

Achieving strategic renewal: the multi-level influences of top and middle managers' boundary-spanning

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Abstract Drawing on corporate entrepreneurship (CE) and social network research, this study focuses on strategic renewal as a form of CE and examines the impact of boundary-spanning at top and middle management levels on business units' exploratory innovation. Analyses of multi-source and multi-level data, collected from 72 top managers (TMs) and 397 middle managers (MMs) operating in 34 units of a multi-national organization, indicate that TMs' boundary-spanning is positively related to units' exploratory innovation, but also has a cascading effect on MMs by increasing their perceived role conflict. MMs' role conflict is negatively related to units' exploratory innovation and thus offsets some of the benefits gained through TMs' boundary-spanning activities. Taking a

configurational perspective on social exchanges at multiple levels, we show that role conflict is reduced by overlapping boundary-spanning ties among TMs and MMs. Surprisingly, MMs' boundary-spanning does not relate to exploratory innovation. Our study shows that with regard to boundary-spanning, a top-down approach to CE as strategic renewal may be most effective because TMs play a key role in driving exploratory innovation. However, TMs need to be aware of the cascading social liabilities of their boundary-spanning behavior and ensure MMs develop similar networks. We advance ongoing debates in studies about CE and social networks by providing empirically validated insights into who drives strategic renewal and by uncovering the benefits and costs of social exchanges for strategic renewal. Furthermore, we uncover potential causes of mixed findings in network theory research and highlight a remedy to social liabilities.

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1 Introduction

Research has emphasized that large organizations have to embrace corporate entrepreneurship (CE) to cope with today's competitive and uncertain business

environments (Dess et al. 2003; Ireland et al. 2009; Morris et al. 2010). The concept of CE describes “the process whereby an individual or a group of individuals, in association with an established organization, create a new organization, or instigate renewal or innovation within that organization” (Sharma and Chrisman 1999: 18). Promoting CE is important because it helps organizations to regenerate competitive advantages through product and process innovations, developing markets, and fostering strategic renewal (Ireland et al. 2006). Indeed, strategic renewal is a form of CE that allows the firm to capture new product–market opportunities (e.g., Dess et al. 2003; Guth and Ginsberg 1990; Hitt et al. 1999; Covin and Miles 2006).

Despite the importance of strategic renewal, scholars have also noted that achieving it presents a challenge as business unit managers struggle in the shift from deploying existing competencies to developing new ones (Floyd and Lane 2000). Indeed, it is particularly challenging for organizational units and their managers “to abandon past successful behaviors and explore” (McNamara and Baden-Fuller 1999: 292). Exploration involves the search for new organizational routines and the discovery of new approaches to technologies and product–market combinations (McGrath 2001). Accordingly, prior research suggests that units’ exploratory innovation is the key underlying activity of strategic renewal (e.g., Jansen et al. 2006; Ren and Guo 2011). Units that do not master exploration will not be able to rethink and reinvigorate their competitive position (Dess et al. 2003), e.g., by meeting the needs of emerging customers and markets (Benner and Tushman 2003; Danneels 2002). In explaining unit exploratory innovation, two main debates have emerged. The first concerns, who is driving renewal activities of business units—top managers (TMs) or middle managers (MMs), i.e., whether a top-down or rather a bottom-up approach is more effective (cf. Burgelman 1983; Kuratko et al. 2005; Ren and Guo 2011). The second concerns the role of social exchanges, i.e., boundary-spanning of different actors in the hierarchy for the manifestation of CE as strategic renewal (Dess et al. 2003; Kleinbaum and Tushman 2007). Taking the notion of social exchanges of TMs and MMs a step further, we also make the argument and show why a multi-level perspective on network configurations in CE research is even more insightful—especially when

considering also social liabilities and associated remedies—than single-level perspectives.

Prior research acknowledges the fact that managers play different roles based on their position within the managerial hierarchy and that, as such TMs and MMs are distinct both in terms of their activities and of the effects these activities have on organizational outcomes (Floyd and Lane 2000). One important difference between TMs and MMs is that the roles of TMs are predominantly decision-making roles (Carpenter et al. 2004), whereas the roles of MMs focus on communicating information between operations and top-level management, developing tactical objectives, and executing strategies (Kuratko et al. 2005; Huy 2001). The controversy lies in some studies pointing to MMs as the main drivers of entrepreneurial initiatives, while others stress the important role of TMs (Hornsby et al. 2009; Raes et al. 2011). The characteristics and distinct roles of top and middle management provide reasons to show how each of these two groups may be a central player in CE activities (Wooldridge et al. 2008). However, most likely, it is not one or the other, but the joint involvement that determines their impact on unit renewal activities (Fourné 2014).

Recent research has suggested that managers’ network relationships and social exchanges across the organization influence their involvement in CE activity (Hayter 2013; Kelley et al. 2009; Pappas and Wooldridge 2007). While boundary-spanning within MNEs can drive strategic renewal of business units (Fourné et al. 2014), researchers have also shown that managers who span boundaries are particularly susceptible to stress (Podolny and Baron 1997) and may even restrict the flow of knowledge throughout organizations (Cross et al. 2002; Gould and Fernandez 1989; Tortoriello et al. 2012). In fact, studies that link boundary-spanning activities to exploration-related outcomes found non-significant (Atuahene-Gima and Murray 2007; Perry-Smith 2006), inverted U-shaped (McFadyen and Cannella 2004), and negative relationships (Bogenrieder and Nooteboom 2004). These inconclusive results may be ascribed to a variation in individuals’ boundary-spanning effectiveness—as TMs and MMs differ in terms of authority, resource access, and personal interests (Wooldridge et al. 2008). Nevertheless, most boundary-spanning research views managers as a homogeneous group. Accordingly, it does not take into account the individual nature and variety of boundary-spanning

activities on the part of managers at different hierarchical levels. Therefore, it remains unclear how individual differences determine when boundary-spanning will foster or inhibit the unit's renewal activities.

The main objective of this study, therefore, is to contribute with a granular understanding of why and how the hierarchical differences influence managers' capability to foster strategic renewal in their business units. As studies adopting a multi-actor perspective are scarce in CE research, yet hold their promise, Hornsby et al. (2009: 11) recommend adopting such a perspective. By assuming heterogeneity in boundary-spanning across top management and middle management levels, we aim to reconcile the mixed findings and elucidate when boundary-spanning fosters exploratory innovation. Distinguishing between the roles of TMs and MMs makes it possible to examine the relationship between boundary-spanning and exploratory innovation at different levels of the organizational hierarchy and show who drives CE activity in form of strategic renewal—in this case within units exposed to changes in technology, market structure and the regulatory setting. With our multi-actor approach, we also advance the debate about a top-down (Hornsby et al. 2009) versus bottom-up approach to CE (Ren and Guo 2011).

More broadly, we respond to calls for more research into the role of personal and organizational networks in CE (e.g., Hornsby et al. 2013; Kelley et al. 2009) and make two additional contributions.

First, we theorize and confirm that boundary-spanning by actors at one level in the organization has cascading effects on managers at adjacent levels. Thereby, intriguingly, our study reveals a direct positive influence of TM' boundary-spanning on their unit's strategic renewal activities that is offset by causing role conflict among their MMs, which in turn inhibits unit renewal activities. Hence, this research extends the debate on the positive and negative effects of managers' diversity of ties for inter-unit information search and utilization in renewal activities (cf. Hansen 1999), by uncovering the social liabilities of TMs' boundary-spanning.

Second, while past research has considered TMs' or MMs' positions in a single network, this paper develops a multi-level research model and demonstrates that network configurations may provide a remedy to problems in fostering CE by means of TMs'

boundary-spanning. Our findings demonstrate that overlap of a TM's network with the one of MMs—i.e., some redundancies in unit TM and MM networks—reduces role conflict of MMs. By assessing the impact of relative fit of networking activities in terms of overlapping ties, this study contributes to network theory and CE literature by revealing how different actors' networks can have a joint influence on strategic renewal and mitigate the downsides of unilateral TM networking.

