curie grant agreement No. 675866.

ORCID

Fathiro H. R. Putra  <https://orcid.org/0000-0002-4733-5858>

Krsto Pandza  <https://orcid.org/0000-0002-6807-1812>

Saeed Khanagha  <https://orcid.org/0000-0003-4765-0425>

REFERENCES

- Abdallah, C., & Langley, A. (2014). The double edge of ambiguity in strategic planning. *Journal of Management Studies*, 51(2), 235–264. <https://doi.org/10.1111/joms.12002>
- Ahuja, G., & Lampert, C. M. (2001). Entrepreneurship in the large corporation: A longitudinal study of how established firms create breakthrough inventions. *Strategic Management Journal*, 22(6–7), 521–543. <https://doi.org/10.1002/smj.176>
- Alvarez, S. A., & Porac, J. (2020). Imagination, indeterminacy, and managerial choice at the limit of knowledge. *Academy of Management Review*, 45, 735–744. <https://doi.org/10.5465/AMR.2020.0366>
- Amit, R., & Han, X. (2017). Value creation through novel resource configurations in a digitally enabled world. *Strategic Entrepreneurship Journal*, 11(3), 228–242. <https://doi.org/10.1002/sej.1256>
- Ansari, S. S., Garud, R., & Kumaraswamy, A. (2016). The disruptor's dilemma: TiVo and the U.S. television ecosystem. *Strategic Management Journal*, 37(9), 1829–1853. <https://doi.org/10.1002/smj.2442>
- Ansari, S. S., Reinecke, J., & Spaan, A. (2014). How are practices made to vary? Managing practice adaptation in a multinational corporation. *Organization Studies*, 35(9), 1313–1341. <https://doi.org/10.1177/0170840614539310>
- Arikan, A. M., Arikan, I., & Koparan, I. (2020). Creation opportunities: Entrepreneurial curiosity, generative cognition, and knightian uncertainty. *Academy of Management Review*, 45(4), 808–824. <https://doi.org/10.5465/AMR.2018.0252>
- Autio, E., Nambisan, S., Thomas, L. D. W., & Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 72–95. <https://doi.org/10.1002/SEJ.1266>
- Balogun, J., Bartunek, J. M., & Do, B. (2015). Senior managers' sensemaking and responses to strategic change. *Organization Science*, 26(4), 960–979. <https://doi.org/10.1287/orsc.2015.0985>
- Bateson, G. (1972). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. University of Chicago Press. Retrieved from <https://press.uchicago.edu/ucp/books/book/chicago/S/bo3620295.html>
- Behrens, J., Ernst, H., & Shepherd, D. A. (2014). The decision to exploit an R&D project: Divergent thinking across middle and senior managers. *Journal of Product Innovation Management*, 31(1), 144–158. <https://doi.org/10.1111/JPIM.12085>
- Bhardwaj, G., Camillus, J. C., & Hounshell, D. A. (2006). Continual corporate entrepreneurial search for long-term growth. *Management Science*, 52(2), 248–261. <https://doi.org/10.1287/mnsc.1050.0477>
- Bilgili, H., Campbell, J. T., O'Leary-Kelly, A., Ellstrand, A. E., & Johnson, J. L. (2020). The final countdown: Regulatory focus and the phases of ceo retirement. *Academy of Management Review*, 45(1), 58–84. <https://doi.org/10.5465/amr.2016.0455>
- Breschi, S., Lissoni, F., & Malerba, F. (2003). Knowledge-relatedness in firm technological diversification. *Research Policy*, 32(1), 69–87. [https://doi.org/10.1016/S0048-7333\(02\)00004-5](https://doi.org/10.1016/S0048-7333(02)00004-5)
- Burgelman, R. (1983a). A process model of internal corporate venturing in the diversified major firm. *Administrative Science Quarterly*, 28(2), 223. <https://doi.org/10.2307/2392619>
- Burgelman, R. (1983b). Corporate entrepreneurship and strategic management: Insights from a process study. *Management Science*, 29(12), 1349–1364. <https://doi.org/10.1287/mnsc.29.12.1349>
- Burgelman, R. A. (1985). Managing the new venture division: Research findings and implications for strategic management. *Strategic Management Journal*, 6(1), 39–54. <https://doi.org/10.1002/smj.4250060104>
- Chen, D. Q., Zhang, Y., Xiao, J., & Xie, K. (2021). Making digital innovation happen: A chief information officer issue selling perspective. *Information Systems Research*, 32(3), 987–1008. <https://doi.org/10.1287/ISRE.2021.1008>

