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Chapter 1

INTRODUCTION

This dissertation consists of two meta-analysis papers and two empirical papers that examine how social networks and accurate network perception influence firm performance. The aim of this introductory chapter is to demonstrate how these studies individually and collectively contribute to the literature on strategic entrepreneurship, social networks, and managerial cognition. The chapter begins with a discussion of the theoretical and practical significance of research on strategic entrepreneurship, social networks, and managerial cognition. The next part of the chapter discusses the contributions and research aim and introduces a research framework that covers the emerging themes in the literature on social networks and managerial cognition. The chapter concludes with a description of the research setting and an overview of the chapters in the dissertation.

1.1. Conceptual background

Strategic entrepreneurship

The concept of entrepreneurship has been gaining in interest among scholars, managers, and policy makers (Audretsch & Thurik, 2001). In the existing literature, there are many different views on what entrepreneurship entails (Lumpkin & Dess, 1996). Entrepreneurship has been conceptualized as the generation of profits by engaging in uncertain investments (Knight, 1921), the act of creative destruction (Schumpeter, 1934), awareness of profit opportunities (Kirzner, 1997), and the creation of new organizations (Katz & Gartner, 1988). A key element of entrepreneurship has been identified as the pursuit of opportunities (Hitt, Ireland, Camp & Sexton, 2001; McGrath & MacMillan, 2000; Stevenson & Jarillo, 1990). In this dissertation, the notion of entrepreneurship involves the discovery, evaluation and exploitation of opportunities (Shane & Venkataraman, 2000).

Entrepreneurial ventures go through different stages of development throughout their lifecycle (e.g., Churchill & Lewis, 1983; Gartner & Brush, 1999; Hite & Hesterly, 2001; Kazanjian & Drazin, 1989; Maurer & Ebers, 2006). Each stage represents a unique context that influences

the nature and extent of a venture's external resource needs and challenges in resource acquisition. For successful survival and growth, it is necessary for ventures to overcome the challenges of resource acquisition in each of these stages (Bhide, 1999; Churchill & Lewis, 1983). Hite and Hesterly (2001) argue that entrepreneurial ventures face three resource acquisition challenges across the lifecycle stages of emergence and early growth. These challenges are 1) availability (identifying where available resources are located), 2) accessibility (accessing the needed resources), and 3) uncertainty (predictability of the external environment). New ventures are generally unable to access needed resources even when the locations of these resources have been accurately identified because of unfavorable exchange terms offered by resource holders. Uncertainty further increases the access challenges for new ventures. Resource holders are reluctant to exchange resources with new ventures that face uncertain futures (Hite & Hesterly, 2001). Data from various studies show that half of new firms dissolve within five years (e.g., Evans & Leighton, 1989; Boden & Nucci, 2000). Moreover, empirical evidence shows that less than 10 percent of all new ventures ever expand (Baron & Shane, 2005).

The empirical evidence in the literature indicates that new ventures face various challenges and few of them are able to survive and grow. This raises an important research question in the field of entrepreneurship concerning the factors that improve the performance of newly created ventures.

Human capital and social capital

Human capital and social capital are two key resources that contribute to the performance of new ventures (Li and Zhang, 2007). Elements of human capital such as skills and experience influence decisions regarding venture strategies (Cooper & Bruno, 1977; Feeser & Willard, 1989) and are the source of expertise (Eisenhardt and Schoonhoven, 1990; Roure & Keeley, 1990). The social capital embodied in the network ties of an entrepreneur/manager can provide access to valuable external resources and information (Granovetter, 1985; Li and Zhang, 2007; Luo, 2003; Stuart and Sorenson, 2007). Burt (2000) argues that society can be viewed as a market where people exchange various goods and ideas and some people enjoy greater success than others. Human capital explains this difference by focusing on the personal characteristics of people

who are more successful. That is, these people are generally more skilled, more educated, more intelligent, and more attractive. Additionally, social capital is the contextual complement to human capital. People are connected to other people or groups with whom they exchange information and give and receive trust and support. Resources that result from such structures are defined as social capital (Bourdieu & Wacquant, 1992).