2 Conceptual background

2.1 Boundary-spanning and strategic renewal

The literature on CE has introduced multiple forms of CE that all aim to capture processes of established organizations geared toward instigating renewal or innovation (Sharma and Chrisman 1999). This paper focuses on strategic renewal as a form of CE (cf. Dess et al. 2003) and aims to explain variation in units' exploratory innovation as the key underlying activity of strategic renewal (McNamara and Baden-Fuller 1999; Ren and Guo 2011). Exploratory innovation is defined as experimenting with new product–market combinations and requires building new skills and capabilities (Belderbos et al. 2010; Benner and Tushman 2003). Management research considers exploratory innovation vital to the performance and survival of organizations in changing environments (e.g., Govindarajan et al. 2011; Phelps 2010) through strategic repositioning and capability development, which are core pillars of CE as strategic renewal (Ireland et al. 2009).

Although exploratory innovation has been studied predominantly at the level of organizations (cf. Jansen et al. 2012), the notion that its roots are to be found at lower levels in the firm has recently gained momentum in reviews and empirical research (e.g., Birkinshaw and Gupta 2013; Jansen et al. 2012). CE literature has long acknowledged that managers fulfill different roles, based on their position within the organizational hierarchy and that, as such, TMs and MMs are distinct, both in terms of their entrepreneurial activities and of the effects these activities have on organizational outcomes (Hornsby et al. 2009; Ireland et al. 2009; Kuratko et al. 2005). This underlines the important role of MMs promoting and implementing CE,

because they connect the operational and strategic elements of a firm's activities (Hornsby et al. 2002; Ren and Guo 2011). However, research in this domain also confirms that TMs may be better positioned to leverage organizational capabilities and resources for entrepreneurial action (Hornsby et al. 2009; Srivastava and Lee 2005). Despite these differences in actors' positions and power, rarely do empirical studies adopt a multi-actor perspective, although its explanatory potential is promising (Hornsby et al. 2009).

Prior research has posited that structural positions matter for involvement in renewal activities (Ren and Guo 2011) and therefore the pursuit of exploratory innovation comes with challenges particularly for TMs and MMs who differ in terms of authority and resource access (Floyd and Lane 2000; Wooldridge et al. 2008). To better understand the disparity across actor groups, CE and MM studies have suggested that intra-firm network relationships influence management involvement and success in corporate entrepreneurial activities (Hayton 2005; Hornsby et al. 2013; Kuratko et al. 2005; Pappas and Wooldridge 2007). Accordingly, this study examines the variety associated with different actors involved in corporate entrepreneurial processes from a network perspective.

According to the social network perspective, managers who span boundaries benefit from timely access to diverse information and enhanced power to enact strategic change (e.g., Burt 2004; Shi et al. 2009). Indeed, recent research on MNEs indicates that managers' boundary-spanning activities matter with regard to strategic renewal of business units (Fourné et al. 2014; Wooldridge et al. 2008). Boundary-spanning ties are instrumental in linking multiple sources of diverse knowledge that may be useful to innovation (Hansen et al. 2005; Lingo and O'Mahony 2009; Obstfeld 2005). Defined as activities through which new knowledge and expertise are sought from other units (Hansen 1999), boundary-spanning is a potential key driver of exploratory innovation. For instance, Pappas and Wooldridge (2007) show that managers who span boundaries are more strategically active compared to their non-boundary-spanning counterparts. Exploratory innovation requires new knowledge (Benner and Tushman 2002) and is facilitated when a work environment promotes risk-taking and provides knowledge-rich stimuli and sufficient resources (Amabile et al. 1996; Jansen et al. 2012). Managers who span boundaries thus

encounter a wider range of people with different outlooks and approaches (Perry-Smith and Shalley 2003) and may find it easier to navigate and nurture their entrepreneurial projects despite organizational politics (Lechner et al. 2010). In fact, recent studies suggest that interactions with members of internal and external networks enable MMs to gain the support they need to protect their entrepreneurial activities and leverage their credibility (Morris et al. 2010) as well as legitimacy (Hornsby et al. 2013).

While most boundary-spanning research has examined the positive outcomes for organizations, a review of studies in this area reveals that research into the disadvantages of boundary-spanning has evolved significantly since Podolny and Baron's (1997) work, by developing a better understanding of how to build and leverage "collective knowledge bridges" between separate business units (Zhao and Anand 2013). Scholars have recently tried to obtain a better understanding of how to coordinate and integrate intra-firm and alliances activities (Stettner and Lavie 2014) and of how multiple connections affect knowledge sharing (Tiwana 2008). Nevertheless, while most boundary-spanning research has examined the positive outcomes for organizations, there is an emerging debate about social liabilities (Tortoriello et al. 2012). By departing from the homogeneity assumption, we acknowledge the individual variety of the actors involved in boundary-spanning in relation to exploratory innovation in their units as well as cascading social liabilities. As such, this study develops theoretical implications which advance strategic renewal and boundary-spanning research by showing how different actors' boundary-spanning and network configurations at different managerial levels amplify or attenuate the units' exploration activities. With multi-level insights into how TMs' and MMs' foster CE in the form of strategic renewal throughout organizational units, we extend the conversation about different pathways to strategic renewal and about the direct and indirect impact of the key actors' social exchanges.

2.2 Theoretical framework and hypotheses

Multiple theoretical perspectives and the debates described above inform our research framework (see Fig. 1). It reveals the impact of different hierarchical positions on the ability to extract value from spanning boundaries for corporate entrepreneurial action in the

form of business unit renewal activities. Ren and Guo (2011: 3) make a convincing case for the role of MMs in fostering CE activities by using attention structures and policy windows to sell new initiatives and “champion exploratory opportunities.” Conversely, others highlight top-down role of TMs in being more influential facilitators of executing CE strategies (Hornsby et al. 2002) as well as benefiting more from a supportive context, e.g., due to resource access (Hornsby et al. 2009). To resolve these opposing views, whether strategic renewal should be driven by TMs or MMs, our theoretical model distinguishes TMs and MMs in terms of their positions and roles. We differentiate between two intra-organizational networks: the information network of TMs and the information network of the MMs. This facilitates analyzing how the boundary-spanning activities of managers at different hierarchical levels have a differential effect on their units’ exploratory innovation.

Our multi-level model also acknowledges that decisions and actions of managers are “embedded” in a system of social relations (Granovetter 1973), which determines how enabling or constraining a managers’ environment is for pursuing entrepreneurial initiatives. As such, we argue—following the logic of research on top executive characteristics (Ou et al. 2014)—that there may be important cascading effects across the hierarchy as a consequence of TMs’ networking behavior.

We theorize that social liabilities in form of increasing role conflict may be experienced by MMs, which in turn obstructs exploratory innovation.

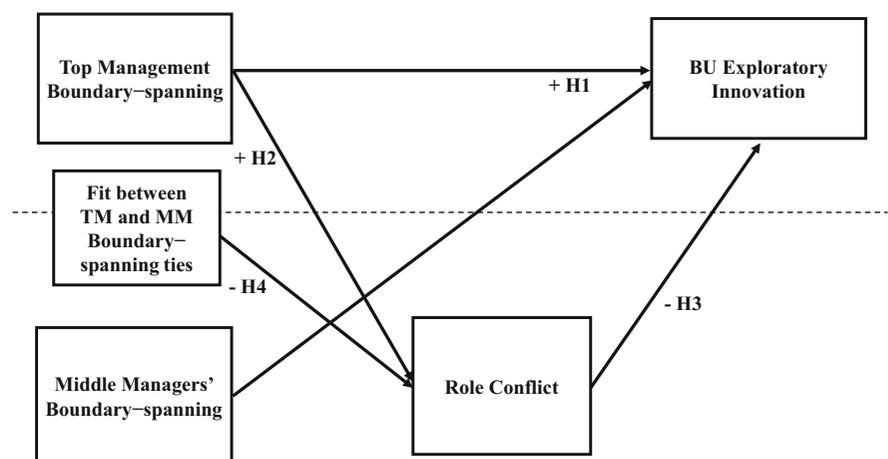
Hence, we extend the emerging configurational perspective (Guler and Nerkar 2012; Hansen 1999; Tiwana 2008) by investigating what the optimal configuration of ties looks like. It is possible to conceive that the fit in terms of overlapping ties between TMs’ and MMs’ networks conditions the effect of TM boundary-spanning. Such a constellation improves the potential for utilizing network ties to implement potential exploratory innovation, e.g., as it improves MMs’ ability to anticipate demands from the top (Hansen 1999). Hence, this paper extends the notions of social liabilities with cascading effects and provides insights into associated remedies.

