

STEFAN BREET

A Network Perspective on Corporate Entrepreneurship

**How Workplace Relationships Influence
Entrepreneurial Behavior**



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behavior

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Acknowledgements

*reis ver, drink wijn, denk na,
lach hard, duik diep,
kom terug.*

Uit “Kom Terug” van Spinvis (2011)

At the end of my third year as a doctoral student, I watched the Dutch musician Spinvis perform at Lowlands Festival—an annual three-day music festival in the Netherlands. It was just two days after my return from the Academy of Management Annual Meeting in Chicago. The festival crowd was peacefully listening to the music that drifted from the stage, the sun was brightly shining, and I was slowly recovering from my jet lag when Spinvis began playing the song “Kom Terug” (Come Back). It is a song about the transformative qualities of traveling, and it struck me that it could very well be the theme song of my PhD journey thus far. Its chorus consists of six imperatives: travel far, drink wine, contemplate, laugh hard, dive deep, come back. I have come to realize that all six of them played an important role in my academic development.

I certainly traveled far over the past seven years, both geographically and intellectually. I visited Atlanta, Utrecht, Chicago, Paris, Lexington (Kentucky), Brussels, Boston, Sydney, Minneapolis, Amsterdam, and Nijmegen to present my research, learn about the latest developments in my field, meet like-minded scholars, and engage in thought-provoking discussions.

Intellectually, I have dived into many phenomena, theories, and methodologies that were brand new to me when I was a first-year doctoral student. I familiarized myself with the literatures on corporate entrepreneurship and social networks. I discovered how robust academic findings can go hand in hand with valuable practical advice. I studied prominent management theories such as the Behavioral Theory of the Firm,

Performance Feedback Theory, and Social Network Theory. I learned how to initiate and manage fruitful research projects together with company partners. I became well versed in the collection and analysis of social network data. I took on an active role in the development of Necessary Condition Analysis, a promising new methodological approach. I transformed from a student into a teacher. All of these things required me to contemplate, dive deep, and come back to the common thread that eventually culminated into this dissertation.

My PhD journey would not have been possible without the people who supported me along the way. They accompanied me on my travels, shared a glass of wine with me, sharpened my mind, made me laugh, encouraged me to take a plunge into the unknown, and pulled me back when necessary.

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My PhD journey has ended here, but the adventure has just begun. I can only end by urging everyone to travel far, drink wine, contemplate, laugh hard, dive deep, and come back. It will be transformative.

Stefan Breet
Nijmegen, April 2022

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Chapter 1

Introduction

In October 2015, the Economist—a weekly newspaper—observed that organizations faced increasing competition by small start-ups "fueled by coffee and dreams" ("Reinventing the company," 2015). These newborn companies can rapidly seize entrepreneurial opportunities because they are unencumbered by rigid rules and routines, can navigate on simple performance indicators, and directly feel the financial responsibilities of their choices. In May 2021, more than five years later, the Economist published a similar story ("In the shadow of giants," 2021). Although large Western tech companies such as Facebook, Google, and Amazon have grown rapidly in the past decade, smaller companies such as Zoom and Twilio are snapping at their heels. The sheer size of the technological monoliths allows them to defend a profitable competitive position, but also divides their attention across a range of different products and services. Consequently, smaller companies can quickly carve out a niche by doing one thing very well. Whereas Microsoft must develop and maintain a range of different products such as an operating system (Microsoft Windows), an office software suite (Microsoft 365), and a gaming console (Xbox), Zoom can focus on making their single videoconferencing tool one of the best there is on offer. Smaller companies keep on challenging the status quo across many industries, and organizations need to respond in kind if they want to secure their long-term survival.

Past research shows that entrepreneurial organizations tend to outperform conservative ones (Bierwerth, Schwens, Isidor, & Kabst, 2015; Junni, Sarala, Taras, & Tarba, 2013; Rauch, Wiklund, Lumpkin, & Frese, 2009; Rosenbusch, Rauch, & Bausch, 2013). Organizations, however, often struggle to maintain or rekindle an entrepreneurial flair. The field of corporate entrepreneurship has dedicated itself to improving our understanding of this challenge. It has proposed several models that catalog the factors that

determine if organizations are able to successfully respond to changing circumstances (Hitt, Ireland, Sirmon, & Trahms, 2011; Ireland, Covin, & Kuratko, 2009; Ireland, Hitt, & Sirmon, 2003; Kuratko, 2010; Kuratko, Ireland, Covin, & Hornsby, 2005). Even though these models have contributed greatly to our understanding of the corporate entrepreneurship process, they do not explicitly recognize the role of the social context in which organizations and their employees find themselves. A separate and burgeoning strand of social network research shows that the entrepreneurial behavior of employees is a result of their agency as well as the social influence of the people they interact with (Baer, Evans, Oldham, & Boasso, 2015; Granovetter, 1985; Hollenbeck & Jamieson, 2015; Lengnick-Hall, Lengnick-Hall, Neely, & Bonner, 2021; Perry-Smith, 2003; Soltis, Brass, & Lepak, 2018). Models of the corporate entrepreneurship process that omit the role of social influence miss an important part of the picture, which might result in erroneous theoretical predictions and practical recommendations.

In this dissertation, I show that the social context is a crucial aspect of the corporate entrepreneurship process. With one of the most prominent models of the corporate entrepreneurship process as my point of departure (Kuratko, 2010), I develop a theoretical framework that provides a network perspective on corporate entrepreneurship and explicitly acknowledges the influence of workplace relationships on the entrepreneurial behavior of organizations and their employees (the NPCE framework, see Figure 1-2). Three separate empirical studies provide support for the NPCE framework. The first study shows that historical performance shortfalls trigger more entrepreneurial strategic behavior, while social performance shortfalls trigger more cautious strategic behavior. The second study shows that the relationship between organizational identification and entrepreneurial behavior in post-merger settings depends on the direct and indirect social relationships between employees. The third study shows that the network of social relationships between employees can prevent them from achieving high levels of entrepreneurial behavior, irrespective of their skills, expertise, and experience. Together, the NPCE framework and the three empirical studies provide important theoretical implications for future corporate entrepreneurship research. They also offer practical recommendations for organizations and individuals wanting to become more entrepreneurial.

1.1 A Brief History of Corporate Entrepreneurship Research

For most organizations¹, there comes a point when senior management feels that change is necessary to secure the organization's long-term viability. One of the reasons is that organizations have a tendency to repeat and reinforce behaviors that have been successful in the past (Cyert & March, 1963; Greve, 2003a; Levinthal & March, 1993). When circumstances change—for example because a start-up has found a more efficient way of producing and selling a product—existing capabilities might no longer suffice, and the organization must adapt itself. Topics like innovation, resilience, and adaptation—already high on many executive's agenda—are now more relevant than ever due to phenomena such as rapid digitalization, climate change, and the COVID-19 pandemic (Empson, 2021; Mithani, 2020). At the same time, however, organizations often struggle to create and cultivate an environment in which adaptation and change are “business as usual”. A survey conducted by the Boston Consulting Group—a consultancy—shows that even though 75% of the companies surveyed in 2021 classify innovation as a top-three priority, only 20% has the capabilities necessary to realize their innovation ambitions (Boston Consulting Group, 2021). A question that remains practically and theoretically relevant, therefore, is: *How can organizations become more entrepreneurial?*

The field of management science that has put this question front and center is the field of corporate entrepreneurship. The main premise of this field is that entrepreneurial behavior is essential for the long-term success of organizations (Kuratko, 2010; Kuratko & Covin, 2021). Entrepreneurial behavior has a broad meaning here and includes all the activities related to the creation of new businesses and the renewal of existing organizations (Guth & Ginsberg, 1990). Academic interest in corporate entrepreneurship took off in the eighties and nineties when scholars started to bridge the gap between the fields of strategic management and entrepreneurship

¹ The word “organization” refers to a medium-sized or large organization that has passed the start-up and growth phase. Corporate entrepreneurship can be relevant for young and small organizations too, as it helps them to think more strategically (Hitt, Ireland, Sirmon, & Trahms, 2011; Kuratko, 2010). This dissertation, however, focuses on medium-sized to large organizations that have been around for a while.

(Burgelman, 1984; Guth & Ginsberg, 1990; Hornsby, Naffziger, Kuratko, & Montagno, 1993; Sharma & Chrisman, 1999; Stopford & Baden-Fuller, 1994). The strategic management perspective argues that organizations must establish and maintain a competitive advantage to create value for themselves and their stakeholders (Hofer & Schendel, 1978; Ireland et al., 2003). The entrepreneurship perspective, in contrast, advocates that value creation depends on the discovery and exploitation of new opportunities (Wright & Hitt, 2017). Corporate entrepreneurship is a combination of the two perspectives. It is about maintaining an existing competitive advantage, while simultaneously searching for new business opportunities that can provide a competitive advantage in the future (Elfring, 2005).

As is common in new scientific fields, the first decade of corporate entrepreneurship research produced a range of different concepts and definitions. Recognizing the need for more consistent terminology, Sharma and Chrisman (1999) reviewed the terminology used in the field of corporate entrepreneurship and arrived at a clear distinction between independent and corporate entrepreneurship. *Independent entrepreneurship*, they argued, is a process in which an individual or a group of individuals creates a new organization independently of any association they have with existing organizations (Sharma & Chrisman, 1999: 18). *Corporate entrepreneurship*, in contrast, is a process whereby employees of an existing organization create a new organization or initiate strategic renewal and change within the organization they work for (Sharma & Chrisman, 1999: 18). An example of independent entrepreneurship is the creation of the ride-hailing company Uber. Garret Camp and Travis Kalinick founded Uber as Ubercab in 2009 to provide a cheaper alternative to regular taxi-services. An example of corporate entrepreneurship is the venturing program of Nokia. The goal of the program was to search for new growth opportunities that fit Nokia's vision but targeted a different market or needed a radically different technology (McGrath, Keil, & Tukiainen, 2006).

About a decade after Sharma and Chrisman's clarified the corporate entrepreneurship terminology, Morris, Kuratko, and Covin (2008) further specified the two ways in which corporate entrepreneurship can manifest itself in organizations. The first manifestation is *corporate venturing*, which includes all the different methods organizations use to create, add to, or

invest in new businesses (Burgelman, 1983a; Elfring, 2005; McGrath et al., 2006). If senior managers choose internal corporate venturing, for example, they will create a new business and make it an integral part of the existing organization (Covin & Miles, 2007). If they opt for external corporate venturing, they will invest in new ventures that operate autonomously (Kuratko, 2010). The second approach is *strategic entrepreneurship*, which occurs when organizations simultaneously engage in advantage-seeking (strategic management) and opportunity-seeking (entrepreneurship) activities (Ireland et al., 2009; Kuratko, 2010). Whereas advantage-seeking activities ensure the creation of value in the current competitive environment, opportunity-seeking activities ensure that the organization will be able to create value in the future (Hitt et al., 2011; Ireland et al., 2003). Strategic entrepreneurship typically takes one of five forms: strategic renewal, sustained regeneration, domain redefinition, organizational rejuvenation, and business model reconstruction (Covin & Miles, 1999; Duane Ireland & Webb, 2007).

Corporate entrepreneurship can also be reflected in an organization's general decision-making habits (Kuratko & Covin, 2021). One way to distinguish between conservative and entrepreneurial organizations is by measuring their entrepreneurial orientation. An organization's *entrepreneurial orientation* consists of the decision-making processes and managerial intentions geared towards the pursuit of entrepreneurial opportunities (Covin & Slevin, 1991; Lumpkin & Dess, 1996). The literature typically conceptualizes entrepreneurial orientation as consisting of three dimensions: risk taking, innovativeness, and proactiveness (Covin & Wales, 2012; Rauch et al., 2009). *Risk-taking* reflects the organization's tendency to commit to projects with uncertain outcomes, *innovativeness* the propensity to experiment and create new products, services, or procedures, and *proactiveness* the extent to which the organization anticipates future needs or challenges (Lumpkin & Dess, 1996). More recent work reconceptualized entrepreneurial orientation as a higher-order construct consisting of entrepreneurial behaviors and managerial attitude towards risk (Anderson, Kreiser, Kuratko, Hornsby, & Eshima, 2015). *Entrepreneurial behaviors* are defined as the organizational-level pursuit of innovation with the intended commercialization of these innovations in new markets, and *managerial*

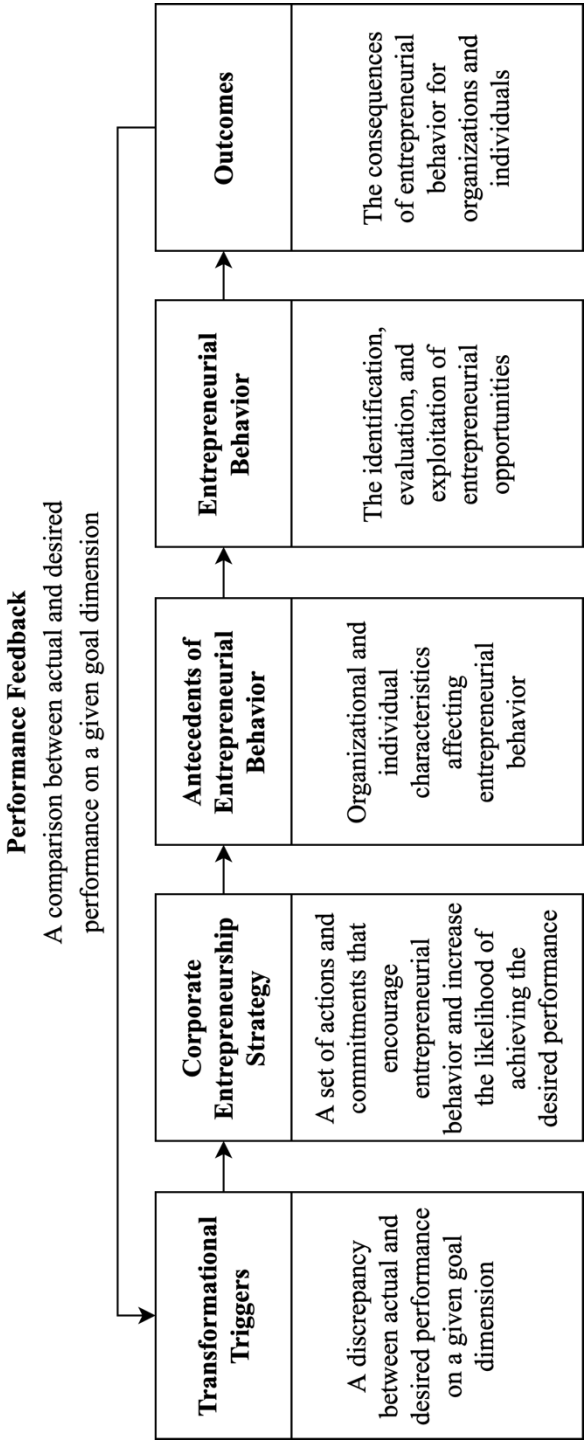
attitude towards risk as the inclination to favor strategic actions with uncertain outcomes (Anderson et al., 2015: 1583).

In sum, the notion that entrepreneurial behavior forms an integral part of an organization's strategy has inspired a burgeoning strand of corporate entrepreneurship research. Its practical relevance is evident too. Corporate entrepreneurship is a challenge that many companies recognize and struggle with (Garvin & Levesque, 2006). To prepare future employees and managers to meet this challenge, corporate entrepreneurship is part of the curriculum of business schools around the world (Kuratko & Morris, 2018). The three manifestations of corporate entrepreneurship—corporate venturing, strategic entrepreneurship, and entrepreneurial orientation—are also studied in their subdisciplines with attention to their idiosyncratic features and challenges. In this dissertation, however, I will focus on the more general conceptualization of corporate entrepreneurship as the process with which organizations adapt themselves to changing circumstances by pursuing entrepreneurial opportunities. For more extensive reviews of the corporate entrepreneurship literature, see the articles written by Dess and colleagues (2003), Phan and colleagues (2009), Kuratko (2010), Glinyanova and colleagues (2021), and Kuratko and Covin (2021).

1.2 The Corporate Entrepreneurship Process

Corporate entrepreneurship is typically described as a process (Hornsby et al., 1993; Kuratko, 2010; Morris & Kuratko, 2002). It starts when employees believe that something in the organization needs to change and decide that they must challenge the status quo. It ends with the outcomes of their efforts, which can be successful or unsuccessful for themselves and the organizations they work for. A model that broadly and comprehensively captures this process is the one developed by Kuratko (2010) (see Figure 1-1 for an illustration of Kuratko's model). According to this model, the corporate entrepreneurship process begins with an external event, such as increased competition or rapid technological change. The organization responds to this event with a corporate entrepreneurship strategy, which normally manifests itself as a specific form of corporate venturing or strategic entrepreneurship. The strategy shapes organizational characteristics such as the organization's

Figure 1-1
Illustration of the Corporate Entrepreneurship Process



Note: This model is an adaptation of the model presented by Kuratko (2010). The descriptions are based on the work of Schindehutte, Morris, and Kuratko (2000), Ireland, Covin, and Kuratko (2009), Ireland, Hitt, and Sirmon (2003).

culture and top management support, which are important antecedents of entrepreneurial behavior. Entrepreneurial behavior, in turn, is the cornerstone of the corporate entrepreneurship process. Depending on the organizational antecedents, employees will engage in entrepreneurial behaviors, such as recognizing and championing new entrepreneurial initiatives. Finally, the process ends with the consequences of entrepreneurial behavior, such as strategic renewal or the creation of new ventures.

I will use an adapted and updated version of Kuratko's (2010) model as the starting point of this dissertation (see Figure 1-1). The updated model recognizes that corporate entrepreneurship is a multi-level phenomenon, with an organizational and individual component influencing each other. Early corporate entrepreneurship research has already pointed to the importance of multi-level processes. For example, Burgelman (1983b, 1984) made a distinction between top-down and bottom-up approaches to entrepreneurial behavior. Another example is the work of Floyd and Lane (2000), who distinguish between the different roles of operational, middle, and top management in the strategic renewal process. Recognizing the importance of the multi-level perspective on corporate entrepreneurship, scholars have called for research that further develops this perspective (Dess et al., 2003; Phan et al., 2009). In response to this call, several theoretical models have been proposed that capture the multi-level nature of corporate entrepreneurship or its elements (Glaser, 2013; Hitt et al., 2011).

The first step in the model developed by Kuratko (2010) is an external transformational trigger. Schindehutte, Morris, and Kuratko (2000) provide an overview of 40 different triggering events, including the availability of new equipment, declining sales, or geographical expansion. One of the most powerful triggering events is a performance crisis (Kuratko, 2010; Tushman, Newman, & Romanelli, 1986). Performance Feedback Theory (Cyert & March, 1963; Greve, 2003a) offers a well-established theoretical framework that explains how and why organizations respond to performance feedback (Gavetti, Greve, Levinthal, & Ocasio, 2012; Lounsbury & Beckman, 2015). According to Performance Feedback Theory, organizational decision-makers determine the organization's aspiration levels: a set of goals—such as market share or profitability—and their required values (Cyert & March, 1963; Greve, 2003a). When the organization fails to achieve its aspiration levels, decision-

makers will engage in problemistic search ²to find a satisfactory solution and change the organization accordingly (Greve, 1998). This theoretical framework fits the corporate entrepreneurship framework well, as it provides a clear conceptual definition of the triggering event and describes the organizational response mechanisms. A *transformational trigger* can, therefore, be defined as a discrepancy between the organization's actual and desired performance on a given goal dimension

A corporate entrepreneurship strategy is something that organizational-decision makers can choose in response to a transformational trigger (Ireland et al., 2009; Kuratko, 2010). A corporate entrepreneurship strategy is centered on the entrepreneurial behavior of individuals (Ireland et al., 2009). The literature makes a distinction between two different strategic approaches. The top-down approach is similar to Burgelman's (1983b, 1984) model of induced strategic behavior. In this model, top-level managers design the strategy and structure of the organization, which serves as the context within which entrepreneurial behavior is stimulated and cultivated (Kuratko, 2010). This type of entrepreneurial behavior is formal in nature because it is part of an employee's job requirements. The bottom-up approach, in contrast, mirrors Burgelman's (1983b, 1984) model of autonomous strategic behavior. In this model, entrepreneurial behavior can emerge anywhere in the organization without being formally required (Kuratko, 2010). To align the first two steps of the adapted model of the corporate entrepreneurship process, I define a *corporate entrepreneurship strategy* as a set of actions and commitments that encourage entrepreneurial behavior and increase the likelihood of achieving the desired performance.

An organization's corporate entrepreneurship strategy shapes the conditions that influence entrepreneurial behavior. One of the first systematic attempts to identify the most influential antecedents of entrepreneurial behavior has been carried out by Hornsby, Kuratko, and Montagno (1999). They identified five factors: management support, work discretion, rewards and reinforcement, time availability, and organizational boundaries. Although these five factors are central to Kuratko's (2010)

² Problemistic search is a cognitive process in which decision-makers search for alternative solutions. The process is triggered when the organization encounters a problem (Cyert & March, 1963; March & Simon, 1958).

corporate entrepreneurship model, scholars have cataloged a diverse range of organizational and individual-level factors that affect the extent to which organizations and individuals identify and pursue entrepreneurial opportunities. At the organizational level, for example, studies have examined strategic alliances (Hess & Rothaermel, 2011; Hohberger, Almeida, & Parada, 2015), CEO ideology (Chin, Zhang, Jahanshahi, & Nadkarni, 2021), and employee involvement climate (Wallace, Butts, Johnson, Stevens, & Smith, 2016). At the individual level, studies have identified psychological traits such as risk propensity (Glaser, Stam, & Takeuchi, 2016) regulatory focus (Ahmadi, Khanagha, Berchicci, & Jansen, 2017), and perceived managerial support (Wu & Parker, 2017). In line with these findings, I define the *antecedents of entrepreneurial behavior* as the organizational and individual characteristics influencing entrepreneurial behavior.

Entrepreneurial behavior forms the cornerstone of the corporate entrepreneurship process. *Entrepreneurial behavior* can be defined as the identification, evaluation, and exploitation of entrepreneurial opportunities (Kuratko et al., 2005). An opportunity is entrepreneurial when it is characterized by innovativeness (it is based on a novel idea), risk-taking (it is unknown what its pay-off will be), and proactiveness (it is not formally required to pursue the opportunity) (Lumpkin & Dess, 1996). Entrepreneurial behavior has been examined at the individual level in many forms. For example, a popular strand of research examines creativity and people's ability to generate novel ideas (Amabile, 1996; Shalley, Hitt, & Zhou, 2015). A related line of research studies the championing and implementation of novel ideas (Baer, 2012; Berg & Yu, 2021). At the organizational level, scholars have identified different strategic behaviors to make a distinction between conservative and entrepreneurial organizations (Anderson, Eshima, & Hornsby, 2019; Anderson et al., 2015). For example, Strategic Entrepreneurial Behaviors have been defined as "*the firm's exploitation of new product-market opportunities through the intended commercialization of its product innovations*" (Anderson et al., 2019).

The final step in the corporate entrepreneurship process consists of the outcomes of entrepreneurial behavior (Kuratko, 2010). Entrepreneurial behavior can be effective or ineffective, successful or unsuccessful. The outcomes of effective entrepreneurial behavior at the individual level can be

intrinsic (e.g., social recognition or personal satisfaction) and extrinsic (e.g., receiving a financial bonus or promotion) in nature (Kuratko, 2010). The outcomes of effective entrepreneurial behavior at the organizational level include successful organizational adaptation and achieving the desired performance on a given goal dimension. Even though entrepreneurial behavior is risky, its outcomes tend to be positive. Several meta-analytic reviews show that entrepreneurial organizations tend to outperform conservative ones on both subjective and objective measures of firm performance (Bierwerth et al., 2015; Junni et al., 2013; Rauch et al., 2009; Rosenbusch et al., 2013). In line with the above, I define the *outcomes* of the corporate entrepreneurship process as the consequences of entrepreneurial behavior for organizations and individuals.

Finally, the outcomes of the corporate entrepreneurship process serve as the beginning of a new corporate entrepreneurship process. According to organizational learning theory (Argote & Miron-Spektor, 2011; Greve, 2003a; Levitt & March, 1988; Miner & Mezias, 1996), organizations learn from experience. Organizational learning is a feedback process in which organizations set a certain performance goal and try to achieve it. Successful actions and routines will be reinforced, while unsuccessful ones will be discarded. *Performance feedback* can thus be defined as a comparison between actual and desired performance on a given goal dimension. When the actual performance matches the desired performance, the goal has been achieved and the organization's decision-makers will switch their attention to a new objective (Cyert & March, 1963; Greve, 2003a). When the actual performance is lower than the desired performance, decision-makers will search for solutions and try to change the organization accordingly (Cyert & March, 1963; Greve, 2003a). In both scenarios, the discrepancy between actual and desired performance will serve as a transformational trigger that sparks a new corporate entrepreneurship process.

1.3 Developing a Network Perspective on Corporate Entrepreneurship

The model presented in Figure 1-1 provides an integrated and comprehensive description of the corporate entrepreneurship process.

However, it underexposes a critical factor that can make or break an organization's ability to successfully adapt itself to changing circumstances: the network of social relationships between employees and between organizations. Realistic explanations of human behavior acknowledge that people's actions are a result of their agency as well as their interactions with other people (Granovetter, 1985). The management literature consistently shows that this is true: people's attitudes and behaviors are influenced by the people they interact with (Borgatti, Brass, & Halgin, 2014; Borgatti, Mehra, Brass, & Labianca, 2009; Borgatti & Foster, 2003; Borgatti & Halgin, 2011; Galaskiewicz, Greve, & Tsai, 2004). Additionally, entrepreneurial behavior—the cornerstone of the corporate entrepreneurship process—is an inherently social phenomenon that can be promoted or prevented by the social context of organizations and employees (Amabile, 1983; Baer et al., 2015; Burt, 1992; Perry-Smith, 2006). The most prominent corporate entrepreneurship models (Hitt et al., 2011; Ireland et al., 2009, 2003; Kuratko, 2010; Kuratko et al., 2005), however, do not explicitly incorporate the role of social relationships and their influence on entrepreneurial behavior.

In this dissertation, I address this issue by developing and testing a theoretical framework that highlights the role of the social context in the corporate entrepreneurship process. I use the model presented in Figure 1-1 as my point of departure and augment it in two different ways to create a model that is neither under- nor oversocialized. First, recognizing the fact that the corporate entrepreneurship process takes place at multiple levels in the organization (Burgelman, 1983c; Glaser, 2013; Hitt et al., 2011), I make a distinction between the organizational and individual level. Organizational characteristics—such as an organization's culture and governance mechanisms (Kuratko, 2010)—provide the context in which entrepreneurial behavior of individuals takes place. The context alone, however, does not explain why some individuals behave entrepreneurially while others do not. Individual characteristics—such as personality, experience, and skill—matter too (Parker, Williams, & Turner, 2006; Scott & Bruce, 1994). The characteristics of the organization as well as the composition and behavior of its workforce collectively influence the extent to which the organization has a more conservative or entrepreneurial nature (Anderson et al., 2019, 2015).

Second, acknowledging the fact that individual agency and social influence drive behavior (Granovetter, 1985), I make a distinction between individual attributes and social context at both the organizational and individual level. I define *individual attributes* as the enduring characteristics of individuals and organizations that determine their behavior across a range of situations. Personality traits such as neuroticism and agreeableness are examples of enduring characteristics at the individual level (*APA Dictionary of Psychology*, 2015). Organizational characteristics such as capabilities and routines are examples of relatively stable characteristics at the organizational level (March, 1981). I define *social context* as the specific situation or general environment that serves as a social framework for individual, interpersonal, organizational, or interorganizational behavior (*APA Dictionary of Psychology*, 2015). The social context of individuals is made up of their relationships with other individuals, such as their colleagues, their peer groups, or their friends (see Borgatti, Mehra, Brass, and Labianca (2009) for a typology of different types of interpersonal connections). The social context of organizations, in contrast, consists of their relationships with other organizations, such as their competitors, buyers, suppliers, and governmental institutions (see Shipilov and Gawer (2020) for a review of interorganizational networks and ecosystems).

The corporate entrepreneurship process can thus be conceptualized as a multi-level phenomenon, in which entrepreneurial behavior of individuals and organizations is influenced by their attributes and social contexts. The framework presented in Figure 1-2 illustrates this idea. The framework highlights several elements of the corporate entrepreneurship process where the difference between individual attributes and social contexts plays a decisive role: organizational triggers, organizational characteristics, and individual characteristics. First, organizational change triggers may bring about different responses when organizations compare their current performance with their peers instead of their own past performance (Blettner, He, Hu, & Bettis, 2015; Eggers & Suh, 2018; Greve & Gaba, 2017; Kacperczyk, Beckman, & Moliterno, 2015; Kim, Finkelstein, & Halebian, 2015). Second, the organizational characteristics that provide the context in which entrepreneurial behavior takes place have a formal component consisting of task, roles, and formal hierarchies, and an informal

component consisting of social norms, mutual expectations, and access to knowledge and information (McEvily, Soda, & Tortoriello, 2014). Finally, the entrepreneurial behavior of individuals depends on their personality, expertise, and experience, as well as on their position in the intra-organizational network of informal relationships (Hollenbeck & Jamieson, 2015; Lengnick-Hall et al., 2021; Soltis et al., 2018).

Before I discuss the three distinctive elements of the network perspective on corporate entrepreneurship in more detail, it is important to demarcate the theoretical domain of this dissertation. The theoretical domain of a study consists of all the possible cases of the object of study to which a certain theory applies (Dul & Hak, 2007). The network perspective on corporate entrepreneurship incorporates two different objects of study: organizations and individuals. The framework and its theoretical explanations apply primarily to knowledge-intensive organizations and their employees. Knowledge intensive organizations are organizations that develop and sell sophisticated knowledge or knowledge-based products and services (Alvesson, 2004). Examples of knowledge intensive organizations are professional service firms (organizations that offer customized knowledge-based services to their clients) and R&D companies (companies where the R&D expenses outweigh the manufacturing costs) (Alvesson, 2004). These companies can only remain competitive by continuously developing new knowledge (Morris, Smets, & Greenwood, 2015; Smets, Morris, & Malhotra, 2012; Suddaby & Greenwood, 2001). Their ability to do so depends on their network of social relationships, which determines whether their employees can efficiently search for, access, transfer, absorb, and apply new knowledge (Phelps, Heidl, & Wadhwa, 2012).