- Corbett, A., Covin, J. G., O'Connor, G. C., & Tucci, C. L. (2013). Corporate entrepreneurship: State-of-the-art research and a future research agenda. *Journal of Product Innovation Management*, 30(5), 812–820. <https://doi.org/10.1111/jpim.12031>
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). SAGE Publications.
- Cornelissen, J. P., Holt, R., & Zundel, M. (2011). The role of analogy and metaphor in the framing and legitimization of strategic change. *Organization Studies*, 32(12), 1701–1716. <https://doi.org/10.1177/0170840611425729>
- Cornelissen, J. P., & Werner, M. D. (2014). Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature. *Academy of Management Annals*, 8(1), 181–235. <https://doi.org/10.1080/19416520.2014.875669>
- Criscuolo, P., Salter, A., & Ter Wal, A. L. J. (2014). Going underground: Bootlegging and individual innovative performance. *Organization Science*, 25(5), 1287–1305. <https://doi.org/10.1287/ORSC.2013.0856/ASSET/IMAGES/LARGE/ORSC.2013.0856-F02.JPEG>
- Dalpiaz, E., & Di Stefano, G. (2018). A universe of stories: Mobilizing narrative practices during transformative change. *Strategic Management Journal*, 39(3), 664–696. <https://doi.org/10.1002/SMJ.2730>
- Dattee, B., Alexy, O., & Autio, E. (2018). Maneuvering in poor visibility : How firms play the ecosystem game when uncertainty is high maneuvering in poor visibility. *Academy of Management Journal*, 61(2), 466–498.
- Dutton, J. E. (1993). The making of organizational opportunities: An interpretative pathway to organizational change. *Research in Organizational Behavior*, 15, 195–226.
- Dutton, J. E., Ashford, S. J., O'Neill, R. M., & Lawrence, K. A. (2001). Moves that matter: Issue selling and organizational change. *Academy of Management Journal*, 44(4), 716–736. <https://doi.org/10.2307/3069412>
- Dyer, W. G., & Wilkins, A. L. (1991). Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy of Management Review*, 16(3), 613–619. <https://doi.org/10.5465/amr.1991.4279492>
- Eggers, J. P., & Kaplan, S. (2009). Cognition and renewal: Comparing CEO and organizational effects on incumbent adaptation to technical change. *Organization Science*, 20(2), 461–477. <https://doi.org/10.1287/orsc.1080.0401>
- Fiss, P. C., & Zajac, E. J. (2006). The symbolic management of strategic change: Sensegiving via framing and decoupling. *Academy of Management Journal*, 49(6), 1173–1193. <https://doi.org/10.5465/AMJ.2006.23478255>
- Floyd, S. W., & Wooldridge, B. (1992). Middle management involvement in strategy and its association with strategic type: A research note. *Strategic Management Journal*, 13(1 S), 153–167. <https://doi.org/10.1002/smj.4250131012>
- Floyd, S. W., & Wooldridge, B. (1994). Dinosaurs or dynamos? Recognizing middle management's strategic role. *Academy of Management Perspectives*, 8(4), 47–57. <https://doi.org/10.5465/ame.1994.9412071702>
- Fraser, J., & Ansari, S. (. S.). (2021). Pluralist perspectives and diverse responses: Exploring multiplexed framing in incumbent responses to digital disruption. *Long Range Planning*, 54(5), 102016. <https://doi.org/10.1016/j.lrp.2020.102016>
- Garud, R., & Giuliani, A. P. (2013). A narrative perspective on entrepreneurial opportunities. *Academy of Management Review*, 38(1), 157–160. <https://doi.org/10.5465/amr.2012.0055>
- Garud, R., Kumaraswamy, A., Roberts, A., & Xu, L. (2022). Liminal movement by digital platform-based sharing economy ventures: The case of uber technologies. *Strategic Management Journal*, 43(3), 447–475. <https://doi.org/10.1002/smj.3148>
- Gavetti, G. (2012). Perspective toward a behavioral theory of strategy. *Organization Science*, 23(1), 267–285. <https://doi.org/10.1287/orsc.1110.0644>
- Gerstner, W. C., König, A., Enders, A., & Hambrick, D. C. (2013). CEO narcissism, audience engagement, and organizational adoption of technological discontinuities. *Administrative Science Quarterly*, 58(2), 257–291. <https://doi.org/10.1177/0001839213488773>
- Gioia, D. A., & Chittipeddi, K. (1991). Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal*, 12(6), 433–448. <https://doi.org/10.1002/smj.4250120604>
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research. *Organizational Research Methods*, 16(1), 15–31. <https://doi.org/10.1177/1094428112452151>
- Gioia, D. A., Thomas, J. B., Clark, S. M., & Chittipeddi, K. (1994). Symbolism and strategic change in academia: The dynamics of sensemaking and influence. *Organization Science*, 5(3), 363–383. <https://doi.org/10.1287/orsc.5.3.363>
- Grimpe, C., Murmann, M., & Sofka, W. (2019). Organizational design choices of high-tech startups: How middle management drives innovation performance. *Strategic Entrepreneurship Journal*, 13(3), 359–378. <https://doi.org/10.1002/sej.1330>
- Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies*, 58(5), 1159–1197. <https://doi.org/10.1111/JOMS.12639>
- Helfat, C. E., & Peteraf, M. A. (2015). Managerial cognitive capabilities and the microfoundations of dynamic capabilities. *Strategic Management Journal*, 36(6), 831–850. <https://doi.org/10.1002/smj.2247>