Prior research has portrayed a significant and positive relation between human capital (e.g., Cooper & Bruno, 1977; Eisenhardt and Schoonhoven, 1990; Feeser & Willard, 1989; Roure & Keeley, 1990) and social capital (e.g., Granovetter, 1985; Li and Zhang, 2007; Luo, 2003; Stuart and Sorenson, 2007) of top management teams (TMT) and new venture performance. Although a large body of research has been conducted on the influence of human capital and social capital on new venture performance, past results have been mixed and sometimes contradictory. Studies by Li and Zhang (2007), Peng and Luo (2000), and Xin and Pearce (1996), among others, confirmed a positive relation between social capital and new venture performance. However, the study by Batjargal (2003) indicated that some aspects of social capital (relational and resource embeddedness) had direct positive effects on performance, while other aspects (structural embeddedness) did not have a direct impact on performance. In a different study by Batjargal (2007), some aspects of social capital and human capital (structural holes and start up experience) were shown to have no direct effect on performance, whereas other aspects of human capital (managers' Western experience) had a direct influence on performance. The research by Li and Zhang (2007) found a complex relationship between human capital and new venture performance. The type of ownership and the level of dysfunctional competition moderated the strength of the link between human capital and new venture performance, whereas these factors had no influence on the link between social capital and performance. Thus, relationships between human capital, social capital, and performance appear to be complex and highly contingent. Accordingly, in the first study of this dissertation, a meta-analysis was conducted on the relationship between human and social capital and firm performance. The results showed a positive significant relationship between both human and social capital and performance. The confirmation of a positive relationship between human capital and performance was in line with the findings of Unger, Rauch, Frese, and Rosenbusch

(2011). Surprisingly, the results indicated that the relationship between social capital and performance was significantly stronger than the relationship between human capital and performance. With the publication of the extensive meta-analysis by Unger et al. (2011) on human capital, the significantly stronger relationship between social capital and firm performance found by the authors warranted further examination. As such, the focus of the remaining studies in this dissertation are social networks and social capital.

Social network perspective

One of the main reasons for (new) venture success has been attributed to network theory. This theory investigates the personal networks of entrepreneurs and their effects on the success of new ventures (Aldrich, Rosen and Woodward, 1987). This type of reasoning has been called the “network success hypotheses of entrepreneurship theory,” stating that networks of a venture’s founders will enable the venture to gain access to resources more cheaply than by using market mechanisms. Furthermore, the founders can acquire resources from their networks that would otherwise not be available through other means (Witt, 2004). The body of literature on the importance of networks has grown significantly in recent years, and previous research at the firm level has demonstrated that social networks positively influence a wide range of outcomes. Networks can be used to access advice, social support, sensitive, tacit and valuable knowledge and information, opportunities, and external resources (Adler and Kwon, 2002; Aldrich and Zimmer, 1986; Birley, 1985; Granovetter, 1973; Burt, 1992; Ozgen and Baron, 2007; Raz & Gloor, 2007; Shane and Cable, 2002; Stam and Elfring, 2008; Witt, 2004). Networks can also positively influence sales growth, new venture survival, financial performance, product innovation, status, and industry-wide network formation (Coleman, 1990; Hansen, 1995; Lechner, Dowling, Welpe, 2006; Stuart, Hoang, and Hybels, 1999; Tsai and Ghoshal, 1998; Walker, Kogut, and Shan, 1997).

Hoang and Antoncic (2003) argue that three elements are critical in the entrepreneurial network literature. These are 1) the content of the exchange, 2) the governance mechanisms in relationships, and 3) the network structure between actors. These elements seek to explain the impact of networks on entrepreneurial outcomes. Network content refers to the nature of the

content that is exchanged between actors. Networks may strongly benefit entrepreneurs by enabling them to exchange information and advice (Birley, 1985; Smeltzer, Van Hook, & Hutt, 1991; Singh, Hills, Hybels & Lumpkin, 1999), emotional support (Bruderl and Preisendorfer, 1998), and reputational or signaling content (Stuart, 1999; Higgins and Gulati, 2003; Shane and Cable, 2002). Entrepreneurs' reliance on their networks for information, advice and problem solving continues past the start-up stage (Johannisson, Alexandersson, Nowicki, & Senneseth, 1994). Network governance concerns the governance mechanisms that enable network exchange (Hoang and Antoncic, 2003). Exchange can be guided by mutual trust (Larson, 1992; Lorenzoni and Lipparini, 1999), power and influence (Brass, 1984; Thorelli, 1986; Krackhardt, 1990), and the threat of ostracism and loss of reputation (Portes and Sensenbrenner, 1993). Network governance, especially if based on trust, can be more cost efficient in comparison to coordination through market or bureaucratic mechanisms (Thorelli, 1986; Jarillo, 1988; Starr and Macmillan, 1990; Lipparini and Lorenzoni, 1993). Network structure is the pattern of direct and indirect ties between actors in the network. The general proposition is that the position of the actor within the network structure significantly influences the flow of resources and subsequently influencing entrepreneurial outcomes. (Hoang and Antoncic, 2003). The benefits received from social networks are referred to as social capital (Hoang and Antoncic, 2003; Stuart and Sorenson, 2007).