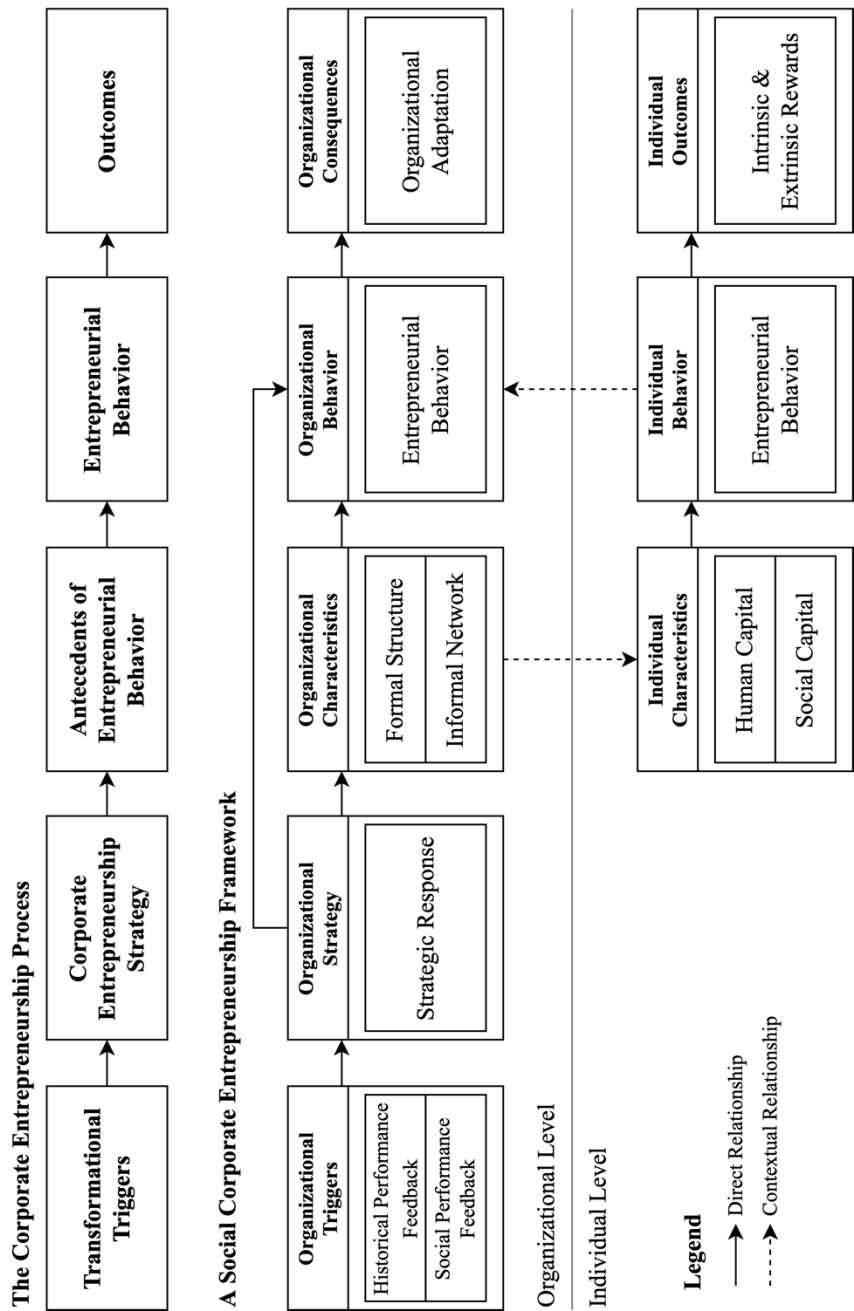
1.3.1 Organizational Level

One of the strongest triggers of organizational change is the inability of organizations to meet their performance goals (Kuratko, 2010; Tushman et al., 1986). Performance Feedback Theory (Cyert & March, 1963; Greve, 2003a) explains why and how organizations respond to performance shortfalls. Its main premise is that performance shortfalls trigger organizational change that is supposed to restore performance to the desired level (Greve, 1998,

2003a). Organizational decision-makers typically assess their organization's performance based on two reference points: the past performance of their organization (historical reference point) and the current performance of comparable organizations (social reference point) (Cyert & March, 1963; Greve, 2003a). Early work on Performance Feedback Theory typically hypothesized the same behavioral effects for historical and social reference points (Greve, 2003a). More recently, however, scholars have started suggesting that different types of reference points can trigger different behavioral responses (Blettner et al., 2015; Eggers & Suh, 2018; Greve & Gaba, 2017; Kacperczyk et al., 2015; Kim et al., 2015). An historical reference point is an individual attribute of an organization because it reflects relatively stable organizational characteristics (Greve, 2003a). A social reference points is part of the organization's social context because it serves as an external benchmark (Greve, 2003a). It is, therefore, important to understand if and how they differently trigger the corporate entrepreneurship process.

The next distinctive element of the network perspective on corporate entrepreneurship is the set of organizational characteristics that make up the context in which entrepreneurial behavior takes place. Organizational research typically emphasize the formal or informal elements of organizations (McEvily et al., 2014). The *formal organization* consists of the stable routines, fixed rules, and hierarchical structures that coordinate and control behavior, while the *informal organization* consists of the social interactions between employees and the norms and values that govern these interactions (McEvily et al., 2014). Early corporate entrepreneurship research primarily focused on the formal organizational characteristics that foster entrepreneurship, such as the appropriate use of rewards, management support, resource availability, organizational structure, and work discretion (Hornsby et al., 1999, 1993). Nowadays, we know that the informal organizational characteristics play an important role too. For example, the network of informal relationships between employees determine the distribution of knowledge within the organization and directly affect innovation performance (Grigoriou & Rothaermel, 2014; Nerkar & Paruchuri, 2005; Paruchuri & Eisenman, 2012). A complete corporate entrepreneurship framework, therefore, acknowledges both the elements of the formal organization (individual attributes) and the elements of the informal organization (social context).

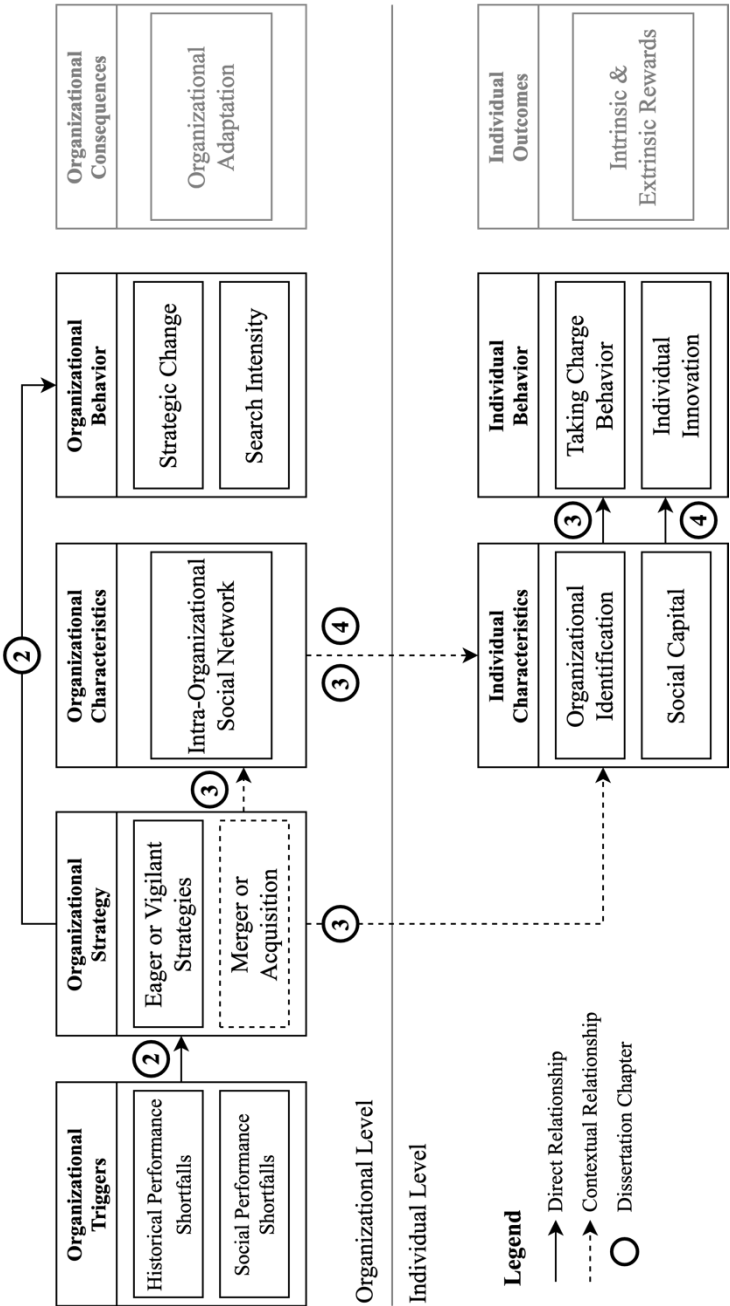
Figure 1-2
A Network Perspective on Corporate Entrepreneurship (NPCE Framework)



1.3.2 Individual Level

The characteristics of people influence the extent to which they behave entrepreneurially (Kuratko, 2010). It is, therefore, useful to make a distinction between individual attributes and social context as antecedents of entrepreneurial behavior at the individual level. In fact, management scholars increasingly call for research that examines both aspects simultaneously (Hollenbeck & Jamieson, 2015; Lengnick-Hall et al., 2021; Soltis et al., 2018). More specifically, they argue that it is important to make a distinction between human and social capital, and to investigate how they interact. *Human capital* is the value of the skills, knowledge, and experience possessed by an individual or organization. *Social capital* is the value of the social relationships possessed by an individual or organization. Both human and social capital are productive: they make it possible to achieve certain ends which could not be achieved without it (Coleman, 1988). Several interesting research questions emerge from this line of reasoning. Can social capital compensate for the absence of human capital and vice versa? Can social capital reduce or enhance the value of social capital and vice versa? To provide an answer to these questions, corporate entrepreneurship scholars increasingly study human and social capital as the individual attributes and social context that shape entrepreneurial behavior of individuals (Glaser, Fourné, Brennecke, & Elfring, 2021; Glaser, Fourné, & Elfring, 2015).

Figure 1-3
Illustration of the relationships between the dissertation chapters and their position in the Corporate Entrepreneurship process



1.4 Overview of the Dissertation

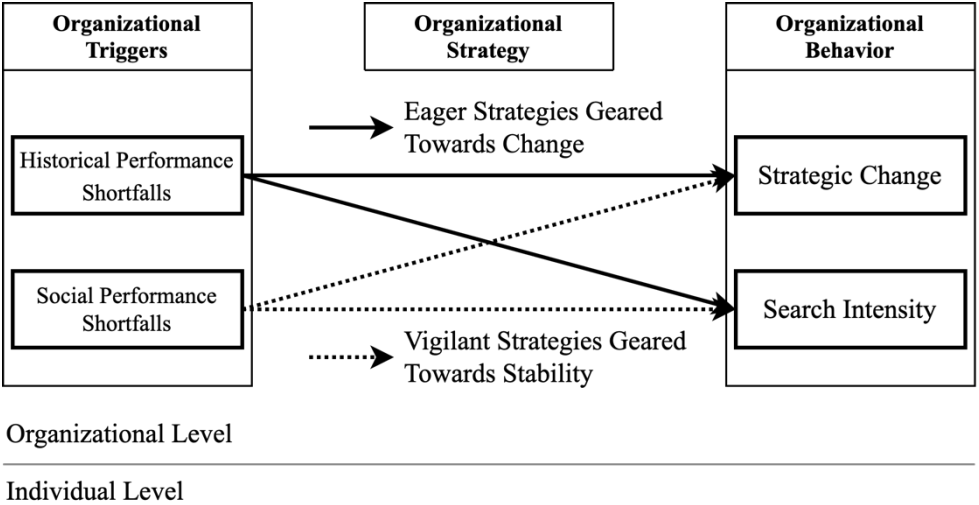
In the next three chapters of this dissertation, I investigate, develop, and test several aspects of the NPCE Framework presented in Figure 1-2. Chapter 2—titled *Rocking the boat or steadying the ship? Explaining differential organizational responses to performance feedback*—reports an organizational level study in which my co-authors and I examine when and why historical and social performance shortfalls lead to more entrepreneurial or more conservative organizational responses. Chapter 3—titled *Leading the dance or digging your heels in the sand? A social network perspective on organizational identification and post-merger taking charge behavior*—reports an individual level study of a post-merger context in which my co-authors and I investigate how the direct and indirect social relationships between employees affect the extent to which organizational identification will trigger entrepreneurial behavior. Finally, Chapter 4—titled *Shooting for the stars or hitting the ceiling? Why open networks are necessary for exceptional levels of individual innovation*—reports an individual level study in which my co-authors and I investigate whether the social relationships of employees can become a bottleneck that prevents them from achieving exceptional levels of entrepreneurial behavior. The relationships between the chapters and the elements of the NPCE framework they address are displayed in Figure 1-3.

1.4.1 Study One – Examining the Differential Effects of Historical and Social Performance Shortfalls on Entrepreneurial Behavior

Chapter 2 of this dissertation reports a theory-extending meta-analysis of 75 primary performance feedback studies in which my co-authors and I show that historical and social performance shortfalls have opposite behavioral effects on organizational-level entrepreneurial behavior. We enrich Performance Feedback Theory (Cyert & March, 1963; Greve, 2003a) with Regulatory Focus Theory (RFT) (Higgins, 1997, 1998) to explain why this is the case. We argue that organizations performing worse than a year before will behave more entrepreneurially because historical performance shortfalls will activate the promotion motivational system of the organization's decision-makers. Furthermore, we hypothesize that they are more likely to

initiate strategic change and less likely to carefully search for alternative options. In contrast, we argue that organizations performing worse than their competitors will behave more cautiously because social performance shortfalls will activate the prevention motivational system of the organization’s decision-makers. We hypothesize that they are less likely to initiate strategic change and more likely to search for alternative courses of action. Figure 1-4 provides an illustration of the chapter’s main relationships, its theoretical concepts, and their position in the NPCE framework.

Figure 1-4
Illustration of Chapter 2’s main relationships, theoretical concepts, and their position in the NPCE Framework



We tested our hypothesis by applying Meta-Analytic Structural Equation Modeling (Bergh et al., 2016) and analyzed a combined sample of 788.887 observations reported in the 75 primary studies. Our results confirm that organizations behave more entrepreneurially in response to historical performance shortfalls and behave more conservatively in response to social performance shortfalls. More specifically, we show that decision-makers increase both strategic change and problemistic search when they respond to historical performance shortfalls. In contrast, they respond with a steep decline in strategic change to social performance shortfalls. These findings

Table 1-1*Summary of the key characteristics of study 1 (Chapter 2)*

Topic	Organizational responses to social and historical performance shortfalls
Level of Analysis	Organization
Outcomes	Strategic change; problemistic search
Predictors	Social and historical performance shortfalls
Theoretical Lenses	Performance Feedback Theory (PFT); Regulatory Focus Theory (RFT)
Method	Meta-Analysis (MA); Meta-Analytic Structural Equation Modeling (MASEM)
Unit of Analysis	Firm
Sample	75 primary performance feedback studies representing 788.887 observations
Key Findings	<ul style="list-style-type: none"> - Historical and social performance shortfalls have different behavioral effects—both in terms of valence (positive and negative) and relative composition (search intensity and strategic change) - Historical performance shortfalls cause eager responses geared towards change and social performance shortfalls cause cautious responses geared towards stability - Regulatory focus theory provides a fitting explanation of these behavioral responses

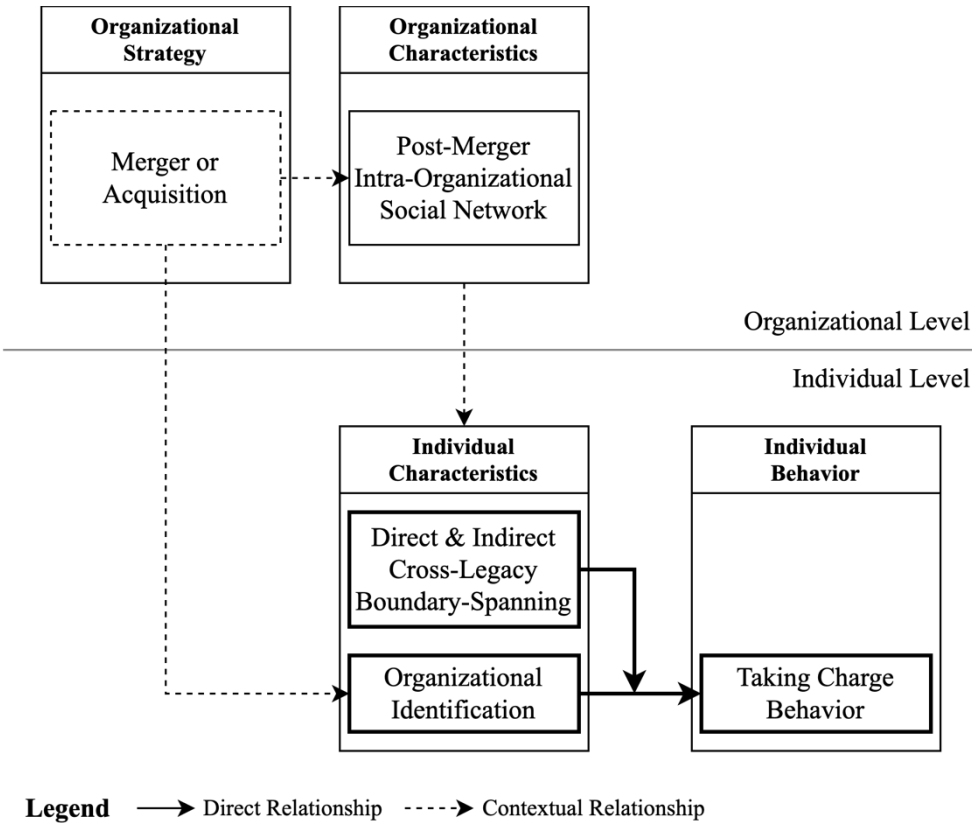
have several important implications for future research on the Behavioral Theory of the Firm (Cyert & March, 1963) and Performance Feedback Theory (Cyert & March, 1963; Greve, 2003a), which will be extensively discussed in Chapter 2. The most important implication for future research on corporate entrepreneurship is that the type of transformational trigger matters. Historical performance shortfalls trigger organizational change, while social performance shortfalls trigger organizational stagnation. A summary of the characteristics of study 1 is presented in Table 1-1

1.4.2 Study Two – Examining the Conjoint Effect of Human and Social Capital on Entrepreneurial Behavior in a Post-Merger Setting

Chapter 2 shows that performance shortfalls serve as powerful transformational triggers, either stimulating or discouraging organizations to behave entrepreneurially. Another event with far-reaching consequences for organizations and their employees are mergers and acquisitions (M&As). Even though they often fail to realize their intended benefits (Cartwright & Cooper, 1995; Grotenhuis, 2009; Thanos & Papadakis, 2012), M&As remain highly popular strategic options for organizations seeking to increase their market share or leverage new capabilities (Graebner, Heimeriks, Huy, & Vaara, 2017). In Chapter 3 of this dissertation, my co-authors and I develop a social network perspective on the relationship between organizational identification and post-merger entrepreneurial behavior. The M&A literature typically views organizational identification as a driver of post-merger success (Graebner et al., 2017; Ullrich & Dick, 2007) because strong identifiers are more likely to support M&As (Giessner, Ullrich, & van Dick, 2011; Ullrich, Wieseke, & Dick, 2005; Van Knippenberg, van Knippenberg, Monden, & de Lima, 2002). The broader organizational identification literature, however, shows that organizational identification can also lead to impassiveness, complacency, and resistance to change (Conroy, Henle, Lynn Shore, & Stelman, 2017; Dutton, Dukerich, & Harquail, 1994; Tangirala & Ramanujam, 2008). My co-authors and I argue that the effect of organizational identification on entrepreneurial behavior depends on the direct and indirect informal relationships between the members of the two merging organizations. Figure 1-5 provides an illustration of the chapter's main relationships, its theoretical concepts, and their position in the NPCE framework.

We collected a rich primary dataset about the informal relationships between 129 employees working for a digital payment services provider one year after a merger of equals of two legacy organizations. We operationalized entrepreneurial behavior as taking charge behavior: voluntary and constructive efforts to challenge the status quo and initiate positive organizational change (Morrison & Phelps, 1999). Results of a moderation analysis shows that organizational identification has a positive effect on

Figure 1-5
Illustration of Chapter 3’s main relationships, theoretical concepts, and their position in the NPCE Framework



taking charge behavior when employees have direct cross-legacy boundary-spanning ties: social ties with colleagues who used to work for the other legacy organization. The effect is negative for employees with indirect cross-legacy boundary-spanning ties. The results of this study have important implications for future research on M&As (Eisenman & Paruchuri, 2019; Graebner et al., 2017), boundary-spanning (Kaplan, Milde, & Cowan, 2017; Leahey, Beckman, & Stanko, 2017; Mors, Rogan, & Lynch, 2018; Woehler et al., 2021) which will be discussed in detail in Chapter 3. The key implication for future research on corporate entrepreneurship is that the behavioral effect of organizational identification is not unequivocally positive. Instead, we show that under

certain conditions, high levels of identification can sharply decrease the likelihood that employees will challenge the status quo and initiate positive organizational change. A summary of the characteristics of study two is presented in Table 1-2.

Table 1-2
Summary of the key characteristics of study 2 (Chapter 3)

Topic	The effect of organizational identification on post-merger taking charge behavior
Level of Analysis	Individual
Outcomes	Taking charge behavior
Predictors	Organizational identification; direct and indirect cross-legacy boundary-spanning
Theoretical Lenses	Social Identity Theory; Social Network Theory
Method	Social Network Analysis; Moderation Analysis
Unit of Analysis	Employee
Sample	129 employees working for a European digital payments service provider one year after a merger of equals
Key Findings	<ul style="list-style-type: none">- The relationship between organizational identification and post-merger taking charge behavior is influenced by the direct and indirect ties between the employees of two legacy organizations- Direct (indirect) cross-legacy boundary-spanning positively (negatively) moderates the effect between organizational identification and post-merger taking charge behavior

1.4.3 Study Three – Examining the Ceiling Effect of Social Capital on Entrepreneurial Behavior

Chapter 3 shows that the social context of employees who strongly identify themselves with their organization determines whether they will behave entrepreneurially or not. In Chapter 4 of this dissertation, my co-

authors and I show that the social context can also determine the maximum level of entrepreneurial behavior that employees can potentially achieve. According to structural holes theory (Burt, 1992), employees who invest their time and energy into a single group of closely connected colleagues have access to a homogenous knowledge base. It will boost efficiency but harms creativity and idea generation (Amabile, 1983; Fleming, Mingo, & Chen, 2007). Recognizing the information disadvantage of closed networks, scholars have begun identifying a range of factors that can compensate for the lack of diverse information, such as someone’s cognitive style (Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018), and the bandwidth of shared information (Aral & Van Alstyne, 2011; Bruggeman, 2016). It is unclear, however, whether these compensating factors can fully substitute for the information advantages of an open network. We integrate necessity logic (Dul, 2016; Goertz & Starr, 2003) with structural holes theory (Burt, 1992) and argue that an open network is a necessary condition for achieving high levels of individual innovation. Network openness can thus cause a “ceiling effect” that determines the maximum level of entrepreneurial behavior employees can achieve. Figure 1-6 provides an illustration of the chapter’s main relationships, its theoretical concepts, and their position in the NPCE framework.

Figure 1-6
Illustration of Chapter 4’s main relationships, theoretical concepts, and their position in the NPCE Framework

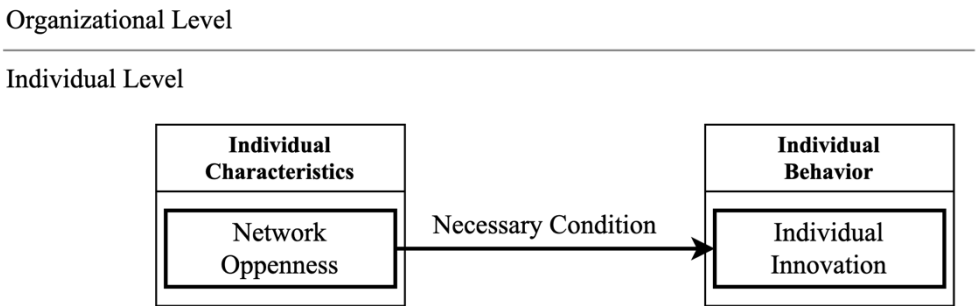


Table 1-3
Summary of the key characteristics of study 3 (Chapter 4)

Topic	The effect of social capital on exceptional levels of entrepreneurial behavior
Level of Analysis	Individual
Outcomes	Individual innovation
Predictors	Network openness
Theoretical Lenses	Structural holes theory
Method	Social Network Analysis (SNA); Necessary Condition Analysis (NCA)
Unit of Analysis	Employee
Sample	94 employees working for a global professional service firm
Key Findings	<ul style="list-style-type: none">- Closed networks prevent employees of professional service firms from achieving high levels of individual innovation- Moderate levels of individual innovation can be achieved in open and closed networks

We collected a fine-grained social network dataset consisting of 94 employees working for a global professional service firm to test our theoretical predictions. We measured entrepreneurial behavior as individual innovation: the generation, elaboration, championing, and implementation of novel solutions by individual employees (Perry-Smith, 2006; Scott & Bruce, 1994). Results from a necessary condition analysis confirm our hypothesis and show that high levels of entrepreneurial behavior can only be achieved by professionals with open networks. Employees in closed networks achieve moderate levels of entrepreneurial behavior at best. The results of this study have important implications for future research on social networks and entrepreneurial behavior (Aral & Van Alstyne, 2011; Bruggeman, 2016; Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018; Rodan & Galunic, 2004), and the literature on star employees (Call et al., 2015; Grigoriou & Rothaermel, 2014), which will be discussed in Chapter 4. The most important implication for future research on corporate entrepreneurship is that the

social context of employees imposes a ceiling effect on their entrepreneurial behavior, irrespective of their skills, expertise, and experience. An open workplace social network is thus a “need-to-have” for achieving exceptional levels of entrepreneurial behavior. Our study shows that it is not possible for employees with closed networks to fully compensate for the lack of non-redundant information. A summary of the characteristics of study 3 is presented in Table 1-3.

1.5 Declaration of Contributions

Although I am the first author of this dissertation, chapters 2, 3, and 4 are the result of a joint effort. I want to gratefully acknowledge the contributions of my promotors Prof. Dr. Justin Jansen and Prof. Dr. Jan Dul, my co-promotor and daily supervisor Dr. Lotte Glaser, and my co-authors Prof. Dr. Pursey Heugens and Dr. Anna Nadolska. Chapters 1 and 5 of this dissertation—the introduction, and conclusion—were written solely by me with feedback from my supervisory team. Most of the work presented in chapters 2, 3, and 4 was completed by me—including the identification of the research gaps and research questions, the literature reviews, the data collection and analysis, and the write-up of the manuscripts. Prof. Dr. Pursey Heugens and Dr. Anna Nadolska provided feedback and advice during the research process that led up to Chapter 2. They also fine-tuned parts of the text to prepare the manuscript for submission to a scientific journal. Prof. Dr. Justin Jansen and Dr. Lotte Glaser provided theoretical and methodological guidance to the studies reported in chapters 3 and 4. Dr. Lotte Glaser supported the primary data collection process in both studies and helped me to manage and maintain fruitful relationships with the industry partners with whom we collaborated. Both Prof. Dr. Justin Jansen and Dr. Lotte Glaser also contributed to fine-tuning the texts of chapters 3 and 4. Prof. Dr. Jan Dul provided feedback and advice on Chapter 4 and edited parts of the methodology section.

Next to the contribution of my supervisors and co-authors, the chapters of this dissertation have also benefited from feedback during conference presentations and research seminars. Chapter 2 has benefited from presentations at the Strategic Management Society Annual Meeting in

Chapter 1

Paris (2018), the Rotterdam School of Management, Erasmus University, and the University of Kentucky. Chapter 3 has benefited from presentations at the virtual EGOS Colloquium in Amsterdam (2021a), the Academy of Management Annual Meeting (2021b), the virtual European Conference on Social Networks in Naples (2021c), and the virtual Strategic Management Society Annual Meeting in Toronto (2021d). It also benefited from feedback that I received during research seminars at the Rotterdam School of Management, Erasmus University, and the Radboud University Nijmegen. Chapter 4 has benefited from feedback received at the SUNBELT conference in Utrecht (2018) and the virtual Strategic Management Society Annual Meeting in London (2020). It also benefited from presentations at the Rotterdam School of Management, Erasmus University, the University of Kentucky, the University of Sydney, and emlyon.

Chapter 2

Rocking the boat or steadying the ship? Explaining differential organizational responses to performance feedback

Abstract. *The core premise of performance feedback theory is that performance shortfalls trigger problemistic search and strategic change. Recent studies have suggested, however, that social and historical performance feedback processes might lead to different behavioral responses, and that problemistic search and strategic change differ systematically in terms of their manifested aims and vigor. Moreover, the triggering effects of performance shortfalls are not unequivocally supported by empirical evidence. To reconcile these incongruent results, we enrich PFT with insights from regulatory focus theory. Specifically, we argue that historical performance shortfalls will trigger strategies focused on change, whereas social performance shortfalls trigger strategies focused on stability. Our meta-analytic synthesis of 75 primary performance feedback studies supports these predictions.*

2.1 Introduction

Performance Feedback Theory (PFT) offers a set of compelling explanations of organizational adaptation and strategic change (Gavetti et al., 2012; Lounsbury & Beckman, 2015). At the heart of the theory lies the notion that organizational behavior is governed by a stable feedback process, which determines how organizations respond to performance shortfalls (Cyert & March, 1963; Greve, 2003a; March, 1981). According to PFT, organizations that perform below their aspiration levels—defined as the target performance that is deemed satisfactory by the organization’s decision makers (Greve, 2003a)—will engage in problemistic search to find solutions that will bring organizational performance back to the desired level and change the organization accordingly as soon as a satisfactory solution has been identified (Cyert & March, 1963; Greve, 1998). Prior research has shown that decision makers take behavioral cues from two different sources of information when they set the organization’s aspiration levels (Greve, 1998; Washburn & Bromiley, 2012). They establish a historical aspiration level of satisfactory performance based on the level of performance the organization has realized in the past. Social aspiration levels, in contrast, are derived by vetting the performance of other organizations that are deemed comparable to the focal firm by its key decision makers. Together, the social and historical aspiration levels tell decision makers how well the organization should perform.