- Hennestad, B. W. (1990). The symbolic impact of double bind leadership: Double bind and the dynamic of organizational culture. *Journal of Management Studies*, 27(3), 265–280. <https://doi.org/10.1111/j.1467-6486.1990.tb00247.x>
- Heyden, M. L. M., Fourné, S. P. L., Koene, B. A. S., Werkman, R., & Ansari, S. S. (2017). Rethinking “Top-Down” and “Bottom-Up” roles of top and middle managers in organizational change: Implications for employee support. *Journal of Management Studies*, 54(7), 961–985. <https://doi.org/10.1111/joms.12258>
- Heyden, M. L. M., Wilden, R., & Wise, C. (2020). Navigating crisis from the backseat? How top managers can support radical change initiatives by middle managers. *Industrial Marketing Management*, 88, 305–313. <https://doi.org/10.1016/J.INDMARMAN.2020.05.024>
- Kannan-Narasimhan, R. P., & Lawrence, B. S. (2018). How innovators reframe resources in the strategy-making process to gain innovation adoption. *Strategic Management Journal*, 39(3), 720–758. <https://doi.org/10.1002/SMJ.2748>
- Kaplan, S. (2008). Framing contests: Strategy making under uncertainty. *Organization Science*, 19(5), 729–752. <https://doi.org/10.1287/orsc.1070.0340>
- Katila, R., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *Academy of Management Journal*, 45(6), 1183–1194. <https://doi.org/10.2307/3069433>
- Kerr, W. R., Gabriel, F., & Moloney, E. (2018). Transformation at ING (A): Agile. Harvard Business School Case 818-077. Retrieved from <https://www.hbs.edu/faculty/Pages/item.aspx?num=53838>
- Khanagha, S., Zadeh, M. T. R., Mihalache, O., & Volberda, H. (2018). Embracing bewilderment: Responding to technological disruption in heterogeneous market environments. *Journal of Management Studies*, 55(7), 1079–1121. <https://doi.org/10.1111/joms.12348>
- Knight, E., & Paroutis, S. (2017). Becoming salient: The TMT Leader's role in shaping the interpretive context of paradoxical tensions. *Organization Studies*, 38(3–4), 403–432. <https://doi.org/10.1177/0170840616640844>
- König, A., Mammen, J., Luger, J., Fehn, A., & Enders, A. (2018). Silver bullet or ricochet? CEOs' use of metaphorical communication and infomediaries' evaluations. *Academy of Management Journal*, 61(4), 1196–1230. <https://doi.org/10.5465/amj.2016.0626>
- Kuhn, T. (2008). A communicative theory of the firm: Developing an alternative perspective on intra-organizational power and stakeholder relationships. *Organization Studies*, 29(8–9), 1227–1254. <https://doi.org/10.1177/0170840608094778>
- Levinthal, D. A. (1997). Adaptation on rugged landscapes. *Management Science*, 43(7), 934–950. <https://doi.org/10.1287/mnsc.43.7.934>