1.2. Research problem and questions

An analysis of the existing literature reveals the significant benefits of social networks for firm performance; however, there are some limitations. First, conflicting perspectives exist regarding the specific network properties that constitute social capital. Whereas some scholars have focused on network structure (Stam, 2010), others have considered the strength of entrepreneurs' network relationships (McEvily and Zaheer, 1999) or the resources held by their network contacts (Batjargal, 2003). These differing perspectives result in disagreement about the relative value of sparse and cohesive network structures (Batjargal, 2010), weak and strong ties (Patel and Terjesen, 2011), and diverse versus homogeneous networks (Renzulli, Aldrich &

Moody, 2000). Extant empirical evidence thus remains inconclusive and fails to identify which dimensions of entrepreneurs' social capital enhance firm performance.

Second, it is still unclear what contextual contingencies might condition the value of entrepreneurs' social capital. Although there is reason to believe that industry conditions may amplify network effects on firm performance (Koka and Prescott, 2008), and despite initial evidence that social capital might operate differently in different institutional environments (Batjargal, 2010), past research has focused on particular industries and on firms in either established or emerging economies. Thus, to reconcile conflicting findings, additional research is needed in order to reveal how firms operating in different environmental contexts might benefit from distinct forms of social capital.

Third, most of the network research has been conducted on the consequences of networks, while the antecedents of social networks have remained mostly unexamined (Borgatti and Foster, 2003). As a result, there is little information on how entrepreneurs can develop favorable network positions (Elfring & Hulsink, 2007; Hoang & Antoncic, 2003). Overall, previous studies on social networks show that firms gain performance benefits from a large number of ties with key actors, indicate which ties are likely to be formed, and suggest the role of agency in network development. However, the literature has yet to address how exactly firms efficiently form ties (Hallen & Eisenhardt, 2012). Past studies of cognitive networks on the intra-organizational level revealed that accurate network perception is beneficial (Ancona, 1990; Ancona & Caldwell, 1992; Krackhardt, 1990; Krackhardt & Hanson, 1993). Considering that perception is often biased (Kilduff, Crossland, Tsai & Krackhardt, 2008; Krackhardt, 1987; Casciaro, 1998) and that misperceptions can be costly (Krackhardt, 1990; Burt & Ronchi, 1990), additional research on managerial inter-organizational perception is needed to better understand the antecedents and underlying mechanisms of social networks. Thus, this research should focus on how social networks evolve and develop and how social networks relate to firm performance.

Fourth, although a number of studies have been conducted on the factors that influence managerial perceptions (e.g., Aldrich & Kim, 2007; Singh, Hansen, & Podolny, 2010; Stuart & Sorenson, 2001), there is little empirical research that systematically examines the factors that influence managers' environmental perceptions (Sutcliffe, 1994; Sutcliffe, Weick & Obstfeld,

2005; Henneberg, Naudé & Mouzas, 2010) by assessing how different factors affect managerial perception. By bringing together theoretical streams on managerial cognition and social networks and simultaneously considering the influences of different levels of analysis (managerial and organizational), this study refines the understanding of the unique and interactive effects of different sets of influences on managerial perceptions of inter-organizational networks.

In sum, this study aims to examine 1) how human capital and social capital relate to one another, 2) how dimensions of social capital influence small firm performance, 3) the effects of inter-organizational network perceptions on firm performance in emerging economies, and 4) the antecedents of the accuracy of network perceptions.

Based on the above considerations, the research problem of this dissertation is defined as

