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RESEARCH ARTICLE

The two faces of hierarchy: CEO power and TMT learning diversity in technology venture innovation

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Abstract The relationship between top management team (TMT) members' learning behavior and the innovation strategy of technology ventures remains unclear, especially when complicated by social hierarchies within the team. We draw on organizational learning theory to theorize that diversity in TMT members' learning behavior has both positive and negative latent effects that produce an inverted U-shaped relationship between TMT learning diversity and a firm's radical innovation strategy. Building on the social hierarchy literature, we also suggest that CEO power moderates this relationship by altering the latent forces: structurally powerful CEOs neutralize the benefits of TMT learning diversity, turning the link between learning diversity and radical innovation strategy predominantly negative, whereas prestigiously powerful CEOs neutralize the costs of TMT learning diversity, turning its relationship with the firm's radical innovation strategy predominantly positive. Longitudinal, multi-source data from 77 TMTs support our model. The findings contribute to the research on learning and social hierarchies by illustrating how hierarchies rooted in different sources of power have different effects on the relationship between TMT learning diversity and innovation strategy.

Plain English Summary How can teams benefit from diversity? Two CEO approaches to power determine whether and when differences in learning behavior make SME top management teams more innovative. Top management teams (TMT) try to harness the power of diversity by combining team members who prioritize learning and constantly try to explore new areas with others who focus on implementing existing insights. This study investigates the effects of learning diversity in TMT on a firm's innovation strategy in the context of technology ventures. First, we found that a moderate level of diversity in

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learning behavior is linked to more radical innovations but that too much diversity hurts firm innovativeness. Moreover, we show that the power that CEOs wield plays a central role in these processes: if CEOs are prestigiously powerful (i.e., when they hold many other board appointments), they can guide their teams in ways that allow them to benefit from learning diversity. However, if CEOs are structurally powerful (i.e., they are also chairperson of the own board), their TMT will struggle to harness the power of diversity and end up seeing less radical innovation in their firm. These findings contribute to research by offering a novel theoretical account of diversity in learning behavior. Our study has implications for the design of TMTs, in the context where these teams' impact on firm innovation strategy is substantial.

Keywords Top management teams · Team learning · Radical innovation · CEO power · Social hierarchy

JEL Classification L26 · M12 · M13 · M14

1 Introduction

Rapid technological changes force small and medium-sized enterprises (SMEs) to innovate in ways that deviate from existing products, processes, and procedures to entice new customers (Chiesa & Frattini, 2011; Love & Roper, 2015). While these radical innovations can offer lasting advantages, they also bring significant risks and uncertainty (Miron-Spektor et al., 2011; Shkolnykova & Kudic, 2022) that are linked to the acquisition of new knowledge and skills that reside outside the organization (Alexander & van Knippenberg, 2014; Alexiev et al., 2010).

In SMEs, directing innovation is the responsibility of the top management team (TMT), whose managerial discretion puts them in charge of firm innovation strategy (Alexiev et al., 2010; West & Anderson, 1996). TMT members engage in learning and knowledge consolidation processes that form the micro-foundations of firm innovation strategy (Senge, 1990). Existing research commonly assumes a similar level of learning behavior to characterize all team members (Kostopoulos et al., 2013). Yet, individual cognitive differences can also affect the interpersonal realm where they materialize as differences in goals, values, and interests (Nooteboom, 2009), thereby making individuals learning behavior likely to differ. The link between differences in TMT members' learning behavior and a firm's innovation strategy remains unclear.

Furthermore, the conditionalities of learning have mostly been explored in the contexts of team stability (Huckman et al., 2009; Narayanan et al., 2009), organizational structures (Stan & Puranam, 2017), and self-management capacity (Bernstein et al., 2016; Bunderson & Boumgarden, 2010). However, a related line of organizational research suggests that social hierarchies within the team affect team learning and knowledge creation (Bunderson & Reagans, 2011; He et al., 2022). At the top of these hierarchies are CEOs, who play a pivotal role in organizational learning and strategic leadership (Sariol & Abebe, 2017). CEO power can take different forms, such as structural power (i.e., being appointed chair of the company board) or prestige power (i.e., serving in external boards) (Finkelstein, 1992). While first studies of CEO power investigate its effect on R&D (e.g., Blagoeva et al., 2020), investigations of how CEO power shapes learning processes are still missing (Bunderson & Reagans, 2011).

In this study, we explore two questions: (1) how does TMT learning diversity affect firm level radical innovation strategy? And (2) how do structural and prestige CEO power affect this relationship? Drawing from team learning and social hierarchy theories, we develop a model of TMT learning diversity and CEO power that addresses the link between TMT learning dynamics and firm innovation strategy. We first theorize that two latent forces shape the relationship between TMT learning diversity and firm radical innovation before explaining how these two latent forces combine to an inverted U-shaped relationship. Next, we theoretically differentiate structural and prestige CEO power, proposing that structural power turns the relationship between learning diversity and radical innovation strategies predominantly negative, whereas prestige power turns it predominantly positive. An empirical analysis of a longitudinal survey-based dataset of 77 technology SMEs from Finland with official firm performance data supports our arguments.

This study makes three contributions. First, we contribute to the team learning and TMT literatures with an introduction of the concept of TMT learning diversity, adding nuance and realism to the existing literature. While a large portion of team learning studies have concentrated on mean learning scores

(Kostopoulos et al., 2013), we highlight the benefits and costs of diversity in team members' learning behavior. Furthermore, unlike prior empirical studies in the TMT literature that mostly rely on proxies like education for team members' cognitive capacity (see Buyl et al., 2011; Narayan et al., 2020), we examine the actual learning behavior of TMT members. Second, we contribute to the social hierarchy literature by demonstrating the importance of power for learning (as suggested by Bunderson & Reagans, 2011). Our findings show that the effect of CEO power on learning differs greatly, depending on the type of power: while structural power makes benefitting from learning diversity more difficult, prestige power facilitates the process. Third, we add to the SME innovation literature by showing that, with the right design of behavioral composition and social hierarchy, TMTs could be the drivers of SME innovation strategy (Talke et al., 2010). Our discussion of the personal and interpersonal processes in SME TMTs, the arbiters of firm innovation, sheds light on the micro-foundations of SME innovation.

2 Theoretical background and hypotheses

2.1 TMT learning

Learning involves processes such as questioning, experimenting, reflecting, and discussing, which allow individuals to adapt and improve (Edmondson, 1999). These processes are so essential to the growth of companies that they have been described as a micro-foundation of innovation strategy (Roberson et al., 2017; Senge, 1990). However, not everything that is learned by firm-members is converted into radical innovations on the organizational level (Zahra, 2012): turning individual-level insights into firm-level innovations requires teams to overcome internal resistance to change and engage in organizational learning (Bunderson & Reagans, 2011). These team learning processes can be very complex and depend on interpersonal factors (Huckman et al., 2009). Unfortunately, lessons on how to transform individual learning into organizational innovation are rare because most studies skip the fundamental unit of learning: teams (Senge, 1990). It is teams that commonly harbor the structural challenges, such as norms and policies, that prevent the progression from individual to organizational learning (Argyris, 1976; Argyris & Schon, 1978). However, the team mechanisms that prevent organizational learning by restricting or preventing necessary changes are often left unspecified (Edmondson, 2002).