- Ling, Y., Simsek, Z., Lubatkin, M. H., & Veiga, J. F. (2008). Transformational leadership's role in promoting corporate entrepreneurship: Examining the ceo-tmt interface. *Academy of Management Journal*, 51(3), 557–576. <https://doi.org/10.5465/AMJ.2008.32626023>
- Logemann, M., Piekkari, R., & Cornelissen, J. (2019). The sense of it all: Framing and narratives in sensegiving about a strategic change. *Long Range Planning*, 52(5), 101852. <https://doi.org/10.1016/j.lrp.2018.10.002>
- Lovas, B., & Ghoshal, S. (2000). Strategy as guided evolution. *Strategic Management Journal*, 21(9), 875–896. [https://doi.org/10.1002/1097-0266\(200009\)21:9<875::AID-SMJ126>3.0.CO;2-P](https://doi.org/10.1002/1097-0266(200009)21:9<875::AID-SMJ126>3.0.CO;2-P)
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71–87.
- Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship: Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital innovation management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(January), 223–238. <https://doi.org/10.25300/MISQ/2017/41>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), 103773. <https://doi.org/10.1016/j.respol.2019.03.018>
- Noda, T., & Bower, J. L. (1996). Strategy making as iterated processes of resource allocation. *Strategic Management Journal*, 17(S1), 159–192. <https://doi.org/10.1002/smj.4250171011>
- O'Reilly, C. A., & Tushman, M. L. (2008). Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, 28, 185–206. <https://doi.org/10.1016/j.riob.2008.06.002>
- Raes, A. M. L., Heijltjes, M. G., Glunk, U., & Roe, R. A. (2011). The interface of top management team and middle managers: A process model. *Academy of Management Review*, 36, 102–126. <https://doi.org/10.5465/ambpp.2008.33718412>
- Ren, C. R., & Guo, C. (2011). Middle managers' strategic role in the corporate entrepreneurial process: Attention-based effects. *Journal of Management*, 37(6), 1586–1610. <https://doi.org/10.1177/0149206310397769>
- Rindova, V., & Courtney, H. (2020). To shape or adapt: Knowledge problems, epistemologies, and strategic postures under knightian uncertainty. *Academy of Management Review*, 45(4), 787–807. <https://doi.org/10.5465/AMR.2018.0291>
- Rindova, V., Dalpiaz, E., & Ravasi, D. (2011). A cultural quest: A study of organizational use of new cultural resources in strategy formation. *Organization Science*, 22(2), 413–431. <https://doi.org/10.1287/orsc.1100.0537>
- Rindova, V., & Petkova, A. (2007). When is a new thing a good thing? Technological change, product form design, and perceptions of value for product innovations. *Organization Science*, 18(2), 217–232. <https://doi.org/10.1287/orsc.1060.0233>