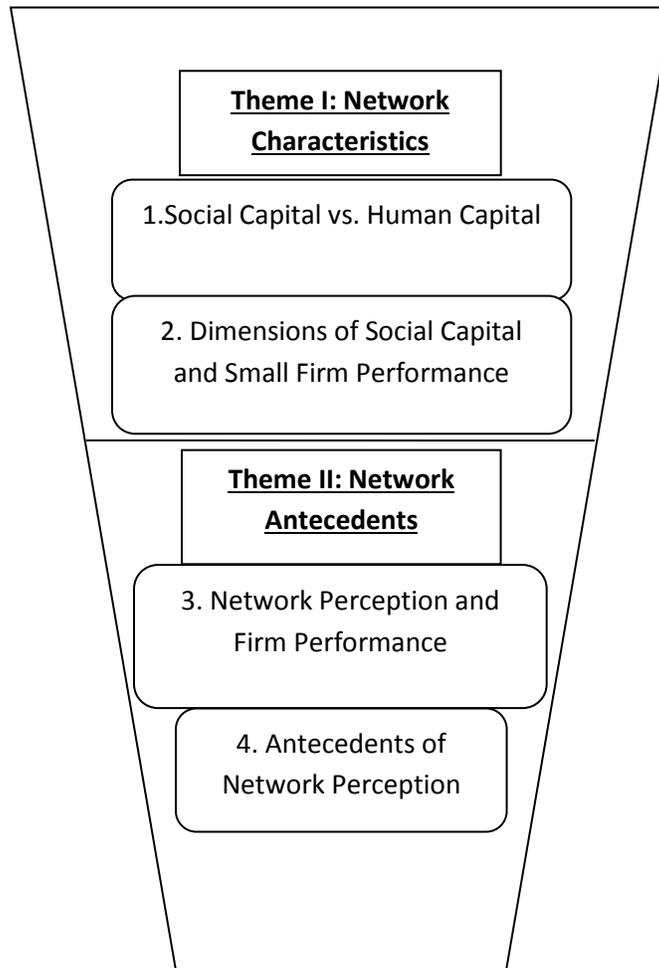
1.3. Research

**aim and
dissertation
outline**

How do social networks and inter-organizational network perceptions influence firm performance?

The overall framework of this PhD research is divided into two research themes that are addressed by four studies. As shown in Figure 1, these two themes are network characteristics and the antecedents of networks. These themes are addressed in four studies on 1) the relationship between social capital and performance versus the relationship between human capital and performance, 2) the relationship between the dimensions of social capital and small firm performance, 3) the relationship between managerial network perceptions (inter-organizational network structure and content perception) and firm performance, and 4) antecedents of network perception. In this paper, network structure refers to the ties between 2014 Winter Olympic Games tender officials, including accurate knowledge on who is connected to whom and the type of relationships that they have with one another. Additionally, network content refers to the expertise and knowledge held by tender officials. I discuss the specific research questions underlying each of these themes in more detail below.

Figure 1:
Overall framework of dissertation



Theme I: Social capital vs. human capital

Social capital

Although the concept of social capital can be defined in various ways (see Adler & Kwon, 2002), there is no consensus on a single clear definition of social capital. The definitions tend to vary between studies depending on whether the focus of the study is primarily on (1) the relationships an actor maintains with other actors, (2) the structure of the relationships between actors within a collectivity, or (3) both types of linkages (Adler and Kwon 2002). However, these different definitions generally fall along the content versus structure continuum. The proponents of network content argue that the usefulness of social capital is primarily defined by the availability of the required resources that network members exchange within their networks (e.g., Brehm and Rahn 1997; Fukuyama 1995; Lin 1999; Putnam 1995), while other researchers that have focused on network structure argue that the position of the actor within the network structure significantly influences the flow of resources, which subsequently influences performance (Hoang and Antoncic, 2003).

Human capital and social capital

Extensive research has been conducted on the influence of human capital and social capital on the performance of new ventures. However, past results have been mixed and sometimes even contradictory (Baum and Silverman, 2004). For example, the studies by Batjargal (2003, and 2007) revealed that relational capital, resource embeddedness, and managers' Western experience had direct positive effects on performance, while structural embeddedness, structural holes, and start-up experience did not. Moreover, it is unclear how human and social capital relate to one another. Is human capital more influential than social capital? Can social capital be used as a substitute for human capital? Does the context influence the relationship between the dimensions of human and social capital and the performance of new ventures? In sum, there is broad agreement that entrepreneurs' social capital and human capital constitute key assets for firms. However, it is unclear how social capital and human capital relate to one another and whether the relationships between human capital and performance and social capital and performance are influenced by the institutional context. Additionally, there has been

no consensus among scholars about the strength of the relationship between social capital and firm performance and the conditions under which certain network properties result in enhanced firm performance.

Given the important knowledge gap evident in these questions, the first research question underlying this dissertation is

How does the relationship between social capital and firm performance relate to the relationship between human capital and firm performance, and under which contingencies do the dimensions of social capital influence new venture and small firm performance?

In Chapter 2 and Chapter 3 of this dissertation, I address this research question by conducting two meta-analyses. The first study (Chapter 2), titled “*Managerial Resources and New Venture Performance in Emerging and Established Economies: A Meta-Analytic Review*,” aimed to reveal the effects of human capital and social capital on new venture performance. This meta-analysis of the relationship between social and human capital and new venture performance provides answers to two key questions: 1) Is there an overall positive and significant relationship between social capital and new venture performance? 2) How does the relationship between social capital and new venture performance relate to the relationship between human capital and new venture performance?

I conducted this meta-analysis to examine the relationship between human capital and social capital and new venture performance in 49 selected samples. The results revealed that on average, human capital and social capital are both positively related to new venture performance. This confirms the findings of prior studies that have argued that human capital and social capital are key resources for entrepreneurial firms. Surprisingly, the overall relationship between social capital and firm performance was significantly stronger than the relationship between human capital and firm performance. The results also revealed that the relationship between social capital and venture performance is significantly stronger in emerging economies, thus confirming the moderating role of the institutional context.