2.3 Relative utility of TMs’ and MMs’ boundary-spanning

The ability to bridge knowledge from a variety of organizational domains, i.e., spanning boundaries, is seen as vital to promoting CE (Hayton and Kelley 2006). Managers’ boundary-spanning activities have been linked to outcomes closely related to strategic renewal, such as creativity, new product development, and service enhancement (Carlile 2004; Hargadon and Sutton 1997; Tortoriello et al. 2012). Dess et al. (2003) emphasize the value of social exchanges inside the organization in the pursuit of strategic renewal.

Yet, the literature on strategic renewal acknowledges that managers of different levels have different CE roles (Kuratko et al. 2005). On the one hand, TMs act in concert with others throughout the organization to identify effective pathways for new business creation or new product development (Hornsby et al.

Fig. 1 Multi-level research framework



2009). In addition, TMs can also draw on insights generated through the interaction with external stakeholders (Collins and Clark 2003; Geletkanycz and Hambrick 1997; Yoo et al. 2009). On the other hand, MMs are responsible for harboring and championing new initiatives, facilitating adaptability and entrepreneurial processes, synthesizing information and reporting upwards, and implementing new programs (Floyd and Lane 2000). An important difference between TMs and MMs is their formal authority, which has been shown to play a critical role in executing tasks and the structural ability to leverage organizational resources and capabilities that support corporate entrepreneurial action (Hornsby et al. 2009; Huy 2001; Ibarra 1993). Hence, the more powerful a manager, the more (s)he may benefit from boundary-spanning activities when pursuing exploratory goals.

Power differences also highlight another distinction between TM and MM roles. Prior research has demonstrated that the roles of TM and MM differ significantly in terms of their requirements with regard to strategic thinking and actions (Bartlett and Ghoshal 1995; Currie and Procter 2005; Wooldridge et al. 2008). Key tasks for TMs are to convey effectively the units' strategic priorities to their direct reports, in most cases MMs. As summarized by Floyd and Lane (2000: 158) in order to achieve strategic renewal, the TM role set includes ratifying, directing and recognizing, while the MMs' roles are to champion, facilitate, synthesize and implement. A crucial difference in this respect concerns the significance of boundary-spanning for these activities. TM boundary-spanning is expected to support actions such as opportunity discovery and strategy formulation, as it imbues such actions with fresh external knowledge and information (Pappas and Wooldridge 2007). Yet, for MMs, the implementation of renewal activities may not benefit from the injection of new information received through boundary-spanning activities, for instance as new ideas are of limited utility when resource availability is limited. Hence, TMs can leverage the know-how and ideas sourced through boundary-spanning more easily than MMs who are more constrained in terms of resource access (Huy 2001).

Taken together, boundary-spanning creates an opportunity for both TMs and MMs to access a variety of different perspectives and information flows throughout the organization (Perry-Smith and Shalley 2003; Tsai and Ghoshal 1998), allowing both levels to

achieve higher levels of exploratory innovation within their units (Rogan and Mors 2014). However, given their different role requirements, authority and varying degrees of resource access, the relationship between boundary-spanning and exploratory innovation is expected to be stronger for TMs than for MMs.

Hypothesis 1 The positive relationship between boundary-spanning and exploratory innovation is stronger for TMs than for MMs.

2.4 TMT boundary-spanning and MMs' role conflict

While acquiring knowledge outside organizational units provides the opportunity to see a problem or task from an alternative perspective that can stimulate creativity and foster experimentation (Hansen 1999; Hargadon and Sutton 1997; Perry-Smith 2006), it also creates inconsistent expectations to exert work-roles by unit members. Earlier findings from socio-psychological research have demonstrated that individuals who engage in boundary-spanning also experience significant role overload and role conflict, because they face simultaneous and often conflicting pressures (Kahn et al. 1964; Katz and Kahn 1978). Importantly, these disadvantages of cross-unit boundary-spanning may extend to members other than the focal actor, as unit differences in terminology, perspectives, and expectations lead to an overall lack of understanding among MMs within a unit (Mehra et al. 2006), exacerbating perceived ambiguity and role conflict (Floyd and Lane 2000).

According to role theory (Kahn et al. 1964), individuals form perceptions of their organizational role, which are shaped by role senders, including supervisors (Walker et al. 1975). When individuals' expected behaviors are inconsistent, they lead to role conflict, which is defined as the degree of incongruity or incompatibility of expectations associated with a role (Rizzo et al. 1970).

Prior research has suggested that the corporate context perpetuates the development of expected behaviors (i.e., role schemas) that are in conflict with entrepreneurial behavior (Corbett and Hmieleski 2007). Due to different perspectives, interests, and expectations, boundary-spanning by top management team (TMT) members could create significant gaps between what TMT plans or intends and what is

expected and perceived by MMs (Ford et al. 2008; Huy 2002). For instance, TMs may send confusing signals demanding that MMs deploy existing resources efficiently but also develop new competencies. MMs' role implies that they are the accomplices of the TM and at the same time representative of their subordinates (Sims 2003). Their focus is on communicating information effectively between the firm's two internal managerial stakeholders (TMs and operation-level managers) (Huy 2002; Kuratko et al. 2005), which puts them in a difficult position. Coping with contradicting demands originating from TMT boundary-spanning, may lead MMs to experience stronger tensions and greater role conflict (Ashford et al. 2003; Friedman and Podolny 1992). Moreover, boundary-spanning can lead to additional perceived role conflict, when the promised benefits cannot be realized or lose desirability (Gargiulo and Benassi 2000). This is likely to happen when there is information asymmetry between TMs and MMs, resulting in unrealistic mandates (Lüscher and Lewis 2008) or goals (Raes et al. 2011). Thus, MMs whose TMs span boundaries become particularly susceptible to role conflict due to differing and inconsistent expectations (Kahn et al. 1964).

Furthermore, scholars have shown that the potential for role conflict experienced by managers is partly a function of the number of roles they are expected to play (Nandram and Klandermans 1993; Peterson et al. 1995). In large global firms, positions are defined as job roles, and managers accordingly behave in ways that are consistent with the way their roles are defined (Kahn et al. 1964) and shaped by function-specific experience (Mom et al. 2015). However, TMT members span boundaries and draw on a wide range of different perspectives due to a vast number of internal and external relations (Collins and Clark 2003; Geletkanycz and Hambrick 1997; Yoo et al. 2009). Thus, the TMTs' suggestions and demands cascading down the hierarchy may be infused with a broad range of insights and challenges for MMs, expanding the role set, to the extent that the latter will struggle to find a common ground facilitating integration and implementation of knowledge (Dougherty 1992; Tortoriello et al. 2012). Because MMs have limited time and are exposed to a myriad of requests, they face challenging and conflicting cognitive demands (Leroy 2009). Overall, we expect that boundary-spanning of TMT members will result in role conflict among MMs, who

find it increasingly difficult to execute their roles successfully because the expectations imposed upon them are incompatible (Bolino and Turnley 2005; Kahn et al. 1964).

Hypothesis 2 TMTs' boundary-spanning is positively related to MMs' role conflict.

2.5 Role conflict and exploratory innovation

We have argued that MMs' role conflict may be a consequence of TMT boundary-spanning. Because organizations are role systems in which the social interactions between system members determine how work is carried out (Katz and Kahn 1978), role conflict should impact performance outcomes (Tubre and Collins 2000). Therefore, we investigate how role conflict among MMs is related to strategic renewal activities within their units.