Despite the intuitive appeal of these theoretical ideas, the findings reported in the performance feedback literature point to a more intricate reality, reflected by three areas of inconsistency. First, although PFT distinguishes between social and historical performance feedback, little is known about their differential effects on organizational decision-making. Indeed, several scholars have recently suggested that different types of aspirations lead to different behavioral consequences in the form of either search intensity³ or organizational change (Blettner et al., 2015; Eggers & Suh,

³ Although problemistic search is the theorized response to performance shortfalls (Cyert & March, 1963; Greve, 1998), the behavior commonly considered and observed in primary studies is search intensity: the level of resources invested by the organization to conduct problemistic search (Posen, Keil, Kim, & Meissner, 2018). We, therefore, focus on search intensity as the organizational response relevant to our meta-analytic synthesis of the performance feedback literature.

2018; Greve & Gaba, 2017; Kacperczyk et al., 2015; Kim et al., 2015). Second, the behavioral consequences of performance shortfalls are typically conceptualized as consecutive steps through which organizations seek to restore their performance to levels that match their aspirations. In reality, however, an intense search process does not always lead to organizational change (Greve, 2003a), and change often happens without being preceded by an intense search process (Cohen, March, & Olsen, 1972; March, 1981). Finally, in a qualitative review of the literature, Posen and colleagues (2018) show that studies report positive, statistically insignificant, and negative effects of historical and social performance shortfalls on search intensity and strategic change. Empirical findings in the PFT literature are thus mixed and await more fine-grained theoretical explanation. Together, these inconsistencies call for a better understanding of the different types of aspirations as a motivation for organizational action (Bromiley & Harris, 2014; Greve & Gaba, 2017). They also point to questions such as when and why decision makers choose for an intense search process or strategic change, and what the different determinants of this choice are.

To answer these questions, we need a more fine-grained explanation of the differential organizational responses to historical and social performance shortfalls. To this end, we propose to enrich PFT by inculcating it with ideas drawn from Regulatory Focus Theory (RFT) (Higgins, 1997, 1998). According to RFT, people resolve performance discrepancies with eager strategies geared towards change or vigilant strategies geared towards stability depending on whether they have a prevention or promotion regulatory focus (Higgins, 1998; Scholer & Higgins, 2008). RFT thus allows us to better understand the reasoning of senior organizational decision makers, as they are the ones who have to identify and interpret discrepancies between the organization's performance and its aspiration levels and are in charge of developing strategic responses to social and historical performance shortfalls. While both PFT and RFT indicate that decision makers are motivated to reduce performance discrepancies, RFT specifically explains why decision makers will choose one potential response over the other. Ultimately, augmenting PFT with RFT helps us to theorize about when and why decision makers either decide to intensify the search for alternative solutions or to initiate organizational change as the most appropriate

response to performance feedback, as well as about why and under what circumstances performance feedback impacts the salience of the prevention or promotion motivational systems.

We argue that historical performance shortfalls activate the promotion system of decision makers because they perceive of success against historical aspirations as the *presence of a positive outcome* (doing better than before). Furthermore, the low information requirements of the historical performance feedback mechanism reduce causal ambiguity about solutions that potentially ameliorate the performance discrepancy. Social performance shortfalls, in contrast, activate the prevention system because success in light of social aspirations is seen as the *absence of a negative outcome* (not doing worse than the competition). The activation of the prevention system is further strengthened by the comparatively higher level of causal ambiguity and greater information requirements surrounding social performance feedback.

We conducted a theory-extending meta-analysis, which aims to go beyond presenting a synthesis of the prior PFT literature by establishing novel theoretical linkages with the research stream on RFT (Eden, 2002; Shaw & Ertug, 2017). We constructed a meta-analytic sample spanning 75 primary PFT studies to assess the effects of historical and social performance shortfalls on search intensity and strategic change. Our findings confirm that organizations will ‘rock the boat’ by seeking advancement strategies when historical performance shortfalls trigger the promotion system of decision makers. This response is characterized by an increase in both strategic change and search intensity. In contrast, organizations will ‘steady the ship’ by enacting stability-enhancing strategies when social performance shortfalls activate decision makers’ prevention system. This response is characterized by a steep decline in strategic change and a strong increase in search intensity. Our theorizing and findings show that while organizational responses to historical performance shortfalls seem to follow the original performance feedback model (Cyert & March, 1963; Greve, 1998), explaining organizational responses to social performance shortfalls requires an extension of current PFT reasoning with insights derived from RFT.

Our study has three implications for PFT and for our understanding of organizational responses to performance shortfalls. First, in contrast with

received PFT reasoning, our results show that heightening strategic change is the default organizational response only when senior decision makers establish that their organizations perform below their historical aspiration levels. When organizations miss their social performance targets, however, strategic change levels do not increase. This finding aligns with previous studies showing that historical and social performance shortfalls indeed have different behavioral consequences—both in terms of valence (positive and negative) and relative composition (search intensity and strategic change) (e.g., Blettner et al., 2015; Eggers & Suh, 2018; Greve & Gaba, 2017; Kacperczyk et al., 2015; Kim et al., 2015). Second, by drawing upon RFT, we offer a fitting explanation of the differential organizational responses to historical and social performance feedback, rooted in a commensurable behavioral perspective. We extend PFT with arguments drawn from RFT, which allows us to explain how decision makers respond to performance shortfalls. We theorize that whereas historical performance feedback activates decision makers' promotion system, social performance discrepancies enact their prevention system, respectively resulting in the pursuit of eager or cautious strategies to reduce the performance discrepancy. Finally, our study shows that strategic change and search intensity (operationalized as the level of resources dedicated to the search process) should be considered as two possible outcomes of the performance feedback process, which can vary independently of one another.

2.2 Theory & Hypotheses

Since the development of a behavioral perspective on organizational decision-making (Cyert & March, 1963; March & Simon, 1958), management scholars have considered a mismatch between aspired and realized performance as a strong cue for organizational action. A failure to achieve organizational goals serves as a signal of strategic ineffectiveness or incompetence, thus providing impetus to amendment efforts. The literature has documented many cases of organizational change and problemistic search in response to performance shortfalls. They range from new market entry (Barreto, 2012; Ref & Shapira, 2017), the selection of alliance partners (Baum, Rowley, Shipilov, & Chuang, 2005; Shipilov, Li, & Greve, 2011), and

CEO turnover (Jiang, Cannella, Xia, & Semadeni, 2017), to investments in research and development (R&D) (Bromiley & Washburn, 2011; Kotlar, Fang, De Massis, & Frattini, 2014) and innovation (Gaba & Bhattacharya, 2012). Boards of directors use the difference between aspired and actual performance to assess managerial effectiveness (Walsh & Seward, 1990) and to determine whether they should monitor the firm more closely (Tuggle, Sirmon, Reutzel, & Bierman, 2010). These examples show that organizational decision-making is inextricably tied to performance feedback.

2.2.1 Organizational Responses to Performance Feedback

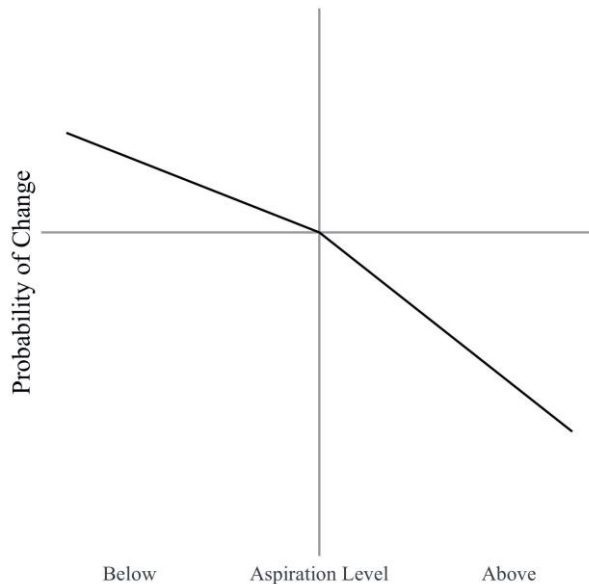
According to PFT, decision makers use two types of aspiration levels to determine whether the performance of their organizations is adequate. Aspiration levels are usually based on two specific sources of information. First, *historical aspiration levels* are based on the past performance of the focal organization. They have good forecasting properties because they are rooted in internal information, and they provide a stable indication of how well the organization can perform (Greve, 2003a, 2003b). Second, *social aspiration levels* are based on the performance of a group of organizations that decision makers deem similar to the focal organization. The performance of comparable organizations serves as a useful benchmark because it reflects the environmental pressures and competitive dynamics that are shared by the entire reference group (Greve, 2003a). The necessary information to establish an accurate social aspiration level is more difficult to collect, however, and harder to comprehend because the most competitively valuable information is usually not reported externally (Greve, 2003a).

A comparison of actual performance with historical or social aspiration levels can trigger two possible responses (Cyert & March, 1963; Greve, 2003a). First, when organizational performance falls below social or historical aspiration levels, decision makers might engage in *problemistic search* to find a solution that will bring performance back to the desired level (Cyert & March, 1963). It is a process in which boundedly rational decision makers search for actions representing an alternative to the status quo. The search for feasible alternatives stops as soon as a satisfactory solution has been found (Simon, 1955). We conceptualize *problemistic search* in terms of its

intensity as “the level of resources invested by firms to conduct problemistic search” (Posen et al., 2018: 224). Second, the implementation of a solution can also lead to *organizational change*, defined as any strategic action taken by the organization’s decision makers to improve performance that permanently changes the organization or its activities (Cyert & March, 1963). Since these solutions involve significant deviations from current behavior, PFT scholars often suggest that organizational change is a consequence of an intense search process, such that these two organizational response processes are causally and temporally related (Posen et al., 2018).

Figure 2-1

Changing slope response to performance feedback



Search intensity and the probability of strategic change increase when performance falls further below social and historical aspiration levels (Cyert & March, 1963; Greve, 1998). In contrast, change is less likely to occur when performance is above the aspiration level because decision makers then neither have to correct for a performance shortfall nor search for solutions. Since the necessity to change rapidly declines when performance surpasses the aspiration level, an increase in the level of positive performance feedback

has a stronger effect on the reduction of search intensity and organizational change than a similar decrease in the level of negative feedback. A graphical representation of this “changing-slope response” (Greve, 1998: 62) is displayed in Figure 2-1.

2.2.2 Variability of Responses to Performance Feedback

Since its conception as a cornerstone of the behavioral theory of the firm (Cyert & March, 1963), PFT has developed into one of the most vibrant “indigenous” organization theories that we currently have at our disposal (Lounsbury & Beckman, 2015). With its maturation, however, scholars have uncovered several empirical and theoretical intricacies that point to a performance feedback process that is not always as unidimensional and sequential as assumed in the theory’s initial postulation. In our review of the literature, we identified three areas of inconsistency supporting this observation.

First, in contrast with the assumption that historical and social performance feedback result in similar organizational response patterns, recent studies have suggested that different aspiration types engender different behavioral effects (Bromiley & Harris, 2014; Greve & Gaba, 2017; Harris & Bromiley, 2007; Kim et al., 2015). The PFT literature asserts that decision makers occasionally switch their attention between aspiration types, thus focusing on one type at the expense of the other (Bromiley & Harris, 2014; Washburn & Bromiley, 2012). The relative distribution of attention to historical and social aspiration levels thus varies over time (Blettner et al., 2015). Still, it is generally assumed in the literature that the responses to social and historical underperformance are the same. The results of studies such as those of Blettner and colleagues (2015), Eggers and Suh (2018), and Kim, Finkelstein and Halebian (2015), however, show that different types of feedback trigger different behavioral outcomes. It is for this reason that scholars call for a better understanding of different types of aspirations as a motivation for organizational action (Bromiley & Harris, 2014; Greve & Gaba, 2017).

Second, the organizational response to underperformance is usually conceptualized as a sequential process, in which search and organizational

change are causally linked and temporally separated (Posen et al., 2018). Yet, organizations often simultaneously allocate resources to problemistic search and organizational change. Even though researchers have examined the effect of performance shortfalls on search intensity (e.g., Chen, 2008; Vissa, Greve, & Chen, 2010) and organizational change (e.g., Ref & Shapira, 2017; Tyler & Caner, 2016) we do not yet know how organizations adjust the relative salience of these responses. Early ideas for their co-existence include the notion that organizational change is driven by solutions instead of problems, which occur without an intense search process (Cohen et al., 1972; Levinthal & March, 1981). Search, in turn, does not necessarily lead to organizational change (Greve, 2003a) because organizations continuously generate and test alternative solutions, without any guarantee that they will be implemented.

Finally, the empirical evidence presented in the PFT literature does not unequivocally show that historical and social performance shortfalls trigger an intense search process and organizational change. Posen and colleagues (2018) show that studies alternatively report positive, statistically insignificant, and negative effects. These contradictory findings appear across the entire literature, irrespective of aspiration type or performance measurement. If we used these findings to redraw the slopes of figure 1, we would have to draw positive slopes, negative slopes, and slopes that are near to zero. It appears that organizations sometimes prefer to change in response to negative performance feedback, whereas at other times they prefer stability. This variability across the PFT literature, therefore, indicates that the changing-slope response is not always an accurate prediction of organizational behavior.

2.2.3 Regulatory Focus Theory

One prominent theory that explains differential responses to feedback at the decision maker level is RFT (Higgins, 1997, 1998). It has strong similarities with PFT, since it also takes the discrepancy between a current and desired end-state as the starting point for understanding behavioral outcomes. In this paper, we integrate RFT—an individual-level theory—with PFT—an organizational-level theory. Such cross-level combinations are especially valuable when the combined theoretical framework explains

incongruent findings (Agarwal & Hoetker, 2007). The main precondition that must be met before combining theories operative at two different levels of analysis is that the resultant framework does not violate the assumptions of either theory (Shaw, Tangirala, Vissa, & Rodell, 2018). As we will argue, the assumptions of PFT and RFT are well-aligned. We also show that their theoretical integration offers a fitting explanation of the variability among organizational responses to historical and social performance shortfalls.

There are three reasons why RFT augments our current understanding of organization-level performance feedback processes. First, RFT explains *when* and *why* decision makers prefer eager or cautious strategies in response to performance shortfalls. While both PFT and RFT argue that decision makers are motivated to reduce performance discrepancies, RFT also describes the motivational systems governing the response. Second, RFT explains *why* situational cues increase or reduce the salience of the prevention and promotion motivational systems, as well as the subsequent behavioral response. While both PFT and RFT argue that performance discrepancies serve as behavioral cues triggering action, RFT also explains how the nature of the cue affects the strategies that decision makers employ. Finally, RFT shows that there are two ways of interpreting success. While both PFT and RFT emphasize success and failure as drivers of the feedback process, RFT also shows that the definition of success—as a gain or as a non-loss—differs depending on the motivational system that is being activated.

Specifically, RFT assumes that people reach for desired end states and avoid undesired end states (Scholer & Higgins, 2008). RFT argues that there are two motivational systems, which are found to differing degrees in all persons, which determine the strategies people employ to reduce a negative discrepancy (Higgins, 1998; Scholer & Higgins, 2008). People with a *promotion focus* see their goals as ideals that should be strived for. They are motivated by the presence or absence of positive outcomes, and assertively employ eager strategies that ensure “hits” and avoid “misses” (Crowe & Higgins, 1997). People with a *prevention focus* consider their goals to be duties that must be fulfilled. They are motivated by the presence or absence of negative outcomes and prefer cautious strategies that ensure correct rejections and avoid making mistakes (Crowe & Higgins, 1997). As a result, promotion-focused people care about growth, advancement, and attaining

better states, while prevention-focused people care about safety, security, and maintaining the status quo (Higgins, 1998).

The preference for an eager or cautious strategy depends on the regulatory state of a person, which can be triggered by situational cues. This state may derive from chronic or situational factors (Scholer & Higgins, 2012). Every person has a chronic disposition for a promotion focus, a prevention focus, or a combination of both. The literature, therefore, has studied chronic regulatory focus as a stable personality variable that varies in strength and composition (Scholer & Higgins, 2012). This does not mean, however, that a person's regulatory focus is unresponsive to contextual influences. As a matter of fact, the dominance of one motivational system over the other is receptive to situational cues (Higgins, Roney, Crowe, & Hymes, 1994). A promotion focus can become more salient, for example, when goals are framed in terms of gains versus non-gains, whereas a prevention focus is activated when goals are framed in terms of non-losses versus losses.

A person's regulatory state plays an important role in the performance feedback process, due to the different meaning of success in the promotion and prevention systems (Brockner & Higgins, 2001; Higgins, 1997). For a promotion-focused person, success is defined as the presence of a gain (Crowe & Higgins, 1997; Higgins et al., 1994; Molden & Higgins, 2005). As a consequence, they are particularly sensitive to positive discrepancies between "0" (the status quo) and "+1" (their ideal), and less sensitive to the negative discrepancies between "0" and "-1" (Brendl & Higgins, 1996; Higgins, 1997). For a prevention-focused person, success is defined as the absence of a loss (Crowe & Higgins, 1997; Higgins et al., 1994; Molden & Higgins, 2005). They are particularly sensitive to negative discrepancies between "0" (the status quo) and "-1" (not meeting the status quo) and less sensitive to the positive discrepancies between "0" and "+1" (Brendl & Higgins, 1996; Higgins, 1997; Higgins & Tykocinski, 1992). The asymmetry between the two systems is important for the performance feedback process because someone with a promotion focus is successful when they achieve a positive change (i.e., a gain), while someone with a prevention focus is successful when they maintain the status quo (i.e., a non-loss) (Higgins, 1997).

A growing body of literature shows that RFT is well-equipped to explain strategic decision-making at the executive level (see Scholer &

Higgins (2012) for a review). These studies show that the regulatory foci of managers—including CEOs and top management teams—shape their behavior. A particular prolific area is leadership research, focusing on leader and follower regulatory focus (Kark & Van Dijk, 2019). Central to this area is the notion that the regulatory foci of leaders determine their motivation to lead, their leadership behaviors, and the effectiveness of their leadership style (Kark & van Dijk, 2007; van Knippenberg & van Kleef, 2016). The research area more relevant to the PFT literature, however, is the set of studies examining the effect of regulatory focus on strategic outcomes, such as the number and value of acquisitions (Gamache, McNamara, Mannor, & Johnson, 2015), the level of engagement in stake-holder initiatives (Gamache, Neville, Bundy, & Short, 2020), the willingness to experiment and engage in exploration (Ahmadi et al., 2017; Kammerlander, Burger, Fust, & Fueglistaller, 2015), the tolerance for opportunistic behavior of alliance partners (Das & Kumar, 2011), and the allocation of attention to competitive threats (McMullen, Shepherd, & Patzelt, 2009). These studies forge an important link with PFT, in that they show that strategic organizational decisions—including responses to performance shortfalls—are made by decision makers subject to different, situationally enacted, regulatory foci.

2.2.4 A Promotion-Focused Response to Historical Performance Shortfalls

When decision makers are confronted with historical performance shortfalls, it is likely that their promotion-focused motivational system becomes more salient. Success in terms of historical performance feedback is typically perceived of as the presence of a positive outcome (performing better than before) and failure as the absence of a positive outcome (performing the same as or worse than before). There are two reasons for this. First, according to the behavioral theory of the firm, decision makers will maximize their utility in situations in which profits are greater than or equal to the profits necessary to cover for salaries, staff, investments, and slack (Cyert & March, 1963: 240). Since these expenses are likely to rise in the future as much as they have in the past, the current aspiration level always exceeds the past achievement level “*by a small amount*” (Cyert & March, 1963: 33). A

year-to-year performance improvement therefore signals that decision makers are able to ensure the long-term viability of the organization. Second, executive compensation schemes commonly incentivize increases in firm size (van Essen, Heugens, Otten, & van Oosterhout, 2012). Decision makers therefore receive strong motivational cues that growth—and not stagnation—is particularly valued by stakeholders.

The salience of the promotion-focused motivational system is further increased by the information requirements of historical feedback. Historical feedback has low information requirements and good forecasting properties because it reflects the relatively stable characteristics of the focal organization (Greve, 2003a). Decision makers have access to the type of internal knowledge necessary for feedback interpretation and can thus identify the possible causes of performance shortfalls (Menon & Pfeffer, 2003). As a result, the historical aspiration level tells decision makers how well the organization *could* perform given its capabilities and resources (Greve, 2003a). The ability to attribute an outcome to self-initiated actions furthermore increases illusions of control (Thompson, 1999), which promotion-focused individuals tend to develop as a buffer against the emotional consequences of failure (Langens, 2007). This combination of factors makes it easier for decision makers to choose and commit to a course of action which they believe will solve the performance discrepancy.

Due to the salience of the promotion-focused motivational system, it is likely that decision makers will respond to historical performance shortfalls by increasing strategic change and decreasing search intensity. For promotion-focused decision makers, the only acceptable change is a movement beyond the status quo (“0”) to a positive performance outcome (“+1”). To achieve this goal, they will choose eager strategies that support advancement over cautious strategies that maintain the status quo (Higgins, 1997). An eager strategy is characterized by an increase in strategic change because promotion-focused decision makers are more willing to switch to new activities. When choosing between options, they tend to prefer riskier ones that harbor the promise of a larger pay-off (Crowe & Higgins, 1997; Levine, Higgins, & Choi, 2000; Liberman, Idson, Camacho, & Higgins, 1999). Responses to historical performance shortfalls are also likely to be characterized by a decrease in the level of resources allocated to search

because promotion-focused decision makers prefer speed to accuracy (Pham & Chang, 2010), tend to de-escalate commitment to current courses of action (Molden & Hui, 2010), and avoid making errors of omission that result from not taking a particular action (Higgins, 2015). We thus expect that promotion-focused decision makers will implement available solutions instead of broadening the range of possible solutions through a prolonged search process. See Hypotheses 1 and 2:

Hypothesis 1: When historical performance shortfalls are larger, organizational decision makers are more engaged in strategic change.

Hypothesis 2: When historical performance shortfalls are larger, organizational decision makers decrease search intensity.

2.2.5 A Prevention-Focused Response to Social Performance Shortfalls

When decision makers are confronted with social performance shortfalls, their prevention-focused motivational systems likely become more salient. Success in terms of social performance feedback is defined as the absence of a negative outcome (not performing worse than competitors) and failure as the presence of a negative outcome (performing worse than competitors). The reason is that social aspiration levels have a strong *normative* function (Kelley, 1952; Moliterno, Beck, Beckman, & Meyer, 2014). This is a unique characteristic of social performance feedback because it is related to the standards of group membership (Kelley, 1952). When social performance shortfalls increase, there is a point at which the focal organization can no longer be meaningfully compared to the reference group and loses its membership of it. As a consequence, low rankings within the reference group are interpreted by managers as negative performance feedback. Moliterno and colleagues (2014) draw the analogy between the normative function of social performance feedback and “competence-based” tournaments, in which players focus on “not losing” and perceive the

“avoidance of punishment” as a reward. From an RFT perspective, not performing worse than competitors is seen as a duty that must be fulfilled.

The salience of the prevention-focused motivational system is increased by the information requirements of social performance feedback. It is difficult for decision makers to interpret social performance feedback because the information needed to compare the focal organization with its peers is not easily accessible (Greve, 2003a). Kim, Finkelstein, and Halebian (2015) argue that there are two reasons why social aspiration levels are ambiguous performance benchmarks. First, knowledge about the capabilities of other firms is often only available to the managers of those firms (Menon & Pfeffer, 2003). Second, it is difficult to assess the heterogeneity among the members of the reference group, and a relevant reference group might not even be available (Beckman & Haunschild, 2002; McEvily & Zaheer, 1999). The relationship between actions and social performance shortfalls is, therefore, difficult to determine and uncertainty about what constitutes the right course of action is high. Since prevention-focused people show more ambiguity aversion than promotion-focused people (Liu, 2011), such causal ambiguity reinforces their preference for safety and security (Higgins, 1997).

When the prevention-focused motivational system is activated, decision makers will likely respond to social performance shortfalls by decreasing strategic change and increasing the allocation of resources to problemistic search. Prevention-focused decision makers are satisfied when they manage to change an unacceptable negative performance outcome (“-1”) to the acceptable status quo (“0”). They prefer cautious strategies geared towards stability (Higgins, 1997). This preference has two organizational consequences. First, implementing cautious strategies will lead to a decrease in strategic change because prevention-focused decision makers are more likely to remain committed to current courses of action (Scholer & Higgins, 2012). When confronted with a set of options, they tend to prefer conservative to risky ones (Crowe & Higgins, 1997; Liberman et al., 1999). Second, vigilance will lead to an increase in search intensity because prevention-focused decision makers prefer accuracy to speed (Pham & Chang, 2010) and like to take the time to contemplate different choices and explore different possibilities (Zhu & Meyers-Levy, 2007). Cautious responses involve increasing the allocation of resources to search intensity, which increases the

set of solutions decision makers can choose from (Greve, 2003a; Levinthal & March, 1981), and reduces risk (Bromiley, Rua, & Zhang, 2017). See Hypotheses 3 and 4:

Hypothesis 3: When social performance shortfalls are larger, organizational decision makers are less engaged in strategic change.

Hypothesis 4: When social performance shortfalls are larger, organizational decision makers increase search intensity.

2.3 Methods

We tested our hypotheses with a theory-extending meta-analysis of 75 primary PFT studies reporting 28,855,432 primary observations. Using meta-analysis allows us to quantitatively determine the extent to which historical and social performance shortfalls impact strategic change and search intensity across studies (Hunter & Schmidt, 1990). By leveraging the cumulative empirical evidence of the PFT literature, we can minimize the limitations of single studies—such as sampling and measurement error—and arrive at more conclusive estimates of our focal relationships (Eden, 2002). We use meta-analytic structural equation modeling (MASEM) to move beyond a simple summary of bivariate associations and test a comprehensive theoretical model that accounts for the interdependence between our hypothesized variables as well as a set of important control variables derived from the literature (Bergh et al., 2016). We thus seek to both synthesize and extend existing theory, which is a prerequisite for developing novel theoretical insights from meta-analyses (Eden, 2002; Shaw & Ertug, 2017). Our MASEM approach, therefore, differs from the bivariate meta-analytic synthesis of organizational responses to positive and negative performance feedback by Kotiloglu, Chen, and Lechler (2019) and the qualitative review of the research on problemistic search by Posen and colleagues (2018).

2.3.1 Literature Search

To identify the largest possible set of primary studies, we employed four search strategies. First, to ensure that the sampled studies are part of the behavioral theory of the firm research tradition, we surveyed all articles citing Cyert and March (1963) listed in the ISI Web of Science database. We used several search terms to identify relevant studies, including “Feedback”, “Aspiration*”, “Aspiration Levels”, “Historical Comparison”, and “Social Comparison”. Second, we examined the reference lists of review articles covering empirical work on aspirations (Shinkle, 2012), the behavioral theory of the firm (Argote & Greve, 2007; Gavetti et al., 2012), and organizational learning (Miner & Mezias, 1996; Schulz, 2005). Third, we manually examined the articles published from 2010 onwards in four top-tier management journals: *Academy of Management Journal*, *Administrative Science Quarterly*, *Organization Science*, and *Strategic Management Journal*. Finally, based on the studies identified in the first three steps, we contacted 65 authors directly. We asked them for published and unpublished work to mitigate the so-called “file-drawer problem”: the concern that significant results tend to be overrepresented in meta-analyses due to publication bias (Borenstein, Hedges, Higgins, & Rothstein, 2009).

To determine which studies should be included in our dataset, we used five eligibility criteria (Lipsey & Wilson, 2001). First, because PFT operates at the organizational level of analysis, the study should have the organization or business unit as the object of study. Second, it should contain a quantitative analysis and report effect size estimates of our hypothesized relationships and sample sizes (Hunter & Schmidt, 2004). Third, the study should cite Cyert and March (1963) to assure its pedigree in the PFT literature. The application of these first three criteria resulted in an initial dataset of 436 eligible studies. Fourth, the study should measure performance relative to aspiration levels, which reduced our dataset to 173 studies. The study should furthermore operationalize performance feedback as a spline function (Greve, 1998), with separate variables capturing performance above and below the aspiration level. Of the remaining 173 studies, 98 operationalized performance feedback as attainment discrepancy: a continuous variable capturing the absolute difference between aspiration level and actual

performance. These studies cannot be used to test our hypotheses because they do not make a distinction between performance above and below aspiration levels with a spline function. Our final dataset, therefore, consists of 76 samples reported in the 75 primary studies (see Appendix A for a bibliographic overview).

2.3.2 Coding Protocol

We developed a coding protocol in accordance with the conventions for rigorous meta-analytic procedures (Lipsey & Wilson, 2001) and the Meta-Analysis Reporting Standards (MARS) of the American Psychological Association (APA) (Appelbaum et al., 2018). We recorded three sets of characteristics. First, study characteristics, such as the names of authors, publication year, and journal title. Second, we coded sample information, including number of observations, geographical and industry information, cross-sectional or longitudinal design, and sampling timeframe. Third, we used the Pearson correlation coefficient as effect size information, and coded the number of observations, the names of the variables, and the ways the variables have been operationalized and measured.

2.3.3 Measures

Firm Performance. We followed the authors' operationalizations when we coded for organizational performance. The resulting measurement strategy is in line with the view that performance is a latent multidimensional construct (Miller, Washburn, & Glick, 2012; Richard, Devinney, Yip, & Johnson, 2009) and includes dimensions such as accounting (e.g., Desai, 2008; Greve, 2010; Iyer & Miller, 2008), market (e.g., Baum & Dahlin, 2007; Greve, 1998), and innovative performance (e.g., Gaba & Bhattacharya, 2012; Lungeanu, Stern, & Zajac, 2016).