The findings of the first meta-analysis indicated a significant relationship between social capital and new venture performance, which was stronger than, and independent from, the relationship between human capital and new venture performance. Moreover, the result indicated the significant moderating effect of context, justifying an effort to systematically review past research results regarding the dimensions of human and social capital and new venture performance. However, this review coincided with the publishing of the paper by Unger, Rauch, Frese, and Roenbusch (2011) titled "*Human capital and entrepreneurial success: A meta-analytic review.*" Continuing this meta-analytical research on the relationship between both human and social capital and new venture performance would have been a duplication, which would have had limited added value. Furthermore, it remained unclear how the different dimensions of social capital relate to firm performance. Consequently, the analysis in the second study of this paper focused on the relationship between social capital and new venture performance. I conducted a meta-analysis examining the strength of the links between different dimensions of social capital and new venture performance as well as the potential moderators affecting these relationships.

The second study (Chapter 3), titled "*Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators,*" examines how the social capital embedded in the personal networks of entrepreneurs acts as a key resource that may facilitate the performance of small firms. Despite a surge of studies examining the role of social capital in the entrepreneurial process, no other quantitative assessments exist within the empirical evidence to date. To resolve the seemingly conflicting results in the literature, a meta-analysis of the link between entrepreneurs' personal networks and small firm performance was conducted and the moderators that affect this relationship were identified. Analyses of 61 independent samples indicated that the link between social capital and firm performance was positive and significant ($r_c=.211$). The effect sizes of weak ties were smaller than those of structural holes, while network diversity had the largest positive effect on performance. The results also showed that the link between social capital and performance depends on the age of small firms, the industrial and institutional contexts in which they operate, and the specific network or performance measures used.

Theme II: Network Antecedents

The results of the two meta-analyses indicated that social capital has a positive and moderately large effect size on new venture performance and that this relationship depends on the social capital dimension considered, the age of the focal venture, the institutional and industrial contexts in which the venture operates, and the type of performance measures considered. These findings provide a better understanding of the consequences of social capital and the moderating role of different dimensions. However, these findings relate to the static relationship between social networks and performance, and explain little about the antecedents of social networks. Most of the existing studies on social networks focus on existing networks, leaving certain issues regarding the relationship between social networks and performance unaddressed. Stuart and Sorenson (2007) argue that there is limited research on the emergence or evolution of networks and the ways in which entrepreneurs build effective networks. Given that actors are both strategic and differentially able to construct ties, the various positions of actors in social networks arise in part as a function of the outcome variable creating the endogeneity problem. Furthermore, actors that are engaged in strategic networking need to continuously adapt to changing social typologies and thwart the competing attempts of rivals. In contrast, an emerging stream of research takes a strategic view regarding the formation of ties (Santos & Eisenhardt, 2009; Vissa, 2010). This research stream emphasizes how firms and individuals actively shape their approaches to tie formation through thoughtful agency (Emirbayer & Goodwin, 1994; Vissa & Bhagavatula, 2012), suggesting the role of agency in network development. However, the literature has yet to address how exactly firms efficiently form ties (Hallen & Eisenhardt, 2012).

Engaging in strategic networking without knowing which resources actors possess and who is connected to whom is unlikely to be successful (Borgatti & Cross, 2003). Furthermore, the full potential of social networks is seldom realized because individuals are often faced with bounded rationality. Cognitive limitations force individuals to rely on safe and familiar networks rather than pursuing the potential benefits of a more diverse network (Kim and Aldrich, 2005). Successful information seeking depends on knowing which resources an actor

possesses, being able to accurately evaluate these resources, and being able to gain timely and cost effective access to that actor (Borgatti & Cross, 2003). Thus, to attain the benefits from networks, it is necessary to first have an accurate perception of these networks and the resources that they contain.

Environmental perception

The general theoretical and empirical findings of organizational literature indicate that organizations that are able to correctly tailor their strategies and organizational structures to the changing environment are more successful (e.g., Lawrence & Lorsch, 1967; Miles, Snow, Meyer & Coleman, 1978). The rationale behind this notion indirectly assumes that all companies have an accurate knowledge of their environment. Despite the importance of this assumption, there has recently been little empirical and systematic examination of the congruence between managerial perceptions of the environment and objective environmental conditions (Sutcliffe, 1994; Sutcliffe & Weber, 2005). The importance of accurate environmental perceptions is shown through empirical studies that have indicated that organizations with managers that have a more accurate perception of environmental characteristics perform better than organizations in which managers' perceptions of environmental characteristics are not accurate (Bourgeois, 1985; Dess & Keats, 1987).