Team learning is particularly important in technology SMEs, which rely on innovation to survive (Love & Roper, 2015). Because SMEs are often too small to have designated innovation departments, most innovation responsibilities fall to the TMT, which bears ultimate responsibility for implementing organization-wide change and determining a firm's innovation strategy (Ling et al., 2008; West & Anderson, 1996). Developing radical innovations requires SME TMTs to acquire new knowledge from outside organizational boundaries (Alexander & van Knippenberg, 2014; Edmondson, 2002) and combine this knowledge in the organization (Kotha et al., 2013). However, the same resource constraints that cause SME innovation responsibilities to fall to the TMT can also prevent the integration of developed insights (Zahra et al., 2006). SME TMTs are especially limited by information-processing constraints and can be "suffocated with too great a volume of dispersed strategic information" (Sirén & Kohtamäki, 2016, p. 656). Thus, SMEs are particularly likely to suffer from knowledge overload (Sirén & Kohtamäki, 2016), where the volume and variety of available information exceed the amount that the organization would be able to integrate (Lechner et al., 2010). In sum, SMEs' limited resources, combined with the fact that most of the knowledge is new to them (i.e., their previous organizational memory is limited), makes them more likely to reach the limits of their learning capabilities earlier than larger companies (Liao et al., 2003), and makes it particularly challenging for them to put learned insights to action (Wales et al., 2013).

2.2 TMT learning diversity

Diversity complicates the challenges of organizational learning in SMEs further because it introduces cognitive distance between TMT members (Nooteboom, 2009). In the context of TMT learning, learning diversity means that TMT members engage in different amounts of learning. However, most learning studies assume, for the sake of simplicity, that team members are homogeneous and can be

represented by group mean scores (Kostopoulos et al., 2013). Lamenting this issue, researchers highlight that "organizational learning is not simply the sum of each member's learning" (Fiol & Lyles, 1985, p. 804), but a multilevel phenomenon that "emerges from the ground up, with individual members' interactions being the building blocks of the emerging collective structure" (Kostopoulos et al., 2013, p. 1434). Learning diversity is therefore based on individuals' cognitions but affects the interpersonal realm where it materializes as differences in goals, values, and interests (Nooteboom, 2009).

Studying TMT learning diversity hence requires capturing differences in the degree to which TMT members engage in learning behavior. Consider the following example of two teams with two members each. Team A consists of two individuals who engage in medium levels of learning behavior (3/5). Team B has one member who engages in no learning behavior (1/5) and one member who engages in a lot of learning behavior (5/5). While one could assess these teams with team-level averages, yielding two identical scores (3/5), this would not do justice to their differences: team A is fully homogeneous, whereas team B has one member working with the information at hand and one engaging in considerable knowledge acquisition, thereby creating a rich but diverse knowledge base. Our study introduces the measure of learning diversity, which captures these differences between team members.

Besides its value for conversations about organizational learning, this measure may also be worthy for diversity research because it measures actual difference-based outcomes of managerial cognition. This is quite rare in diversity research, which generally measures cognitive diversity with demographic correlates (Narayan et al., 2020) such as differences in education (Díaz-Fernández et al., 2019), nationality (Boone et al., 2019), and gender (Opstrup & Villadsen, 2015). While these demographic measures also have considerable impact on firm-level outcomes, they are incomplete proxies for psychological traits or social behaviors (Hambrick, 2007), and often show no correlation with actual cognitive diversity (Kilduff et al., 2000). This problem is described as the "black box problem of organizational demography" (Lawrence, 1997, p. 1). This highlights the importance of studies that measure actual outcomes of differences in managerial cognition such as the variance between the scores assigned in the two aforementioned teams.

2.3 TMT learning diversity and firm radical innovation

Implementing any radical innovation strategy requires two elements: (1) the ability to identify opportunities for radical innovation and (2) the motivation to exploit these opportunities. Each of these requirements is affected by countervailing latent forces caused by learning diversity.

On the one hand, learning diversity improves radical innovation strategy with latent benefits: teams that vary in their learning behaviors have access to more non-overlapping information, thus allowing the TMT to engage in cognitive conflict (Amason, 1996) and identify more opportunities for radical innovation (Bengtsson et al., 2020). Learning diversity may also enhance cognitive structures that improve a team's ability to combine information (Heavey & Simsek, 2017). This broader knowledge base, combined with the mindset to integrate information, can thus lead to truly innovative combinations of knowledge.

On the other hand, learning diversity also features latent costs that reduce the team's motivation to exploit radical innovation. In regular work tasks, excessive diversity may result in confusing situations where "too much variety can impede learning" (Narayanan et al., 2009). Heterogeneity in cognitive frames can harm communication in ways that lead to conflict (Bengtsson et al., 2020). This higher frequency of conflict can reduce the benefits of team learning (Bunderson & Boumgarden, 2010). As a result, diverse teams may not develop the team cohesion necessary for strong performance (Huckman et al., 2009), radically innovative strategies (Aggarwal & Woolley, 2013), and pursuing risky strategies (Crossan, 1998; Magni et al., 2009). This tendency of TMT learning diversity to reduce cohesion and increase relational conflict can therefore also prevent the adoption of radical innovation strategies.

These two countervailing latent forces make learning diversity a double-edged sword: learning diversity helps TMTs identify radically innovative strategies while simultaneously hampering their implementation (Aggarwal & Woolley, 2013). Following the methods literature on countervailing latent forces, these two factors, one positive and one negative,

combine to form an inverted U-shape (Haans et al., 2016). To understand the logic behind this inverted U-shape, let us consider three points: low, high, and medium levels of learning diversity.

Teams with low learning diversity are highly cohesive (Janis, 1982) in a way that creates a sense of control and motivates the team to pursue radical innovation (Crossan, 1998; Magni et al., 2009). However, motivation is not a sufficient condition for adopting a radical innovation strategy. TMTs must also collect and process non-overlapping information on potential opportunities to develop radical innovation strategies (Yli-Renko et al., 2001; Zhang et al., 2018). Very homogeneous TMTs lack this diverse knowledge and find themselves unable to identify promising innovations (Amason, 1996). As a result, TMTs with low learning diversity are willing to pursue radical opportunities but cannot identify them, forcing them to converge on incremental innovation strategies.