Performance Below the Historical Aspiration Level. This variable is measured as the absolute difference between a firm-level performance indicator and the firm's historical aspiration level if the resulting value is negative and zero otherwise (Greve, 1998). The studies in our sample measured the historical aspiration level as the performance of the organization one period earlier, as an average of the performance over prior

periods, or as an exponentially weighted moving average across prior time periods. It should be noted that out of the 75 studies in our dataset, 54 included the negative value of the performance shortfall in their analysis, while the remaining 21 transformed them to an absolute value. To draw correct conclusions, we must align the signs of the effects before conducting the meta-analysis. We chose to use the absolute value to aid interpretation of the results and reversed the sign of the historical performance shortfall correlations if they were based on a negative operationalization.

Performance Below the Social Aspiration Level. This variable is measured as the absolute difference between a firm-level performance indicator and the firm's social aspiration level if the resulting value is negative and zero otherwise (Greve, 1998). The studies in our sample measure the social aspiration level as mean industry performance, median industry performance, or the exponentially weighted moving average of either. We reversed the sign of the social performance shortfall correlations if they were based on a negative operationalization to include the absolute value in our analysis.

Strategic Change. We operationalized this variable as discrete changes in an organization's strategy. This operationalization captures the degree of change, its direction, and its likelihood (Rajagopalan & Spreitzer, 1997). The first set of measurements included in our dataset count the strategic actions that the firm undertook in a given period, such as the number of new R&D alliances (Tyler & Caner, 2016), the number of divestitures (Desai, 2016), new market entry (Ref & Shapira, 2017), or the number of new product introductions (Parker, Krause, & Covin, 2017). The second set of measurements capture the direction of strategic change that happened over a certain period, including strategic divergence of an organization relative to another organization (Park, 2007) and reference group (Schimmer & Brauer, 2012). The third and final set of measurements capture the likelihood that the firm will change, such as the acquisition hazard rate (Iyer & Miller, 2008; Kim et al., 2015).

Search Intensity. To measure the *intensity of search* we followed common practice (Posen et al., 2018), using the relative or absolute allocation of resources to R&D (e.g., Chen, 2008; Chrisman & Patel, 2012; Greve, 2003b).

Control Variables. To control for alternative explanations of our hypothesized relationships, we coded the correlations of the variables in our model with *performance above social and historical aspiration levels*, *organizational age*, *size*, *experience*, and *slack*. We control for *age* because older organizations tend to withdraw attention from social aspiration levels and focus instead on prior performance (Blettner et al., 2015). They are also more likely to hold on to routines that were successful in the past (Levinthal & March, 1993). We control for *size* because larger organizations are more rigid and their inertial processes make change less likely (Greve, 2003b, 2010). We control for *organizational experience* because it influences the interpretation of and response to feedback (Kim et al., 2015). We measured organizational experience as prior discrete changes in an organization's strategy, including the cumulative number of repetitions of a specific action or outcome. Finally, we control for *slack* resources because they weaken the relationship between performance feedback and strategic change (Kuusela, Keil, & Maula, 2017), and form a cushion that buffers the firm from negative consequences in times of adversity (Cyert & March, 1963).

2.3.4 Meta-Analytic Procedures

Our meta-analytic approach consists of two steps, which we implemented with R version 4.0.0 (R Core Team, 2020). First, we used version 2.1-0 of the metafor package (Viechtbauer, 2010) to conduct a meta-analysis (MA) of the empirical evidence reported by the PFT studies in our sample. We combined the meta-analytic results into a meta-analytic correlation table. Second, we used version 0.6-4 of the lavaan package (Rosseel, 2012) to estimate a meta-analytic structural equation model (MASEM) based on the meta-analytic correlation table. MASEM is particularly appropriate for our study because it allows us to test a comprehensive theoretical model with multiple dependent variables (Bergh et al., 2016). This means that we can examine the simultaneous effects of performance feedback on strategic change and search intensity. A separate meta-analysis of the two relationships would only inform us about the average effect of feedback on change, or feedback on search, without considering their interdependence. The same reasoning holds true for historical and social

performance feedback because we can use MASEM to establish the average effect of historical performance feedback while controlling for the effect of social performance feedback, and vice versa.

Meta-Analysis (MA). To combine all available effect sizes, we used Hedges and Olkin-type meta-analysis (HOMA) (Hedges & Olkin, 1985). HOMA is an appropriate choice because most of the studies in our sample used archival data, making Hunter and Schmidt-style corrections for psychometric measurement properties less appropriate (Geyskens, Krishnan, Steenkamp, & Cunha, 2009). The HOMA procedure consists of four steps. First, we used Fisher's (1921) z transformation to correct for potential skewness in our effect size distribution (2001). Second, we weighted each effect size by the inverse of its variance, to reduce the influence of sampling error and attribute greater informational weight to effect sizes based on larger sample sizes. Third, we used the random-effects model to compute a summary effect and modeled the variance of each correlation coefficient as a composite of the variation in true correlations (between-study variance) and sampling error (within-study variance) (Borenstein et al., 2009; Lipsey & Wilson, 2001). It is likely that true effect sizes vary between studies because a large part of the studies in our sample is functionally different (e.g., based on different sampling strategies or data structures) or draws from different empirical populations (e.g., different countries or industries). Finally, we transformed the Fisher's z score of the summary effect back to a correlation coefficient (Borenstein et al., 2009).

The HOMA procedure yields several test statistics that allow us to interpret the mean effect size, test for heterogeneity (the variation in true effect sizes) and quantify this heterogeneity. The estimated mean correlation coefficient (r) is a function of the number of correlation coefficients (k) and the number of observations on which they are based (N). Its precision is reflected by its standard error (SE) and confidence interval (95% CI). To test for non-homogeneity of true effects, we use the Q -statistic and its corresponding p -value. Finally, two measures are used to quantify heterogeneity: T^2 provides the estimated (between-study) variance of the true effect sizes and I^2 the proportion of the observed variance that is due to the variation in true effect sizes (Borenstein et al., 2009).

Meta-Analytic Structural Equation Modeling (MASEM). We combined the average correlation coefficients resulting from the HOMA procedure into a meta-analytic correlation matrix, using it to fit a structural equation model consisting of all our hypothesized relationships. The estimation of a SEM model requires the specification of a sample size, for which we used the harmonic mean sample size of all studies included in the analysis. The harmonic mean provides a more conservative test than the arithmetic mean, since it reduces the effect of outlying sample sizes. We use Maximum Likelihood (ML) estimation to assess whether the meta-analytic correlation matrix matches the correlation matrix implied by our theoretical model (Bollen, 1989). The difference between both matrices is captured by the fitted residuals, with larger residuals indicating weaker fit and a theoretical misspecification of the model.

We use six parameters to judge model fit. Three of these—the Root-Mean-Square Error of Approximation (RMSEA), Non-normed Fit Index (NNFI), and Comparative Fit Index (CFI)—are important because they do not strongly depend on sample size (Schermelleh-Engel, Moosbrugger, & Müller, 2003). The NNFI and CFI parameters tell us whether our theoretical model is the best possible improvement over the independence model, in which the variables are assumed to be uncorrelated, based on their chi-square values. The RMSEA is an indication of overall model fit and compares the theorized correlation matrix with the correlation matrix of the sample population (MacCallum, Browne, & Sugawara, 1996). Hu and Bentler (1998) recommend considering the Standardized Root Mean Square Residual index (SRMR) as well, which measures the misfit of the standardized residuals. We also include the Goodness-of-Fit (GFI) and Adjusted-Goodness-of-Fit (AGFI) indices because they are commonly reported in meta-analytic studies and tell us whether our theoretical model provides a better description of the data than the null model, in which all parameters are fixed to zero (Jöreskog & Sörbom, 1993).

Table 2-1
HOMA results of the hypothesized relationships

Relationship	k	r	SE	95% CI	Q	p	T ²	I ²
Performance < HAL Search Intensity	23	0.060	0.024	0.014 0.107	1789.723	0	0.012	99
Performance < HAL Strategic Change	27	0.010	0.018	-0.024 0.045	3275.427	0	0.087	99
Performance < SAL Search Intensity	21	0.056	0.027	0.004 0.108	2277.730	0	0.014	99
Performance < SAL Strategic Change	36	-0.051	0.014	-0.079 -0.022	2334.084	0	0.007	99

Note: HAL = Historical Aspiration Level, SAL = Social Aspiration Level

Table 2-2
Meta-analytic correlations and frequency matrix

	1	2	3	4	5	6	7	8	9	10
1. Performance > HAL	1	76	52	51	22	58	42	15	19	27
2. Performance < HAL	-0.119	1	55	54	23	63	46	17	23	27
3. Performance > SAL	0.389	-0.054	1	81	21	50	41	19	20	36
4. Performance < SAL	-0.037	-0.099	-0.142	1	21	44	40	18	21	36
5. Experience	0.068	-0.075	0.147	0.086	1	29	19	2	6	14
6. Slack	0.017	0.007	0.060	-0.009	-0.010	1	88	29	55	54
7. Firm Size	-0.026	-0.046	0.031	-0.065	0.431	-0.037	1	29	29	38
8. Firm Age	-0.040	-0.007	-0.050	0.028	0.254	-0.041	0.304	1	14	14
9. Search Intensity	0.035	0.060	0.014	0.056	0.014	0.112	-0.016	-0.026	1	10
10. Strategic Change	-0.020	0.010	0.023	-0.051	0.333	-0.012	0.191	0.154	-0.029	1

Note: The lower triangle contains the estimated mean population correlation coefficients (r); the upper triangle contains the number of effect sizes (kk) used to estimate the correlation coefficients; HAL = Historical Aspiration Level, SAL = Social Aspiration Level.

2.4 Results

2.4.1 Meta-Analytic Correlations (MA)

The estimated average correlation coefficients (r) between social and historical performance shortfalls, strategic change, and search intensity are small and reflect heterogeneous true effects (see Table 2-1). Their values range from $-.051$ to $.060$, with 95% confidence intervals ranging from $-.079$ to $.108$, indicating a small association (Cohen, 1988). These mean effects encompass 21 to 36 different samples, with total sample sizes ranging from 152,387 to 788,887 observations. The Q -statistics of the hypothesized relationships are significant at the 0.001 level, thus confirming our assumption that the true correlation coefficients vary across the studies in our dataset (Borenstein et al., 2009). The heterogeneity of true effect sizes, as captured by their variance measure (T^2), shows that the true correlation coefficients can be stronger or weaker depending on the population of organizations that have been studied. Finally, the values of the I^2 statistic are all larger than 97 percent, indicating that most of the observed variance of the average correlation coefficients reflects real differences across effect sizes (Borenstein et al., 2009).

The meta-analytic correlation table (Table 2-2) reports average correlation coefficients (r) and the number of samples (k). While most effect sizes are small, there are two effect sizes that are considerably larger and stand out in light of our theoretical model. First, the estimated average correlation between organizational experience and strategic change is $.321$ (95%CI $[.041, .554]$), indicating a moderate-to-strong association between these two variables (Cohen, 1988). Strategic change is measured at time-point T1, while organizational experience reflects the number of (discrete) changes up to and including time-point T-1. The lagged correlation, therefore, indicates that past experience is associated with future strategic change. Second, performance above the social aspiration level and performance above the historical aspiration level are moderately associated ($r = .370$, 95%CI $[.258, .472]$), while the correlation between social and historical performance shortfalls is weak and negative ($r = -.099$ (95%CI $[-.221, .026]$)). It is therefore unlikely that historical and social performance shortfalls go hand-in-hand, supporting the purpose of our study to look at their effects separately.

2.4.2 Meta-Analytic Structural Equation Modeling (MASEM)

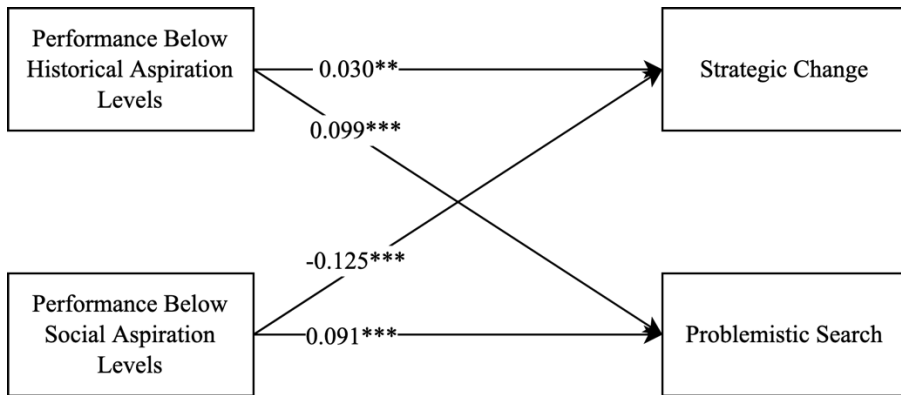
The meta-analytic structural equation model (Figure 2-2) fits our data well ($\chi^2(4) = 13.567, p = 0.009$). It consists of two structural equations: (1) strategic change regressed on social and historical performance feedback, and (2) search intensity regressed on social and historical performance feedback. We controlled for firm age and organizational experience in the first equation and for firm size and slack resources in the second equation. The harmonic mean on which the estimations are based is 8018. The reported standardized coefficients reflect the number of standard deviations of change in the outcome variable for every standard deviation of change in the predictor variable. We only included our hypothesized relationships in figure 2; a complete overview of all estimated structural coefficients can be found in Appendix B. The RMSEA and SRMR of our model are 0.017 and 0.004 respectively, indicating a good model fit (Browne & Cudeck, 1992; Hu & Bentler, 1995). The NFI and CFI are 0.981 and 0.996, which reflect a good fit (Schermelleh-Engel et al., 2003). Finally, the GFI of the model is 0.998 and the AGFI is 0.978, indicating that our model has a good fit compared to a model in which all parameters are fixed to zero (Jöreskog & Sörbom, 1989; Marsh & Grayson, 1995).

Our results show that historical performance shortfalls have a positive effect on strategic change and search intensity. First, when historical performance shortfalls grow larger, organizations tend to increase the magnitude, direction, or likelihood of strategic change ($\beta = 0.030$, 95% CI [0.010, 0.050], $p = 0.003$). Hypothesis 1 is therefore supported. The effect is consistent with the PFT literature, and with our expectation that historical performance shortfalls activate a promotion-focused response geared towards change. Second, when historical performance shortfalls grow larger, organizations also tend to increase the relative or absolute allocation of resources to R&D ($\beta = 0.099$, 95% CI [0.077, 0.121], $p = 0.000$). This finding contradicts our expectation that a promotion-focused response to historical performance shortfalls reduces search intensity but is in line with the original formulation of PFT. Hypothesis 2 is therefore not supported. Considering the two effects simultaneously, we can conclude that organizations respond to historical performance shortfalls by increasing the variety of possible

solutions (search intensity) as well as the number or magnitude of implemented solutions (strategic change). Although both effects are small, our findings show that organizations prefer change to stability when they perform below historical aspiration levels.

Figure 2-2

Meta-Analytic Structural Equation Model (MASEM) results

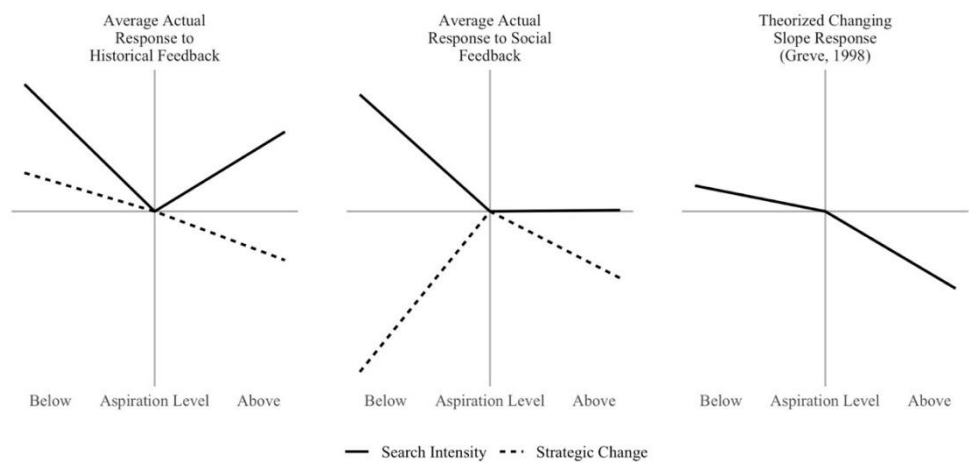


Note: Number of studies = 75; number of samples = 76. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; $n = 8018$ (harmonic mean). Only the hypothesized relationships are displayed. We controlled for firm age and organizational experience in the first equation and for firm size and slack resources in the second equation.

Consistent with our theorizing, social performance shortfalls have a positive effect on search intensity and a negative effect on strategic change. First, when social performance shortfalls grow larger, organizations tend to decrease the magnitude, direction, or likelihood of strategic change ($\beta = -0.125$, 95% CI $[-0.146, -0.105]$, $p = 0.000$). Hypothesis 3 is therefore supported. This finding contrasts with the expected positive effect theorized in the PFT literature and confirms our claim that social performance shortfalls activate a prevention-focused response geared towards stability. The average negative effect of social performance shortfalls on strategic change is 1.26 times stronger than the average positive effect of historical performance shortfalls, thus showing clearly that social and historical performance shortfalls have different behavioral effects. Second, when social performance

shortfalls grow larger, organizations become more prone to increasing the relative or absolute allocation of resources to R&D ($\beta = 0.091$, 95% CI [0.069, 0.113], $p = 0.000$). Hypothesis 4 is therefore supported.

Figure 2-3
Theorized versus average actual responses to historical and social performance feedback



Note: The slopes of the lines represent the MASEM estimates of the relationships.

A comparison of our results with the changing-slope model (Greve, 1998) shows that only the effect of historical performance feedback on strategic change is congruent with the theorized response pattern (see figure 3). The difference is particularly salient if we look at the effect of performance feedback on strategic change. According to the changing-slope model, change is more likely when organizations perform below the aspiration level, with the probability of change declining more quickly when the organization performs above the aspiration level. This is the case for the effect of historical performance feedback on strategic change because it is stronger above the aspiration level ($\beta = -0.038$) than below it ($\beta = 0.030$). The average effect of social performance feedback on strategic change, however, is incongruent with the changing-slope model in two different ways. First, change is *less*

likely when organizations perform below the social aspiration level, not more. Second, the effect of performance above the social aspiration level is *weaker* ($\beta = -0.052$) than the effect of performance below the social aspiration level ($\beta = -0.125$).

2.4.3 Robustness Checks and Additional Analyses

To assess the robustness of our meta-analytic estimations, we used meta-analytic regression analysis (MARA; Lipsey & Wilson, 2001). For each hypothesized relationship, we regressed the observed effect sizes onto a vector of study characteristics that could conceivably influence our estimates. First, we created dummy variables to track multiple effect sizes reported in a single study, to detect and control for the effects of within-study stochastic interdependencies. Second, we included the median year of the sampling window, to account for time-varying market conditions. Third, we included a dummy variable to track whether our sampling window included the financial crisis years of 2008 and 2009. Fourth, since some of our studies are based on data collected in multiple countries or industries, we created two variables reflecting country and industry heterogeneity. Fifth, most of our studies are based on archival datasets, of which Compustat is the most commonly used database. We thus used a dummy variable to correct for primary studies' dependence on the Compustat database. Finally, we controlled for journals' impact factors as a proxy for study quality, and for publication year to account for the fact that the management field is increasingly trading off effect size against sample size (Combs, 2010). Our analyses show that the reported effect sizes are robust and do not significantly change upon inclusion of these control variables. The MARA analyses are available upon request.

Second, we also compared the hypothesized MASEM model (Figure 2) with a model in which the effect of social and historical performance shortfalls on strategic change is mediated by search intensity, thereby capitalizing on the advantage that MASEM can be used to evaluate the fit of competing theoretical models (Bergh et al., 2016). This model, however, has a fit that is worse ($\chi^2(4) = 208.876, p = 0.000$, RMSEA = 0.056, SRMR = 0.020, NNFI = 0.800, CFI = 0.906, GFI = 0.976, AGFI = 0.832) than the hypothesized model. The Chi-squared difference test confirms that the

hypothesized model fits the data significantly better ($\Delta\chi^2(4) = 195.31; p = 0.000$). A model in which search intensity and strategic change are conceptualized as two different outcomes of the performance feedback process is, therefore, superior to a model in which they are sequentially separated.

2.5 Discussion

2.5.1 Theoretical Implications

Our study has important theoretical implications for future research on PFT. First, our study shows that the dominant perspective on organizational performance feedback, which predicts that historical and social performance shortfalls are both antecedents of strategic change, is not categorically supported. Our meta-analysis shows that historical performance shortfalls tend to have a positive effect on strategic change. Social performance shortfalls, however, have a strong negative effect on strategic change. A comparison of our results with the changing-slope response that forms the blueprint of the PFT literature (Greve, 1998: 62) shows that only strategic change in response to historical performance feedback follows the pattern of the original model (see figure 3). Important takeaways from this finding are that historical and social aspiration levels have opposite effects on strategic change, and that their behavioral consequences differ. By examining the effect of two fundamental types of feedback, our study complements and extends the emerging body of literature that suggests that different types of organizational-level performance feedback trigger different behavioral outcomes (e.g., Blettner et al., 2015; Eggers & Suh, 2018; Greve & Gaba, 2017; Kacperczyk et al., 2015; Kim et al., 2015).

Second, by building on RFT, our study provides a fitting explanation of why and how organizations respond differently to social and historical performance shortfalls. Although RFT and PFT are both based on the notion that people—including senior organizational decision makers—are motivated to reduce performance discrepancies, RFT extends our understanding of organizational-level feedback processes by providing clear explanations of the strategies organizations employ to achieve their

aspiration levels. Our results show that organizations respond to historical performance shortfalls with eager strategies geared towards change, and to social performance shortfalls with cautious strategies geared towards stability. By explicitly considering the motivational strategies that drive goal achievement, our study responds to the call for a better understanding of different types of aspirations as a motivation for organizational action (Bromiley & Harris, 2014; Greve & Gaba, 2017). An important implication of our study is that organizations employ different strategies in response to performance shortfalls, depending on the type of feedback they receive. Our study thus contributes to an emerging line of research that looks at the direction of strategic change in response to feedback (Kuusela et al., 2017).

Third, although we hypothesized that organizations respond to historical performance shortfalls by decreasing their resource allocation towards search, our results show that the opposite is true. When faced with historical performance shortfalls, decision makers increase the degree, magnitude, or direction of strategic change, as well as the level of resources dedicated to search. Given the characteristics of promotion-focused decision makers, we expected that they would prefer the implementation of solutions (strategic change) over the expansion of the solution range (search intensity) because they are more likely to switch to new activities (Crowe & Higgins, 1997) and prefer speed to accuracy (Pham & Chang, 2010). Our study shows, however, that the promotion-focused response to historical performance shortfalls does not only reflect an advancement strategy built on strategic change, but on search as well. A possible explanation of this finding is that promotion-focused decision makers are able to consider multiple options at the same time and see the value of one option without derogating others (Liberman, Molden, Idson, & Higgins, 2001). An important takeaway, therefore, is that a promotion-focused response to historical performance shortfalls consists of a double-barreled advancement strategy.

Fourth, our study shows that search intensity and strategic change are two independently varying outcomes of the performance feedback process. The performance feedback process is commonly conceptualized as a sequential process in which search is followed by strategic change as soon as a satisfactory solution has been found (Cyert & March, 1963; Gavetti et al., 2012; Greve, 1998). However, when problemistic search is operationalized as

the level of resources invested by firms in search behavior—which is common in the performance feedback literature—the process loses its sequential nature. As displayed in Figure 3, strategic change and search intensity vary depending on the type of feedback decision makers receive as well as on the extent to which the organization performs above or below the aspiration level. The key takeaway here is that the expected response to performance shortfalls depends on the outcome that is being considered. Scholars examining the effect of performance shortfalls on search intensity, for example, should not expect to observe a difference between social and historical feedback, as both types of feedback trigger a similar increase in terms of search intensity.

2.5.2 Limitations & Future Research

The strength of meta-analysis lies in its ability to summarize empirical findings into a single effect size (Bergh et al., 2016; Hunter & Schmidt, 2004). It allows us to determine how organizations respond differently to historical and social performance shortfalls, while controlling for firm characteristics like firm age, size, experience, and slack resources. In relation to the PFT literature, however, this strength poses a weakness as well because it does not allow us to distinguish between performance that is far below and just below the aspiration level. In a study of new market entry, for example, Ref and Shapira (2017) argue that there is an inverted U-shaped relationship between performance below the aspiration level and the probability of firms to enter new markets. One of the explanations for this finding is that managers shift their focus from achieving aspirations to survival when performance shortfalls grow large (March & Shapira, 1987). We encourage future research that explores the relationship between regulatory focus and the size of the performance shortfall. Prior research in psychology, for example, shows that prevention-focused people—and not promotion-focused people—are motivated to take risky actions that have the possibility to return them to the status quo (Scholer & Higgins, 2012; Scholer, Zou, Fujita, Stroessner, & Higgins, 2010). Because our meta-analysis synthesizes the effects of both large and small performance shortfalls, it might be that organizations initiate change when social performance shortfalls are small if these actions would restore the status quo.

Another limitation of our study is that we are unable to examine the interaction effect between social and historical performance shortfalls. This does not have to be a problem, as the PFT literature commonly assumes that decision makers attend to different types of aspirations separately or switch their attention from one to the other. A study by Bromiley and Harris (2014) shows that an attention-switching model indeed best captures how decision makers attend to different aspiration levels, as compared to additive or joint consideration models. More recently, however, Gaba and Greve (2019) argued that performance feedback on one particular goal might influence the response to performance feedback on another goal. It would be worthwhile to study how the regulatory focus of decision makers influence their response to simultaneous feedback from multiple aspirations. The most intriguing unanswered question in our study is what would happen if the organization performs below both the historical and social aspiration level. We suspect that the collective regulatory focus of the dominant coalition will determine whether they will choose for an eager or for a cautious strategy to resolve the performance discrepancy.

A third limitation of our meta-analysis is that we were unable to directly measure the regulatory focus of decision makers. The results we find, however, are congruent with the emerging literature on RFT, leadership, and strategic decision-making. A study by Gamache and associates (2015) for example, shows that promotion-focused CEOs undertake more and larger acquisitions, while the opposite is true for prevention-focused CEOs. Despite the growing interest for CEO regulatory focus (e.g., Busenbark, Krause, Boivie, & Graffin, 2016; Gamache et al., 2015, 2020; Patel & Cooper, 2014), we believe there is ample room for future research. First, primary research that measures the regulatory foci of CEOs would further develop our understanding of behavioral traits such as narcissism (Chatterjee & Hambrick, 2016), extraversion (Malhotra, Reus, Zhu, & Roelofsen, 2018), and political ideologies (Chin, Hambrick, & Treviño, 2013; Chin & Semadeni, 2017) that serve as important determinants of the magnitude and direction of strategic change. Second, strategic decision-making is often influenced by a dominant coalition of organizational members (Cyert & March, 1963; Jiang et al., 2017; Zhang & Greve, 2019), scholars have only recently started to explore collective regulatory focus at the team-level (Kark & Van Dijk, 2019). It would

therefore be worthwhile to explore how the collective regulatory focus of the dominant coalition determines how strongly the organization responds to performance shortfalls.

2.5.3 Conclusion

Confronted with performance shortfalls, decision makers have to decide upon a course of action that has the potential to return organizational performance to a level that is acceptable in light of the organization's aspirations. In principle, they can either seek to eagerly 'rock the boat' or to cautiously 'steady the ship.' In this paper, we have argued that the chosen response pattern is largely dependent upon the activated regulatory system, which in turn is a function of whether decision makers receive social or historical performance feedback. These findings represent a strong case for further integration of PFT and RFT. Since these two theoretical research streams offer complementary and commensurable views on how decision makers seek to engage in restorative actions in response to negative performance feedback, their further integration represents an exciting opportunity to further develop and expand the research program of the behavioral theory of the firm laid out by Cyert and March (1963).

2.6 Appendix A

Table 2-3

Overview of the 75 studies included in the meta-analysis

Study	Authors	Year	Journal*
1	Audia & Greve	2006	MANSCI
2	Baum et al.	2005	ASQ
3	Greve	1998	ASQ
4	Harris & Bromiley	2007	ORGSCI
5	Chen	2008	ORGSCI
6	Shipilov, Li & Greve	2011	ORGSCI
7	Chrisman & Patel	2012	AMJ
8	Gaba & Bhattacharya [†]	2012	SEJ
9	Lungeanu, Stern & Zajac	2015	SMJ
10	Ref & Shapira	2017	SMJ
11	Kuusela, Keil & Maula	2017	SMJ
12	Chrissman & Patel	2014	SMJ
13	Vidal & Mitchell	2015	ORGSCI
14	Lim	2015	SMJ
15	Lim	2017	LRP
16	Lim	2019	JOMS
17	Xie et al.	2019	JOWB
18	Ok & Ahn	2019	SUS
19	Iyer et al.	2019	LRP
20	Wiengarten et al.	2019	JOOM
21	Xu et al.	2019	AMJ
22	Deng & Long	2019	SUS
23	Jiang & Holburn	2018	JBR
24	Gomez-Mejia, Patel & Zellweger	2018	JOM
25	Lim	2018	JBR
26	Baum & Dahlin	2007	ORGSCI

Study	Authors	Year	Journal*
27	Iyer & Miller	2008	AMJ
28	Lim & McCann	2014	ORGSCI
29	Gaba & Joseph	2013	ORGSCI
30	Ruth, Iyer & Sharp	2013	JBR
31	Madsen	2013	JOM
32	Desai	2016	AMJ
33	Desai	2014	ICC
34	Kim, Finkelstein & Halebian	2015	AMJ
35	Bromiley & Washburn	2011	JOSM
36	Wang, Qian & Lehrer	2017	EMJ
37	Lin	2014	JOWB
38	Boon & Özcan	2016	ORGSCI
39	Joseph, Klingebiel & Wilson	2016	ORGSCI
40	Krishnan & Krishnan Kozhikode	2015	AMJ
41	Sengul & Obloj	2017	JOM
42	Choi, Rhee, & Kim	2019	JBR
43	Iglesias & Bogner	2019	IJBR
44	Li et al.	2018	IMR
45	Arrfelt, Wiseman & Hult	2013	AMJ
46	Wennberg, Delmar & McKelvie	2016	JBV
47	Kotlar et al.	2014	SBE
48	Lv et al.	2019	JBR
49	Tyler & Caner	2016	SMJ
50	Mishina et al.	2010	AMJ
51	Greve	2010	SMJ
52	Washburn & Bromiley	2012	JOMS
53	Audia & Sorenson		WP
54	Han, Mittal & Zhang	2017	JOMAR
55	Kotlar et al.	2014	JPIM
56	Shipilov, Greve & Rowley	2019	SMJ

Study	Authors	Year	Journal*
57	Lyocsa, Vyrost & Baumohl	2019	AEL
58	Desai	2008	ORGSCI
59	Henderson & Stern	2004	ASQ
60	Rowley, Shipilov & Greve	2017	SMJ
61	Su & Su	2017	CMS
62	Yiu, Xu & Wan	2014	ORGSCI
63	Kim & Rhee	2017	JATM
64	Deb et al.	2019	JBR
65	Syakhroza, Paolella & Munir	2019	AMJ
66	Park	2007	ORGSCI
67	Parker, Krause & Covin	2017	JOM
68	Rudy & Johson	2016	JOM
69	Barreto	2012	ORGSCI
70	Greve	2003	AMJ
71	Greve	2007	ICC
72	Schimmer & Brauer	2012	SO
73	O'Brien & David	2014	SMJ
74	Alexy, Bascavusolgu-Moreau & Salter	2016	ICC
75	Eggers & Kaul	2018	AMJ

Note: *Journal Abbreviations: AEL = Applied Economics Letters; AMJ = Academy of Management Journal; ASQ = Administrative Science Quarterly; CMS = Chinese Management Studies; EMJ = European Management Journal; ICC = Industrial and Corporate Change; IJBR = International Journal of Business Research; JATM = Journal of Air Transport Management; JBR = Journal of Business Research; JBV = Journal of Business Venturing; JOM = Journal of Management; JOMAR = Journal of Marketing; JOMS = Journal of Management Studies; JOSM = Journal of Strategy and Management; JOWB = Journal of World Business; JPIM = Journal of Product Innovation Management; LRP = Long Range Planning; MANSCI = Management Science; ORGSCI = Organization Science; SBE = Small Business Economics; SEJ = Strategic Entrepreneurship Journal; SMJ = Strategic Management Journal; SUS = Sustainability; SO = Strategic Organization; WP = Working Paper. †This paper reports two samples. Both have been included in the meta-analysis.