- Rouleau, L. (2005). Micro-practice of strategic sense making and sense giving: How middle managers interpret and sell change every day. *Journal of Management Studies*, 42(7), 1413–1441. <https://doi.org/10.1111/j.1467-6486.2005.00549.x>
- Rouleau, L., & Balogun, J. (2011). Middle managers, strategic sensemaking, and discursive competence. *Journal of Management Studies*, 48(5), 953–983. <https://doi.org/10.1111/j.1467-6486.2010.00941.x>
- Schneider, P., & Sting, F. J. (2020). Employees' perspectives on digitalization-induced change: Exploring frames of industry 4.0. *Academy of Management Discoveries*, 6(3), 406–435. <https://doi.org/10.5465/amd.2019.0012>
- Siggelkow, N., & Rivkin, J. W. (2006). When exploration backfires: Unintended consequences of multilevel organizational search. *Academy of Management Journal*, 49(4), 779–795. <https://doi.org/10.5465/AMJ.2006.22083053>
- Simsek, Z., Heavey, C., & Fox, B. C. (2018). Interfaces of strategic leaders: A conceptual framework, review, and research agenda. *Journal of Management*, 44(1), 280–324. <https://doi.org/10.1177/0149206317739108>
- Simsek, Z., Heavey, C., & Fox, B. C. (2022). A managerial interfaces perspective for competitive action research. *Long Range Planning*, 55(3), 102141. <https://doi.org/10.1016/j.lrp.2021.102141>
- Simsek, Z., Jansen, J. J. P., Minichilli, A., & Escriba-Esteve, A. (2015). Strategic leadership and leaders in entrepreneurial contexts: A nexus for innovation and impact missed? *Journal of Management Studies*, 52(4), 463–478. <https://doi.org/10.1111/joms.12134>
- Simsek, Z., Li, N., & Huang, J. L. (2022). Turbocharging practical implications in management studies. *Journal of Management*, 48(5), 1083–1102. <https://doi.org/10.1177/01492063211040562>
- Smith, W. (2014). Dynamic decision making: A model of senior leaders managing strategic paradoxes. *Academy of Management Journal*, 57(6), 1592–1623. <https://doi.org/10.5465/amj.2011.0932>
- Smith, W. K., & Tushman, M. L. (2005). Managing strategic contradictions: A top management model for managing innovation streams. *Organization Science*, 16, 522–536. <https://doi.org/10.1287/orsc.1050.0134>
- Snihur, Y., Thomas, L. D. W., Garud, R., & Phillips, N. (2022). Entrepreneurial framing: A literature review and future research directions. *Entrepreneurship: Theory and Practice*, 46(3), 578–606. <https://doi.org/10.1177/10422587211000336>
- Sonenshein, S. (2010). We're changing-or are we? Untangling the role of progressive, regressive, and stability narratives during strategic change implementation. *Academy of Management Journal*, 53(3), 477–512. <https://doi.org/10.5465/amj.2010.51467638>
- Stopford, J. M., & Baden-Fuller, C. W. F. (1994). Creating corporate entrepreneurship. *Strategic Management Journal*, 15(7), 521–536. <https://doi.org/10.1002/smj.4250150703>
- Taylor, A., & Helfat, C. E. (2009). Organizational linkages for surviving technological change: Complementary assets, middle management, and ambidexterity. *Organization Science*, 20(4), 718–739. <https://doi.org/10.1287/orsc.1090.0429>
- Van Maanen, J., Sørensen, J. B., & Mitchell, T. R. (2007). The interplay between theory and method. *Academy of Management Review*, 32(4), 1145–1154. <https://doi.org/10.5465/AMR.2007.26586080>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/10.1016/J.JSIS.2019.01.003>
- Vuori, T. O., & Huy, Q. N. (2016). Distributed attention and shared emotions in the innovation process: How Nokia lost the smartphone battle. *Administrative Science Quarterly*, 61(1), 9–51. <https://doi.org/10.1177/0001839215606951>
- Yu, W., Minniti, M., & Nason, R. (2019). Underperformance duration and innovative search: Evidence from the high-tech manufacturing industry. *Strategic Management Journal*, 40(5), 836–861. <https://doi.org/10.1002/SMJ.2988>
- Zahra, S. A. (2008). The virtuous cycle of discovery and creation of entrepreneurial opportunities. *Strategic Entrepreneurship Journal*, 2(3), 243–257. <https://doi.org/10.1002/SEJ.47>
- Zajac, E. J., Kraatz, M. S., & Bresser, R. K. F. (2000). Modeling the dynamics of strategic fit: A normative approach to strategic change. *Strategic Management Journal*, 21(4), 429–453. [https://doi.org/10.1002/\(sici\)1097-0266\(200004\)21:4<429::aid-smj81>3.0.co;2-%23](https://doi.org/10.1002/(sici)1097-0266(200004)21:4<429::aid-smj81>3.0.co;2-%23)