Teams with high learning diversity, in contrast, have the potential to identify radical innovation strategies but lack the necessary team cohesion to integrate them (Zahra, 2008, 2012). Excessively diverse knowledge bases make sharing of information too difficult for team members to engage in effectively (Atuahene-Gima & Murray, 2007) so that implementation of new insights becomes demanding. Sirén and Kohtamäki (2016) showed that extensive knowledge acquisition can burden the process of joint sensemaking in SMEs, causing too diverse knowledge inputs to the strategy process of the organization. Highly diverse teams have considerable non-overlapping knowledge but fail to engage in meaningful informal conversations (Bengtsson et al., 2020), which are essential for developing radical innovations (Slater et al., 2014). This is one of the potential tradeoffs of learning (Levinthal & March, 1993). If TMT members differ greatly in how much they engage in learning behaviors, then the resulting dispersed information can cause inconsistent knowledge bases on which capabilities are being revised (Sirén & Kohtamäki, 2016). Moreover, Amason (1996) found that affective conflict, which tends to appear in excessively diverse teams, lowers decision quality, commitment, and understanding. Excessive diversity may therefore result in a scenario in which TMT members have the potential to generate radically innovative ideas (i.e., rich knowledge base) but cannot align their behaviors well enough to turn them into firm strategy (i.e., inconsistent strategic thinking about radical innovation).

In contrast, teams with medium levels of learning diversity combine the best of both worlds (see Fig. 1). These teams are sufficiently diverse to come up with radical innovation strategies (Bengtsson et al., 2020) and coherent enough to implement them (Heavey & Simsek, 2017). As a result, teams with medium levels of learning diversity can produce the most radical innovation strategies.

Hypothesis (H1). There is an inverted U-shaped relationship between TMT learning diversity and how radical an SME's innovation strategy is, such that

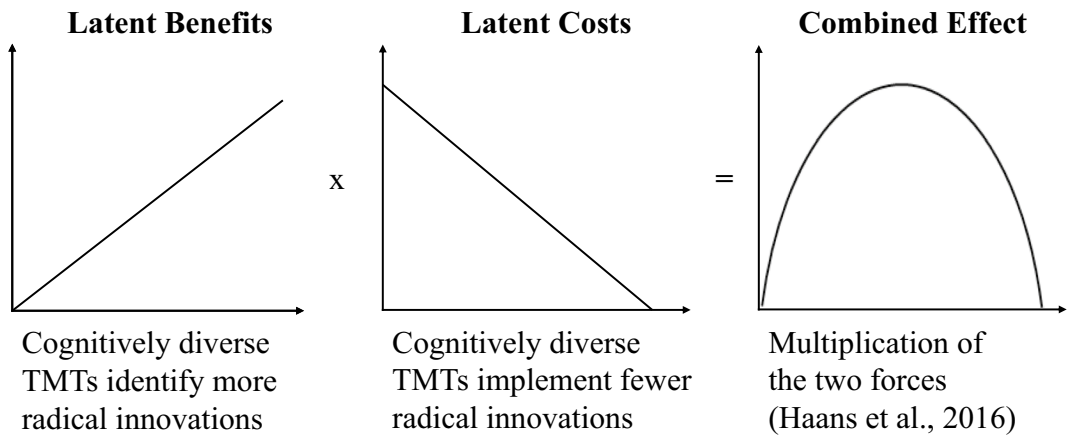

Fig. 1 Multiplication of latent benefits and costs of learning diversity. Note: *X* axes: TMT learning diversity; *Y* axes: radically innovative strategy

TMTs with moderate levels of learning diversity tend to devise more radically innovative strategies than those with low or high levels of learning diversity.

2.4 CEO power

Power differences in TMTs have the potential to harm organizational learning (Bunderson & Reagans, 2011). For example, power differences create an environment in which lower-ranking team members do not feel sufficiently safe to engage in experimental learning (Edmondson, 2002) and are less inclined to focus on achieving collective goals (Overbeck & Park, 2006). Most TMT power differences relate to CEOs whose managerial discretion makes them pivotal roles in strategic decision making and influencing the firm's main stakeholders (Blagoeva et al., 2020; Lewellyn & Fainshmidt, 2017). CEO power comes in different forms, such as structural power that stems from organizational hierarchies (e.g., where the CEO is also the chairperson of the board) or informal power that results from expertise and prestige (e.g., serving on external boards: Lewellyn & Fainshmidt, 2017; Van Essen et al., 2015). In this study, we argue that formal structural CEO power and informal prestige CEO power have profoundly different effects on the integration of diverse information within the TMT.

2.4.1 The moderating role of CEO structural power

Perhaps the most common type of CEO power is structural power, which is based on organizational structure and hierarchical authority (Finkelstein, 1992). We propose that structurally powerful CEOs (i.e., CEOs who are also chairperson of the board) may quash the latent benefits of TMT learning diversity for two reasons. First, CEOs with high structural power may prevent the generation of radically innovative ideas. High structural power of CEOs inhibits constructive debates and open discussions (Blagoeva et al., 2020; McNulty & Pettigrew, 1999; Park et al., 2011). The unequal distribution of power in the team decreases the exchange of information (Bunderson & Reagans, 2011), preventing the serendipitous combination of different ideas to radically innovative strategies. Furthermore, leaders who have consolidated power may seem controlling and authoritarian, reducing the psychological safety that is required for innovative team-learning and experimentation processes (Edmondson, 2002).

Second, structurally powerful CEOs rely on their own judgment to steer the firm's strategic agenda (Blagoeva et al., 2020; Zhang, 2006). This leads them to undervalue advice from other TMT members (Tost et al., 2012). The same happens to other team members who tend to allocate disproportionate weight to the perspectives of higher-power members while neglecting the contributions of lower-power members (Berends & Lammers, 2010; Bunderson & Reagans, 2011; Galinsky et al., 2006). These distorted decision-making processes render the informational input of most TMT members less meaningful and leave little room for radical innovations.

In Hypothesis 1, we argued that learning diversity generates non-overlapping information that can produce more radical innovation strategies but also reduces the ability to implement these strategies due to a lack of team cohesion. Following the previously outlined latent force argument, we expect that high structural CEO power nullifies the positive informational influence of learning diversity by preventing the generation and implementation of radically innovative strategies. As a result, only the conflict-prone part remains, turning the overall effect of learning diversity on radical innovation strategy under high CEO structural power negative.

Hypothesis (H2). The relationship between TMT learning diversity and the radicalness of innovation strategy is moderated by CEO structural power. The relationship describes an inverted U-shape under low CEO structural power that becomes predominantly negative under high CEO structural power.

2.4.2 The moderating role of CEO prestige power

CEO prestige power is based on the CEO's reputation and standing within the firm's institutional environment (Blagoeva et al., 2020; Finkelstein, 1992), and is measured as the number of external board appointments. We propose that the social and human capital of prestigiously powerful CEOs can serve coordinating functions (Blagoeva et al., 2020), reducing the latent costs of TMT learning diversity in implementing radical innovation.