Network perception

Mattson and Johanson's (1992) work on "network theory" is arguably one of the earliest attempts to describe the perception of network characteristics by managers. Mattsson (2002) argues that "network pictures" essentially represent an actor's own network theory used to describe the characteristics of the network. Network pictures emerge as belief systems without prior managerial interaction or experience with all of the aspects of the network picture (Pick, 1999). These network pictures are thus cognitive structures, similar to Weick's (1995) notion of sense-making. Through individual sense-making and representational processes these network

pictures contribute to the process of organizations' and networks' identity construction (Holmen & Pedersen, 2003).

Cognitive network studies on an intra-organizational level revealed significant implications of network perception on an individual level. Because individuals with accurate pictures of the advice network are seen as more powerful by others within the organization (Krackhardt, 1990), the accurate perception of informal networks is crucial for managers' ability to manage the organization (Krackhardt & Hanson, 1993), and the accurate perception of social networks can enhance the performance of externally oriented work teams in organizations (Ancona, 1990; Ancona & Caldwell, 1992). Walsh (1995) argues that the next step in managerial cognition studies is to understand the origins, decisions and consequences of environmental perceptions. Research on inter-organizational network perception and performance is needed to understand the performance benefits of accurate network perception (Mcnamara, Deephouse, & Luce 2003; McNamara, Luce & Thompson, 2002). Furthermore, such research will reveal whether there are any contingencies that influence the relationship between perception and performance, which types of perception accuracy are important and which are not, and what managerial and organizational characteristics influence the accuracy of network perception.

Thus, the second research question underlying this thesis is:

What are the consequences of managerial network perceptions for firm performance, and what managerial and organizational characteristics influence the accuracy of these perceptions?

In Chapter 4 and Chapter 5 of this dissertation, I address this research question by conducting two empirical studies. The settings of these studies were the tender competitions in the context of the 2014 Winter Olympic Games in which companies participate in tenders within different sectors. The duration of tender competition and the consequent selection procedure is limited in terms of time. The selection procedure is conducted by the officials of organizations that are in charge of the tenders, and several companies can be selected as winners of each of the competitions. Data on tender competitions were collected in a two-wave survey that was administered with the members of the top management team (TMT) of each firm and the

officials in each organization in charge of the tenders. I gathered these data in June 2010, and four months later, a second survey was administered regarding the changes in network perception, information acquisition, and winning tenders.

The third study (Chapter 4), titled "*A study of managerial network cognition among firms tendering for the 2014 Olympic Games in Russia*," empirically tested the performance effects of managerial inter-organizational network cognition, extending past research on managers' mental models. The setting of this study was the tender competitions organized for the 2014 Winter Olympic Games. This study focuses on managers' cognitive maps of the networks of key project officials. I examined how the accurate perception of officials' networks affected the likelihood of winning the tender competitions. I analyzed 78 firms that participated in 5 different tenders, which were held by 4 separate organizations. The analysis revealed that managerial network cognition had a significant influence on the likelihood of winning the tender competitions. In particular, the accurate perception of the content and structure of officials' networks was strongly related to the likelihood of winning the tenders. Furthermore, a central position within the network of competing firms significantly moderated the relationship between inter-organizational network perceptions and the likelihood of winning the tenders.

The fourth study (Chapter 5), titled "*Managerial network cognition in the context of 2014 Winter Olympic Games tender competitions*," expanded recent observations that there are a number of conceptual studies that have been conducted on this issue with little empirical research systematically examining the influences on environmental perceptions (Sutcliffe, 1994; Sutcliffe et al., 2005; Henneberg, et al., 2010) by assessing how different factors affect managerial perceptions. This study refined our understanding of the unique and interactive effects of different sets of influences on managerial perceptions of inter-organizational networks by empirically examining the relationship between different organizational and individual level variables in the context of 2014 Winter Olympic Games tender competitions. The findings indicated that network centrality and environmental scanning were positively related to accurate network perception. Furthermore, these relationships were moderated by the social skills of the manager and prior tender experience. Finally, the longitudinal results reveal that networking significantly influences network perception accuracy over time.

In sum, the four papers in this dissertation explain how managerial network perception is influenced, the consequences of (in)accurate network perception, and how and under what circumstances social capital influences (new) venture performance.

1.4. Contributions

This research provides four key contributions to the organizational network literature and literature on managerial cognition.