Prior research has shown that exploratory innovation involves a high level of knowledge generation (Grant 1996). This requires a deep immersion, transfer and absorption of new knowledge and thus necessitates MMs to spend time on exploration activities. The latter include scanning the environment and recognizing opportunities (Shepherd et al. 2007), proposing and interpreting entrepreneurial opportunities (Hornsby et al. 2009), and developing new organizational routines and systems (Crossan and Apaydin 2010; Zollo and Winter 2002). Looking at role theory, exploration activities of MMs thus require facilitating adaptability and exerting upward influence by championing new initiatives, which demand an entrepreneurial mindset that nurtures creativity and experimentation as well as emotional equanimity (Huy 2002; Mantere 2008; McGrath 2001).

Scholars have shown that MM who experience role conflict can suffer from "reluctance" (Goffee and Scase 1992), "disillusionment" and "disaffection" (Johnson and Frohman 1989), or "paralysis" (Westley 1990). Indeed, Dess et al. (2003) argue that managers caught in role conflict are unlikely to display entrepreneurial behavior successfully, which will disrupt the information exchange needed for CE. For instance, Currie and Procter (2005) noted that MMs who experienced role conflict were caught between traditional expectations and innovative role demands. They appeared uncertain about whether and what kind of change was appropriate, and consequently, which

strategic role was expected. As a result, MMs may be more focused on increasing reliability and thus on exploitative activities, rather than on exploration activities. Role conflict creates stress for MMs that leads to organizationally dysfunctional behaviors such as dishonesty and avoidance (Grover 1993), which can disrupt exploratory innovation, since these behaviors may deprive the firm of timely access to the required information (Dess et al. 2003). Given that coping with role conflict and stress requires time and dedication, MMs will reduce experimental behaviors, limit search scope, and have an increasingly selective perception of alternatives (Rowley et al. 2000). In short, while exploratory innovation requires MMs to experiment and adopt a long-term orientation (Tushman and O'Reilly 1996), role conflict may constrain their capacity to pursue the creative and experimental activities associated with exploration.

It is likely that MMs faced with disparate and incompatible demands fail to identify, let alone seize improvement opportunities to enhance their units' exploratory innovation (Bolino and Turnley 2005). Although the entrepreneurial actions expected of MMs encompass proposing and interpreting new business opportunities (Hornsby et al. 2009), MMs experiencing role conflict will respond to problems in familiar ways, to save time and effort, and use low-risk solutions based on existing capabilities (Daft and Lengel 1986; Galunic and Rodan 1998). Role conflict among MMs will, therefore, keep them from departing from existing knowledge and reduce their unit's exploratory innovation.

Hypothesis 3 MMs' role conflict is negatively related to their units' exploratory innovation.

2.6 The role of fit between multi-level ties

While we expect MMs' role conflict to be influenced by the extent to which TMTs span boundaries, MMs themselves can also play an active role in reducing these effects. As change agents, their activities include interacting systematically with other organizational actors in different parts of the organization and linking actions and ideas between technical and administrative levels of organizations (Van Cauwenbergh and Cool 1982). Based on their unique position in organizations, MMs are nested in a diverse set of social relations (Huy 2002). However, instead of

assuming that these managers can get "stuck" in the midst of the demands from TMs as well as the concerns of peers and subordinates, we propose that MMs can also develop similar relationships outside their unit, i.e., a structural overlap with their TMs' network providing the protection and complementary insights needed to perform their roles and meet seemingly contradictory expectations. Overlap and complementarity may help MMs anticipate and interpret demands from TMT members effectively and thus reduce ambiguity and mitigate the potential for role conflict (Rogers and Molnar 1976).

The idea that network activity at one level of the system is related to network structures at another level is in line with Burts' (2007) observation that opportunities for direct social capital disappear with the inclusion of indirect contacts. Consequently, configurations of MMs boundary-spanning and TMT boundary-spanning ties determine how a network structure enables and constrains interactions between the two levels. It is a promising avenue for research as shown by Hornsby et al. (2009) who distinguish several managerial levels and role perceptions. Moreover, Moliterno and Mahony (2011) have shown that the success of an individual's boundary-spanning activities depends on that individual's position relative to the group.

To further investigate this multi-level perspective of social network theory, we propose that a MM's own boundary-spanning ties in the information network may serve as a key contingency protecting him/her from encountering role conflict. For instance, MMs may span boundaries themselves to provide access to the information and resources needed to anticipate and fulfill the TMTs expectations. When MMs span the same ties as their TMTs, demands and expectations become more aligned, information asymmetry is reduced, and the possibility of role conflict will be reduced (Raes et al. 2011). Furthermore, by complementing the structural gaps created by TMTs boundary-spanning activities, MMs can span similar relationships outside their focal unit. Hence, in a closed system, spanning the same boundaries facilitates reputation and trust—also through monitoring behavior (Burt 2004). Consequently, the social and emotional costs of opportunism within and outside the network and these ties create a tendency toward comfort in interaction, which in turn reduces the risks and costs of coordination. This fit between ties may

buffer demands that cause role conflict and protect MMs in the execution of their roles (Andriopoulos and Lewis 2009).

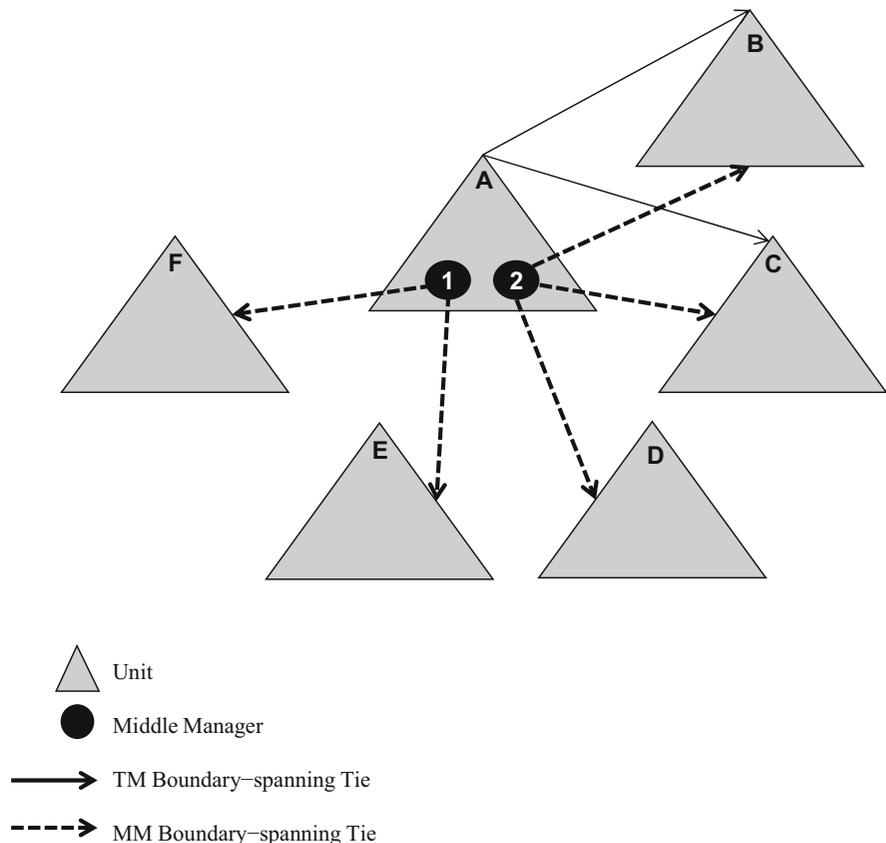
To illustrate what we mean with the fit between boundary-spanning ties of TMT and MM, Fig. 2 presents a general model of cross-level effects for multi-level organizational theory. The triangles represent five units (A–F) and the dots (1–2) represent two hypothetical MMs working in unit A. The straight lines are the boundary-spanning ties of the TMT of unit A, while the dashed lines represent the boundary-spanning ties of the two MMs.