CEOs with a lot of social capital often receive valuable information on business conditions from external corporate board assignments and their broad social network (Chen et al., 2008; Palmer & Barber, 2001). These external relationships create a network of strong ties that allows CEOs to activate a broader set of useful contacts (Jack, 2005) as well as integrate knowledge about other firms' market entry decisions into strategic planning (Tuschke et al., 2014). This gives prestigiously powerful CEOs the ability to leverage their human capital to prevent structural holes that would put their company at a competitive disadvantage (Burt, 2014). Their ability to broker connections between disconnected segments allows them to position all diverse team members where it is to the company's advantage (Burt, 2001). Having integrators like this in the organization can make learning processes more efficient (Stan & Puranam, 2017). Their increasingly broad network may also earn prestigious CEO additional external roles, creating a virtuous cycle of human and relational capital. These managers can promote coordination across units without relying on formal authority (Stan & Puranam, 2017). Their network helps prestigious CEOs who preside over diverse teams reconcile contradictory information (Blagoeva et al., 2020), allowing TMTs to stay effective under uncertainty (Flickinger et al., 2016).

In addition, prestigious CEOs are more effective at coordinating independent actions (Blagoeva et al., 2020). Their experience in influencing a variety of different stakeholders has trained them to cope with team differences (Johnson et al., 2013). When TMT members disagree, prestigious CEO are better equipped to save team cohesion (Levine & Moreland, 1990), which, in turn, increases team learning (Van der Vegt et al., 2010). By aligning individual and group goals, prestigiously powerful CEOs preserve team cohesion and align learning processes in a way that benefits the overall team (Bunderson & Reagans, 2011). As the positive effects of learning diversity prevail, the overall effect on radical innovation under high CEO prestige power turns positive.

> Hypothesis (H3). The relationship between TMT learning diversity and the radicalness of innovation strategy is moderated by CEO prestige power. The relationship describes an inverted U-shape under low CEO prestige power that becomes predominantly positive under high CEO prestige power.

Figure 2 presents our theoretical model of TMT learning diversity and power-based model of SME innovation.

3 Methodology

3.1 Study context

We collected data from information technology (IT) SMEs to focus on organizations in which TMTs play a salient role in innovation processes (Lubatkin et al., 2006). Furthermore, we limited our data collection to IT firms in Finland due to the sector's importance sector for Finland's knowledge-intensive innovation economy (Dutta et al., 2018).

We collected data in two rounds. The first round of data collection began in 2012, when the IT industry in Finland was growing at the same speed as the European IT services market (Rönkkö & Peltonen, 2012). First, we collected company information from *Statistics Finland*, a public authority that manages a register of all Finnish companies that pay value-added tax. More specifically, we collected data on SMEs with 5–499 employees and that were listed in the industry classification associated with computer

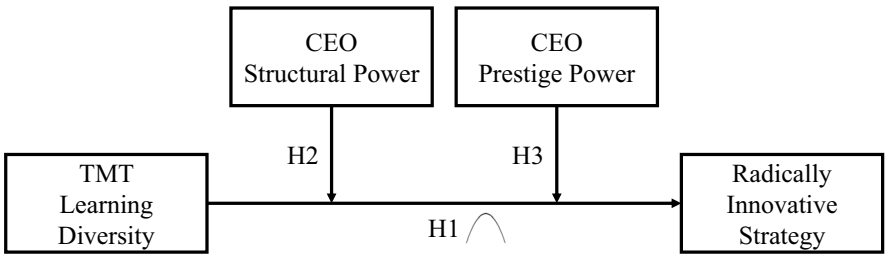

Fig. 2 TMT learning diversity and power-based model of SME innovation strategy

programming and the like (Class 62 of the Standard Industrial Classification 2008). This resulted in 1089 companies. Using information provided on the respective companies' websites, we verified the CEOs' email addresses, phone numbers, and industry sector. This process eliminated 314 companies that did not actually belong to the industry focus with which they were listed or that had no contact information. Next, we contacted the CEOs of the remaining 775 companies by phone and invited them to take part in the study. Of the CEOs contacted, 287 agreed to take part and were emailed a link to the web-based survey.

We conducted our first round of data collection by surveying the respondents in their native language after using a back-translation (Brislin, 1986). Two reminders were sent out at 3-week intervals. A total of 149 CEOs responded to the survey, giving us a total response rate of 51.92% among those who agreed to take part and a response rate of 19.22% among the initial sampling pool of 775 firms. In the survey, we asked CEOs to provide the contact information of the TMT members with whom they are involved in strategic decision-making (Hambrick & Mason, 1984). Next, we sent a second survey to the identified TMT members (see Collins and Clark (2003) for a similar approach). Of 292 identified TMT members, 217 responded, yielding a response rate of 74.32%. During this round of data collection, we collected data on TMT learning behavior, TMT education, TMT age, TMT gender, TMT size, and firm age. *T*-tests of the age, profit, and revenue of responding and non-responding firms showed no significant difference between the two groups. There also was no statistically significant difference between early and late respondents.

In 2016, we approached the CEOs again and surveyed them on their companies' innovation strategy and proactive culture. We chose this time lag because high uncertainty and barriers mean that radical innovation strategy takes a notoriously long to materialize (Talke et al., 2010). Following the research guideline that the time lag should fit the process under observation (Podsakoff et al., 2003), we chose a time lag of four years, which is consistent with most national innovation surveys (Mairesse & Mohnen, 2010).

Of the 149 participating firms, 138 were still operational when we conducted our follow-up survey. In 18 cases, the CEO who completed the first survey had left the company, so we contacted the new CEO. Of the 138 contacted CEOs, 101 completed our survey, resulting in a response rate of 73.18%. In 77 of these cases, we had enough TMT responses to calculate our learning diversity measure. The final sample therefore comprised 77 TMTs, represented by 241 team members. This sample size is consistent with other team learning studies (see Edmondson and Nembhard (2009) for a review of sample sizes in team learning research) as well as those of team dynamics in SMEs (e.g., Miao et al. (2019) feature 262 individuals in 56 TMTs). Moreover, our overall sampling (77 companies out of an initial sampling pool of 775 companies; 9.93%) matches that of other recent studies that investigate TMT diversity (e.g., 6,30%, Bengtsson et al., 2020).

As the last step of our data collection, we complemented the survey data with objective firm-level indicators. Using the *Orbis* database, we collected data on the firms' number of employees, firm age, and patents at the time of the first survey, and data on the firm's financial slack for all years of the study. In Finland, non-listed, private companies are required to file statements including their board appointments to the Finnish Patent and Registration Office. This allowed us to collect data on CEO structural and prestige power (e.g., number of external board appointments).