2.7 Appendix B

Table 2-4

Results of the Meta-Analytic Structural Equation Model (MASEM)

End. Variable	Exo. Variable	Estimate	SE	Z	p
Strategic Change	Performance > HAL	-0.038	0.012	-3.316	0.001
Strategic Change	Performance < HAL	0.030	0.010	2.977	0.003
Strategic Change	Performance > SAL	-0.052	0.012	-4.322	0.000
Strategic Change	Performance < SAL	-0.125	0.010	-12.085	0.000
Strategic Change	Direct Experience	0.433	0.011	39.443	0.000
Strategic Change	Firm Age	0.058	0.011	5.422	0.000
Search Intensity	Performance > HAL	0.062	0.013	4.907	0.000
Search Intensity	Performance < HAL	0.099	0.011	8.818	0.000
Search Intensity	Performance > SAL	0.001	0.013	0.043	0.966
Search Intensity	Performance < SAL	0.091	0.011	8.074	0.000
Search Intensity	Slack	0.146	0.011	13.247	0.000
Search Intensity	Firm Size	0.001	0.011	0.125	0.901

Note: End. Variable = Endogenous Variable; Exo. Variable = Exogenous Variable; p = p-value; SE = standard error; 95% CI = 95% confidence interval (upper and lower bound are reported); RMSEA = 0.017; NNFI = 0.981; CFI = 0.996; SRMR = 0.004; GFI = 0.998; AGFI = 0.978.

Chapter 3

Leading the dance or digging your heels in the sand? A social network perspective on organizational identification and post-merger taking charge behavior

Abstract. *Even though prior research on mergers and acquisitions (M&As) suggests that a stronger identification with the new organization positively influences the post-merger integration process, an emerging line of research points out that organizational identification can lead to complacency and impassiveness. Integrating the organizational identification perspective on M&As with social network theory, we show that the relationship between organizational identification and taking charge behavior in M&A settings is contingent on the direct and indirect social ties among the employees of the merging organizations. Our analysis of the informal social network of a professional service firm one year after a merger reveals that organizational identification can be a blessing or burden in disguise. By identifying an important boundary condition of the relationship between organizational identification and post-merger taking charge behavior, our study challenges the overly optimistic perspective on organizational identification and explains when and why it leads to positive or negative consequences in M&A settings.*

3.1 Introduction

Mergers and acquisitions (M&As) are popular strategic options for organizations seeking to increase their market share, achieve economies of scale or scope, or leverage new technologies and capabilities (Graebner et al., 2017). Despite their popularity, however, M&As are often unsuccessful and fail to realize their intended benefits (Cartwright & Cooper, 1995; Grotenhuis, 2009; Thanos & Papadakis, 2012). To understand the causes of post-merger failure, scholars increasingly focus their attention on the attitudes and behaviors of employees after a merger or acquisition. This line of research shows that the upheaval caused by the post-merger integration has profound effects on employees' organizational identification (Clark, Gioia, Ketchen, & Thomas, 2010; Elstak, Bhatt, Van Riel, Pratt, & Berens, 2015; Sung et al., 2017; Van Knippenberg et al., 2002). Driven by feelings of uncertainty and discontinuity, some employees tend to cling to the familiar and keep identifying with their pre-merger organizations (Giessner, Horton, & Humborstad, 2016), while others welcome the organizational change and shift their identification accordingly (Sung et al., 2017).

The literature on M&As argues that organizational identification tends to have positive and desirable behavioral effects (Graebner et al., 2017; Ullrich & Dick, 2007). Employees who strongly identify themselves with the new organization accept and support the post-merger integration process (Giessner et al., 2011; Ullrich et al., 2005; Van Knippenberg et al., 2002), while weak identifiers are prone to oppose and criticize the merger or acquisition (Elsbach & Bhattacharya, 2001; Kreiner & Ashforth, 2004). At the same time, however, the broader organizational identification literature shows that high levels of organizational identification can also turn from a blessing into a burden, stifling instead of supporting organizational change (Conroy et al., 2017; Irshad & Bashir, 2020). Strong identifiers strive to maintain a positive view of the organizations they work for (Ashforth & Mael, 1989), which can make them complacent, impassive, and resistant to radical change (Conroy et al., 2017; Dutton et al., 1994; Tangirala & Ramanujam, 2008). Given the fact that organizational identification can trigger behavior that either promotes or prevents positive organizational change, the success of the post-merger integration process might be at stake. It is, therefore, crucial that we

understand the conditions that influence when and why organizational identification encourages or discourages employees to step up, take charge, and serve as post-merger change agents.

In this paper, we challenge the assumption that the behavioral effects of identification with the new organization are unequivocally positive. Instead, we argue that the relationship between organizational identification and post-merger taking charge behavior is contingent upon the network of direct and indirect informal relationships between the employees of the merging organizations. Direct cross-legacy boundary-spanners—those employees developing and maintaining social relationships with members of the counterpart legacy organization (Briscoe & Tsai, 2011)—have firsthand access to the knowledge domains of both organizations, which increases the likelihood that they identify new solutions and opportunities (Burt, 1992; Fleming, Mingo, et al., 2007; Perry-Smith, 2006). At the same time, however, they must navigate the sociocultural differences between the merging organizations, which requires dedicated time and effort (Aldrich & Herker, 1977; Kaplan et al., 2017; Leahey et al., 2017; Mors et al., 2018). We argue that the relationship between organizational identification and taking charge behavior in M&A settings is amplified by this trade-off. We expect it to be stronger when employees develop and maintain direct relationships with members of the other legacy organization, and weaker when they do not.

We have put our arguments to the test by collecting rich data about the informal relationships between 129 employees working for a digital payment services provider that was established through a merger of equals. Our results lend support to our hypotheses and show that the relationship between organizational identification and post-merger taking charge behavior depends on the direct and indirect informal relationships between the employees of the merging organizations. More specifically, our analysis shows that the positive relationship between organizational identification and taking charge behavior is stronger for employees who develop and maintain direct cross-legacy boundary-spanning ties. The more these employees identify themselves with the new organization, the more they benefit from their access to the knowledge base of the counterpart legacy organization and the less they are affected by sociocultural differences. The relationship is negative for indirect cross-legacy boundary-spanners who are

closely connected to the direct cross-legacy boundary-spanners of their legacy organization.

By identifying the direct and indirect ties between employees of two merging organizations as an important boundary condition of the relationship between organizational identification and post-merger taking charge behavior, our study makes several important contributions to the M&A literature. First, we challenge the assumption that organizational identification has unequivocally beneficial effects on the post-merger attitudes and behaviors of employees (Graebner et al., 2017; Ullrich & Dick, 2007). Our study nuances this view and shows that high levels of identification with the new organization can promote or prevent employees from initiating positive organizational change. Second, we show that the integration of different theoretical perspectives offers a valuable addition to the M&A literature. The drivers of M&A outcomes remain poorly understood (Graebner et al., 2017), despite multiple calls for cross-disciplinary integration (Angwin & Vaara, 2005; Haleblian, Devers, McNamara, Carpenter, & Davison, 2009). Our study shows that the combination of social network theory with social identity theory uniquely allows us to identify important boundary-conditions of a relationship that occupies a central position in the M&A literature. Finally, we offer a more nuanced perspective on the assumption that cross-legacy boundary-spanners serve as the key M&A change agents (Graebner, 2004; Teerikangas, Véry, & Pisano, 2011). Depending on their network of informal relationships, indirect boundary-spanners can engage in high levels of taking charge behavior, too.

3.2 Theory & Hypotheses

Of all the consequences of a post-merger integration process, the uncertainty it causes is most strongly felt by the organizations' employees. A merger or acquisition is an idiosyncratic event that moves the organization into uncharted territory. Even though the decision to merge or acquire is not taken without careful consideration, studies consistently show that M&As often fail to realize their intended benefits (Cartwright & Cooper, 1995; Grotenhuis, 2009; Thanos & Papadakis, 2012). This is no surprise because the dynamic, ambiguous, and complex nature of the post-merger period makes it

impossible to completely plan it in advance (Graebner et al., 2017). Unexpected issues (Vaara, 2003) and opportunities (Graebner, 2004) will inevitably arise. A growing line of management research shows that individual responses to the upheaval and uncertainty caused by M&As can differ radically (Sung et al., 2017; Woehler et al., 2021). Some employees will appreciate the opportunities it offers, believing that the change will lead to personal and organizational benefits. Others will recognize its pitfalls, worrying about the continuity of their jobs and the viability of the new organization.

The attitudes and behaviors of employees in the wake of a merger or acquisitions are shaped by the extent to which they identify themselves with the new organization (Clark et al., 2010; Colman & Lunnan, 2011; Giessner et al., 2011; Sung et al., 2017; Van Knippenberg et al., 2002). According to social identity theory and self-categorization theory, people define themselves in terms of their group memberships (Tajfel, 1974, 1974; Turner, 1982). When people identify themselves as members of a particular group, they will perceive the differences between group members as smaller than the differences between group members and other people (Ellemers & Haslam, 2012; Turner, 1982). Even though people can identify themselves with multiple organizational groups—such as their team, department, or business unit—their identification with the (new) organization has received the most attention in M&A research. Organizational identification is defined as someone's perception of oneness with—or belongingness to—an organization (Ashforth & Mael, 1989). A merger or acquisition often involves the formal integration of two previously independent groups that used to have distinct organizational identities. A strong post-merger organizational identification, therefore, indicates that employees view the new organization as a united whole and that they classify their new colleagues as “us” instead of “them”.

Identification with the new organization strengthens a range of positive attitudes and behaviors, such as job satisfaction (Terry & O'Brien, 2001), job performance (Ullrich, Wieseke, Christ, Schulze, & van Dick, 2007), and the intention to stay with the organization (Sung et al., 2017). The organization benefits, as well. Employees who strongly identify themselves with their organizations are motivated to act in their organizations' best

interests (Ashforth & Mael, 1989; Dutton et al., 1994). Their actions tend to be congruent with the organizational aspect of their identity, making it likely that their behavior supports the organization. This notion is corroborated by studies of organizational identification in stable, non-M&A contexts. Organizational identification is positively associated with a range of proactive work behaviors, such as extra-role performance (Riketta, 2005), creativity (Hirst, Dick, & Knippenberg, 2009; Madjar, Greenberg, & Chen, 2011), voicing concerns and suggesting improvements (Burris, Rockmann, & Kimmons, 2017), organizational citizenship behavior (Zhang, Liu, Zhang, Xu, & Cheung, 2021), and taking charge behavior (Li, Zhang, & Tian, 2016).

Even though the M&A literature typically emphasizes its positive effects (Graebner et al., 2017; Ullrich & Dick, 2007), the broader organizational identification literature shows that it can also cause complacency and resistance to change (Conroy et al., 2017). Employees who strongly identify themselves with their organization strive to maintain a positive social identity and want to view their organizations in a positive light—especially in comparison to other organizations (Ellemers & Haslam, 2012; Tajfel, 1974). Being less receptive to criticism and disapproval, they risk becoming too complacent and developing a feeling of uncritical satisfaction with the current state of the organization. For example, a study by Tangirala and Ramanujam (2008) showed that high identifiers with low feelings of personal control are less likely to voice their concerns about the organization because they believe that things will turn out for the best. In addition, high identifiers are more likely to conform to organizational norms and values, making it unlikely that they will initiate or support radical organizational change (Ashforth & Mael, 1989; Dutton et al., 1994). Finally, employees who strongly identify themselves with their organizations might actively oppose change efforts when they feel that the change threatens their social identity (Piening, Salge, Antons, & Kreiner, 2020).

Building upon these insights, we argue that identification with the new organization can be a blessing or a burden for the post-merger integration. Here, we focus on the concept of taking charge behavior as it helps us to gain a better understanding of when employees engage in behavior that positively contributes to organizational change. Taking charge behavior is defined as the voluntary and constructive efforts of individual employees

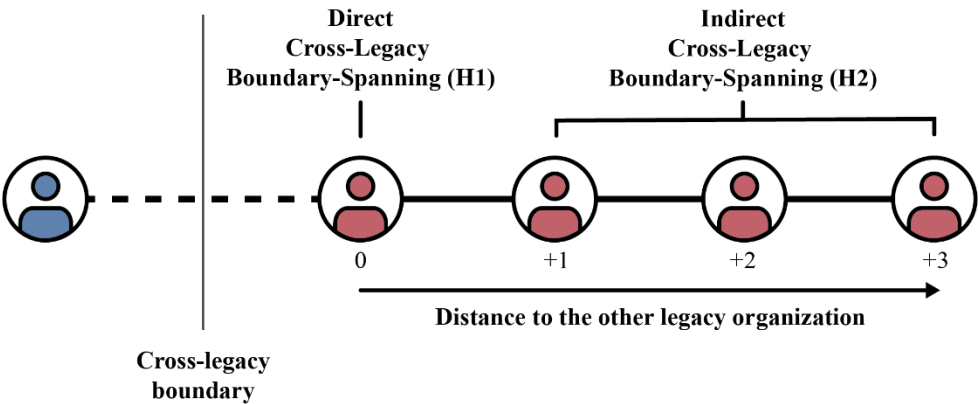
that challenge the status quo and bring about constructive organizational change (Morrison & Phelps, 1999). Taking charge is a type of extra-role behavior, meaning that it is not part of the formal job requirements of employees and cannot be formalized in advance. In contrast to other extra-role behaviors—such as voice, issue selling, and organizational citizenship behaviors—taking charge behavior is primarily motivated by a desire for organizational improvement that challenges the current situation (Morrison & Phelps, 1999). These types of behaviors are especially valuable in uncertain and unconventional organizational settings like M&As, where new roles and expectations still need to be fully formalized (Griffin, Neal, & Parker, 2007; Vadera, Pratt, & Mishra, 2013).

We argue that the relationship between organizational identification and post-merger taking charge behavior is influenced by an employee's informal connections to colleagues who previously worked for the other legacy organization. The M&A literature has demonstrated that interaction, communication, and alignment between the merging organizations are necessary to accomplish synergies (Graebner et al., 2017; Larsson & Finkelstein, 1999). At the same time, however, studies of post-merger network reconfiguration show that employees are cautious about establishing new relationships with colleagues from the other legacy organization (Allatta & Singh, 2011; Briscoe & Tsai, 2011). The reason is that people tend to contract their social networks in uncertain situations, focusing on established and trustworthy ties (McDonald & Westphal, 2003; Parker, Halgin, & Borgatti, 2016). Immediately after an acquisition, employees are uncertain about who knows what and seek advice based on reciprocity—they give advice in return for receiving advice—and preferential attachment—they seek advice from a small number of popular colleagues (Mirc & Parker, 2020). An important consequence of these behavioral tendencies is that only a few employees will develop and maintain informal relationships with members of the other legacy organization.

Research on intraorganizational social networks shows that the ability of employees to access, transfer, and absorb knowledge depends on their network position (Eisenman & Paruchuri, 2019; Phelps, Heidl, & Wadhwa, 2012). When knowledge and information flows from one side of the organization to the other, employees closer to the source will be first to learn

about it (Burt, 1992). The quality of an employee’s knowledge access deteriorates with the number of people that separate the employee from the knowledge source (Sorenson, Rivkin, & Fleming, 2010). To conceptualize an employee’s access to the knowledge and information that originates from the other legacy organization, we make a distinction between direct and indirect cross-legacy boundary-spanners (see Figure 3-1). *Direct cross-legacy boundary-spanners* are employees who develop and maintain informal ties with colleagues who used to work for the other legacy organization (Briscoe & Tsai, 2011). Their cross-legacy ties allow them to directly tap into the knowledge and expertise of the other legacy organization. We define employees without cross-legacy boundary-spanning ties as *indirect cross-legacy boundary-spanners*. They must rely on the direct cross-legacy boundary-spanners to receive relevant knowledge and learn about potential post-merger synergies.

Figure 3-1
Illustration of direct and indirect cross-legacy boundary-spanning



Note. The circles represent individual employees, and the lines represent informal relationships. The dotted line represents a cross-legacy boundary-spanning tie.

3.2.1 The amplifying effect of direct cross-legacy boundary-spanning

According to social network theory, a cross-legacy boundary-spanning position is a source of valuable opportunities. If two groups do not

interact with each other, knowledge developed within one group will likely be new to the other (Burt, 1992, 2004). Someone who establishes a social tie between the groups will gain access to both knowledge domains, which stimulates innovation and idea generation (Fleming, Mingo, et al., 2007; Perry-Smith, 2006). The affiliation of boundary-spanners with both groups also incentivizes them to bridge the knowledge domains and foster a mutual understanding (Burt, 2004). Their awareness of solutions developed by one group allows them to solve the problems of the other (Hargadon & Sutton, 1997; Singh & Fleming, 2010). The boundary between two legacy organizations is a particularly valuable source of opportunities, because it allows cross-legacy boundary-spanners to discover unexpected ways to achieve post-merger synergies that benefit the new organization—such as the improvement of processes and services, the implementation of new technology solutions, and the development of strategic ideas (Colman & Lunnan, 2011; Graebner, 2004).

While direct cross legacy boundary-spanners are uniquely positioned to identify and develop potential post-merger synergies, the costs of building and maintaining boundary-spanning ties can easily outweigh their benefits. Several studies show that boundary-spanning between any type of group is a taxing undertaking, requiring dedicated time, effort, and attention from the employee (Aldrich & Herker, 1977; Kaplan et al., 2017; Leahey et al., 2017; Mors et al., 2018). Even though the different knowledge bases on both sides of a boundary are valuable sources for organizational learning, the translation, transfer, and integration of knowledge from one side to the other can be difficult (Bechky, 2003; Empson, 2001; Mors, 2010; Sarala, Junni, Cooper, & Tarba, 2016; Sarala & Vaara, 2010). Boundary-spanners have to master the different vocabularies that are used by both groups and make sure that they understand their cultural and political differences (Leahey et al., 2017). The boundary between two merging organization is a particularly strong one. The M&A literature shows that the sociocultural differences between merging firms often cause conflicts and disputes, frustrate post-merger integration process, and even hurt organizational performance (Chatterjee, Lubatkin, Schweiger, & Weber, 1992; Stahl & Voigt, 2008).

Taking both the costs and benefits of cross-legacy boundary-spanning into account, we argue that the relationship between organizational

identification and post-merger taking charge behavior is stronger for employees who develop and maintain informal ties between the two merging organizations. More specifically, we expect that high identifiers are more likely to engage in taking charge behavior when they occupy an informal boundary-spanning position. High identifiers classify colleagues from the other legacy organization as “us” and place them into the same social category as themselves (Turner, 1982). Consequently, they will perceive the sociocultural differences between the merging organizations as smaller than the differences between the new organization and other firms. In addition, employees who strongly identify with the new organization are more likely to adopt a process-orientation during the post-merger integration process (van Knippenberg, Martin, & Tyler, 2006). Process-focused individuals care about procedural fairness and mutual respect (Kickul, Lester, & Finkl, 2002; Tyler, 1999). They are motivated to understand the sociocultural differences between the merging organization and want to develop a mutual understanding that fosters organizational change. High identifiers with cross-legacy boundary-spanning ties, therefore, have access to the knowledge and expertise of the other legacy organization, and are more likely to spend the time and effort necessary to navigate the sociocultural differences.

In contrast, we expect that low identifiers are less likely to engage in taking charge behavior when they occupy an informal cross-legacy boundary-spanning position. Low identifiers are more likely to classify their new colleagues as “them”, placing them into a different social category (Turner, 1982). This social categorization process will increase the salience of the perceived sociocultural differences between the merging organizations. In addition, employees who weakly identify with the new organization are more likely to adopt an outcome-orientation during the post-merger integration process (van Knippenberg et al., 2006). As their personal goals do not necessarily match those of the organization, they are specifically concerned about the outcomes that personally affect them. Even though they have direct access to the knowledge and expertise of the other legacy organization, the costs of the boundary-spanning position will tend to outweigh its benefits. This idea is corroborated by Dokko, Kane, and Tortoriello (2014), who show that the creative generativity of boundary-spanning ties is enhanced when employees identify with a larger, overarching group (e.g., a division or

organization) and diminished when they identify more strongly with their subgroup. Thus, we predict:

Hypothesis 1: Direct cross-legacy boundary-spanning moderates the relationship between organizational identification and taking charge behavior, such that this relationship becomes stronger when employees have direct cross-legacy boundary-spanning ties

3.2.2 The attenuating effect of indirect cross legacy boundary-spanning

Even though direct cross-legacy boundary-spanners have direct access to the knowledge and expertise of the other legacy organization, in practice most employees do not develop cross-legacy ties (Allatta & Singh, 2011; Briscoe & Tsai, 2011). When knowledge flows from one legacy organization to the other, it is transferred, translated, and processed by the direct cross-legacy boundary-spanners before they pass it on to other employees (Aldrich & Herker, 1977; Burt, 2004; Hargadon & Sutton, 1997). Consequently, knowledge and information can get "lost in translation" or be presented in such a way that it favors the boundary-spanner politically (Burt, 1992). Its quality and reliability further deteriorate with the social distance between employees and the other legacy organization. We build upon this notion and define the distance to the other legacy organization in line with prior work (Fleming, King III, & Juda, 2007; Sorenson et al., 2010) as the number of colleagues that separate employees from the other legacy organization in the informal network. We expect that the larger the distance the more likely that employees have to draw upon local knowledge to suggest better alternatives to correct potential errors and fill potential gaps (Sorenson et al., 2010).

It follows that indirect cross-legacy boundary-spanners are less likely to engage in taking charge behavior when they strongly identify themselves with the new organization and they are closely connected to direct cross-legacy boundary-spanners. Strong identifiers will be more likely to accept the knowledge that originates from the other legacy organization because they perceive all their colleagues as belonging to "us" (Tajfel, 1974; Turner, 1982,

1982). Their strong process orientation will make them care about procedural fairness and mutual respect (Kickul, Lester, & Finkl, 2002; Tyler, 1999). They are motivated to help the organization and are less inclined to challenge the knowledge and information they receive from the multiple direct cross-legacy boundary-spanners they interact with, reducing their willingness to challenge the status quo and engage in taking charge behavior. In contrast, we expect strong identifiers to engage in more taking charge behavior when their average social distance is long. Due to their long social distance to the other legacy organization, they have to use locally available knowledge as substitute (Sorenson et al., 2010). Eager to act in the organization's best interest, they are motivated to leverage their local knowledge base to initiate organizational change, making it more likely that they will engage in taking charge behavior.

We expect that indirect cross-legacy boundary-spanners are more likely to engage in taking charge behavior when their identification with the new organization is weak and their average social distance is short. Weak identifiers do not view colleagues from the other legacy organization as "us" and are more concerned with change-outcomes that personally affect them (van Knippenberg et al., 2006). They are motivated by instrumental concerns (such as financial benefits or promotion possibilities) and will be more likely to critically assess the knowledge they receive from the other legacy organization to determine if it leads to personal implications. Colman and Lunnan (2011) confirm this idea by showing that low levels of identification with the new organization stimulate employees to champion the knowledge and capabilities of their legacy organizations. Conversely, we expect weak identifiers to engage in less taking charge behavior when their average social distance is long. Their personal goals are not necessarily aligned with those of the new organization and they, therefore, are less likely to feel the need to leverage local knowledge that challenges the status quo. Thus, we hypothesize:

Hypothesis 2: Indirect cross-legacy boundary-spanning moderates the relationship between organizational identification and taking charge behavior, such that this relationship becomes weaker when the social distance between employees and the other legacy organization is shorter

3.3 Methods

3.3.1 Research Setting

We collected the data that we used to test our hypotheses in a West-European digital payment services provider. Its parent company has been a leading facilitator of payment transactions around the world for more than 30 years. It offers a range of services and solutions that support the sales process of organizations, irrespective of the sales channel (e.g., brick-and-mortar store or online) or payment method (e.g., cash or card). During the first thirty years of its existence, the parent company focused on payment terminals—physical devices that facilitate transactions with credit or debit cards—and related services. It entered the online payment market in 2013 with the acquisition of a leading European online payment services provider, which we will refer to as “RedCo” to ensure its anonymity. To further strengthen its digital offerings, the organization acquired “BlueCo” one year later, an experienced online payment provider with a global customer base. The organization merged the two subsidiaries in the second half of 2015 to create a new independent digital payment services brand that combines the service offerings of RedCo and BlueCo. The new brand—which we will refer to as “PaymentsCo” and serves as the focal organization of our study—was officially launched in January 2016.

Several characteristics of PaymentsCo make it an ideal research setting for our study. The merger of RedCo and BlueCo was a merger of equals that can be classified as a “Link & Promote” strategy used to accelerate learning and renewal through boundary-spanning activities and shared value creation (Brueller, Carmeli, & Markman, 2018; Charkavarthy & Lorange, 2007). At the time of our survey, however, the senior management team of PaymentsCo observed that the desired information-sharing synergies had not yet been realized. This was confirmed by an engagement survey results, conducted by an external consultancy firm in 2015. The survey showed that employees disagree with statements like *“Information flows well between the regions and the group”*, *“Information flows well between different departments/teams”*, and *“knowledge is shared proactively across the organization”*. Second, establishing a cross-legacy boundary-spanning tie between RedCo and BlueCo is not straightforward, as the boundary has a

strong cognitive and physical component. The employees of BlueCo and RedCo are in two different countries, and they refer to these locations as “North” and “South” to stress their sociocultural differences. In addition, the locations are more than 200 kilometers apart, making spontaneous social interaction more difficult.

3.3.2 Data Collection

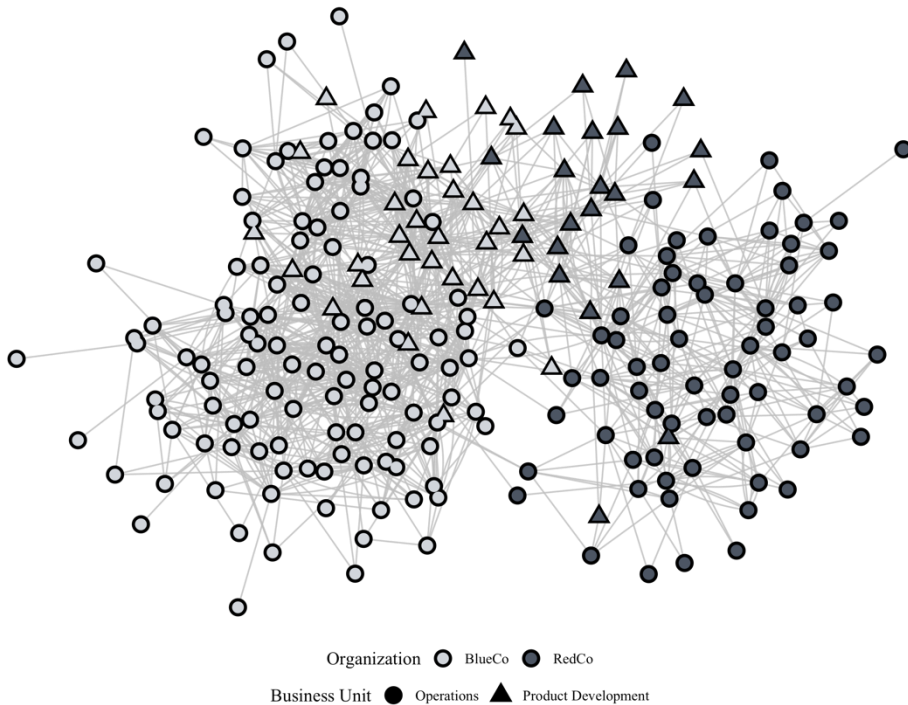
We collected our data in June and July 2016, which is approximately one year after the merger and six months after the launch of the new brand. Participation in the study was voluntary and all answers were treated confidentially. The company’s managers publicly endorsed the study to encourage employees to participate. Following recommended procedures to avoid potential single-source biases in our analyses (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), we collected data from three different sources. First, we consulted the archival database of the company to gather demographic and organizational data, such as the age, gender, and hierarchical rank of the respondents. Second, we distributed two separate digital questionnaires to the employees working for PaymentsCo. We sent the first part of the questionnaire to all employees. It asked the respondents about their informal relationships and their identification with PaymentsCo. We sent the second part of the questionnaire at the same time only to the company’s managers. In this part of the questionnaire, we asked the managers to rate their direct subordinates’ taking charge behavior.