As demonstrated in Fig. 2, the TMT of unit A spans boundaries with two other units (unit B and C). MM 1 also spans two boundary ties and MM 2 spans three boundary ties. We define the degree to which MMs boundary-spanning ties are the same as the TMT boundary-spanning ties as overlapping ties and propose that a fit in terms of overlap will reduce role conflict. Such ties enable MMs reporting to boundary-spanning TMs to reconcile the contradictions inherent

in different bodies of knowledge, values and beliefs originating from TMs. For instance, Marrone et al. (2007) found that direct boundary-spanning yielded benefits to unit MMs by reducing their role overload. Thus, direct boundary-spanning by MMs may provide them with emotional support from peers or help them prioritize tasks and devise strategies to cope with conflicting demands originating from TMT members (Kohli and Jaworski 1994). Thus, boundary-spanning may help MMs anticipate and embrace contradictory demands by drawing on their colleagues' experiences in similar situations or their own trial-and-error learning process (Smith and Lewis 2011).

Furthermore, research indicates that a dense and even redundant network of ties is often a precondition for internalizing a clear and consistent set of expectations and values in order to be effective in one's role (Podolny and Baron 1997). For instance, a dense network of personal contacts positively influences the speed and openness of the spread of information among network members due to exchange-inducing

Fig. 2 Overlapping boundary-spanning ties between two hypothetical MMs and their TMs



social norms that create a sense of generalized exchange (Hansen 1999; Uzzi 1997). Consequently, when MMs have boundary-spanning ties similar to their TMT, demands, interests and expectations may be anticipated more easily and can be addressed more effectively. Mutual ties among TMTs and MMs have the advantage of providing information to MMs, reducing time and effort needed to look for differentiating and integrating contradictory work streams. Thus, a fit in terms of overlap facilitates alignment of work streams and interests.

As shown in Fig. 2, overlap in ties may facilitate cooperation and knowledge integration due to reduced friction and an improved mutual understanding (Tortoriello and Krackhardt 2010). Also, overlapping ties will involve exchange processes among organizational actors sharing a common language, which speeds up the transfer of information, enhances recognition of problems and solutions, and allows for the transfer of tacit knowledge that is hard to codify (Reagans and McEvily 2003; Szulanski 1996). All these benefits will provide adequate remedies to role conflict that emerges when MMs are faced with boundary-spanning TMs. Accordingly, we expect that fit in terms of overlap weakens the relationship between TMT boundary-spanning and MMs' role conflict.

Hypothesis 4 Fit in terms of overlapping boundary-spanning ties between MMs and the TMT of the same unit reduces MMs' role conflict.

3 Methods

3.1 Research setting

To test our hypotheses, we conducted a field study in a large multi-national transport and logistics services company with approximately 163,000 employees worldwide. The company, with headquarters in the Netherlands, grew considerably in the years prior to our study and had annual revenues of approximately \$17 billion in 2010. The company served as an appropriate setting to conduct our field study for several reasons. In April 2009, the Dutch Ministry for Infrastructure and the Environment announced that it was ending the monopoly of privatized mail. Facing new entrants and market liberalization, the company needed to balance between remaining its marketshare

in the home market and exploring opportunities using new technologies in emerging product-market domains. Stimulating entrepreneurial behavior among the business units' managers was a strategic priority. The company consisted of 34 geographically dispersed business units, each with their own decision-making and budget responsibilities. Accordingly, we expected to encounter sufficient variance in terms of boundary-spanning activities of the TMs and MMs as well as variance among the units' respective level of strategic renewal activities.

3.2 Research design and data collection

To avoid potential problems associated with single-informant and common-method bias (Podsakoff et al. 2003), primary and secondary data were collected at multiple levels within the firm. The primary data for this study were collected in 2010 by surveying the two population groups; the TMs and the MMs of each unit. At the time of the survey, human resource representatives provided us with the contact details of all the TMs and MMs of the company's 34 business units. We started by contacting the MMs who report directly to the TMT of their unit. Respondents were requested to complete several scales capturing their role conflict and information about their communication linkages with other organizational units. A second survey, which was sent to the TMTs of each unit, contained questions about the unit's exploratory innovation and their knowledge transfer relationships with other units. Similar to the MM survey, TMs reported on their communication relationships inside the organization. We could thus triangulate the network data obtained from the managers and thereby enhance the validity of the measures and reduce common-method variance. To ensure confidentiality, we promised not to reveal any names of the units and managers involved in this research.

For the 687 surveys that were issued in total, we obtained usable responses from 397 MMs (72 percent response rate) and 72 TMs (56 percent response rate), which means that per unit, on average 2.1 TMs and 11.7 MMs completed the survey. We tested for nonresponse bias by comparing key attributes of respondents and non-respondents. Logistic regression analyses indicated no significant differences on either gender tenure or job grade. By gathering primary and secondary data at multiple levels, we established the

validity of the measures and reduced common-method variance preventing potential problems associated with single-informant bias and common-method bias (Podsakoff et al. 2003).

3.3 Measures and validation

3.3.1 Exploratory innovation

A six-item scale from Jansen et al. (2006) measuring exploratory innovation of the unit was adopted. The TMs were asked to indicate the extent to which their unit departs from existing knowledge and skills or existing customers, markets and products by rating the items on a seven-point Likert scale ranging from 1, “strongly disagree,” to 7, “strongly agree.” One example item is: “We commercialize products and services that are completely new to our unit.” All items loaded on a single factor with an eigenvalue of 4.07 and accounting for 64 percent of the variance ($\alpha = .90$). The items were averaged to form a single measure of exploratory innovation.

3.3.2 Role conflict

This construct was operationalized by adopting the eight-item scale developed by Rizzo et al. (1970). The MMs were asked to indicate the extent to which they experienced role conflict by rating the items on a scale ranging from 1, “strongly disagree”, to 7, “strongly agree.” An example item is: “I receive incompatible requests from two or more people.” We conducted exploratory analyses, as previous scholars have only used several items from the original eight-item scale to cover the full range of the construct (cf. Coelho et al. 2011; Schuler et al. 1977). The results of the exploratory factor analysis yield cross loadings of one item. We ran another exploratory factor analysis excluding one item and found all items loading on a single factor having an eigenvalue of 2.75 and accounting for 54 percent of the variance ($\alpha = .81$). The seven items were averaged to form a single measure of role conflict.

3.3.3 TMT boundary-spanning

The TMs were presented with a list of all 34 business units and asked to check off the units they regularly

contacted for new knowledge or expertise (cf. Hansen 1999). Following Tsai (2001), we also asked the opposite question, that is to say, TMs were asked to indicate which units came to their own unit for new knowledge or expertise. Because we had more than one top manager in each unit, we calculated the sum total of their boundary-spanning ties to represent the variable “TMT boundary-spanning.” We considered data valid when knowledge transfer relationship (indicated by any TM of the knowledge source unit) was confirmed by any TM of the knowledge recipient unit. We thus discerned the existence of a tie between TMT $_i$ and TMT $_j$ if a top manager i indicated (s)he had provided their knowledge to unit j and a top manager from unit j also confirmed receiving knowledge from unit i (cf. Hansen 1999; Tsai 2001). Using validated data, we recorded all 72 responses into a 34×34 one mode data matrix, in which cell X_{ij} represents the number of confirmed ties if TMT $_i$ provided its knowledge to TMT $_j$. Consistent with prior research (Burt 2004), we then calculated for each of the TMTs the number of boundary-spanning ties using UCINET 6 (Borgatti et al. 2002). These values ranged from 1 to 23 with a mean score of 7.2 and a standard deviation of 3.3.

3.3.4 MM boundary-spanning

The MMs were presented with a list of the units and were asked to tick the units that provided them with new knowledge or expertise. Responses were recorded in a 397×34 two-mode network matrix in which cell $X_{ij} = 1$ when MM $_i$ indicated an information-seeking relationship with unit j , and $X_{ij} = 0$ otherwise. Based on the egocentric network, the boundary-spanning of each MM was constructed from the number of units to which the MM in question was connected. These values ranged from 1 to 30, with a mean score of 4.8 and a standard deviation of 4.5.