1) By conducting a meta-analysis on the relationship between human and social capital and new venture performance in established and emerging economies, this dissertation addresses some of the mixed findings in the existing literature (Baum and Silverman, 2004). The meta-analytic approach of this paper enables the identification of the impact of methodological choices on study outcomes. By examining how sampling and operationalization affect research results, it provides methodological recommendations for future research. The findings reveal that social capital and human capital are both related to new venture performance (Chapter 2). Surprisingly, the relationship between social capital and new venture performance in emerging economies is significantly stronger than the relationship between human capital and new venture performance. The findings of the first meta-analysis provide further support for the importance of social capital and the role of contingencies, warranting a more in-depth analysis of the different dimensions of social capital.

2) In the second meta-analysis (Chapter 3), this dissertation extends prior narrative reviews (e.g., Hoang and Antoncic, 2003) by providing systematic quantitative evidence of the relative importance of the dimensions of social capital to the performance of new ventures. This dissertation helps to reconcile some of the mixed findings noted in prior literature reviews (Elfring and Hulsink, 2003; Jack, 2010). By assessing potential contingencies at the firm, industry, and institutional levels, the analysis reveals how network performance effects may differ across ventures that are more or less established, that operate in high or low technology industries, and that reside in emerging or developed economies. In doing so, the study responds to the call for more research that simultaneously considers linkages between entrepreneurial resources, contexts, and outcomes (Aldrich and Martinez, 2001; Welter, 2011).

Next, by conducting empirical research on managerial network cognition (Chapter 4) and the antecedents of managerial network cognition (Chapter 5), this dissertation contributes to the social network literature by addressing key issues that have been observed by various scholars (e.g., Borgatti & Cross, 2003; Kim and Aldrich, 2005; Stuart & Sorenson, 2007) regarding the relationship between social networks and performance.

3) By empirically and longitudinally studying the development of inter-organizational networks and the relationship between accurate network perception and performance (Chapter 4) as well as the antecedents of accurate network perception (Chapter 5), this dissertation responds to the call for more research on the antecedents of social networks, network creation and endogeneity problems (Stuart & Sorenson, 2007). Additionally, this study provides greater insight on how the full capital of social networks can be realized (Kim and Aldrich, 2005) and how information can be successfully located (Borgatti & Cross, 2003).

4) This dissertation also contributes to the managerial cognition literature. While most research on perception accuracy confirms a positive relation between perception accuracy and outcome variables, it remains unclear what types of perception accuracy are most closely related to outcome variables (Kilduff et al., 2008). This dissertation examines the accuracy of perceptions of different aspects of the network, namely network content accuracy and network structure accuracy. It does so by looking at the roles that contingencies play in the relationship between perception accuracy and performance (Chapter 4). Moreover, this dissertation addresses the calls by Sutcliffe et al. (2005) and Henneberg, et al. (2010) for the empirical and systematic study of different factors that affect managerial perceptions of the environment. This dissertation refines the understanding of the unique and interactive effects of different sets of influences on managerial perceptions of inter-organizational networks by empirically examining the relationships between different organizational and individual level variables (Chapter 5).

1.5. Research approach

The current study employed meta-analyses and longitudinal research in order to address the research problem and questions that were formulated in Section 1.3 of this chapter. The research approach can be divided into three stages.

In Stage One, I conducted a meta-analysis to review the existing literature on the relationships between human capital, social capital and new venture performance. Meta-analysis is a statistical research integration technique that analyzes data consisting of findings from previous empirical studies (Hunter and Schmidt, 1990). Meta-analysis makes use of statistical procedures that are designed to integrate the results of a set of primary empirical studies. This enables meta-analysis to pool together all of the existing literature on a certain topic while compensating for quality differences by correcting for different artifacts and sample sizes (Hunter and Schmidt, 1990, 2004).

For the two meta-analytical papers in this dissertation, the Hunter & Schmidt (1990) method for meta-analysis was used. The meta-analyses were conducted with the formulas of Hunter and Schmidt (2004) and the statistical software of Schmidt and Le (2004). The method of Hunter and Schmidt allows for comparisons to be made across existing research studies. The Pearson correlation or the regression coefficient between a meta-factor and a dependent variable can be used to make the comparison. Hunter and Schmidt (1990) suggest using the Pearson correlation as the input because correlations between two variables are independent of the other variables in the model, whereas regression coefficients depend on the particular variables included in the model, and the models tend to vary across studies. The Pearson correlation has been used by other meta-analytic studies (Gerwin and Barrowman, 2002; Montoya-Weiss and Calantone, 1994; and Song, Podoyntsyna, Van Der Bij & Halman, 2008).