How to cite this article: Putra, F. H. R., Pandza, K., & Khanagha, S. (2024). Strategic leadership in liminal space: Framing exploration of digital opportunities at hierarchical interfaces. *Strategic Entrepreneurship Journal*, 18(1), 165–199. <https://doi.org/10.1002/sej.1465>



APPENDIX A

BUSINESS MODEL OF NETCO, ORGANIZATION STRUCTURE, AND THE TEB UNIT

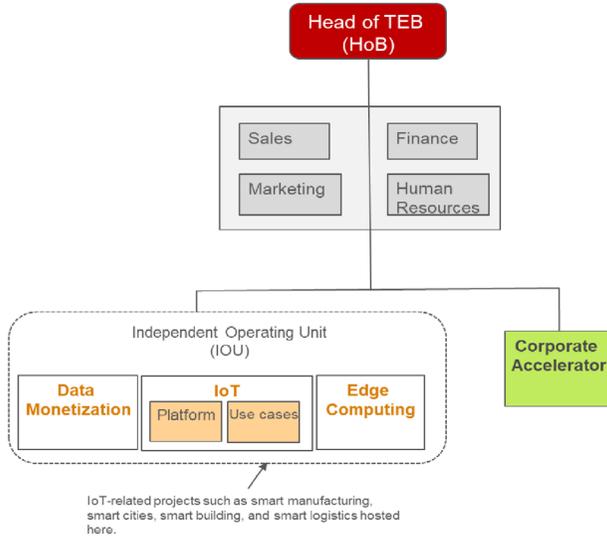


FIGURE A1 TEB unit's organization structure.

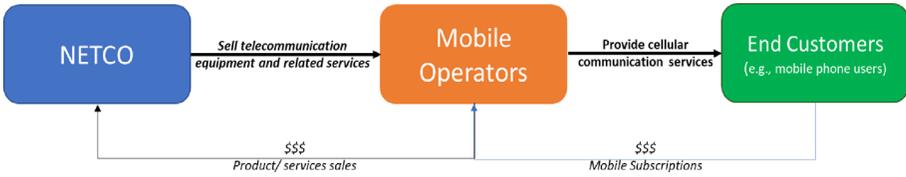


FIGURE A2 NETCO's business model.



FIGURE A3 NETCO's organization structure.

APPENDIX B

TABLE B1 Sample results of LIWC analysis of HoB and CEO Letter.