The questionnaire’s first part was completed by 179 of the 246 employees working for PaymentsCo’s operations and product development departments, resulting in a response rate of 73%. The second part of the questionnaire was completed by 35 of the 43 managers (81%) and we obtained the manager-rated taking charge behavior for 129 of the 179 employees who completed part one. Our final sample consists of 129 employees, corresponding to a 53% overall response rate. We tested for nonresponse bias by comparing key attributes of respondents and non-respondents. Results of a series of independent T-tests indicated no significant differences on gender $t(126) = -0.39, p = 0.693$, tenure $t(137) = 1.63, p = 0.107$, age ($t(131) = 1.81, p =$

0.073), pre-merger organization $t(158) = -0.7.7, p = 0.444$, and business unit membership $t(117) = -1.55, p = 0.124$).

Figure 3-2

Visual representation of the informal relationships between the employees of PaymentsCo



Note. The nodes represent individual employees. The lines represent informal relationships.

3.3.3 Network Data

We used the roster method to collect data about the informal relationships between the employees of PaymentsCo. The roster method allows respondents to select the colleagues they interact with from a list of names and, therefore, does not suffer from the biases of the free recall approach (Hammer, 1984; Kumbasar, Rommey, & Batchelder, 1994).

Following established practices, we asked the respondents to select the people who provide them with work-related information and advice (Carnabuci & Diószegi, 2015; Rodan & Galunic, 2004), help them formulate new ideas (Rodan & Galunic, 2004), and they consider to be their friends (Ibarra, 1993). Due to the relatively large number of PaymentsCo employees, respondents could select up to ten colleagues for each of the three questions to reduce the burden on the respondents without compromising the quality of the data (Merluzzi & Burt, 2013). We used the network data to create a directed adjacency matrix that consists of 246 employees with 2672 relationships. On average, respondents have twelve informal ties (six outgoing and six incoming ties). Figure 3-2 contains a graphical representation of the informal network. We also collected data about the formal ties among employees to control for the existence of formal boundary-spanning roles (Graebner, 2004). Whereas informal ties reflect the interactions between employees, formal ties reflect the fixed structures that are in place to coordinate activities (McEvily et al., 2014). We used archival data on hierarchical reporting lines to create a network of formal ties.

3.3.4 Measurements

All survey items were based on previous research and pre-tested on a small sample of managers to ensure that they would be correctly interpreted. Unless otherwise noted, the items were rated on a scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”).

Taking Charge Behavior. We measured taking charge behavior with a three-item scale adapted from Morrison and Phelps (1999). To avoid a single-source bias in our results (Podsakoff et al., 2003), we asked the organization’s managers to rate the extent to which their direct reports take charge when they carry out their jobs. The measure developed by Morrison and Phelps (1999) consists of ten items. Following Parker and Collins (2010), we selected three of the ten items that best capture the core of the taking charge construct to reduce the burden on managers with many direct reports. The managers indicated how much they agreed with each of the following statements about their direct reports: *“This person often tries to bring about improved procedures for the team, department or company”*, *“This person often*

tries to institute new work methods that are more effective for the company”, and “This person often tries to implement solutions to pressing organizational problems”. The scale is internally consistent (Cronbach’s $\alpha = 0.93$). We averaged the three items into a single overall taking charge behavior score for the employee accordingly.

Organizational Identification. We used the five-item organizational identification scale developed and used by Mael and Ashford (1995) to measure the extent to which the respondents identify themselves with post-merger organization. An example item is “When I talk about [PaymentsCo], I usually say “we” rather than “they”. (Cronbach’s Alpha = 0.89). For each employee we averaged the five-items into a single overall organizational identification score.

Direct Cross Legacy Boundary-Spanning. We classified a respondent as an informal cross-legacy boundary-spanner if he or she developed an informal relationship with someone from the other legacy organization. For example, an employee who used to work for RedCo is a cross-legacy boundary-spanner if he or she seeks work-related information and advice from someone who used to work for BlueCo. We created a nominal variable with the values “Yes” and “No” to track if a respondent is an informal boundary-spanner or not. Using a nominal variable to measure boundary-spanning fits our research setting well because only a small percentage of employees developed cross-legacy boundary-spanning ties. Of the 129 employees in our sample, only 29 are cross-legacy boundary-spanners (22%). Employees of both legacy organizations did not collaborate with each other before the merger.

Indirect Cross-Legacy Boundary-Spanners. To measure the extent to which an employee is an indirect cross-legacy boundary-spanner, we measured their social distance to the other legacy organization with an adaptation of Freeman’s closeness centrality measure (Freeman, 1979). Freeman’s closeness centrality captures the overall connectedness of a node by calculating the sum of the shortest paths between a node and all the other nodes in a network (Borgatti & Everett, 2006; Freeman, 1979). We modified Freeman’s centrality measure in two ways to construct a valid representation of the distance between employees and the boundary-spanners. First, instead of calculating the shortest paths to all other employees in the organization,

we only considered the shortest paths between an employee and the direct boundary spanners of the employees' legacy organization. Second, we took the average (instead of the sum) of the shortest paths to make sure that we can meaningfully interpret the resulting scores. For example, a distance score of one means that the employee is-on average-separated from the other legacy organization by one colleague, a distance score of two means that the employee is separated by two colleagues, etc. See figure 1 for an illustration of our measure.

Control Variables. We control for several demographic, organizational, and network characteristics that might offer alternative explanations for the relationships between organizational identification, direct and indirect cross-legacy boundary-spanning, and taking charge behavior. The demographic characteristics include *gender* and *proactive personality*. We control for *gender* because research shows that social network benefits can be different for men and women (Brands & Kilduff, 2014; Brands & Mehra, 2018). It is also important to control for the *proactive personality* of employees. A meta-analysis shows that proactive personality is a strong predictor of change-oriented behavior—stronger than other traits such as those belonging to the Big Five (Marinova, Peng, Lorinkova, Van Dyne, & Chiaburu, 2015). People with a proactive personality also tend to develop social networks that provide them with the resources to pursue new initiatives (Thompson, 2005). We followed Parker and Collins (2010) and measured a respondent's disposition towards proactive behavior with four items of the proactive personality scale developed by Bateman and Crant (1993).

The organizational characteristics for which we control include the *business unit*, *office location*, and *tenure* of the employee. Controlling for *business unit* (0 = Operations, 1 = Product Development) is important because employees working for the product development unit need to proactively develop new products and solutions. Furthermore, the central position of the product development unit in the overall advice network increases the proximity of its members to both organizations, resulting in shorter average path lengths. We control for office location (0 = Location Red, 1 = Location Blue) because their difference in size influences the average path lengths of the informal and formal relationships between employees working at the

same location. Location Red is smaller than Location Blue, which can result in shorter average path lengths between employees working at location Red. We controlled for *organizational tenure*—measured as the number of years since the employee started working at one of the two merger companies—because tenure might affect the tendency of employees to occupy brokerage positions (Mehra, Kilduff, & Brass, 2001).

Finally, we control for several characteristics of the informal and formal relationships between employees. We followed established practice (Mehra et al., 2001) and control for *network size*, measured as the number of colleagues in the employee's informal network. It is important to control for network size in the context of our study because employees with larger networks are more likely to span the cross-legacy boundary and are more closely connected to the rest of the organization. We also control for *formal direct cross-legacy boundary-spanning* (0 = No, 1 = Yes). RedCo and BlueCo have been formally integrated, and some employees span the cross-legacy boundary because it is a characteristic of their formal position. Consequently, they are more likely to develop informal boundary-spanning ties than other employees. We classified an employee as a formal boundary-spanner if he or she has vertical or horizontal hierarchical ties with colleagues from the other legacy organization. In a similar vein, we used our adaptation of Freeman's closeness centrality measure (Freeman, 1979) to control for *indirect formal cross-legacy boundary-spanning*. Four employees in our sample are not formally connected to the direct formal boundary-spanners. We assigned them the maximum distance score, so we can include them in our analyses.

3.4 Results

Table 3-1 contains an overview of the descriptive statistics and correlations between our variables. The results of the regression analyses estimating the effects of the independent variables on taking charge behavior are presented in Table 3-1. Both tables show that the average association between organizational identification and taking charge behavior is slightly positive and statistically insignificant. The correlation between the two variables is 0.058. Model 2 of Table 3-2 shows that the estimated regression coefficient of organizational identification 0.025 with a confidence interval

Table 3-1
Descriptive statistics and correlations

	Variable	Mean	SD	1	2	3	4	5
1	Taking Charge	5.158	1.091					
2	Tenure	5.586	6.777	-0.175*				
3	Gender (Female)	0.457	0.500	-0.033	-0.031			
4	Business Unit (Product Development)	0.186	0.391	0.120	-0.063	-0.199*		
5	Location (Red)	0.791	0.408	-0.218*	0.191*	0.09	-0.195*	
6	Proactive Personality	5.333	0.932	0.271**	-0.079	-0.078	0.123	-0.087
7	Direct Formal Boundary-Spanning (Yes)	0.209	0.408	0.224*	-0.071	-0.128	0.586***	-0.251**
8	Indirect Formal Boundary-Spanning	3.746	1.496	-0.267**	0.005	0.122	-0.500***	0.187*
9	Informal Network Size	13.643	6.509	0.158	0.275**	-0.213*	0.128	0.219*
10	Organizational Identification ¹	5.353	1.181	0.058	0.046	0.042	-0.001	-0.04
11	Indirect Boundary- Spanning (Yes)	0.225	0.419	0.121	0.010	-0.196*	0.506***	-0.316***
12	Indirect Boundary- Spanning	2.312	0.378	-0.233**	-0.115	0.178*	-0.480***	0.017

	Variable	6	7	8	9	10	11
7	Direct Formal Boundary-Spanning (Yes)	0.139					
8	Indirect Formal Boundary-Spanning	-0.180*	-0.802***				
9	Informal Network Size	0.095	0.134	-0.189*			
10	Organizational Identification	0.182*	0.033	0.009	-0.009		
11	Indirect Boundary- Spanning (Yes)	0.217*	0.499***	-0.383***	0.227*	0.078	
12	Indirect Boundary- Spanning	-0.206*	-0.397***	0.474***	-0.588***	-0.036	-0.495****

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. ¹Identification with the new organization. Boundary-spanning refers to cross-legacy boundary-spanning.

Table 3-2*Regression models predicting taking charge behavior*

	(1)	(2)	(3)
(Intercept)	4.038 *** (0.773)	4.633 *** (1.273)	14.616 *** (3.422)
<i>Control Variables</i>			
Tenure	-0.030 * (0.014)	-0.029 * (0.014)	-0.030 * (0.014)
Gender (Female)	0.110 (0.186)	0.089 (0.188)	0.048 (0.184)
Business Unit (Product Development)	-0.182 (0.286)	-0.179 (0.314)	-0.266 (0.311)
Location (Red)	0.520 * (0.237)	0.588 * (0.248)	0.618 * (0.240)
Proactive Personality	0.230 * (0.098)	0.231 * (0.102)	0.222 * (0.099)
Direct Formal Boundary-Spanning	-0.032 (0.395)	0.103 (0.415)	0.030 (0.402)
Indirect Formal Boundary-Spanning	-0.147 (0.101)	-0.114 (0.107)	-0.118 (0.105)
Network Size	0.036 * (0.015)	0.031 (0.019)	0.023 (0.018)
<i>Main Effects</i>			
Organizational Identification ¹		0.025 (0.078)	-1.802 ** (0.589)
Direct Boundary-Spanning		-0.331 (0.289)	-2.816 * (1.246)
Indirect Boundary-Spanning		-0.324 (0.370)	-4.316 ** (1.342)
<i>Interactions</i>			
Organizational Identification ¹ *			0.491 * (0.232)
Direct Boundary-Spanning (H1)			
Organizational Identification ¹ *			0.744 ** (0.240)
Indirect Boundary-Spanning (H2)			
N	129	129	129
R ²	0.204	0.216	0.278
Adj. R ²	0.151	0.142	0.196
F statistic	3.843	2.927	3.407
P value	0.000***	0.002**	0.000***

Note: *** p < 0.001, ** p < 0.01, * p < 0.05. ¹Identification with the new organization

ranging from -0.053 to 0.103. These results indicate that organizational identification neither has a positive nor negative direct effect on taking charge behavior in the context of our study. This finding warrants a further investigation of the contextual factors that influence the effect of organizational identification on taking charge behavior.

3.4.1 The moderating effect of direct cross-legacy boundary-spanning

Hypothesis 1 predicted that direct cross-legacy boundary-spanning positively moderates the relationship between organizational identification and taking charge behavior. Model 3 of Table 3-2 shows that the coefficient of the interaction between organizational identification and direct cross-legacy boundary-spanning is positively related to taking charge behavior ($\beta = 0.491, p = 0.037$). The results of a simple slopes test show that the effect of organizational identification on taking charge behavior is 0.409 (95%CI [0.014, 0.803], $p = 0.043$) for employees with cross-legacy boundary-spanning ties (see table 3). For non-boundary-spanning employees, the effect is virtually zero and statistically insignificant ($\beta = -0.082, p = 0.357$). The difference between boundary-spanning and non-boundary-spanning employees is clearly visible in the interaction plot (Figure 3-3). Organizational identification has a strong positive effect on taking charge behavior when employees have direct cross-legacy boundary-spanning ties. Hypothesis 1 is, therefore, supported.

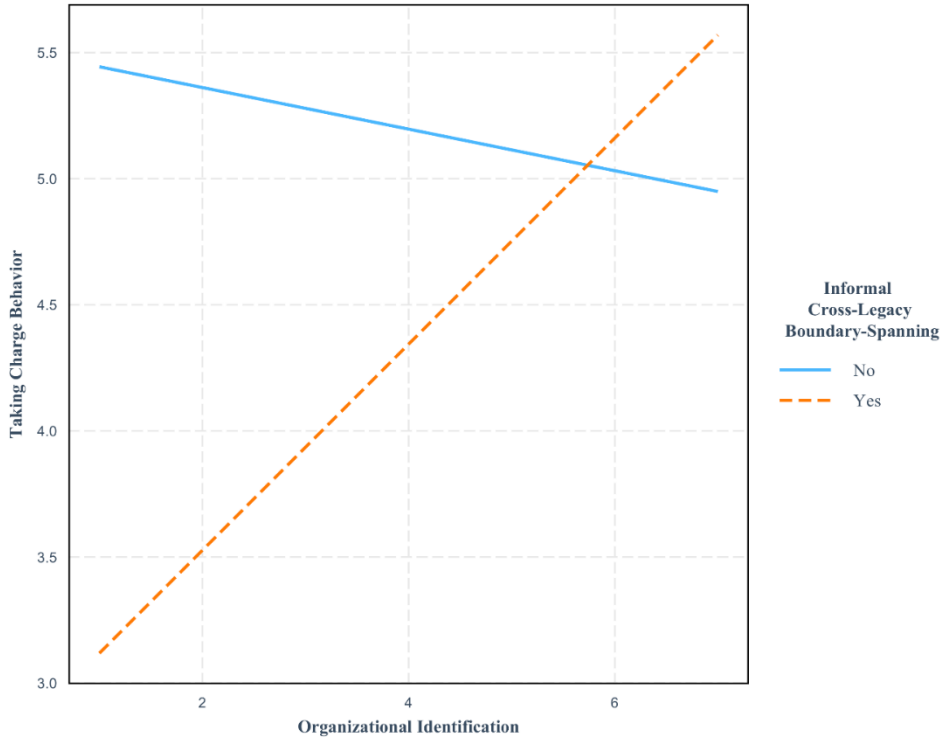
Table 3-3
Simple slopes test of the interaction between organizational identification and direct cross-legacy boundary-spanning

Value	Estimate	S.E.	95% CI	T val.	p
Yes	0.409	0.199	[0.014, 0.803]	2.050	0.043*
No	-0.082	0.089	[-0.259, 0.094]	-0.925	0.357

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Figure 3-3

Plot of the interaction between organizational identification and direct cross-legacy boundary-spanning



3.4.2 The moderating effect of indirect cross-legacy boundary-spanning

Hypothesis 2 predicted that indirect cross-legacy boundary-spanners positively moderates the relationship between organizational identification and taking charge behavior. Model 3 of table 2 shows that the coefficient of the interaction between organizational identification and indirect cross-legacy boundary-spanning is positively related to taking charge behavior ($\beta = 0.744, p = 0.002$). To better understand the interaction effect, we conducted a simple slopes test (see table 4 and figure 4). We chose three values for the social distance to the other legacy organization that are meaningful and interpretable, roughly corresponding to the addition and subtraction of one

standard deviation to and from the mean. We took a distance score of two (on average, two colleagues separate the employee from the other legacy organization), two and a half (on average, two or three colleagues are acting as intermediaries), and three (on average, three colleagues are acting as intermediaries). When two colleagues separate the indirect boundary-spanner from the other legacy organization, the effect of organizational identification on taking charge behavior is negative ($\beta = -0.314, p = 0.020$).

Table 3-4
Simple slopes test of the interaction between organizational identification and indirect cross-legacy boundary-spanning

Value	Estimate	S.E.	95% CI	T val.	p
2.0	-0.314	0.133	[-0.578, -0.051]	-2.362	0.020*
2.5	0.058	0.086	[-0.114, -0.229]	0.666	0.507
3.0	0.430	0.161	[-0.110, 0.749]	2.664	0.009**

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

The simple slopes test also shows that the estimated effect of organizational identification on taking charge behavior is positive for employees who are separated from the other legacy organization by—on average—three colleagues ($\beta = 0.430, p = 0.009$). Whether organizational identification has a positive or negative effect on taking charge behavior thus depends on the average social distance between an employee and the other legacy organization. To better understand the interaction effect, we created a Johnson-Neyman plot (Johnson & Neyman, 1936) (see Figure 3-5). When the average social distance to the other legacy organization is shorter than 2.126, the slope of organizational identification is negative and statistically significant at the 0.05 level. When the average social distance to the other legacy organization is longer than 2.712, the slope of organizational identification is positive and statistically significant at the 0.05 level. In sum, the relationship between organizational identification and taking charge behavior is negative when the average social distance is short and positive when the average social distance is long. Hypothesis 2 is thus supported.

Figure 3-4

Plot of the interaction between organizational identification and indirect cross-legacy boundary-spanning

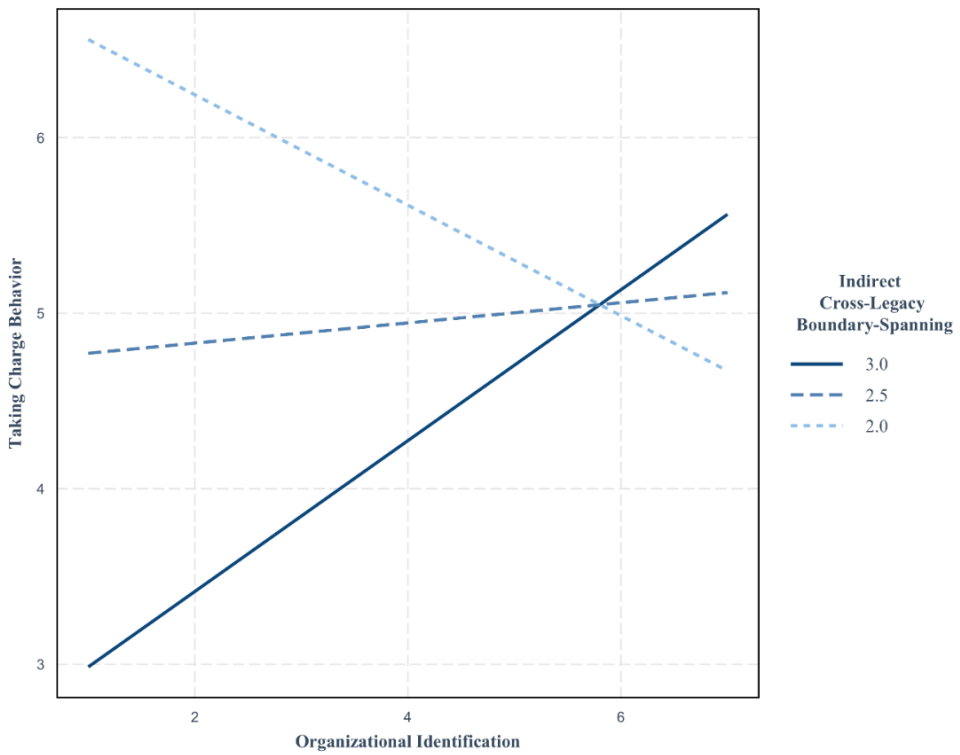
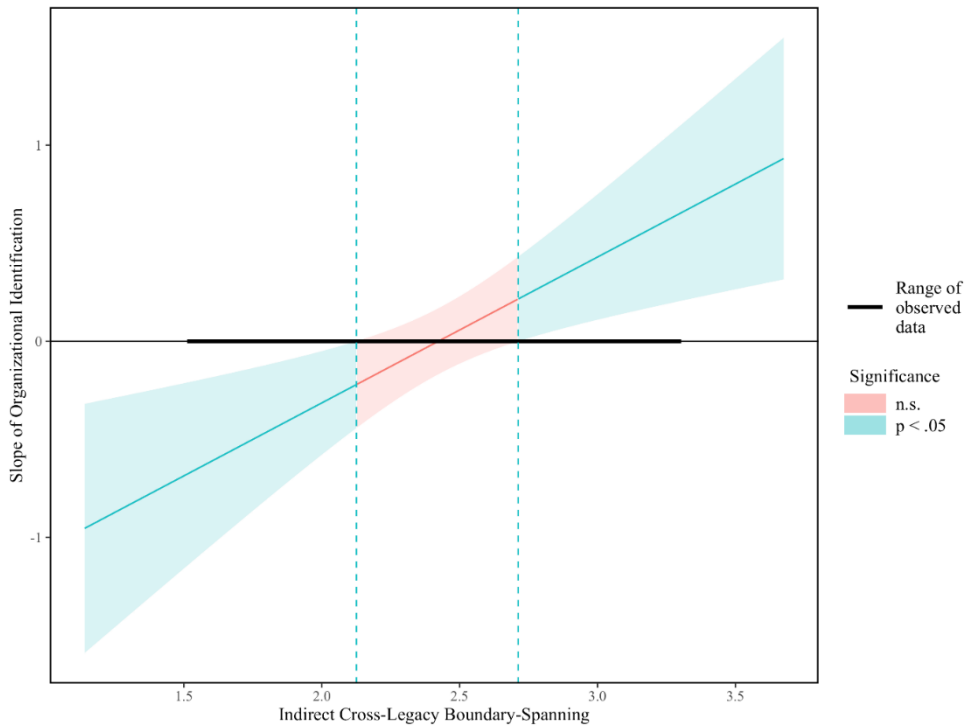


Figure 3-5
Johnson-Neyman plot of the interaction between organizational identification and indirect cross-legacy boundary spanning



3.4.3 Additional Analyses and Robustness Checks

We conducted several additional analyses to examine the robustness of our results. First, we performed the regression analyses with cluster-robust standard errors at the team level (White, 1984). Employees belonging to the same team have been rated by the same manager, which can lead to unobserved differences in manager-rated taking charge behavior across teams. The coefficient and statistical significance of our interaction effects remained virtually unchanged (H1: $\beta = 0.490$, $p = 0.020$, and H2: $\beta = 0.744$, $p = 0.002$). Second, we performed the regression analyses on a subsample of our data that consists of indirect boundary-spanning employees only. Our theoretical development of hypothesis two applies only to indirect cross-

legacy boundary-spanners, but we included all employees in our main analyses. Our conclusions about hypothesis two remain the same if we use the subsample of indirect cross-legacy boundary-spanners to run our analyses (H2: $\beta = 0.768$, $p = 0.006$). Finally, to examine the potential existent of multicollinearity among our variables, we calculated variance inflation factors for the models without interaction effects. The variance inflation factors range from 1.055 to 3.594, with an average value of only 1.792. These results indicate that the analyses do not suffer from multicollinearity. The results of these analyses were largely identical to those reported earlier and are available upon request.

3.5 Discussion & Conclusion

3.5.1 Theoretical Implications

By identifying the informal network position of employees as an important boundary condition of the relationship between organizational identification and post-merger taking charge behavior, our study advances the literature on mergers and acquisitions (Eisenman & Paruchuri, 2019; Graebner et al., 2017). Organizational identification continues to play a central role in this line of research because empirical evidence consistently shows that it affects the attitudes and behaviors of employees after a merger or acquisition (Clark et al., 2010; Colman & Lunnan, 2011; Giessner et al., 2011; Sung et al., 2017). M&A scholars typically assume that a stronger identification with the new organization is desirable because it motivates employees to act in the organization's best interests (Graebner et al., 2017; Ullrich & Dick, 2007). Our study challenges this assumption and shows that organizational identification can have negative consequences too. When employees are closely connected to the direct cross-legacy boundary-spanners, higher levels of organizational identification will make it less likely that they will challenge the status quo and initiate constructive organizational change. An important implication of this finding is that future research on mergers and acquisitions should be cautious about taking an overly optimistic view on organizational identification.

Our study also reveals that low levels of organizational identification can lead to behavior with positive consequences for the new organization. Specifically, the highest levels of taking charge behavior are achieved by employees who weakly identify themselves with the new organization and are closely connected to the cross-legacy boundary-spanners. The literature on mergers and acquisitions typically expects that employees who do not identify themselves with the new organization are more likely to disengage from the change process and voluntarily leave the organization (Jetten, O'Brien, & Trindall, 2002; Ullrich & Dick, 2007). Our study shows that it can also encourage employees to step up and initiate constructive organizational change, depending on their network of informal ties. One explanation for this striking finding is that weakly identifying employees will adopt a more critical stance towards the knowledge and expertise of the other legacy organization (Colman & Lunnan, 2011). The key implication is that low levels of identification with the new organization do not have to be counterproductive. We, therefore, encourage scholars to further explore and contrast the positive and negative effects of organizational identification in M&A settings.

Our study demonstrates the value of the integration of different theoretical perspectives to improve our understanding of the post-merger behavior of employees. Despite several calls for cross-disciplinary integration (Angwin & Vaara, 2005; Halebian et al., 2009), the drivers of M&A outcomes are still poorly understood (Graebner et al., 2017). We recognize the need for more theoretical dialogue between disciplines. The broader literature on organizational identification, for instance, recognizes that high levels of identification can have detrimental effects on individuals and organizations (Conroy et al., 2017). Organizational identification can encourage employees to employees are being encouraged to be proactive and initiate positive change (Burris et al., 2017; Hirst et al., 2009; Li et al., 2016; Riketta, 2005; Zhang et al., 2021), yet it can also lead to passiveness, complacency, and resistance to change (Conroy et al., 2017; Dutton et al., 1994; Tangirala & Ramanujam, 2008). Our integration of social network theory with social identity theory allows us to gain further understanding of when organizational identification encourages or discourages employees to challenge the status quo and initiate positive organizational change in a post-merger context.

Finally, our study offers a more nuanced perspective on cross-legacy boundary-spanning and their role as post-merger change agents. When boundary-spanners strongly identify themselves with the new organization, they are likely to show high levels of taking charge behavior. When their organizational identification is weak, however, they barely do so and are at a clear disadvantage compared to non-boundary-spanning colleagues. This finding is in line with prior work that shows that boundary-spanning is a taxing endeavor that requires dedicated time and effort (Kaplan et al., 2017; Leahey et al., 2017; Mors et al., 2018). It also lends support to our argumentation that the boundary between two organizations is a particularly strong one and echoes the notion that it should play a central role in M&A research (Drori et al., 2013). The key implication of this finding is that the dominant assumption that cross-legacy boundary-spanners serve as the primary post-merger change agents does not universally hold (Graebner, 2004; Teerikangas et al., 2011). In fact, our study shows that non-boundary spanning-employees can act as important change agents too. We encourage future research that further explores the locus of change-oriented behavior in post-merger settings.

3.5.2 Limitations & Future Research

Our study has several limitations that provide appealing avenues for future research. First, our dichotomous measure of direct cross-legacy boundary-spanning does not distinguish between employees that have many boundary-spanning ties and those that have only a few. The relatively low number of boundary-spanners is indicative of the well-documented mechanism of relation inertia (Allatta & Singh, 2011; Briscoe & Tsai, 2011). Every cross-legacy boundary-spanning tie represents an individual effort to overcome this mechanism and, therefore, serves as a valid indicator of cross-legacy boundary-spanning. This idea is corroborated by Mors, Rogan, and Lynch (2018), who show that even a single boundary-spanning tie is costly to develop. Nevertheless, we encourage future research that takes a longitudinal perspective on the development of direct and indirect cross-legacy boundary-spanning ties and their moderating influence on the relationship between organizational identification and taking charge behavior.

Second, although the social networks literature shows that the complexity of knowledge influences their diffusion rate (Sorenson & Fleming, 2004; Sorenson et al., 2010), our theoretical argumentation does not distinguish between simple and complex knowledge. We assume that the knowledge that can lead to post-merger synergies is moderately complex: it is not so simple that it can be easily substituted for by local knowledge, but also not so complex that it is too difficult to replicate or develop. However, it could be possible that in certain M&A settings, simple knowledge that quickly travels through the informal network can trigger the discovery of unexpected synergies. While prior research on post-merger social networks has primarily studied knowledge sharing based on patent-data (Eisenman & Paruchuri, 2019; Paruchuri & Eisenman, 2012), we encourage future research that examines the complexity of shared knowledge and its effect on post-merger taking charge behavior.

3.5.3 Conclusion

While management scholarship typically views organizational identification as a blessing for the post-merger integration process, our study shows that it can also serve as burden in disguise. When employees strongly identify with their organizations, they are motivated to proactively initiate and support organizational change (challenge the status quo), or reactively defend the organization's current state (maintain the status quo). In this paper, we have argued that in M&A settings, the manifest behavior is largely dependent on the direct and indirect ties between the employees of the merging organizations. The theory and findings presented in this article thus not only refine the common assumption that identification leads to taking charge behavior but also underscores the importance of accounting for social networks in the M&A context.