In Stage Two, I conducted an empirical, longitudinal study on managerial network perceptions and firm performance and on the antecedents of managerial network perception. The research settings of the two empirical studies were the tender competitions for the 2014 Winter Olympic Games. The preparation for the Games includes the construction of the modern roads, railways, hotels and new transport hubs, the modernization of engineering infrastructure and a sufficient increase in power capacity. There are various public and private organizations that hold tenders on the projects related to the 2014 Olympic Games and the overall

development of the Krasnodar region. These organizations similarly subcontract national and international firms for the execution of these projects. Companies can participate in tenders in different sectors, and the duration of the tender competition and the consequent selection procedure is limited in terms of time. The selection procedure is conducted by officials of organizations that are in charge of the tenders. Several companies can be selected as winners for each of the competitions. The setting of tender competitions provides a unique opportunity to examine the creation and evolution of networks, enabling a deeper understanding of how different features of inter-organizational networks translate into valued outcome and the variables that influence inter-organizational network perception.

Data on tender competitions were collected in a two-wave survey that was administered with the members of the top management team of each firm and the tender officials in each organization in charge of the tenders. I gathered these data in June 2010, and four months later, a second survey was administered regarding the changes in network perception, information acquisition, and the winning tenders. Given the binary nature of the dependent variable and the existence of different levels of data gathering (Raudenbush, Bryk, and Congdon, 2004), hierarchical linear modeling (HLM) was applied to test the hypotheses. HLM is generally used in education research and is suitable for any research in which the analysis is conducted on different levels. HLM is a multi-level analysis allowing variance in outcome variables to be analyzed at hierarchical levels. It generates linear models with explanatory variables that account for variations at each level. HLM estimates model coefficients and predicts the random effects associated with each sampling unit at every level.

In the final stage, theory and previous empirical findings were used to interpret the main findings of this study and to discuss the theoretical and practical implications of the results.

1.6. Related publications

The findings from this dissertation have culminated in a number of international, peer-reviewed publications and conference presentations. Table 1 presents an overview, organized by chapter.

Table 1:
Conference papers related to the three chapters

Chapter	Paper
2	<p>Arzlanian, S., Stam, W. & Elfring, T. 2008. Social capital development among new ventures in Russia. Paper presented at the <i>EIASM workshop</i>, November 2008, London, Great Britain</p> <p>Arzlanian, S., Stam, W. & Elfring, T. 2009. Managerial Resources and New Venture Performance in Emerging and Established Economies: A Meta-Analytic Review. Paper presented at the <i>Strategic Management Society Conference</i>, November 2009, Washington DC, USA</p>
3	<p>Arzlanian, S., Stam, W. & Elfring, T. 2011. Entrepreneurial Networks and New Venture Performance: A Meta-Analytic Review. Paper presented at the <i>Academy of Management Meeting</i>, August 2011, Texas, USA</p> <p>Stam, W., Arzlanian, S., & Elfring, T. 2014 Social capital of entrepreneurs and small firm performance: A meta-analysis of contextual and methodological moderators. <i>Journal of Business Venturing</i>, 29 (1), 152-173.</p>

4	<p>Arzlanian, S., Stam, W. & Elfring, T. 2011. Connecting the dots: A study of managerial network cognition and contract wins among firms tendering for the 2014 Olympic Games in Russia. Paper presented at the <i>3rd Hong Kong Macro Researcher Consortium</i>, October 2011, Hong-Kong.</p> <p>Arzlanian, S., Stam, W. & Elfring, T. 2012. A study of managerial network cognition among firms tendering for the 2014 Olympic Games in Russia. Paper accepted for the <i>Academy of Management Meeting</i>, August 2012, Boston, Massachusetts USA</p> <p>Arzlanian, S., Stam, W. & Elfring, T. 2012. A study of managerial network cognition among firms tendering for the 2014 Olympic Games in Russia. To be submitted to <i>Academy of Management Journal</i>, spring 2014.</p>
5	<p>Arzlanian, S., Stam, W. & Elfring, T. 2012. Managerial Network Cognition in the Context of 2014 Winter Olympic Games Tender Competitions. Paper presented at the <i>Strategic Management Society Conference</i>, October 2012, Prague, Czech Republic.</p> <p>Arzlanian, S., Stam, W. & Elfring, T. 2012. Managerial Network Cognition in the Context of 2014 Winter Olympic Games Tender Competitions. Submitted to <i>Entrepreneurship Theory and Practice Journal</i>, December 2013.</p>

1.7. Concluding remarks

The ideas and aims presented in this introductory chapter provide a foundation for the body of this dissertation, which consist of Chapters 2, 3, 4, and 5. These chapters are self-contained, to the extent that they represent separate studies intended as individual

contributions to the social network and managerial cognition literature. As such, the introductory sections of each study may contain repetitions of the concepts and theoretical linkages presented in the previous chapter.

This dissertation will be concluded in Chapter 6. In this chapter, the four studies will be put into perspective in a comprehensive discussion and evaluation of their contributions. Chapter 6 also provides specific implications for practitioners, and several limitations and suggestions for future research.