On average, the SMEs in our sample have 19.64 employees (SD = 22.47) and are 12.42 years old (SD = 6.76). Their average current ratio is 2.01 (SD = 1.70), indicating that their current assets are twice their current liabilities. About one-third of the CEOs are also chairperson of the board and CEOs own, on average, 37.86% (SD = 27.81%) of the company. Of the CEOs in our sample, 57.14% hold external board engagements. Only 7.79% companies in our data are led by women CEOs. Of the companies, 6.49% have at least one patent. Respondents, including the CEO ($N = 241$), were predominantly male (83.8%). The average age of the TMT members was 42.05 years (SD = 6.77), and they had 7 years of industry experience (SD = 4.94). Our respondents are highly educated, and over 75% hold a university degree. The mean TMT size was 4.08 members, including the CEO (SD = 1.68). While some recent SME TMT studies report similar TMT size (3.95 in Piaskowska et al., 2022), others report higher TMT sizes (6.07 in Kolev & McNamara, 2022; 6.47 in Narayan et al., 2020; 6.29 in Zhang & Wang, 2020). We therefore acknowledge that the TMTs in our

study are in the smaller end of the TMT sizes represented in recent studies. In addition, our data also showed a high level of stability in the composition of the sampled TMTs, with an average TMT tenure of 6.21 years (SD = 3.96).

3.2 Measures

Learning diversity. We assess learning diversity based on the emphasis TMT members place on learning behaviors. We use the established learning behavior scale by Edmondson (1999), which measures the degree to which TMT members engage in activities such as getting new information from customers or inviting outsiders to discuss things with the SME leadership. Following Liu et al. (2014), we adapt the scale by changing the question from the plural (e.g., *we* do x) to the singular (e.g., *I* do x) to allow an investigation of differences between TMT members. After this collection of individual-level learning behavior data, we measure the learning diversity between TMT members as the separation in their learning behavior (see Jehn et al. (2010) for a similar operationalization). Separation is a type of diversity that focuses on the "composition of differences in (lateral) position or opinion among unit members" in contrast to variety, which describes categorical differences such as gender and disparity, which describe inequalities (Harrison & Klein, 2007, p. 1203). Consistent with Harrison and Klein's (2007) recommendations, we calculate separation with the standard deviation, which ranged from 0.20 to 1.21. Teams with high standard deviations are considered high in learning diversity, while teams with low standard deviations are considered low in learning diversity.

CEO structural power. Structural power is related to the distribution of formal positions within an organization (Finkelstein, 1992). CEOs who are also chairperson of the board have high structural power (Lewellyn & Fainshmidt, 2017). We therefore measure CEO structural power with CEO duality, which indicates whether the CEO has power in both the TMT and the board (Krause et al., 2014). CEO duality is hierarchical power that gives the CEO more discretion, makes them less subject to monitoring, and increases their decision power (Tuggle et al., 2010). CEO duality was coded 1 if the CEO also served as chairperson of the board and 0 if the CEO did not.

CEO prestige power. CEO prestige power describes power that is based on reputation and standing within the institutional environment (Blagoeva et al., 2020). In line with the CEO power literature, we measure CEO prestige power as the number of the CEO's external board engagements (Blagoeva et al., 2020; Finkelstein, 1992; Flickinger et al., 2016). These board appointments signal CEO power by suggesting how well connected, qualified, and networked the CEO is (Triana et al., 2014). More board memberships indicates higher prestige power (Bigley & Wiersema, 2002).

Radical innovation strategy. We measured how radical the firm's innovation strategy was by approaching the CEOs in 2016, 4 years after the initial survey, with an innovation measure by Miron-Spektor and colleagues (2011) that is common in the innovation strategy literature (Lisak et al., 2016; Yildiz et al., 2021). The scale asks participants to divide 100 points among four increasingly radical kinds of innovation activities in a way that reflects how central they are for the operations of the company. The four categories are (1) existing output, (2) incremental change to existing output, (3) mix and match innovations that have been used by others, and (4) develop entirely new breakthrough innovations. A weighted approach then consolidates these values to a single innovation strategy score where higher values represent more radical innovation strategies (Miron-Spektor et al., 2011). This is the dominant approach in recent studies using the scale (e.g., Lisak et al., 2016; Yildiz et al., 2021).

Control variables. We included variables commonly associated with firm innovation strategy but were outside of our theoretical framework. At the firm level, we control for firm size (i.e., number of employees) and age (i.e., years from founding), both of which are shown to increase organizational inertia and decrease innovativeness (Huergo & Jaumandreu, 2004). We further control for financial slack resources as a firm's innovation strategy may vary depending on the level of resources that are unused but readily available (Greve, 2007). Following prior studies, we measure available slack using the firm's current ratio during our study period (Bourgeois, 1981; Daniel et al., 2004). We also control whether the firm had patents (0 = no patents and 1 = one or more patents) to capture the radicalness of its innovation strategy prior to the current study. This allows us to exclude the possibility of our findings being due to a pre-existing culture of radical innovation strategy that is independent of the

current TMT composition. Finally, we controlled for proactive culture as measured by the three-item scale from Covin and Slevin (1989) to account for the firm's general innovation culture (Lyon et al., 2000).

At the team level, prior studies show that TMT demographic diversity is associated with firm innovation (Bengtsson et al., 2020); hence, we controlled for gender and educational diversity, the most common types of demographic diversity, with the Blau index (Blau, 1977). Educational attainment was coded as 1 = high school diploma, 2 = associate degree, 3 = bachelor's degree, and 4 = master's degree. We also controlled for TMT collective learning (the average scores of individual team members' learning behavior) because learning is associated with more innovation (Edmondson et al., 2007). Finally, we controlled for the average age of TMT members because older people tend to be less innovative (Frosch, 2011). Larger TMTs also represent a greater resource of talent and ideas, so we controlled for the number of TMT members.

3.3 Analytical approach

We conducted a hierarchical regression analysis, using clustered robust standard errors for subgroups. Furthermore, we used the statistical classification of economic activities in the European Community (NACE) in all regressions to mitigate concerns about heteroscedasticity and to control for industry-level influences (Rogers, 1994; Williams, 2000; Wooldridge, 2010). To check for the presence of multicollinearity, we calculated the variance inflation factors (VIFs) for each regression model. All VIFs are below the acceptable limit of 5 (O'Brien, 2007), with the highest model mean VIF at 2.00. These values suggest that multicollinearity did not influence our results. Before conducting the regression analysis, we mean-centered all the study and control variables (except for the dummy variables) and interaction terms.

4 Results

4.1 Hypothesis testing

Table 1 presents the descriptive statistics and correlations for all the variables. Table 2 presents the results of the regression analysis.

As the baseline model, model 1 contains only the control variables. Of the control variables connected to possible inertia arguments, firm size is negatively but marginally significantly associated with innovation strategy ($\beta = -0.18$, $p = 0.088$) while firm age is not ($\beta = -0.76$, $p = 0.220$). Team characteristics related to TMT gender diversity ($\beta = -10.17$, $p = 0.440$), TMT educational diversity ($\beta = -18.28$, $p = 0.352$), and TMT average age ($\beta = 0.01$, $p = 0.991$) are not significantly associated with innovation strategy. This is not surprising given the homogeneous nature of our respondents' demographic characteristics. However, TMT collective learning ($\beta = 26.70$, $p = 0.002$) and TMT size ($\beta = 2.66$, $p = 0.089$) are positively related to innovation strategy. The coefficient between slack resources and innovation strategy is not significant ($\beta = -2.79$, $p = 0.332$), while the coefficients for patenting ($\beta = 48.61$, $p = 0.042$) and proactive culture ($\beta = 15.86$, $p = 0.001$) are positive and significant.