File name	Rewards (%)	Risk (%)	Present (%)	Future (%)	Exploration (%)
HoB Letter—April 27, 2018.pdf	0.77	0.77	4.21	1.53	3.45
HoB Letter—September 19, 2018.pdf	0.38	0.63	2.38	2.75	2.25
CEO Letter—October 15, 2018.pdf	0.82	0.35	4.34	1.52	2.11
HoB Letter—November 23, 2018.pdf	1.93	0.16	3.53	2.25	1.77
HoB Letter—December 21, 2019.pdf	1.06	0.08	4.25	0.57	1.72
CEO Letter—March 26, 2019.pdf	0.63	0.13	4.15	0.75	1.51
CEO Letter—December 14, 2019.pdf	0.57	0.47	3.2	1.41	1.51
HoB Letter—June 15, 2018.pdf	1.11	0.11	3.1	2.33	1.44
CEO Letter—November 14, 2017.pdf	1.15	0.58	4.91	2.02	1.15
HoB Letter—July 18, 2018.pdf	1	0.12	3.55	1.5	1.12
HoB Letter—09.04.2018.pdf	0.47	0.35	5.79	1.77	1.06
CEO Letter—December 17, 2018.pdf	0.76	0.13	5.2	1.4	1.02
CEO Letter—April 21, 2018.pdf	1.13	0.42	5.92	1.27	0.99
HoB Letter—12.02.2018.pdf	0.27	0.54	1.99	2.26	0.97
CEO Letter—2018.31.03.pdf	1.3	0.43	3.31	1.44	0.86
CEO Letter—August 28, 2017.pdf	0.73	0.25	5.08	1.63	0.84
CEO Letter—March 28, 2018.pdf	0.53	0.35	2.63	0.88	0.79
CEO Letter—June 26, 2017.pdf	0.67	0.04	4.64	2.05	0.76
CEO Letter—January 26, 2018.pdf	0.17	0.17	5.21	1.49	0.74
HoB Letter—May 24, 2019.pdf	1.34	0.41	4.64	0.31	0.72
HoB Letter—February 21, 2019.pdf	1	0.33	4	0.33	0.67
CEO Letter—September 4, 2017.pdf	0.1	0.68	4.59	2.05	0.59
CEO Letter—November 20, 2017.pdf	0.36	0.36	5.01	1.65	0.57



TABLE B1 (Continued)

File name	Rewards (%)	Risk (%)	Present (%)	Future (%)	Exploration (%)
CEO Letter—October 23, 2017.pdf	0.11	0.11	5.05	1.1	0.55
CEO Letter—March 9, 2018.pdf	0.92	0.18	2.93	2.11	0.55
HoB Letter—04.07.2019.pdf	0.62	0.14	2.88	1.16	0.55
CEO Letter—May 21, 2018.pdf	2.13	0.1	6.49	1.32	0.51
HoB Letter—July 18, 2019.pdf	0.34	0.17	3.07	0.51	0.51
CEO Letter—May 28, 2018.pdf	0.33	4.17	4.84	2	0.5
CEO Letter—May 26, 2017.pdf	0.46	0.49	4.28	2.32	0.49
CEO Letter—May 22, 2017.pdf	0.6	0.14	4.79	1.78	0.46
HoB Letter—April 18, 2019.pdf	0.44	0.3	1.63	0.74	0.44
HoB Letter—February 22, 2019.pdf	0.58	0.58	3.8	1.02	0.44
CEO Letter—June 19, 2017.pdf	0.68	0.36	3.76	2.45	0.43
CEO Letter—August 27, 2019.pdf	0.35	0.26	1.65	0.35	0.43
CEO Letter—February 2, 2018.pdf	0.17	0.68	3.55	0.93	0.42
CEO Letter—September 7, 2017.pdf	0.2	0.34	4.6	1.15	0.41
HoB Letter—December 28, 2017.pdf	0.2	0.1	2.44	0.81	0.41
CEO Letter—March 10, 2017.pdf	1.01	0.23	5.27	1.03	0.4
CEO Letter—June 30, 2017.pdf	0.78	0.1	3.31	1.75	0.39
CEO Letter—November 27, 2017.pdf	0.39	0.17	6.31	1.18	0.39
CEO Letter—February 12, 2018.pdf	0.59	0.24	2.94	0.94	0.35