3.3.5 Fit

Fit, in terms of overlapping ties, was calculated by transforming the 34×34 unit matrix and the 397×34 MMs matrix and then applying Boolean combinations, using UCINET 6 (Borgatti et al. 2002). We combined the two matrices by recording all responses in one data matrix, under the condition that they had at least a value of 1. For each MM, we calculated the number of

ties to units to which their TMT also had boundary-spanning ties. Next, we calculated the proportion of overlap for each MM, by dividing the number of mutual ties by the total number of MMs' boundary-spanning ties. These overlapping values ranged from 0 to 1. A high value indicates that a MM seeks knowledge from units that share dense inter-unit knowledge relationships by their TMT, whereas a low value means that a MM seeks knowledge from units that have few or no knowledge transfer ties with their TMT.

3.3.6 Control variables

We controlled for possible alternative explanations by including five relevant control variables. At the individual level, we controlled for gender (female = 1, male = 0) and job grade. Research findings suggest that relative to men, women are more likely to experience role conflict (Bolino and Turnley 2005). Gender could accordingly impact MMs' role conflict. We controlled for job grade, as, within the selected group of MMs, there were two different job grades. Job grade reflects the strategically hierarchical position of a manager, serving as a proxy for power and job complexity. Research shows that the relationship between general mental ability and performance is stronger at higher levels of job complexity (Hunter and Hunter 1984). Although the difference between the two grades was relatively small, we decided to control for job grade (grade A = 0, grade B = 1) to make sure that it did not affect our findings.

At the unit level, we controlled for region, group size and client focus. We control for region to take different regional cultures and associated mindsets into consideration (Ambos and Schlegelmilch 2008; Shane et al. 1995). Research indicates that global geographic diversity determines a firm's overall performance (Grant 1987; Tallman and Li 1996) and that mindsets may vary per region (Schwartz 1999), which is why we controlled for the region of the unit. We also controlled for unit size, as research suggests that group size influences group dynamics and performance (Moreland and Levine 1992). Larger groups tend to be less cohesive and have more members that engage in boundary-spanning activities. Finally, we controlled for a units' client focus, as units may specialize in different markets and have different ranges of products and services, which will influence

their degree of exploratory innovation. We thus included a dummy variable to indicate whether the unit in question provided products and services for business clients (coded 1) or for consumer clients (coded 0).

3.4 Analytical approach

As all units are managed by TMT, exploratory innovation consists of "shared level construct" (Klein and Koslowski 2000). With our first survey, we gathered data from TM, to assess their unit-level characteristics that we presumed to be shared within a unit and capable of differentiating among units. To ensure that within-unit agreement and between-unit differences were included, we conducted several analyses. First we calculated ICC1 and ICC2 for exploratory innovation to assess whether the data met the statistical criteria for aggregation.

ICC1 and ICC2 for exploratory innovation were .56 and .90. Next, we calculated interrater agreement score (rwg; LeBreton and Senter 2008) and used the interrater reliability to examine the agreement between two or more TMs regarding the assignment of the unit variable. The mean interrater agreement was .77 for units' exploratory innovation. We decided that there was enough evidence to justify aggregating the data to the unit level by taking the mean score of the TMs within each unit, as suggested by Klein and Kozlowski (2000).

To test our hypotheses, we started our analysis by testing the possible existence of common-method variance (CMV; Lindell and Whitney 2001). We conducted exploratory factor analysis since role conflict and exploratory innovation were measured by different sources. Checking the convergent validity of measurement scales, we found that the factor loadings of the items were greater than .5, and the average variance extracted for both exploratory innovation and role conflict is greater than 54 %. The inter-item consistency was validated by high Cronbach alphas (both >.80). In addition, in "Appendix," we present an illustration of the network structure of the several units under study, as mapping the network contributes to a better understanding of the inter-unit network (Brass et al. 2004). The squares represent the units (total 34), and the lines represent the boundary-spanning ties of the TMTs with other units. We highlighted unit 11, in which the TMT spans a lot of

boundary ties, whereas the TMT of unit 33 spans only two boundary ties. Clearly, there was variation between the boundary-spanning ties of TMTs of the several units under study. We used hierarchical linear modeling (HLM) (Raudenbush et al. 2004) to test our hypotheses as HLM allows variance in outcome variables to be analyzed at multiple hierarchical levels and is appropriate for nested data. HLM not only estimates model coefficients at each level, but also predicts the random effects associated with each sampling unit at every level.

In order to test hypothesis 1, we created a dummy variable for the two management levels (TM = 1 and MM = 0). We calculated the interaction between boundary-spanning and management level and included this interaction term in our linear regression analysis. For hypotheses 2 and 4, we used HLM (Raudenbush et al. 2004) to obtain an accurate estimation of the relationship between the different levels and without the shortcomings of aggregation or disaggregation approaches. For hypothesis 2, we first ran a null model for role conflict with no predictors to ensure that there was enough variance between the units. Next, we ran a model with the TMT predictor to test hypothesis 2 and included the fit in terms of overlapping ties to test hypothesis 4. In all analyses, level 1 predictors were group mean centered and the level 2 predictors were grand-mean centered, as centering reduces multicollinearity (Bryk and Raudenbush 1992). Although it is difficult to estimate precise effect sizes in cross-level models, Snijders and Bosker's (1999) overall pseudo R^2 ($\sim R^2$) was calculated for the models; these estimates are based on proportional reduction of level 1 and level 2 errors due to the predictors of the model.

As a final step, we tested hypothesis 3. Because HLM does not provide bottom-up processes, we followed Marrone et al. (2007) and aggregated role conflict (mean ICC = .72) at the unit level by averaging MMs' role conflict scores per unit. We conducted linear regression analysis to test our third hypothesis.

4 Results

4.1 Descriptive statistics

Table 1 presents the means, standard deviations and correlations among all variables under scrutiny. We found that TMT boundary-spanning correlated

positively with exploratory innovation ($r = .36$, $p < .01$) and also with MMs' role conflict ($r = .14$, $p < .01$). We did not find a significant correlation between boundary-spanning of MMs and exploratory innovation ($r = -.06$, n.s.). Furthermore, MMs' role conflict was negatively correlated with exploratory innovation ($r = -.13$, $p < .05$), and with fit in terms of overlap ($r = -.11$, $p < .01$).

4.2 Hypothesis testing

4.2.1 Hypotheses 1 and 3

Table 2 summarizes the results of the regression analyses for exploratory innovation. Model 1 contains TMT boundary-spanning effects and Model 2 contains the MM boundary-spanning effects on unit exploration. As shown in Model 1b, the coefficient for TMT boundary-spanning is positive and significant ($\gamma = .08$, $p < .05$). We then tested whether MM boundary-spanning was positively related to exploratory innovation. As shown in Model 2b, we did not find a significant direct effect of MMs' boundary-spanning on exploratory innovation ($\gamma = -.02$, n.s.). To examine the first hypothesis—expecting the positive relationship between boundary-spanning and exploratory innovation to be stronger for TMT members than for MMs—we combined the TMT and MM datasets. We then included the interaction variable between management level and boundary-spanning. The results shown in Model 3b support hypothesis 1, as the relationship between boundary-spanning and exploratory innovation differs depending on the management level ($\gamma = .05$, $p < .10$) and this interaction explained a small, albeit significant amount of variance in exploratory innovation ($\Delta R^2 = .05$, $p < .01$). Hypothesis 3 predicts that role conflict of MMs is negatively related to exploratory innovation. As shown in Model 4b, MMs' role conflict is indeed negatively related to exploratory innovation ($\gamma = -.13$, $p < .05$), confirming hypothesis 3.