Model 2 tests the linear effect of learning diversity on the firm's innovation strategy. Here, learning diversity is not associated with a firm's innovation strategy ($\beta = -8.45$, $p = 0.604$), suggesting that there is no linear relationship between learning diversity and firm innovation strategy.

Model 3 formally tests Hypothesis 1, which proposes an inverted U-shaped relationship between learning diversity and the radicalness of a firm's innovation strategy. This model explains 31% of the variance in innovation strategy, and the Wald linear restriction test showed it improves significantly on model 2 ($\Delta R^2 = 0.01$, $F = 23.68$, $p = 0.001$). These results show that the relationship between learning diversity and the radicalness of a firm's innovation strategy is an inverted U-shape ($\beta = -111.80$, $p = 0.001$). Figure 3 illustrates the marginal effect of learning diversity on innovation strategy. None of the 90% confidence intervals of these effects contain 0, signifying that the proposed relationship is significant at all levels of learning diversity. The plot shows that the positive effect of TMT learning diversity increases initially and then starts to diminish once learning diversity exceeds −0.02 (the turning point), producing an inverted U-shaped relationship. This supports Hypothesis 1.

Model 4 tests the direct effect of both CEO structural and prestige power on a firm's innovation strategy. The coefficient for CEO structural power is

Table 1 Means, standard deviations, and correlations

	Variables	Mean	S.D	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Radically innovative strategy	222.08	49.89	115.00	370.00	1.00												
2	TMT learning diversity	0.74	0.20	0.20	1.21	−0.06	1.00											
3	CEO structural power	0.34	0.48	0.00	1.00	0.13	0.18	1.00										
4	CEO prestige power	1.55	2.79	0.00	19.00	0.15	−0.08	−0.01	1.00									
5	Firm size	19.64	22.47	4.00	150.00	0.08	−0.28	−0.26	0.30	1.00								
6	Firm age	12.42	6.76	1.00	30.00	−0.17	−0.05	−0.04	−0.14	0.02	1.00							
7	TMT gender diversity	0.00	0.22	−0.17	0.33	−0.10	−0.05	−0.04	−0.05	−0.07	−0.10	1.00						
8	TMT educational diversity	0.00	0.20	−0.39	0.28	−0.17	−0.02	0.08	−0.29	-0.3	−0.11	0.24	1.00					
9	TMT average age	42.05	6.77	28.00	55.00	−0.10	−0.14	−0.18	−0.29	0.22	0.32	−0.03	0.05	1.00				
10	TMT learning mean	3.70	0.34	2.96	4.64	0.31	−0.24	−0.12	0.12	0.23	−0.16	−0.13	−0.12	−0.08	1.00			
11	TMT size	4.08	1.68	2.00	10.00	0.22	−0.05	−0.35	0.23	0.51	−0.09	0.06	−0.2	0.02	0.14	1.00		
12	Slack resources	2.01	1.70	0.32	12.84	−0.21	0.01	0.09	−0.02	−0.06	0.03	−0.03	0.05	0.16	−0.16	−0.15	1.00	
13	Patenting	0.06	0.25	0.00	1.00	0.22	0.04	0.15	−0.13	−0.07	0.00	−0.01	−0.04	0.12	−0.01	0.02	0.07	1.00
14	Proactive culture	3.51	0.92	1.00	5.00	0.41	-0.08	−0.10	0.25	0.23	−0.14	−0.13	−0.21	−0.18	0.30	0.35	−0.28	−0.07

$N = 77$ firms. All correlations |0.22| and above are significant at 0.05 or below (two-tailed). Based on unstandardized values

Table 2 Hierarchical regression analysis results

Dependent variable: radically innovative strategy	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	β	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*β*	*SE*	*B*	*SE*
Control variables														
Firm size	−0.18†	0.09	−0.21*	0.09	−0.21†	0.10	−0.23*	0.09	−0.16	0.09	−0.27*	0.10	−0.20†	0.10
Firm age	−0.76	0.57	−0.78	0.61	−0.63	0.61	−0.58	0.59	−0.41	0.64	−0.68	0.62	−0.37	0.65
TMT gender diversity	−10.17	12.52	−10.89	13.54	−2.86	13.28	0.75	16.58	4.90	17.19	4.70	11.74	11.45	15.26
TMT educational diversity	−18.28	18.49	−19.08	18.10	−23.14	18.05	−25.64	18.62	−21.25	21.71	−30.68	17.91	−25.02	21.54
TMT average age	0.01	0.52	−0.01	0.51	0.06	0.48	0.46	0.55	0.69	0.61	0.30	0.54	0.92	0.71
TMT learning mean	26.70**	5.89	25.64***	4.99	26.69***	5.25	29.14***	5.36	30.78**	6.46	24.69**	5.02	27.78**	6.39
TMT size	2.66†	1.37	2.79†	1.25	2.83†	1.29	5.12**	1.15	4.73**	1.23	3.16*	1.16	4.64**	1.10
Slack resources	−2.79	2.70	−2.82	2.80	−2.45	2.56	−2.78	2.46	−2.11	2.50	−2.22	2.94	−2.01	2.86
Patenting	48.61*	20.13	48.74*	20.27	44.26†	22.36	35.68†	17.14	36.33	20.72	43.60†	21.85	35.74	19.43
Proactive culture	15.86**	3.33	15.76**	3.24	15.94**	3.29	15.30**	4.14	19.24***	3.38	15.72**	3.21	19.64***	3.54
Direct effects														
TMT learning diversity			−8.45	15.66	−5.16	14.00	−11.32	12.89	17.70	19.74	−8.02	15.04	10.69	21.63
TMT learning diversity squared					−111.80**	22.98	−137.20***	18.51	−227.70***	30.41	−52.72	45.82	−124.10**	28.70
CEO structural power							24.23**	6.20	16.88*	5.59			18.28**	4.38
CEO prestige power							1.42	3.93			−0.27	3.96	−3.42	3.44
Moderation effects														
TMT learning diversity × CEO structural power									−66.53*	21.57			−76.61*	23.23
TMT learning diversity squared × CEO structural power									251.90**	73.01			262.10*	93.65
TMT learning diversity × CEO prestige power											33.49*	13.76	13.06	11.71
TMT learning diversity squared × CEO prestige power											231.5*	91.43	339.90*	120.30
Log-likelihood	−396.18		–396.127		−395.43		−392.94		−391.55		–394.15		–389.70	
LR-statistics	27.27***		27.37***		28.76***		33.74**		36.52***		31.32***		40.23***	
R^2	0.30		0.30		0.31		0.36		0.38		0.33		0.41	
ΔR^2			0.00		0.01**		0.05**		0.07***		0.02*		0.05***	