Chapter 4

Shooting for the stars or hitting the ceiling? Why open networks are necessary for exceptional levels of individual innovation

***Abstract.** Star employees are successful because they leverage the value embedded in their workplace relationships. Although the non-redundant information provided by open networks is important for obtaining high levels of individual innovation, emergent research has shown that employees in closed networks can compensate for the potential drawbacks of their network position and increase the heterogeneity of their knowledge pool. Whether both networks enable star performance, however, is unclear. We address this question and examine whether employees can achieve high levels of individual innovation irrespective of the structure of their social networks. Using primary data on the knowledge-sharing relationships and innovative behavior of employees in a professional service firm, we show that an open network is a necessary condition for achieving high levels of individual innovation.*

4.1 Introduction

To remain competitive, professional service firms must continuously update their services and develop new knowledge for which they can charge a premium (Morris et al., 2015; Smets et al., 2012; Suddaby & Greenwood, 2001). The development of new knowledge within professional service firms, however, is generally not centralized within dedicated R&D departments but is embedded within the daily operations of employees. Professional service employees innovate when they draw upon their knowledge and expertise to deliver customized solutions to a variety of clients (Løwendahl, 2005; Malhotra, 2003). Given the individualized nature of professional service innovation, scholars have argued that star employees—employees who achieve exceptionally high levels of individual innovation compared to their colleagues—are particularly valuable to the overall competitiveness of professional service firms because they affect the innovativeness of the organization as a whole (Chen & Garg, 2018; Grigoriou & Rothaermel, 2014; Kehoe & Tzabbar, 2015).

The literature on star employees argues that their success is partly due to the fact that they are able to fully leverage their social capital: the value embedded in their workplace relationships (Call, Nyberg, & Thatcher, 2015; Grigoriou & Rothaermel, 2014; Liu, Mihm, & Sosa, 2018). In this respect, scholars have argued that individuals with open networks have a privileged position when it comes to innovative behavior. Employees in open networks connect otherwise unconnected colleagues, which provides them superior access to non-redundant knowledge and the ability to control its diffusion (Burt, 1992). Employees in closed networks, in contrast, invest all their time and energy into a single group of closed connected colleagues and develop a relatively homogenous knowledge base that inhibits the generation of novel ideas (Burt, 1992). Recognizing the comparative benefits of open networks, scholars have begun investigating the different ways in which employees in closed networks can alleviate the strong convergence of ideas and insights characteristic to their network position. Research shows that the cognitive style of individuals (Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018), the dissimilarity of actors (Rodan & Galunic, 2004; Ter Wal, Alexy, Block, & Sandner, 2016), or the bandwidth of communication (Aral & Van Alstyne,

2011; Bruggeman, 2016) may compensate for the lack of non-redundant information in closed networks.

An unresolved theoretical question, however, is whether the compensatory mechanisms can serve as full-fledged substitutes for the benefits of open networks, allowing employees to reach high levels of individual innovation irrespective of the structure of their workplace social networks. To answer this question, we integrate a necessity logic (Dul, 2016; Goertz & Starr, 2003) the open-versus-closed network debate and show that an open network position is a necessary condition for achieving superior levels of individual innovation. Although scholars have used the compensatory logic to theorize about how informational disadvantages embedded within closed networks may be offset by personal or relational characteristics (Aral & Van Alstyne, 2011; Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018; Ter Wal et al., 2016), we suggest that an open network structure is a requirement for aspiring star employees to maximize informational advantages and achieve superior levels of individual innovation. Contrary to the compensatory logic, our study forwards the idea that employees cannot fully compensate for the knowledge homogeneity in closed networks by obtaining alternative cognitive and relational sources of non-redundancy (Ter Wal et al., 2016). An important implication of our study, therefore, is that closed networks serve as bottlenecks that prevent aspiring star employees from becoming highly innovative.

4.2 Theory & Hypotheses

4.2.1 Individual innovation in professional service firms

Individual innovation—defined as the generation, elaboration, championing, and implementation of novel solutions by individual employees (Perry-Smith, 2006; Scott & Bruce, 1994)—serves as a cornerstone of the innovativeness of professional service firms (Malhotra, Smets, & Morris, 2016; Morris et al., 2015). Because innovative solutions quickly commodify, professional service firms need to continuously innovate if they want to keep charging premiums for their services (Suddaby & Greenwood, 2001). Employees of professional service firms (i.e., professionals) are the carriers,

interpreters, and applicers of novel knowledge (Groysberg & Lee, 2009). They innovate by deploying distinct areas of expertise into customized solutions for client problems (Heusinkveld & Benders, 2005; Morris et al., 2015). When they design and implement of client solutions, they rely on their own expertise as well as the expertise of their colleagues who encountered similar problems. The informal network of relationships among professionals, therefore, determines the extent to which they can efficiently search for, access, transfer, absorb, and apply each other's expertise (Phelps et al., 2012). The impetus for innovation, however, resides with the individual professional carrying out their daily activities.

4.2.2 Star employees and social networks

Given the fact that innovation in professional service firms is embedded in the daily activities of professionals, star employees have been shown to exert an exceptional impact on the overall innovativeness and competitiveness of their organizations (Grigoriou & Rothaermel, 2014; Hess & Rothaermel, 2011). They excel in the pursuit of novel ideas and the discovery of new ways to provide value to customers. Organizations often hire them from competitors to strengthen their capabilities (Gardner, 2005; Groysberg & Lee, 2009). A distinctive characteristic of star employees is their ability to leverage the social capital embedded in their social relationships (Call et al., 2015; Grigoriou & Rothaermel, 2014; Liu et al., 2018). They are better able than non-star employees to use their relationships to successfully collaborate with colleagues, discover new opportunities to apply their expertise, and gain access to resources and support.

The social network literature argues that network structure shapes the informational advantages that star employees may leverage when they pursue innovative ideas. Central to this literature is the notion that network closure constrains access to diverse and non-redundant information. We define network closure in line with Burt (1992) as the extent to which employees invest their time and energy into a single group of closely connected colleagues. It varies along three dimensions: size, density, and hierarchy. Network closure is high if employees have strong ties with a few colleagues (small network) who themselves are strongly connected to each other (dense

network), or if those colleagues are connected to a central mutual colleague (hierarchical network). Closure reinforces a homogenous knowledge base and limits exposure to a wide range of views, opinions, and ideas (Burt, 1992), making it difficult for employees to come up with novel solutions that combine different areas of expertise. Liu and colleagues (2018) confirm this notion and show that social network cohesion and expertise similarity reduce the likelihood that employees turn into creative stars.

Several studies show, however, that the information disadvantage in closed networks may be offset by the personal or relational characteristics of employees. There are three sets of characteristics that may increase the total amount of non-redundant information available. First, a higher bandwidth—characterized by a high refresh rate, large topic space, and strong information overlap—leads to richer information flows (Aral & Van Alstyne, 2011; Bruggeman, 2016). Knowledge shared through high-bandwidth channels tends to be more complex and fine-grained, increasing the number of knowledge attributes. Second, a closed network that consists of employees with different knowledge domains increases the heterogeneity of the knowledge pool (Rodan & Galunic, 2004; Ter Wal et al., 2016). Third, the cognitive style of employees—defined as a person's characteristic mode of perceiving, thinking, remembering, and problem-solving (“Cognitive Style,” 2015)—can positively influence the number and quality of novel ideas (Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018). Someone with an innovative cognitive style naturally generates more novel ideas, while someone with a focused attention can uncover new insights by deeply attending to complex information.

Most studies applying the compensatory logic have focused on the consequences for a typical employee. The insights they offered have greatly advanced our understanding of knowledge heterogeneity in closed networks but applying the same principles to star employees might lead to misspecified theories and misleading practices (Aguinis & O’Boyle, 2014; O’Boyle & Aguinis, 2012). Star employees can be compared with star athletes: they achieve exceptionally high levels of performance compared to their peers. While a theory about athletic performance and physical recovery might provide adequate advice for recreational athletes training once or twice per week for the occasional race, it might be disastrous for Olympic athletes who

train daily and must peak every four years. To avoid developing erroneous theory and practical advice, we develop a different theoretical perspective that explicitly focuses on exceptional levels of individual innovation and the social network structures that enable star employees to achieve them.

4.2.3 A necessity perspective on network structure and individual innovation

We build upon recent developments in necessary condition analysis (NCA), which is used to identify single bottlenecks, barriers, obstacles, or constraints that prevent an outcome from occurring (Aguinis, Ramani, & Cascio, 2020; Dul, 2016). It is well-suited to determine if exceptional levels of individual innovation are conditional on the network structure of employees. A condition (X) is necessary for an outcome (Y) if (1) the absence of the condition (X_1) prevents the occurrence of the outcome (Y), and (2) there are no other factors (X_n) that serve as substitutes for the absent condition (X_1) (Dul, 2016; Goertz & Starr, 2003). Several studies have shown, for example, that intelligence is a necessary condition for creativity, such that high levels of creativity can only be achieved when intelligence is high (Karwowski et al., 2016; Karwowski, Kaufman, Lebuda, Szumski, & Firkowska-Mankiewicz, 2017). Other studies have examined the necessity of gestation activities for start-up entrepreneurship (Arenius, Engel, & Klyver, 2017), trust and contracts for buyer-supplier relationships (Van der Valk, Sumo, Dul, & Schroeder, 2016), and high-performance work practices for employee performance (Hauff, Guerci, Dul, & van Rhee, 2019).

Although employees in closed networks may compensate for a lack of novel information and increase the diversity of their knowledge pool by increasing the bandwidth of their communication (Aral & Van Alstyne, 2011; Bruggeman, 2016) or changing the way they process information (Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018), we suggest that it will not be enough to achieve exceptional levels of individual innovation. First, prior research has shown that there are diminishing returns to the strength of knowledge sharing relationships (McFadyen & Cannella, 2004; McFadyen, Semadeni, & Cannella, 2009; Soda, Stea, & Pedersen, 2019). Employees in closed networks have strong ties to a few colleagues that are either closely

connected themselves or are strongly tied to one mutual colleague. Increasing the available number of knowledge attributes will result in more novel information, but the marginal benefit of this information will be relatively small and its effect on the knowledge pool will be increasingly incremental. The stronger the ties between employees, the more difficult it is for employees to recombine and integrate novel information that radically deviates from the existing knowledge base (Heider, 1958; Perry-Smith, 2014).

Furthermore, scholars have argued that innovation in professional service firms does not hinge on novel information alone. Idea championing—defined as the active promotion of a solution aimed at obtaining approval and the resources (such as money, talent, and political support) to implement it (Perry-Smith & Mannucci, 2017)—plays an equally important role. Successful individual innovation depends on the ability of employees to muster organizational support (Anand, Gardner, & Morris, 2007) and legitimize their solutions (Suddaby & Greenwood, 2001). Without the opportunity to champion novel solutions, employees will not be able to fully leverage the non-redundant knowledge and information that is available to them. Employees with open networks serve as “linchpins” in their organizations: they do not only have access to a larger knowledge pool but can also use their knowledge to influence other members of the organization (Nerkar & Paruchuri, 2005; Paruchuri & Awate, 2017).

Based on the diminishing marginal returns to knowledge-sharing relationships and the limited opportunity to champion novel solutions in closed networks, we expect that star employees—those showcasing exceptionally high levels of individual innovation—can only thrive in open networks. In line with prior research, we argue that the absence of non-redundant information in closed networks negatively affects individual innovation. We also expect, however, that the mechanisms with which employees in closed networks can compensate for the absence of non-redundant information are not perfect substitutes for the information advantages of open networks. Consequently, we expect it to be virtually impossible that employees in closed networks can completely compensate for a lack of novel information. Closed networks, therefore, prevent them from obtaining high levels of individual innovation. As such, we argue:

***Hypothesis:** An open network position is a necessary condition for achieving high levels of individual innovation*

4.3 Methods

4.3.1 Research Setting & Data Collection

The empirical setting in which we tested our theory is an international professional service firm, to which we refer as “the firm” to ensure anonymity. The firm provides a range of tailored services to more than 1600 clients, including risk management and insurance services, tax and legal advice, private wealth management, investment advice, estate planning, and administrative services. At the time of our study, the firm employed 98 employees who provide support and advice to clients across the globe. The firm has an office in each of the eight countries where it is active and where most of the clients work and live. The structure of the firm’s organization is relatively flat, with 84 professional service employees reporting to 14 senior managers who are responsible for the execution of the firm’s strategy as well as supporting bottom-up strategic initiatives.

The firm serves as an appropriate research setting for testing our hypothesis because the work of the firm’s employees requires different degrees of innovative behavior depending on the requests of their clients. While some requests can be met with standardized services, most require creative and idiosyncratic solutions that combine different knowledge domains. The tangible outputs of these creative solutions are new and highly tailored service offerings. Furthermore, the geographic dispersion of the employees is conducive to both closed and open networks. The spatial separation between employees that work in different countries causes the clustering of relationships within countries and the occurrence of bridging relationships between countries.

We collected our data in May 2019 using an online survey sent out to all employees within the firm. We developed the survey in close collaboration with the company’s CEO and senior managers to ensure the validity of our

questions. Participation in our study was voluntary. 94 employees returned a completed survey, resulting in a response rate of 96%.

4.3.2 Network Analysis

We collected relational data about two characteristics of the knowledge-sharing network. First, we used the roster method—in which respondents select their contacts from a list of all employees—because it does not suffer from the biases of the free recall approach (Hammer, 1984; Kumbasar et al., 1994). Following established practice (Carnabuci & Diószegi, 2015; Rodan & Galunic, 2004), we asked the following two questions: “Getting your job done on a daily basis often requires advice and information from others. Which of your colleagues do you turn to for work-related advice?” and “Besides asking for work-related advice, you might also give work-related advice. Which of your colleagues turn to you for work-related advice?”. Second, to measure the relative time and energy that respondents invest in their advice relationships, we followed Burt (1984) and asked two follow-up questions: “How often do you turn to these colleagues for work-related advice?” and “How often do these colleagues turn to you for work-related advice?”. We used the answers to create a 94 by 94 directed adjacency matrix of the 684 daily and weekly advice relationships among the respondents.

4.3.3 Measures

Individual Innovation. We measured individual innovation with the six-item scale developed by Scott and Bruce (1994). We asked our respondents to self-rate their individual innovation, which is appropriate in contexts where the specialized knowledge of respondents about the intricacies of their daily work make them the best judge of the relative innovativeness of their behavior (Kauppila, Bizzi, & Obstfeld, 2018; Shalley, Gilson, & Blum, 2009). Example items are “*I search out new technologies, processes, techniques, and/or product ideas*”, “*I generate creative ideas*”, and “*I promote and champion ideas to others*”. We used a five-point Likert scale ranging from “*Not at all*” to “*To an exceptional extent*”. The reliability analysis shows that the scale is internally consistent (Cronbach’s $\alpha = 0.87$). We

averaged the item responses to create one individual innovation measure per respondent.

Network Openness. We used the inverse of Burt's constraint measure (Burt, 1992) to measure the extent to which the network structure of the respondent is open or closed, which is consistent with prior work on the open versus closed network debate (Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018). The constraint measure fits our research question because it measures the extent to which a respondent's time and energy are concentrated in a single group of closely connected colleagues or whether they are spread across colleagues that are not directly connected to each other (Burt, 1992). We used R version 3.6.1 (R Core Team, 2020) and version 1.2.4.2 of the *igraph* package (Csardi & Nepusz, 2006) to calculate network constraint. We subtracted the constraint score from one to create a measure in which a value of one represents a fully open network and a value of zero represents a fully closed network.

4.3.4 Analytical Approach

We used NCA (Dul, 2016) to test if exceptional levels of individual innovation are conditional on the network structure of employees. NCA fits our research question because it allows us to model the maximum value of individual innovation for every value of network openness. There are two reasons why we chose Necessary Condition Analysis (NCA) over other analytical techniques. First, regression-based modeling cannot be used to test necessity hypotheses (Goertz, Hak, & Dul, 2013; Goertz & Starr, 2003). Regression analysis is useful to determine the average change in the outcome variable as a function of a change in the predictor variable or to predict the average level of the outcome variable given the level of the predictor variable. Hence, regression analyses draw conclusions about the relationship between network structure and individual innovation on average and *ceteris paribus*. They are unable to show under which conditions high levels of individual innovation are impossible. Second, set-theoretic approaches like Qualitative Comparative Analysis (QCA) and Qualitative Comparative Analysis with fuzzy sets (fsQCA) can only test relationships in which the condition can be absent or present: the so-called *in kind* necessity relationships (Dul, 2016; Vis

& Dul, 2018). NCA allows us to test *in degree* necessity relationships, such that we can determine the specific *levels* of network openness necessary for specific *levels* of individual innovation.

Ceiling Techniques. There are two techniques that are commonly used to draw the ceiling line (Dul, 2016). First, *ceiling envelopment* draws the ceiling line as a stepwise function that connects the highest values of individual innovation for every value of network openness. It “envelops” the upper left points of the scatter plot by using the free disposal hull approach (Tulkens, 1993). The corresponding Ceiling Envelopment–Free Disposal Hull (CE-FDH) ceiling line serves as the most appropriate technique to draw the ceiling line when the scores of X and Y are discrete. The second technique is Ceiling Regression–Free Disposal Hull (CR-FDH), which draws a trend line through the upper left points that are part of the CE-FDH function (Dul, 2016). This ceiling line is a smooth version of the stepwise function and can be used when both the condition and the outcome have continuous scores. Some observations will fall above the CR-FDH ceiling line because it runs through the middle of the upper left observations without connecting them. The percentage of observations that are on or below the ceiling line is represented by the ceiling technique's *c-accuracy*. We show the results of both ceiling techniques because the scores on the individual innovation scale are discrete and the scores of network openness are continuous.

Effect Size. The NCA effect size quantifies the strength of the necessary condition. It represents the relative size of the empty upper-left area compared to the total area that can have observations and serves as a measure of the degree to which the condition X constrains the outcome Y (Dul, 2016). The empty area above the ceiling line is called the *ceiling zone* (C) and the total area containing all the possible combinations of X and Y is called the *scope* (S). The effect size *d* is given by the formula $d = C/S$ and can range from 0 to 1. Whether an effect size is important or not depends on the context in which it is interpreted, but a general rule of thumb qualifies effect sizes between 0.0 and 0.1 as a small effect, between 0.1 and 0.3 as a medium effect, and between 0.3 and 0.5 as a large effect (Dul, 2016). Effect sizes larger than 0.5 are considered to be very large and can only be expected if the ceiling line is not straight.

Permutation Test. A permutation test to determine the likelihood that the estimated effect size is based on chance. NCA's statistical test is an approximate permutation test, in which the independent variable (X) and outcome variable (Y) are randomly reshuffled such that they are unrelated to each other (Dul, van der Laan, & Kuik, 2020). The test repeats this procedure such that the number of resamples is equal to the number of desired permutations—which we have set to 100.000 to obtain an accurate estimate. The NCA effect size is calculated for each of the permutations of the sample, resulting in a distribution of 100.000 random effect sizes. This distribution mirrors the distribution under the null hypothesis of the permutation test, which states that X is *not* related to Y. A comparison of the NCA effect size observed in the observed sample with the distribution of random effect sizes yields a *p*-value representing the probability that the random effect size is equal or larger than the observed effect size.

Bottleneck Table. The graphical representation of the ceiling line can be transformed into a bottleneck table that shows what minimum level of the condition (X) is necessary for a desired level of the outcome (Y). When a condition is necessary for an outcome, the absence of X is sufficient for the absence of Y. The condition therefore serves as a *bottleneck*: it prevents or limits the occurrence of the outcome. Since we hypothesize that closed networks constrain the individual innovation of employees and—conversely—open networks enable individual innovation, the bottleneck table serves as a useful tool that quantifies the level of network openness that is necessary for achieving a certain level of individual innovation.

Control Variables. Statistical control variables are commonly used in regression analysis to account for factors that extraneously influence the average relationship between the dependent and independent variables to improve the prediction and reduce omitted variable bias (Carlson & Wu, 2012). However, control variables do not play a role in NCA. NCA draws a ceiling line *on top of* the observations such that it separates the space with observations from the space without them (Dul, 2016). The ceiling line is therefore solely determined by the maximum values of Y for the given levels of X and does not depend on the distribution of the observations below it. It is a bivariate interdependence, so its estimation cannot be improved, made

more precise, or changed by including control variables. The necessity of a variable is not affected by adding or omitting other variables (Dul, 2019).

4.4 Results

Descriptive statistics are presented in Table 4-1. The respondents differ substantially from each other in terms of their innovativeness and network structure. The individual innovation scores range from 1.33 (not innovative at all) to 5.00 (exceptionally innovative). The top five percent most innovative respondents have a score of 4.50 or higher, while the top ten percent consists of respondents with an individual innovation score higher than 4.00. The network openness scores of the respondents range from .00 (completed closed) to .82 (almost completely open). The respondents with a score of .00 exchange advice and work-related information with a single group of closely connected colleagues. The respondents with a score of .82 mostly share advice with unconnected colleagues.

Table 4-1

Descriptive statistics

	Variable	Mean	S.D.	Min.	Max.	Range	Correlation
1	Individual Innovation	3.16	0.76	1.33	5.00	3.67	
2	Network Openness	0.55	0.20	0.00	0.82	0.82	.27 ($p = .007$)

4.4.1 NCA Results

The results of our NCA analysis show that an open network is a necessary condition for achieving high levels of individual innovation. The empty upper-left corner in the NCA plot (Figure 4-1) indicates that respondents in closed networks cannot achieve high levels of individual innovation. The effect size of the necessary condition is .306 for the ceiling envelopment technique (CE-FDH) and .278 for the ceiling regression technique (CR-FDH)

(See Table 4-2). Both effect sizes can be considered as medium to large (Dul, 2016). The permutation test indicates that it is highly unlikely that we would observe these effect sizes if no relationship between network structure and individual innovation exists ($p = .002$ and $p = .001$). The structure of the workplace social networks of our respondents, therefore, constrains the maximum level of individual innovation that they can achieve. The constraining effect is reflected by the CR-FDH ceiling line, which shows that the maximum level of individual innovation increases when their social networks become more open. This pattern is congruent with the idea that closed networks prevent employees from achieving high levels of individual innovation.

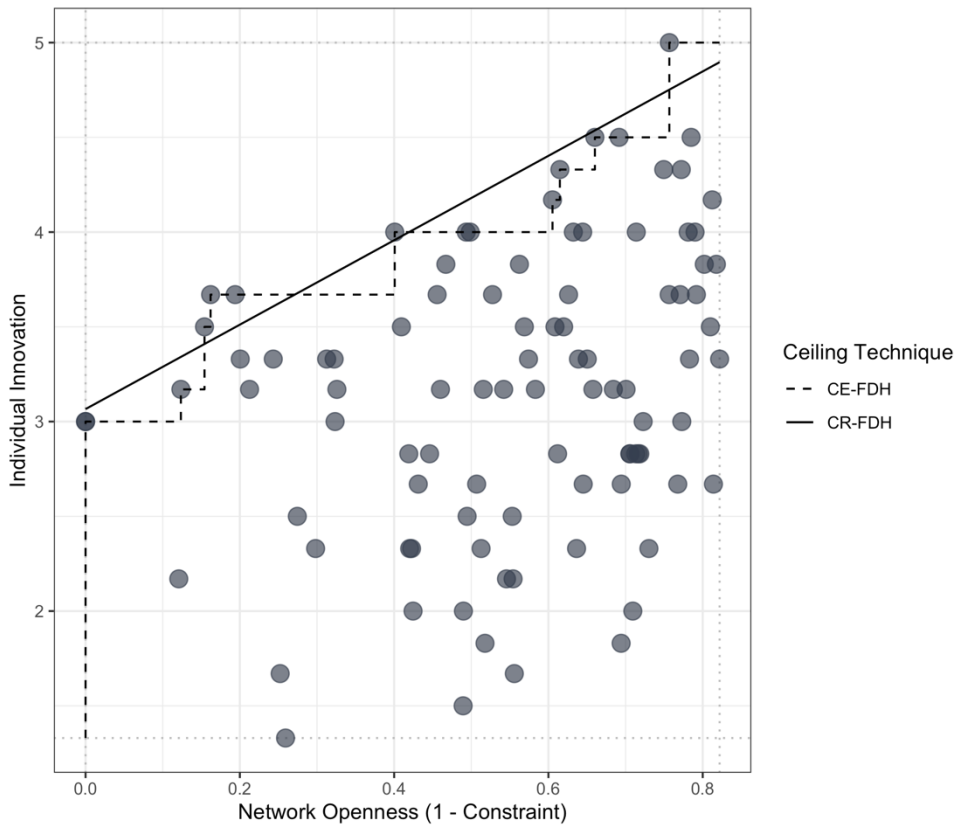
Table 4-2
Results of the necessary condition analysis examining the extent to which network openness is a necessary condition for achieving high levels of individual innovation

	Ceiling Technique	
	CE-FDH	CR-FDH
Number of observations	94	94
Ceiling Zone	0.924	0.837
Effect Size	.306	.278
Observations Above	0	5
C-Accuracy	100%	94.7%
Permutation Test		
Permutations	100.000	100.000
p-value	.002	.001
p-accuracy	.000	.000

The bottleneck table (Table 4-3) shows that exceptional levels of individual innovation—corresponding to a score of 4.50 or higher—are only achieved by respondents who allocate at least 64 percent of their knowledge-sharing

exchanges to unconnected colleagues. The four employees that achieve this score make up the top five of most innovative employees. The respondents with an individual innovation score of 4.0 (greatly innovative) or higher belong to the top ten percent of most innovative employees and invest at least 40 percent of their knowledge-sharing exchanges to unconnected colleagues.

Figure 4-1 NCA Plot with ceiling lines representing the necessity relationship between network openness and individual innovation



Respondents can achieve low levels to moderate levels of individual innovation irrespective of the structure of their networks. More specifically, an open network is not necessary for employees interested in achieving individual innovation scores of 1 (not innovative), 2 (slightly innovative), or 3 (moderately innovative). Employees in closed networks are, therefore, able to

achieve moderate levels at most. Above-average individual innovation scores of 3.50 or higher can only achieved by respondents that invested at least part of their time and energy into advice-sharing relationships with unconnected colleagues. Together, these findings support our hypothesis.

Table 4-3
Bottleneck table listing the levels of network openness necessary to achieve specific levels of individual innovation

Individual Innovation		Network Openness	
Score	Label	CE-FDH	CR-FDH
1.0	“Not at all”	NN	NN
1.5		NN	NN
2.0	“To a small extent”	NN	NN
2.5		NN	NN
3.0	“To a moderate extent”	NN	NN
3.5		.154	.195
4.0	“To a great extent”	.401	.419
4.5		.660	.644
5.0	“To an exceptional extent”	.757	NA

Note: CE-FDH = Ceiling Envelopment Free Disposal Hull (Stepwise Ceiling); CR-FDH = Ceiling Regression Free Disposal Hull (Linear Ceiling); NN = Not Necessary; NA = Not Available

4.4.2 Supplementary Analyses

To avoid potential problems associated with single-informant and other common method biases (Podsakoff et al., 2003) we performed two additional analyses. First, we conducted an NCA with manager-rated individual innovation as the outcome variable. We send a follow-up survey in January 2020 to the senior managers and asked them to rate the individual innovation of their subordinates on the same six-item scale that was used in the first round of the data collection. We received 12 usable responses, resulting in a sample that consists of 81% of the 94 respondents that participated in the

primary survey. Again, the hypothesis was confirmed. The effect sizes of the necessary condition are .197 for the ceiling envelopment technique (CE-FDH; $p = .023$) and .177 for the ceiling regression technique (CR-FDH; $p = .018$).

Second, we calculated network openness based on confirmed relationships. We considered a relationship confirmed if two respondents reported the existence and direction of their advice relationship. For example, the advice-seeking relationship between person A and B is confirmed if (1) person A selected person B as someone they *seek* advice from, and (2) if person B selected person A as someone they *give* advice to. The effect sizes resulting from this analysis are 0.310 ($p = .000$) for the ceiling envelopment technique (CE-FDH) and .309 ($p = 0.000$) for the ceiling regression technique (CR-FDH), confirming our hypothesis.

4.5 Discussion & Conclusion

Star employees directly contribute to the competitive success of their organizations (Chen & Garg, 2018; Grigoriou & Rothaermel, 2014; Kehoe & Tzabbar, 2015). They are especially important for professional service firms, where the responsibility to develop new organizational knowledge resides with the individual employee (Malhotra et al., 2016; Morris et al., 2015). To understand the conditions that stimulate innovation at the individual level, a burgeoning strand of research has explored the role of workplace social networks (Gómez-Solórzano, Tortoriello, & Soda, 2019; Kauppila et al., 2018; Paruchuri & Awate, 2017; Rhee & Leonardi, 2018). Moving beyond recent insights, our study explores how social networks influence the ability of employees to achieve exceptionally high levels of individual innovation. Integrating a necessity logic (Dul, 2016; Goertz & Starr, 2003) into the open-versus-closed network debate, our study provides a novel theoretical perspective that clarifies how network structure enables or prevents star performance. Our application of NCA shows that closed networks prevent employees from achieving high levels of individual innovation.

Our study advances the literature on social networks and individual innovation by challenging the view that employees can limitlessly compensate for the drawbacks of closed networks. According to structural holes theory (Burt, 1992), the lack of non-redundant information in closed

networks constrains the individual innovation of employees. More recent research has further developed this notion and showed that employees in closed networks can compensate for a lack of non-redundant information (Aral & Van Alstyne, 2011; Bruggeman, 2016; Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018; Ter Wal et al., 2016). Considering this line of research, a novel contribution of our study comes from our focus on exceptional—rather than average—levels of individual innovation. While the compensatory mechanisms identified in prior work might be adequate for employees interested in low to moderate levels of individual innovation, it is unlikely that they are enough for star employees. Our study suggests that this is particularly the case in knowledge intensive settings where innovation is dispersed throughout the organization.

Our study also provides a more nuanced understanding of the conditions under which star employees can thrive. Rather than merely confirming the importance of social capital for star employees (Call et al., 2015; Grigoriou & Rothaermel, 2014), our study shows that the structural configuration of relationships can serve as a bottleneck that prevents the ability of employees to excel. An important implication for future research on star employees, therefore, is that the ability of employees to achieve high levels of performance might be conditional on their social environment. Future studies that do not incorporate this ceiling effect into their theoretical frameworks run the risk of developing misspecified theories about star performance (Aguinis & O’Boyle, 2014; O’Boyle & Aguinis, 2012). An important practical implication of our findings is that open networks are so-called “need-to-haves” that aspiring star performers cannot do without.