4.2.2 Hypotheses 2 and 4

Table 3 summarizes the results of the HLM analyses for hypotheses 2 and 4. Control variables (including gender, job grade, region, client focus, and unit size) were included in all analyses. As a first step, the

Table 1 Means, standard deviations and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9
Control variables											
1. Gender	.29	.47									
2. Grade	1.13	1.6	.34**								
3. Unit region	14.1	11.5	.09	-.01							
4. Unit client focus	.74	.44	-.08	-.07	-.69**						
5. Unit size	49	29.5	.05	-.06	-.36**	.25**					
Middle managers level											
6. Role conflict	3.7	1.2	-.03	.01	-.10	.03	.09				
7. MM boundary-spanning	4.8	4.5	.03	-.14**	.06	-.03	-.05	-.07			
Unit level											
8. TMT boundary-spanning	7.2	3.3	.05	.05	-.24**	.14**	.56**	.14**	-.01		
9. Exploratory innovation	4.2	1.5	.08	-.02	-.39**	.34**	.05	-.13**	-.06	.36**	
Fit between boundary-spanning ties											
10. Overlap	.22	.30	.01	-.06	.17**	.15**	-.15**	-.11*	.03	-.02	-.10*

$n = 397$ middle managers and 72 top managers in 34 business units. Two-tailed tests

* $p < .05$; ** $p < .01$

control variables were entered in the model. We then tested whether TMT boundary-spanning was positively related to MM role conflict (hypothesis 2). As shown in model 2, TMT boundary-spanning is significantly and positively related to MMs' role conflict ($\gamma = .05, p < .05$), confirming hypothesis 2. As a final step, we added fit in terms of overlapping ties to the model and found a negative significant relationship with MM role conflict ($\gamma = -.20, p < .05$), supporting hypothesis 4.

5 Discussion

It is well recognized in the CE literature that managers at different levels play different roles and that their social exchanges matter for strategic renewal (cf. Dess et al. 2003). Most research emphasizes the role of MMs as key drivers of CE. For instance, MMs are identified as the most entrepreneurial people (Morris and Jones 1999), the largest group of initiators (Borins 2000), and the main source of creativity in entrepreneurship (Bernier and Hafsi 2007). Yet, this significant contribution of MMs cannot be taken for granted and cannot be understood in isolation of their TMT's influence. In addition, researchers have argued that the middle management level could also be seen as a

major barrier to change and strategic renewal (Guth and MacMillan 1986). Given the important role of MMs, scholars have argued that in order to achieve strategic renewal, TMs and MMs need to act in a complementary way (Raes et al. 2011; Wooldridge et al. 2008). Through an integrated multi-actor perspective, our study assesses the importance of TMs' and MMs' boundary-spanning for unit's exploratory innovation. We scrutinize different mechanisms that channel the effects of boundary-spanning and consider whether there are cascading effects of TMs' boundary-spanning activities on MMs' role perception. Hence, the core theoretical contribution of this study is not only to reveal how different TMs' and MMs' networks influence the strategic renewal of their unit, but also to provide insight into mechanisms that enable MMs to translate boundary-spanning of their superiors into unit renewal activities.

Our multi-level framework was examined using a sample of TMs and MMs in a large multi-national firm. Our findings confirm that the utility of boundary-spanning varies depending on the hierarchical position of the actors involved. We provide novel insights in terms of cascading effects that explain why boundary-spanning does not always translate into renewal activities of business units. Given different role requirements and varying levels of power and resource

Table 2 Linear regression analyses of exploratory innovation

	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b	Model 4a	Model 4b
Control variables								
Gender	.05 (.13)	.01 (.13)	-.20 (.21)	-.18 (.21)	-.02 (.15)	-.09 (.16)	-.11 (.19)	-.11 (.19)
Grade	.02 (.10)	.01 (.10)	.10 (.18)	.10 (.18) [†]	.52 (.06)**	.07 (.12)**	-.03 (.016)	-.04 (.16)
Unit region	.06 (.01)*	.07 (.01)*	.01 (.01)	.01 (.01)	.06 (.00)**	.07 (.01)**	.07 (.01)**	.08 (.01)**
Unit client focus	.61 (.15)**	.59 (.15)**	.46 (.23)*	.47 (.23)*	.38 (.16)*	.49 (.16)**	.30 (.21)*	.31 (.20)*
Unit Size	.00 (.00) [†]	.01 (.00)*	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Management level						.08 (.49)*		
Boundary-spanning						.03 (.02)*		
TMT boundary-spanning		.08 (.01)*						
MM boundary-spanning				-.02 (.02)				
MM role conflict								-.13 (.06)*
Interaction								
Boundary-spanning * management level						.05 (.04) [†]		
R^2	.40	.42	.35	.36	.21	.25	.23	.25
ΔR^2		.02**		.01		.05**		.02*

$n = 397$ middle managers and 72 top managers operating in 34 business units

** $p < .01$; * $p < .05$; [†] $p < .10$

access (Huy et al. 2014) the relationship between boundary-spanning and exploratory innovation is stronger for TMs than for MMs. Hence, with regard to boundary-spanning, especially TMs play a key role in driving strategic renewal. This finding is particularly insightful vis-à-vis other evidence indicating that TMs have greater structural ability to leverage boundary-spanning activities and implement entrepreneurial ideas (Hornsby et al. 2009). By revealing differential effects across hierarchical levels, we enhance the understanding of the impact of roles, power and positions, which are crucial in executing strategic renewal in large global firms. As such, our study extends the debate between top-down versus bottom-up emergence of CE outcomes. Specifically,

we provide evidence that the top-down perspective suggested by Hornsby et al. (2009) is a valid alternative to Burgelman's (1983, 1984) bottom-up autonomous approach.

As an additional step, this study develops a nuanced understanding of intra-firm boundary-spanning activities and how they enable, as well as why they constrain, unit-level strategic renewal activity. Our findings show that the positive direct effect of TMT boundary-spanning on exploratory innovation is offset by the concomitant impact on MMs' role conflict, which relates negatively to exploratory innovation. These results highlight the idea that TMT boundary-spanning may also add pressure on MMs who already possess a demanding role (Floyd and Lane 2000; Huy

Table 3 Hierarchical linear modeling analyses of MMs' role conflict

	Model 1	Model 2	Model 3	Model 4
Control variables				
Gender	-.08 (.16)	-.08 (.15)	-.08 (.20)	-.07 (.19)
Grade	.03 (.14)	.03 (.14)	.01 (.11)	.00 (.10)
Unit region	-.03 (.03)	-.03 (.03)	-.03 (.00)**	-.03 (.00)**
Unit client focus	-.16 (.13)	-.19 (.12)	-.19 (.10) [†]	-.19 (.10) [†]
Unit size	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Top management level				
TMT boundary-spanning		.05 (.02)*	.05 (.02)*	.05 (.02)*
Middle management level				
MM boundary-spanning			-.01 (.01)	-.01 (.01)
Fit				
Overlap between MM and TMT boundary-spanning			-.20 (.01)*	
Pseudo R^2	.09	.14	.16	.20

$n = 397$ middle managers (level 1) and 34 TMTs (level 2)

Coefficients (based on grand centering) are reported with standard errors in parentheses

** $p < .01$; * $p < .05$; [†] $p < .10$

2001). It supports Currie and Procter's (2005) notion that inconsistent expectations and cues from key stakeholders, especially TMs, put pressure upon MMs and make them reluctant to engage in exploration. Our findings are particularly relevant to organizations with a CE vision (Goodale et al. 2011), like the one the focal firm developed in response to a changing business and regulatory environment. Perceived obligations originating from the TMT are especially strong in face of the tensions that arise when striving for strategic renewal against the backdrop of ongoing unit operations. In addition, our empirical evidence of this cascading effect points to a mechanism that could explain the mixed results found in existing boundary-spanning research and introduces a "cost-benefit" trade-off that comes with implications for future theoretical development and management practice. This is interesting, as social liabilities are frequently not captured across levels in primary studies. Consequently, it seems fruitful to assess the cascading

effects of roles and associated activities at one hierarchical level on roles at other levels (e.g., Ou et al. 2014).