$N = 77$ in all models. Huber-White sandwich robust standard errors clustered by NACE codes in parentheses. Significances after ΔR^2 change are from a Wald linear restriction test. Model 5 and 6 R^2s were compared to model 3 R^2, and model 7 R^2 was compared to model 4. †< .10, *p < .05, **p < .01, ***p < .001 (two-tailed tests)

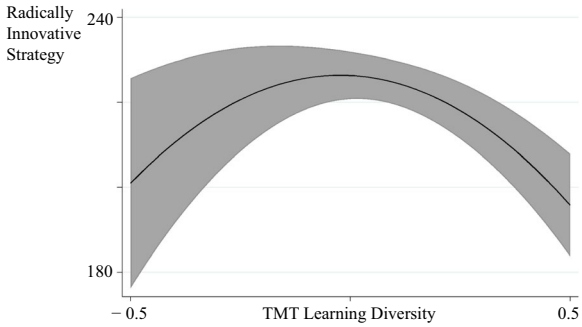

Fig. 3 Curvilinear main effect of learning diversity on venture innovation strategy. Note: The grey area around the curve represents 90% confidence intervals

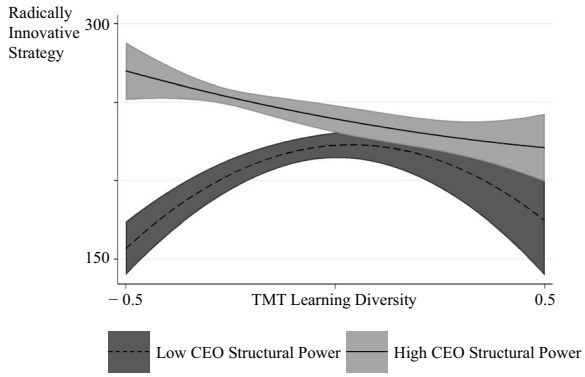

Fig. 4 CEO structural power moderates the effect of TMT learning diversity on innovation strategy. Note: The grey areas around the curves represent 90% confidence intervals

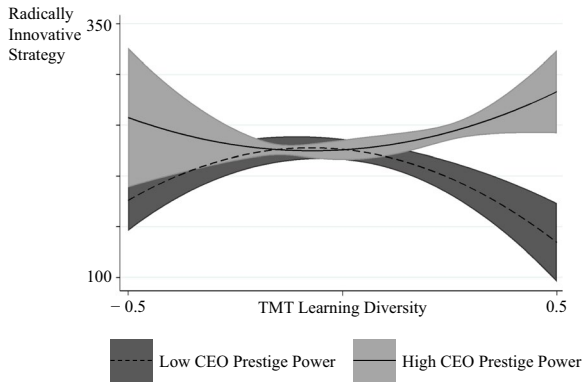

Fig. 5 CEO prestige power moderates the effect of TMT learning diversity on innovation strategy. Note: The grey areas around the curves represent 90% confidence intervals

positive and significant ($\beta = 24.23$, $p = 0.005$), while the coefficient for CEO prestige power is not significant ($\beta = 1.42$, $p = 0.727$).

Model 5 evaluates Hypothesis 2, which predicts that the inverted U-shaped relationship between learning diversity and the radicalness of a firm's innovation strategy is moderated by CEO structural power. The results show that the coefficient associated with this interaction term is positive and significant ($\beta = 251.90$, $p = 0.009$). Figure 4 illustrates this moderating effect (low structural CEO power means that the CEO is not the chairperson of the board; high structural CEO power indicates that they are chairperson of the board). It confirms that the relationship remains inverted U-shaped under low CEO structural power but becomes predominantly negative under high CEO structural power. Together, these results provide strong support for Hypothesis 2. This model explains 38% of the variance in a firm's innovation strategy, significantly more than the curvilinear baseline model without moderators (model 3) ($\Delta R^2 = 0.07$, $F = 24.72$, $p = 0.000$). These results support Hypothesis 2.

Model 6 tests Hypothesis 3, which predicts that the inverted U-shaped relationship between learning diversity and the radicalness of a firm's innovation strategy is moderated by CEO prestige power. The results confirm that the coefficient associated with this interaction term is positive and significant ($\beta = 231.50$, $p = 0.035$). Figure 5 depicts this relationship for CEO prestige power when it is low (one standard deviation below the sample mean) and high (one standard deviation above the sample mean). It confirms our prediction that the relationship remains inverted U-shaped under low CEO prestige power but becomes predominantly positive under high CEO prestige power. At low levels of TMT learning diversity (the positive section of the inverted U-shape), the relationship is not significantly different but at high levels of TMT learning diversity a significant difference emerges: under low CEO prestige power, increases in TMT learning diversity are linked to less radically innovative strategies but under high CEO prestige power, increases in TMT learning are linked to more radically innovative strategies. The model explains 33% of the firm innovation strategy variance, significantly improving the curvilinear baseline model without moderators (model 3) ($\Delta R^2 = 0.02$, $F = 5.56$, $p = 0.023$). This supports Hypothesis 3.

Additionally, we include all the estimated relationships in a full model (model 7). Results from model 7 are consistent with results from models that tested the relationships separately, confirming all the hypothesized relationships.

4.2 Robustness analyses

First, we followed prior firm-level innovation studies (e.g., Smith et al., 2005) that test construct validity of innovation measures by correlating them with R&D expenditure. Similar to Wolff and Pett (2006), we asked CEOs to compare their R&D investments to the industry using a five-point scale (1 = lowest 20% of firms in the industry; 5 = highest 20% of firms in the industry). Our measure of firm innovation strategy is positively correlated with the firm's R&D intensity ($r = 0.41$, $p = 0.002$) and whether the firm holds patents ($r = 0.22$, $p = 0.05$), an alternative measure of radical innovation (Shkolnykova & Kudic, 2022), lending additional support to the validity of our measure.

Next, we checked whether the results are robust to alternative measures of TMT learning diversity. The other commonly used measure for dispersion is Euclidean distance, calculated as the root mean squared distance between each pair of TMT members (see Harrison and Klein (2007) for a discussion):

$$\textit{Euclidean distance} = \sum\nolimits_i \sqrt{[\sum\nolimits_j (S_i - S_j)^2 / n]} / n$$

We tested all hypotheses by using Euclidean distance: the relationship between learning diversity and a firm's innovation strategy is also inverted U-shaped ($\beta = -56.25$, $p = 0.000$) and moderated by CEO structural power ($\beta = 229.01$, $p = 0.048$) and marginally significantly moderated by CEO prestige power ($\beta = 251.13$, $p = 0.054$).