A limitation of our study that provides a compelling avenue for future research is the cross-sectional design of our analysis. Although we included a lagged manager-rated measure of individual innovation to bolster the robustness of our findings, we could not completely rule out the possibility of endogeneity. Since it could be possible that high levels of individual innovation cause employees to develop open network structures, it would be worthwhile to further test the causal mechanisms of the necessity logic we propose. This could be achieved with a longitudinal or quasi-experimental study design.

Chapter 5

Discussion & Conclusion

Organizations often struggle to maintain or rekindle an entrepreneurial flair, which makes them vulnerable when circumstances change. Corporate entrepreneurship allows them to pursue new entrepreneurial opportunities and secure their long-term viability (Burgelman, 1983c; Guth & Ginsberg, 1990; Kuratko, 2010; Sharma & Chrisman, 1999). Although the management literature has outlined several corporate entrepreneurship models (Hitt et al., 2011; Ireland et al., 2009, 2003; Kuratko, 2010; Kuratko et al., 2005), they do not explicitly acknowledge the role of social context: the specific situation or general environment that serves as a social framework for behavior. This is an important omission because a well-established line of research shows that the social context can prevent or promote entrepreneurial behavior (Baer et al., 2015; Burt, 1992, 2004; Fleming, Mingo, et al., 2007; Perry-Smith, 2003; Perry-Smith & Mannucci, 2017). In this dissertation, I develop a network perspective on corporate entrepreneurship (the NPCE framework, see Figure 1-2) that takes the social context into account. In Chapter 1, I have identified the elements of the corporate entrepreneurship process in which the social context plays a decisive role. The empirical studies reported in chapters 2, 3, and 4 provide support for the NPCE framework. Together, the chapters of this dissertation offer novel and valuable insights for corporate entrepreneurship theory and practice.

5.1 Theoretical Implications

The findings of this dissertation have three key implications for the corporate entrepreneurship literature. First, organizations respond conservatively to performance shortfalls when they focus on social cues and

entrepreneurially when they focus on historical cues (see Chapter 2). A meta-analytic synthesis of 75 primary performance feedback studies show that historical performance shortfalls trigger eager responses geared towards change, while social performance shortfalls trigger vigilant responses geared towards stability. An important implication for the corporate entrepreneurship literature is that this chapter clearly shows that different types of transformational triggers have different effects. Even though prior work has identified 40 different triggering events (Schindehutte et al., 2000), it is unclear how different types of events lead to different types of entrepreneurial endeavors (Morris & Kuratko, 2002). Chapter 2 thus responds to a call for a better understanding of the transformational triggers of the corporate entrepreneurship process and their consequences (Kuratko, 2010). Furthermore, by showing that social and historical performance feedback at the organizational level can have opposite behavioral effects, it underlines the importance of separating social context and individual attributes. Future research on transformational triggers should, therefore, take the nature of the trigger into account.

Second, employees who strongly identify themselves with their post-merger organizations behave entrepreneurially or conservatively depending on their direct and indirect social relationships (see Chapter 3). A social network analysis of 129 employees working for digital payment services provider one year after a merger of equals shows that strong identifiers behave more entrepreneurially if they directly share information and advice with colleagues who used to work for the other legacy organization. Low identifiers, in contrast, behave more entrepreneurially if they do not have these direct ties. An important implication for the corporate entrepreneurship literature is that the individual attributes and social context of employees conjointly determine whether they behave more entrepreneurially or conservatively. Even though the management literature typically views organizational identification as a positive attribute of individual employees (Ashforth & Mael, 1989; Dutton et al., 1994), Chapter 3 shows that organizational identification can lead to conservative and counterproductive behavior. This chapter thus responds to the call for a better understanding of the interplay between human and social capital (Hollenbeck & Jamieson, 2015; Lengnick-Hall et al., 2021; Soltis et al., 2018).

Finally, the social context of employees working for professional service firms can serve as a bottleneck, preventing them from achieving high levels of entrepreneurial behavior (see Chapter 4). A social network analysis of 94 employees working for an international professional service firm shows that high levels of entrepreneurial behavior are only achieved by employees who connect otherwise unconnected colleagues. Employees who invest all their time and energy into a closely connected group of colleagues achieve moderate levels of entrepreneurial behavior at best. An important implication of this finding for the corporate entrepreneurship literature is that the social context of employees can constrain their entrepreneurial behavior irrespective of their individual attributes. The literature on social networks and entrepreneurial behavior has so far argued that employees can compensate for the potential drawbacks of their social relationships (Aral & Van Alstyne, 2011; Bruggeman, 2016; Carnabuci & Diószegi, 2015; Rhee & Leonardi, 2018; Ter Wal et al., 2016). Chapter 4 shows that there is an upper limit—a ceiling—to the extent to which employees can compensate for a lack of non-redundant knowledge and information. Future research on the antecedents of entrepreneurial behavior should, therefore, take the theoretical possibility into account that certain social context and individual attributes serve as bottlenecks that determine the maximum level of entrepreneurial behavior employees can achieve.

5.2 Practical Implications

The findings of this dissertation also have implications for corporate entrepreneurship practice. Corporate entrepreneurship is a challenge for managers because they have to focus on what the company does best while simultaneously searching for new opportunities (Garvin & Levesque, 2006; Gilbert, Eyring, & Foster, 2012). Chapter 2 shows that organizational decision-makers should be aware that different organizational-level reference points tend to have different behavioral effects. When decision-makers make social comparisons, it is likely that the performance shortfall will activate their prevention motivational system. The causal ambiguity of social performance feedback will reinforce the need for safety, security, and stability (Higgins, 1997). When decision-makers make historical comparisons, it is likely that

the performance shortfall will activate their promotion motivational system. The goal to perform better than the year before with easy access to internal knowledge and information will reinforce the preference for risky options, speed, and change (Higgins, 1997). The type of feedback that decision-makers consider can, therefore, nudge them towards conservatism or entrepreneurship. Since a corporate entrepreneurship strategy relies on entrepreneurial behavior, it is important that decision-makers are aware of the potential cognitive and motivational biases they possess.

Chapters 3 and 4 shows that the social context of individual employees can enable or constrain the extent to which they behave entrepreneurially. It is critical that both managers and employees are aware of these dynamics and adjust their expectations accordingly. Chapter 3, for example, shows that employees who strongly identify themselves with their organizations are not necessarily the post-merger change agents. Their level of organizational identification can motivate them to initiate or resist positive organizational change. While low identifiers are typically not expected to contribute to the post-merger integration process (Graebner et al., 2017), Chapter 3 shows that they can be highly entrepreneurial if they find themselves in the right social context. A key implication for post-merger integration managers is that their organizational identification is not unequivocally beneficial for the post-merger integration process. Chapter 4 shows that the social context can serve as a bottleneck that prevents employees from achieving high levels of entrepreneurial behavior. An essential implication for managers and employees is that it is not possible for employees in closed networks to fully compensate for a lack of non-redundant information. This is especially relevant for aspiring star innovators because closed networks will prevent them from achieving exceptional levels of entrepreneurial behavior.

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Summary

Organizations often struggle to maintain or rekindle an entrepreneurial flair, which makes them vulnerable when circumstances change. Corporate entrepreneurship is a process that stimulates entrepreneurial behavior, enabling organizations to respond to changing circumstances, pursue new opportunities, and secure their long-term viability. Prior research has suggested several models that capture the corporate entrepreneurship process and identify a range of factors that stimulate or stifle entrepreneurial behavior. These models greatly improved our understanding of corporate entrepreneurship, but they do not explicitly acknowledge the social context of organizations and employees. In this dissertation, I develop and test a theoretical framework that provides a network perspective on corporate entrepreneurship (the NPCE framework). The NPCE framework shows when and why the social context plays a decisive role in the corporate entrepreneurship process. The results of three empirical studies provide support for the NPCE framework and demonstrate that the social context can evoke entrepreneurial and conservative behavior. The key implication of this finding for future corporate entrepreneurship research is that the omission of the social context leads to an incomplete understanding of the corporate entrepreneurship process.

Samenvatting

Organisaties hebben vaak moeite om een ondernemende houding te handhaven of opnieuw aan te wakkeren, wat hen kwetsbaar maakt wanneer omstandigheden veranderen. Corporate ondernemerschap is een proces dat ondernemend gedrag stimuleert, waardoor organisaties kunnen reageren op veranderende omstandigheden, nieuwe kansen kunnen grijpen en hun levensvatbaarheid op lange termijn kunnen waarborgen. Eerder onderzoek heeft verschillende modellen voorgesteld die het corporate entrepreneurship proces beschrijven en een reeks factoren identificeren die ondernemend gedrag stimuleren of ontmoedigen. Deze modellen hebben onze kennis van corporate ondernemerschap enorm verbeterd, maar ze erkennen niet expliciet de sociale context van organisaties en werknemers. In dit proefschrift ontwikkel en test ik een theoretisch raamwerk dat een netwerk perspectief op corporate ondernemerschap biedt (het NPCE-raamwerk). Het NPCE-raamwerk laat zien wanneer en waarom de sociale context een doorslaggevende rol speelt in het corporate ondernemerschapsproces. De resultaten van drie empirische studies ondersteunen het NPCE-raamwerk en tonen aan dat de sociale context zowel ondernemend als conservatief gedrag kan oproepen. De belangrijkste implicatie van deze bevinding voor toekomstig onderzoek naar corporate entrepreneurship is dat het niet meenemen van de sociale context een onvolledig beeld geeft van het corporate entrepreneurship proces.

About the Author

Stefan Breet is an Assistant Professor of Strategy and Entrepreneurship at the Radboud University Nijmegen.

Stefan is fascinated by the paradoxical nature of corporate entrepreneurship. In his research, he examines the social and behavioral antecedents of intrapreneurship and organizational adaptation, as well as the psychological and relational

mechanisms that govern these effects. The main goals of his research are to improve our theoretical understanding of corporate entrepreneurship, to integrate research on intrapreneurship with research on social networks, to separate “nice-to-have” from “need-to-have” factors by identifying the necessary conditions that enable or constrain intrapreneurship, and to provide practical recommendations that help both employees and organizations to become more entrepreneurial.



Portfolio

Stefan Breet

Experience

Assistant Professor of Strategy and Entrepreneurship

Nijmegen School of Management, Radboud University
January 2021 – Present

Research Assistant

Rotterdam School of Management, Erasmus University
May 2013 – June 2015

Education

Rotterdam School of Management, Erasmus University

PhD in Corporate Entrepreneurship, 2015 – 2022

LINKS Center for Social Network Analysis, University of Kentucky

Visiting PhD Candidate, March 2019 - September 2019

Rotterdam School of Management, Erasmus University

Master of Philosophy in Business Research, 2012 – 2015

Faculty of Economics and Business, University of Groningen

Bachelor of Science in Business Administration, 2007 – 2012

Publications

Appendices

Breet, J. S., van Rhee, H., & Dul, J. (2018). Necessary Condition Analysis (NCA) in Three Steps: A Demonstration (Appendix to Dul, van der Laan, & Kuik, 2019 in *Organizational Research Methods*).

Awards & Recognitions

Finalist for the Best Interdisciplinary Paper Award

SMS Annual Meeting 2021

Nominated by the SMS Strategic Human Capital Interest Group. Proposal "Who Steps Up After a Merger? A Social Network Perspective on Post-merger Taking Charge Behavior" (with Lotte Glaser and Justin Jansen)

Recipient of the Andreas Al-Laham Best Paper Award 2021

EGOS Colloquium 2021 Amsterdam

Awarded by the EGOS Standing Working Group 7: "Organization(al) Networks: Between Structure and Process" for the paper "Who steps up after a merger? A social network perspective on post-merger taking charge behavior" (with Lotte Glaser and Justin Jansen)

Nominated for the SMS London PhD Paper Prize

SMS Annual Meeting 2020

Nominated by the 2020 SMS Annual Conference PhD Paper Prize Co-Chairs. Proposal: "Is High Innovative Performance without Brokerage Possible? A Necessary Condition Analysis" (with Lotte Glaser, Justin Jansen, and Jan Dul)

Conference Presentations

Breet, J. S., Glaser, L., & Jansen, J. J. P. (2021, September 19). *Who steps up after a merger? A social network perspective on post-merger taking charge behavior*. Strategic Management Society Annual Meeting, Virtual Toronto.

- Breet, J. S., Glaser, L., & Jansen, J. J. P. (2021, September 7). *Who steps up after a merger? The effects of boundary-spanning on post-merger taking charge behavior*. European Conference on Social Networks, Virtual Napels.
- Breet, J. S., Glaser, L., & Jansen, J. J. P. (2021, August 1). *Who steps up after a merger? The effects of boundary-spanning on post-merger taking charge behavior*. Academy of Management Annual Meeting, Virtual.
- Breet, J. S., Glaser, L., & Jansen, J. J. P. (2021, July 9). *Who steps up after a merger? The effects of boundary-spanning on post-merger taking charge behavior*. EGOS Colloquium, Virtual Amsterdam.
- Breet, J. S., Glaser, L., Dul, J., & Jansen, J. J. P. (2020, October 27). *Is High Innovative Performance without Brokerage Possible? A Necessary Condition Analysis*. Strategic Management Society Annual Meeting, Virtual London.
- Breet, J. S., Jansen, J. J. P., & Glaser, L. (2020, July 14). *Stepping up or laying low? A social network perspective on post-merger taking charge behavior*. SUNBELT Social Networks Conference, Virtual.
- Breet, J. S., Heugens, P. P. M. A. R., & Nadolska, A. (2018, September 25). *Performance Feedback, Problemistic Search and Strategic Change: A Meta-Analysis*. Strategic Management Society Annual Meeting, Paris.
- Breet, J. S., Dul, J., Glaser, L., & Jansen, J. J. P. (2018, June 30). *Is Brokerage Necessary for Innovative Performance? A Necessary Condition Analysis*. SUNBELT Social Networks Conference, Utrecht.
- Breet, J. S., Jansen, J. J. P., & Glaser, L. (2017, August 7). *Brokerage and Entrepreneurial Behavior in Organizations: The Role of Political Skill*. Academy of Management Annual Meeting, Atlanta.

Invited Talks

- Breet, J. S. (2020, July 16). *The social constellation of star employees: Why an open network is necessary for reaching high levels of individual innovation in professional service firms*. emlyon, Virtual.
- Breet, J. S. (2019, September 26). *Is High Innovative Performance without Brokerage Possible? A Necessary Condition Analysis*. Social Networks Nano Conference, Rotterdam.
- Breet, J. S. (2019, September 19). *Is High Innovative Performance without Brokerage Possible? A Necessary Condition Analysis*. University of Sydney, Sydney.
- Breet, J. S. (2019, March 29). *Is High Innovative Performance without Brokerage Possible? A Necessary Condition Analysis*. University of Kentucky's Management Colloquium, Lexington, KY.
- Breet, J. S. (2019, August 30). *Eager or Vigilant? A Meta-Analytic Review of Organizational Responses to Performance Feedback*. University of Kentucky's Management Colloquium, Lexington, KY.
- Breet, J. S. (2018, November 26). *Do You Need to Be a Broker to Be Innovative? A Necessary Condition Analysis*. Social Network Analysis Discussion Group of the University of Saskatchewan, Virtual Presentation.

Teaching Experience

Teaching Interests

Corporate entrepreneurship; strategic management; social networks in organizations; research methods; necessary condition analysis; social network analysis.

Teaching Qualifications:

- **Didactical Training for PhD Students (2018)**
Risbo Research-Training Consultancy, Erasmus University Rotterdam
Basic Didactics, Group Dynamics, Filmed Teaching Session, External professional feedback on Teaching Session

Courses at the Erasmus University Rotterdam

- **Advanced Topics in Strategic Entrepreneurship (Spring 2020)**
Doctoral Course | ERIM PhD Programme
I gave a lecture on workplace social networks and innovation to 8 doctoral students
- **Corporate Entrepreneurship (Fall 2017, 2018, 2019)**
Graduate Course | MSc in Strategic Entrepreneurship | ☆ 4.3 / 5
Gave lectures on corporate entrepreneurship, social networks and innovation, and organizational ambidexterity to classes of 49, 65 and 54 graduate students. Coordinated the course and organized the company case assignment. Co-taught the course together with professors Justin Jansen and Lotte Glaser
- **Master Thesis Supervision (Spring 2016, 2017, 2018 & 2020)**
Graduate Course | MSc in Strategic Management / Strategic Entrepreneurship
I coached and mentored 32 graduate thesis writers
- **Research Training & Bachelor Thesis (Spring 2017 & 2020)**
Undergraduate Course | BSc in Business Administration | ☆ 4.4 / 5
I coached and trained 54 undergraduate thesis writers
- **Internship Supervision (Fall 2015, 2017, 2018 & 2019)**
Undergraduate Course | BSc in Business Administration
I coached 8 bachelor students during their company internships

- **Social Entrepreneurship Project (Fall 2016)**

Graduate Course | Part-time MSc in Business Administration | ☆ 4.4 / 5

I supervised the student consulting projects of 19 part-time graduate students

Professional Service

Member of the NCA Development Team

February 2017 – Present

I organize workshops on Necessary Condition Analysis (NCA) and help scholars from different disciplines to apply NCA in their work.

Workshops

Breet, J. S. (2021, October 14). *NCA Paper Development Workshop*. Virtual.

Breet, J. S., Dul, J., Hauff, S., & Lee, W. (2021, August 3). *Necessary Condition Analysis (NCA): Logic, Theory, Methodology, and New Applications*. Academy of Management Annual Meeting, Virtual.

Dul, J., Breet, J. S., Tóth, Z., & Richter, N. F. (2020, August). *Necessary Condition Analysis (NCA): Logic, Theory, Methodology, and Application*. Academy of Management Annual Meeting, Vancouver.

Breet, J. S. (2020, June 24). *An Introduction to Necessary Condition Analysis (NCA)*. SUNBELT Social Networks Conference, Virtual.

Breet, J. S., & Dul, J. (2019, October 19). *An Introduction to Necessary Condition Analysis (NCA) for Strategic Management Research*. Strategic Management Society Annual Meeting, Minneapolis.

Hauff, S., Breet, J. S., & van Rhee, H. (2019, August 9). *Necessary Condition Analysis (NCA): Logic, Theory, Methodology, and Applications*. Academy of Management Annual Meeting, Boston.

Dul, J., Breet, J. S., & van Rhee, H. (2018, August 11). *Necessary Condition Analysis (NCA): Logic, Theory, Methodology, and Applications*. Academy of Management Annual Meeting, Chicago.

Memberships

- European Group for Organizational Studies (Since 2021)
- International Network for Social Network Analysis (Since 2019)
- Strategic Management Society (Since 2014)
- Academy of Management (Since 2013)

Other Service Activities

- Reviewer for the Academy of Management Annual Meeting (since 2017)

Doctoral Consortia & Workshops

- Selected Participant. **Technology & Innovation Management (TIM) Doctoral Consortium (2020)**. Academy of Management Annual Meeting (Virtual)
- Selected Participant. **Technology & Innovation Management (TIM) Doctoral Research Development Workshop (2020)**. Academy of Management Annual Meeting (Virtual)
- Selected Participant. **Organization & Management Theory (OMT) Doctoral Consortium (2019)**. Academy of Management Annual Meeting, Boston
- Selected Participant. **Entrepreneurship (ENT) Doctoral Consortium (2018)**. Academy of Management Annual Meeting, Chicago

The ERIM PhD Series

The ERIM PhD Series contains PhD dissertations in the field of Research in Management defended at Erasmus University Rotterdam and supervised by senior researchers affiliated to the Erasmus Research Institute of Management (ERIM). All dissertations in the ERIM PhD Series are available in full text through the ERIM Electronic Series Portal: <http://repub.eur.nl/pub>. ERIM is the joint research institute of the Rotterdam School of Management (RSM) and the Erasmus School of Economics (ESE) at the Erasmus University Rotterdam (EUR).

Dissertations in the last four years

Ahmadi, S., *A motivational perspective to decision-making and behavior in organizations*, Promoters: Prof. J.J.P. Jansen & Dr T.J.M. Mom, EPS-2019-477-S&E, <https://repub.eur.nl/pub/116727>

Akemu, O., *Corporate Responses to Social Issues: Essays in Social Entrepreneurship and Corporate Social Responsibility*, Promoters: Prof. G.M. Whiteman & Dr S.P. Kennedy, EPS-2017-392-ORG, <https://repub.eur.nl/pub/95768>

Albuquerque de Sousa, J.A., *International stock markets: Essays on the determinants and consequences of financial market development*, Promoters: Prof. M.A. van Dijk & Prof. P.A.G. van Bergeijk, EPS-2019-465-F&A, <https://repub.eur.nl/pub/115988>

Alserda, G.A.G., *Choices in Pension Management*, Promoters: Prof. S.G. van der Lecq & Dr O.W. Steenbeek, EPS-2017-432-F&A, <https://repub.eur.nl/pub/103496>

Anantavrasilp, S., *Essays on Ownership Structures, Corporate Finance Policies and Financial Reporting Decisions*, Promoters: Prof. A. de Jong & Prof. P.G.J Roosenboom, EPS-2021-516-F&E, <https://repub.eur.nl/pub/134947>

Arampatzi, E., *Subjective Well-Being in Times of Crises: Evidence on the Wider Impact of Economic Crises and Turmoil on Subjective Well-Being*, Promoters: Prof. H.R. Commandeur, Prof. F. van Oort & Dr. M.J. Burger, EPS-2018-459-S&E, <https://repub.eur.nl/pub/111830>

Arslan, A.M., *Operational Strategies for On-demand Delivery Services*, Promoters: Prof. R.A. Zuidwijk & Dr N.A. H. Agatz, EPS-2019-481-LIS, <https://repub.eur.nl/pub/126463>

Aydin Gökgöz, Z. *Mobile Consumers and Applications: Essays on Mobile Marketing*, Promoters: Prof. G.H. van Bruggen & Dr B. Ataman, EPS-2021-519-MKT, [whhttps://repub.eur.nl/pub/135352](https://repub.eur.nl/pub/135352)

Azadeh, K., *Robotized Warehouses: Design and Performance Analysis*, Promoters: Prof. dr. ir M.B.M. de Koster & Prof. D. Roy, EPS-2021-515-LIS, <https://repub.eur.nl/pub/135208>

Avci, E., *Surveillance of Complex Auction Markets: A Market Policy Analytics Approach*, Promoters: Prof. W. Ketter, Prof. H.W.G.M. van Heck & Prof. D.W. Bunn, EPS-2018-426-LIS, <https://repub.eur.nl/pub/106286>

Balen, T.H. van, *Challenges of Early-Stage Entrepreneurs: The Roles of Vision Communication and Team Membership Change*, Promoters: Prof. J.C.M. van den Ende & Dr M. Tarakci, EPS-2019-468-LIS, <https://repub.eur.nl/pub/115654>

Bansraj, S.C., *The Principles of Private Equity: Ownership and Acquisitions*, Promoters: Prof. J.T.J Smit & Dr V. Volosovych, EPS-2020-507-F&A, <https://repub.eur.nl/pub/132329>

Bavato, D., *With New Eyes: The recognition of novelty and novel ideas*, Promoters: Prof. D.A. Stam & Dr. S. Tasselli, EPS-2020-500-LIS, <https://repub.eur.nl/pub/134264>

Bernoster, I., *Essays at the Intersection of Psychology, Biology, and Entrepreneurship*, Promoters: Prof. A.R. Thurik, Prof. I.H.A. Franken & Prof. P.J.F. Groenen, EPS-2018-463-S&E, <https://repub.eur.nl/pub/113907>

Blagoeva, R.R., *The Hard Power of Soft Power: A behavioral strategy perspective on how power, reputation, and status affect firms*, Promoters: Prof. J.J.P. Jansen & Prof. T.J.M. Mom, EPS-2020-495-S&E, <https://repub.eur.nl/pub/127681>

Bouman, P., *Passengers, Crowding and Complexity: Models for Passenger Oriented Public Transport*, Prof. L.G. Kroon, Prof. A. Schöbel & Prof. P.H.M. Vervest, EPS-2017-420-LIS, <https://repub.eur.nl/pub/100767>

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Bunderen, L. van, *Tug-of-War: Why and when teams get embroiled in power struggles*, Promoters: Prof. D.L. van Knippenberg & Dr. L. Greer, EPS-2018-446-ORG, <https://repub.eur.nl/pub/105346>

Burg, G.J.J. van den, *Algorithms for Multiclass Classification and Regularized Regression*, Promoters: Prof. P.J.F. Groenen & Dr. A. Alfons, EPS-2018-442-MKT, <https://repub.eur.nl/pub/103929>

Chammas, G., *Portfolio concentration*, Promotor: Prof. J. Spronk, EPS-2017-410-F&E, <https://repub.eur.nl/pub/94975>

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Dennerlein, T. *Empowering Leadership and Employees' Achievement Motivations: the Role of Self-Efficacy and Goal Orientations in the Empowering Leadership Process*, Promotors: Prof. D.L. van Knippenberg & Dr J. Dietz, EPS-2017-414-ORG, <https://repub.eur.nl/pub/98438>

Dolgova, E., *On Getting Along and Getting Ahead: How Personality Affects Social Network Dynamics*, Promotors: Prof. P.P.M.A.R Heugens & Prof. M.C. Schippers, EPS-2019-455-S&E, <https://repub.eur.nl/pub/119150>

Duijzer, L.E., *Mathematical Optimization in Vaccine Allocation*, Promotors: Prof. R. Dekker & Dr W.L. van Jaarsveld, EPS-2017-430-LIS, <https://repub.eur.nl/pub/101487>

Fasaei, H., *Changing the Narrative: The Behavioral Effects of Social Evaluations on the Decision Making of Organizations*, Promotors: Prof. J.J.P. Jansen, Prof. T.J.M. Mom & Dr. M.P. Tempelaar, EPS-2020-492-S&E, <https://repub.eur.nl/pub/129598>

Eijlers, E., *Emotional Experience and Advertising Effectiveness: on the use of EEG in marketing*, Prof. A. Smidts & Prof. M.A.S. Boksem, EPS-2019-487-MKT, <https://repub.eur.nl/pub/124053>

El Noyal, O.S.A.N., *Firms and the State: An Examination of Corporate Political Activity and the Business-Government Interface*, Promotor: Prof. J. van Oosterhout & Dr. M. van Essen, EPS-2018-469-S&E, <https://repub.eur.nl/pub/114683>

Feng, Y., *The Effectiveness of Corporate Governance Mechanisms and Leadership Structure: Impacts on strategic change and firm performance*, Promoters: Prof. F.A.J. van den Bosch, Prof. H.W. Volberda & Dr J.S. Sidhu, EPS-2017-389-S&E, <https://repub.eur.nl/pub/98470>

Frick, T.W., *The Implications of Advertising Personalization for Firms, Consumer, and Ad Platforms*, Promoters: Prof. T. Li & Prof. H.W.G.M. van Heck, EPS-2018-452-LIS, <https://repub.eur.nl/pub/110314>

Fytraki, A.T., *Behavioral Effects in Consumer Evaluations of Recommendation Systems*, Promoters: Prof. B.G.C. Dellaert & Prof. T. Li, EPS-2018-427-MKT, <https://repub.eur.nl/pub/110457>

Gai, J., *Contextualized Consumers: Theories and Evidence on Consumer Ethics, Product Recommendations, and Self-Control*, Promoters: Prof. S. Puntoni & Prof. S.T.L. Sweldens, EPS-2020-498-MKT, <https://repub.eur.nl/pub/127680>

Ghazizadeh, P. *Empirical Studies on the Role of Financial Information in Asset and Capital Markets*, Promoters: Prof. A. de Jong & Prof. E. Peek, EPS-2019-470-F&A, <https://repub.eur.nl/pub/114023>

Giurge, L., *A Test of Time; A temporal and dynamic approach to power and ethics*, Promoters: Prof. M.H. van Dijke & Prof. D. De Cremer, EPS-2017-412-ORG, <https://repub.eur.nl/pub/98451>

Gobena, L., *Towards Integrating Antecedents of Voluntary Tax Compliance*, Promoters: Prof. M.H. van Dijke & Dr P. Verboon, EPS-2017-436-ORG, <https://repub.eur.nl/pub/103276>

Groot, W.A., *Assessing Asset Pricing Anomalies*, Promoters: Prof. M.J.C.M. Verbeek & Prof. J.H. van Binsbergen, EPS-2017-437-F&A, <https://repub.eur.nl/pub/103490>

Hanselaar, R.M., *Raising Capital: On pricing, liquidity and incentives*,

Promoters: Prof. M.A. van Dijk & Prof. P.G.J. Roosenboom, EPS-2018-429-F&A, <https://repub.eur.nl/pub/113274>

Harms, J. A., *Essays on the Behavioral Economics of Social Preferences and Bounded Rationality*, Prof. H.R. Commandeur & Dr K.E.H. Maas, EPS-2018-457-S&E, <https://repub.eur.nl/pub/108831>

Hartleb, J., *Public Transport and Passengers: Optimization Models that Consider Travel Demand*, Promoters: Prof. D. Huisman, Prof. M. Friedrich & Dr. M.E. Schmidt, EPS-2021-535-LIS, <https://repub.eur.nl/pub/135664>

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Organizations often struggle to maintain or rekindle an entrepreneurial flair, which makes them vulnerable when circumstances change. Corporate entrepreneurship is a process that stimulates entrepreneurial behavior, enabling organizations to respond to changing circumstances, pursue new opportunities, and secure their long-term viability. Prior research has suggested several models that capture the corporate entrepreneurship process and identify a range of factors that stimulate or stifle entrepreneurial behavior. These models greatly improved our understanding of corporate entrepreneurship, but they do not explicitly acknowledge the social context of organizations and employees. In this dissertation, I develop and test a theoretical framework that provides a network perspective on corporate entrepreneurship (the NPCE framework). The NPCE framework shows when and why the social context plays a decisive role in the corporate entrepreneurship process. The results of three empirical studies provide support for the NPCE framework and demonstrate that the social context can evoke entrepreneurial and conservative behavior. The key implication of this finding for future corporate entrepreneurship research is that the omission of the social context leads to an incomplete understanding of the corporate entrepreneurship process.

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