As hypothesized, our findings show that it takes a particular configuration of boundary-spanning networks of the TMs and MMs to improve units' strategic renewal. This result suggests that although TMs' boundary-spanning spurs role conflict among MMs, network overlap among TMs and MMs can be an important remedial factor. Overlapping ties of TMs and MMs appear to be crucial in coordinating joint efforts to initiate and implement exploratory innovation in business units. As such, this study is complementary to the internal-external innovation coordination study of Stettner and Lavie (2014) and Tiwana's (2008) work, focusing on tensions and complementarities between bridging ties and strong ties in innovation-seeking alliances, which has implications for inter-firm network configuration. In our within-firm context, the overlapping tie

configuration facilitates the exchange of information and knowledge in order to achieve a better understanding between TMs and MMs. This is vital in presence of mutual dependency among these actors (Ren and Guo 2011). In more general terms, for managers to cope with the tension between preserving existing competencies and developing new ones may lead to misunderstanding and conflict (Floyd and Lane 2000). Our notion of overlapping ties therefore provides new insights for the CE literature about how TMs and MMs can jointly pursue the CE ambitions of an organization, while avoiding additional tensions emerging from external knowledge and idea sourcing.

This study's findings point to strategic renewal being mainly a top-down phenomenon, as TMT boundary-spanning has a positive effect on unit exploration. That said, MMs should network in line with their TMT in order to alleviate the role conflict problem. Network overlap—i.e., some redundancies among the boundary-spanning ties of TMs and MMs—likely improves MMs' potential for implementing exploratory innovations. However, for practitioners, we recommend some caution as overlap may also reduce MMs' exposure to new ideas. Hence, the diversity of the information available to MMs in such a network constellation will be lower, i.e., possibly reducing their ability to discover unique ideas that could infuse strategic renewal activities. This is analogous to Hansen (1999), who links a higher level of diversity to improved search, but reduced transfer of knowledge.

5.1 Limitations and directions for future research

The present study comes with multiple limitations that open up opportunities for further research. First, while the single organization research setting has the advantage of controlling naturally for firm-level factors influencing variance at the unit level, the generalizability of the findings may be somewhat limited (Edmondson and McManus 2007). Our multi-level approach allowed us to map the entire organizational network structure among all units and managers, while controlling for context-specific conditions that might impact the strategic renewal of business units. Future studies could replicate and extend our findings by examining a wider range of organizations and industries. In so doing, studies may reveal variation across different industry

environments and national cultures (Luo 2003). It would be particularly interesting for future multi-level research to examine cascading network effects in different industries and companies to validate the robustness of our results (Kilduff and Tsai 2003). In addition, as suggested by Rodan and Galunic (2004), the content that is transferred through the boundary-spanning ties is also a contingency that could reveal when TMs' or MMs' boundary-spanning is conducive to strategic renewal activity.

Second, this study illuminated some negative effects of MMs' role conflict; there may be other negative consequences of role conflict worthwhile avoiding. Although the number of potential roles employees may take on at work is unlimited (Welbourne et al. 1998), empirical evidence on how and under what circumstances managers are able to deal with contradictory demands, is still scarce (Birkinshaw and Gupta 2013). It would be interesting to include other coping mechanisms and personality traits, such as self-monitoring, self-efficacy and regulatory focus, which act as moderators of the relationship between role conflict and performance outcomes (Das and Kumar 2010; McMullen et al. 2009). By explicitly capturing these mechanisms, future research may generate a better understanding—beyond the overlapping network configurations—of how exactly MMs cope with the contradictions inherent in their roles and with multiple mandates from TMs.

Despite its limitations, this study helps scholars and practitioners understand the differential value and impact of boundary-spanning activities by TMs and MMs on their ability to foster unit exploration. In this spirit, we recommend more cross-hierarchical research models and the associated multi-level analyses to capture the joint and cascading effects in different contexts. Particularly, with respect to such cascading effects, future research could help develop and re-examine theory on intra-firm networks and CE, connecting the origins of strategic renewal activities to the challenges arising during implementation (Dess et al. 2003; Raes et al. 2011).

6 Conclusion

We began this paper by highlighting two core debates in the CE literature, namely which managers drive strategic renewal and how their social exchanges

contribute to strategic renewal. This study challenges the popular idea that MMs are key drivers of entrepreneurial action by providing evidence that—when considering boundary-spanning—TMs are important corporate entrepreneurs driving their units' strategic renewal activities. Accordingly, this research underscores that multi-level theory building and examination is essential for generating a deeper understanding of who drives CE activity in form of strategic renewal. We also reveal social liabilities as a consequence of TM boundary-spanning in form of increasing role conflict perceived by MMs, which in turn obstructs unit renewal activities. Such multi-level effects may account for some of the mixed findings in existing network–innovation research and advance the debate about costs and benefits in network theory in general and more specifically for CE as strategic renewal. Our study also provides evidence that overlapping boundary-spanning ties of MMs reduce their inclination toward role conflict. Hence, it takes a particular configuration of ties among boundary-spanning TMs and MMs to foster renewal effectively. In sum, the theorizing and findings presented in this article make a

step forward in the CE literature by differentiating between actors and their networks at different levels and by examining how these together enable and constrain strategic renewal. This study advances ongoing debates in studies about CE and social networks by providing novel, empirically validated insights into who drives strategic renewal and by uncovering multi-faceted effects of social exchanges.

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Appendix

See Fig. 3.

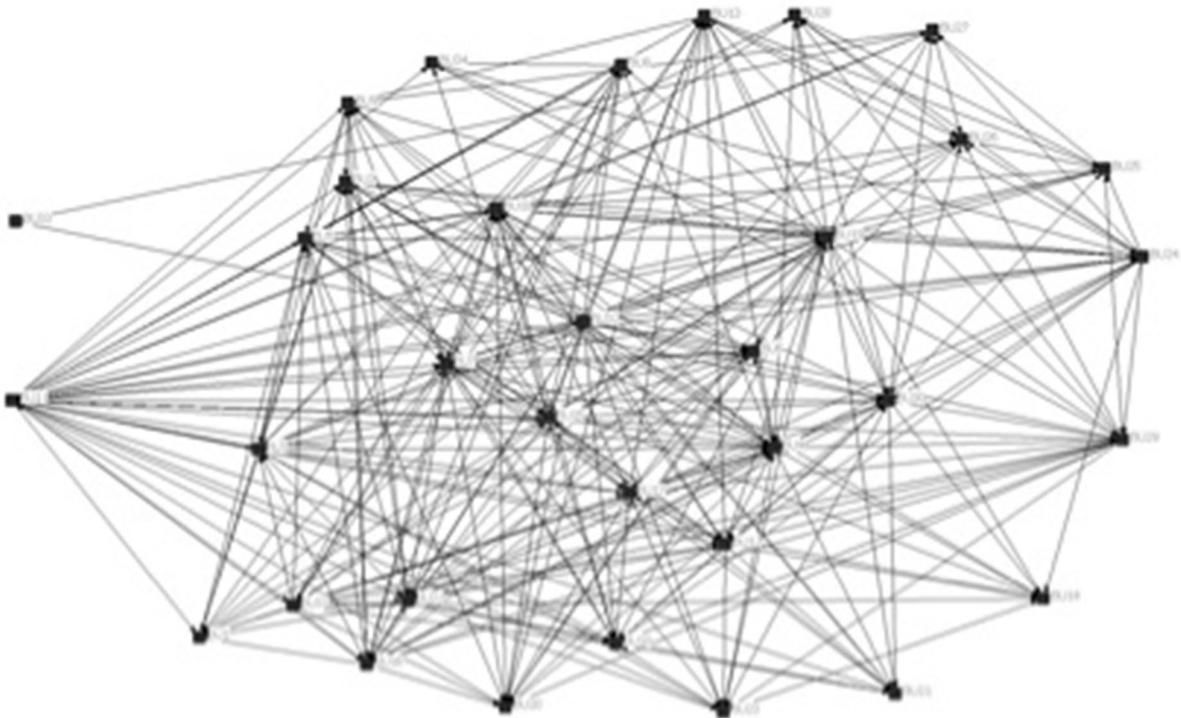


Fig. 3 TMT boundary-spanning ties of the 34 units under study

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