Moreover, we validated the robustness of the inverted U-shaped relationship between learning diversity and innovation strategy using the tests suggested for U-shapes (Haans et al., 2016; Lind & Mehlum, 2010). We first tested the slope of the inverted U-shaped relationship at the ends of the data range and found that the left-hand slope is positive and significant ($\beta = 114.75$, $p = 0.006$) and the right-hand slope is negative and significant ($\beta = -111.19$, $p = 0.000$). Second, we confirmed that the turning point (−0.023, mean-centered value) is within the data range (−0.54 to 0.47, mean-centered values). Third, to avoid a misleading interpretation due to model misspecifications, we tested whether there is a cubic relationship and found that it was not significant ($\beta = 47.93$, $p = 0.776$). Fourth, to ensure that the results are not driven by outliers, we winsorized learning diversity at the 98th percentile. The inverted U-shaped relationship remained significant ($\beta = -91.12$, $p = 0.009$).

Furthermore, there are other types of power than structure and prestige. Perhaps the best-known other type is CEO ownership power, which is the amount of equity held by the CEO (Daily & Johnson, 1997). To test whether CEO ownership power moderates the inverse U-shape relationship between TMT learning diversity and the radicalness of a firm's innovation strategy, we first added CEO ownership power as a stand-alone moderator (without CEO structural and prestige power) and found that it moderates the main effect ($\beta = 132.23$, $p = 0.010$) in a similar manner to CEO structural power. However, when added to the overall model that includes the other moderators (model 7 in Table 2), the moderation becomes insignificant ($\beta = 42.97$, $p = 0.579$). Because the correlation between CEO structural power and CEO ownership power is relatively high ($r = 0.39$), we conclude that CEO structural power captures similar dynamics as higher ownership power, in that both represent a formal hierarchy. This gives additional support to our measures and conceptual separation of CEO power into a more formal and a more informal kind.

Finally, we investigated whether the inverted U-shaped relationship between learning diversity and the radicalness of a firm's innovation strategy is moderated by coexisting types of CEO power (Blagoeva et al., 2020). We tested a four-way interactive model between learning diversity squared, CEO structural power, and CEO prestige power but the compounded interaction effect was not significant ($\beta = -18.59$, $p = 0.982$).

5 Discussion

This study showed a nuanced effect of TMT learning diversity on radical innovation strategy. Moreover, we found that CEO structural power nullifies the informational benefits of learning diversity, whereas CEO prestige power mitigates its relational drawbacks. The

resulting pattern is an inverted U-shaped baseline relationship between learning diversity and firm radical innovation strategy that becomes predominantly negative under structurally powerful CEOs and predominantly positive under prestigious CEOs.

5.1 Implications for theory

Our findings make several contributions to theory. First, we contribute to the learning literature with an investigation of actual differences in learning behavior. While differences between team members can considerably influence outcomes, few learning studies have considered these differences: research either uses mean scores for team learning (Kostopoulos et al., 2013) or investigates learning from diversity outside the organization (e.g., Fang et al., 2018). Our investigation of actual behavioral differences within TMTs, rather than demographic proxies, responds to a long-standing call to open the "black box of organizational demography" (Lawrence, 1997, p. 1) and study "the actual information processing behaviors of managers" (Talke et al., 2010, p. 915).

Second, our study extends social hierarchy research by addressing the call to show how power structures affect learning processes (Bunderson & Reagans, 2011). More specifically, we differentiate between the diversity-related mechanisms that drive benefits and costs of organizational learning, before outlining how they interact with structural and prestige CEO power. This adds nuance to the debate on whether power facilitates or stifles innovation (Bunderson & Reagans, 2011; Bunderson & Sanner, 2017): while structural power prevents most virtuous effects of learning diversity, prestige power helps create an environment in which teams can benefit substantially from learning diversity. This relationship makes learning diversity an important but previously undiscussed aspect of organizational learning (Argote et al., 2021).

Third, our study advances the literature on innovation in SME, which structurally differ from more commonly studied larger firms (Argote et al., 2021; Sirén et al., 2017). While SME radical innovation are the focus of a new research impulse that situates it in the broader competitive landscape (also see Audretsch et al., 2022), most TMT innovation studies focus on attention, resource allocation, and engagement in innovation projects (Eesley et al., 2014). We introduce TMT learning diversity to shed light on one of the behavioral micro-foundations of firm innovation.

5.2 Implications for practice

Turning to current practice in SMEs, we note that management often relies on innovation strategies to gain a competitive edge but pays little attention to learning diversity. Our results suggest that a firm's radical innovation strategy rises and falls with learning diversity and that firms should assess their behavioral differences to optimize processes. This may help them connect the ability to develop radical innovations to the capacity to implement them. Our results also show that CEOs' structural power (originating from their formal position) and prestige power (originating from their network) have far-reaching implications. These two forms of power have opposite effects on the link between TMT learning diversity and firm innovation strategy. The benefit-nullifying effect of CEO structural power connects to one of the fundamental questions of governance (Krause et al., 2014): should the two most powerful roles, CEO and chairperson of the board, be joined or separated?

Our study suggests that companies that want to leverage learning diversity for their radical innovation strategy should separate these positions. If this is impossible, then the company should find other ways to mitigate power differences within the TMT (e.g., create more inclusive decision-making procedures in the TMT). Moreover, the coordinating effect of CEO prestige power implies that companies seeking to maximize the benefits of a diverse TMT should encourage their CEOs to serve on external boards. These external engagements bring dual benefits: external board memberships enable CEOs to leverage an elite network through which they can access valuable and timely information, and they bestow prestige on the CEO, which helps coordinate TMT actions and resolve disagreements (Blagoeva et al., 2020).

5.3 Limitations and directions for future research

Our study has several limitations that call for further research. First, we relied on the CEOs' assessment of their firms' innovation strategy. While CEOs have an overview of the firm's strategic direction and innovation portfolio, CEO evaluations may suffer from

subjective biases. Future research should find novel ways to triangulate the CEOs' evaluation with objective data from the firm. Second, like extant research (e.g., Miller et al., 1998), we assume that learning diversity is stable over time. However, Kilduff et al. (2000) show that teams with improving performance exhibit decreasing cognitive diversity. It would therefore be interesting to explore whether a firm's innovation strategy enhances or decreases learning diversity over time. Third, in this study, we captured two forms of CEO power—structural and prestige power. However, there are many other types of power, such as ownership and expert power (Finkelstein, 1992) that future research could investigate.

Finally, we collected data from SMEs in the IT industry, where innovation strategies are essential. We chose this sector because it allows us to explore our research question while excluding alternative explanations associated with other industry sectors. Nonetheless, our singular focus makes the generalizability of our results challenging. For example, the role of top executives might be particularly salient in technology SMEs. A potential boundary condition of our theorizing is TMTs' high involvement in making a firm's innovation strategy and their influence on a firm's innovation activities. Future research could test the extent to which our findings hold in contexts where TMTs are less (or more) influential.

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