Organizational Networking in Business-to-Business Markets

Construct Conceptualization, Operationalization and Application

A thesis submitted to The University of Manchester for the degree of

Doctor of Philosophy

in the Faculty of Humanities

2014

Sabrina C. Thornton

Manchester Business School
Contents

Abstract ................................................................................................................................................. 4
Declaration .................................................................................................................................................. 5
Copyright Statement ............................................................................................................................... 6
Dedication .................................................................................................................................................. 7

Chapter I Introduction .......................................................................................................................... 8
1. An Embedded Business World ............................................................................................................. 9
2. Theoretical Perspectives on Organizational Networking Behaviors .............................................. 14
   2.1. The Resource Dependence Theory ................................................................................................. 14
   2.2. The Notion of Embeddedness in Economic Sociology ................................................................. 16
   2.3. The Industrial Network Approach ................................................................................................. 17
3. Research Questions and Expected Contributions ............................................................................. 19
4. The Research Program ....................................................................................................................... 24
   4.1. Study 1 ........................................................................................................................................... 28
   4.2. Study 2 ........................................................................................................................................... 29
   4.3. Study 3 ........................................................................................................................................... 31
   4.4. PhD Timeline ................................................................................................................................. 33
   4.5. Thesis Format and Structure .......................................................................................................... 33

References .................................................................................................................................................. 36

Chapter II Understanding Types of Organizational Networking Behaviors in the UK Manufacturing Sector ..................................................................................................................................................... 44

Chapter III Conceptualizing and Validating Organizational Networking as a Second-Order Formative Construct ..................................................................................................................................................... 45

Chapter IV Network-Oriented Behaviors in Business-to-Business Markets: An Empirical Study ............................................................................................................................................................... 46
1. Introduction ............................................................................................................................................ 49
2. Business Interactions and Network-Oriented Behaviors .................................................................. 52
3. A Model of Organizational Behaviors and Firm Performance .......................................................... 54
   3.1. Nomological Model Development ................................................................................................ 54
   3.2. Network-Oriented Behaviors as Driver of Market- and Relationship-Oriented Behaviors .......... 57
   3.3. The Effects of Market- and Relationship-Oriented Behaviors .................................................... 60
   3.4. The Role of Network-Oriented Behavior on Firm Performance ................................................ 63
   3.5. Moderation Effects ....................................................................................................................... 64
4. Research Design ..................................................................................................................................... 65
   4.1. Sampling and Data Collection ....................................................................................................... 66
   4.2. Data Diagnoses ............................................................................................................................ 67
   4.3. Construct Measurements .............................................................................................................. 69
   4.4. Assessing the Measurement Model .............................................................................................. 71
5. Assessing Hypothesized Structural Model ................................................................. 74
   5.1. Main Effects ............................................................................................................. 74
   5.2. Moderation Effects ............................................................................................... 76
6. Discussion and Implications ......................................................................................... 79
   6.1. Network-Oriented Behaviors as a Driver of Market- and Relationship-Oriented
        Behaviors ................................................................................................................ 80
   6.2. The Effects of Market- and Relationship-Oriented Behaviors ............................... 81
   6.3. The Role of Network-Oriented Behaviors on Firm Performance ....................... 83
   6.4. Managerial Implications ....................................................................................... 85
   6.5. Limitations and Future Research Directions ....................................................... 87
References ......................................................................................................................... 90

Chapter V Conclusion ........................................................................................................ 101
1. Implications and Future Perspectives ......................................................................... 101
2. Reflections on the PhD Journey ............................................................................... 107
   2.1. Epistemology and Theoretical Perspectives ....................................................... 108
   2.2. Methodological Challenges .............................................................................. 113
   2.3. Writing Inability ................................................................................................. 121
   2.4. Networking ......................................................................................................... 122
References ......................................................................................................................... 126
Appendix I Approval for alternative format thesis ......................................................... 132

This thesis contains 64,561 words.
Abstract

The University of Manchester
Sabrina C. Thornton
Doctor of Philosophy (PhD)
Organizational Networking in Business-to-Business Markets
Construct Conceptualization, Operationalization and Application
September 2014

This thesis focuses on one key theme, which is to understand the construct of organizational networking behaviors in business-to-business markets. It is concerned with two main issues, which are built into the research program of three empirical studies. The first issue is concerned with a systematic understanding of organizational behaviors in response to the embeddedness and interconnectedness of the network of business relationships that every organization has to deal with. Study 1 of the research program explores the concept termed ‘organizational networking behaviors’. This study adopts an industrial network approach, the central tenet of which is that firms undertake a continuous process of interaction with their important partners in the embedding context of the business network. A multi-informant approach, using semi-structured interviews, was used to collect qualitative data from thirty-one executive managers (in fifteen manufacturing firms in the UK). This study identified information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization as four types of organizational networking behaviors, which are reflected by their respective sub-types.

The resulting conceptualization of organizational networking forms the basis for the operationalization of the construct in Study 2. While Study 1 takes an exploratory qualitative approach, Study 2 deploys a confirmatory quantitative approach since it is necessary to confirm/refute the resulting conceptualization and its types from Study 1. A rigorous scale construction and validation process was followed in this study. The conceptualization of the measurement model was carefully considered based on its theoretical underpinning. A second-order formative measurement structure was conceptualized, which required the employment of a multiple indicators and multiple causes (MIMIC) model for the validation of such a measurement model. A dataset of 603 responses was collected and analyzed to confirm the structure of the four types of organizational networking behaviors, which is in line with the results of Study 1.

The second issue that the thesis is concerned with is the influences of such organizational networking efforts, which are examined from a firm’s behavioral perspective. Study 3 examines how organizational networking behaviors serve as the driver of a firm’s customer-oriented, competitor-oriented and relationship-oriented behaviors due to the sensing and seizing aspects of networking. It was also hypothesized that a firm’s customer-oriented, competitor-oriented and relationship-oriented behaviors positively affect firm performance. The test of these hypotheses required survey data collection, which was done through an on-line questionnaire. A dataset of 354 responses was collected from UK managers, whose organizations operate in business-to-business markets in either the manufacturing or services sectors. The use of statistical modeling techniques is similar to that of Study 2. The research results indicate that a firm’s network-oriented behaviors positively impact on the development of customer-oriented and competitor-oriented behaviors. They also foster relationship coordination with its important business partners within the network. In addition, the effective management of the firm’s portfolio of relationships is found to mediate the positive impact of network-oriented behaviors on firm profitability.
Declaration

I, Sabrina C. Thornton, declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.
Copyright Statement

i. The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

ii. Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.

iii. The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

iv. Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=487), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see http://www.manchester.ac.uk/library/aboutus/regulations) and in The University’s policy on Presentation of Theses.
Dedication

This is the end of one long hard phase of my life being a PhD student, which has allowed me to continue my journey as an independent researcher. The journey has been eventful, challenging, yet rewarding and inspiring. I would like to dedicate this work to the very important people, who have made the completion of my PhD possible. First and foremost, I would like to thank my two extremely supportive supervisors, Pete and Stephan, with all my heart. They have always provided their help that exceeds my expectation. They are my mentors, who have given me the courage and strength to complete my PhD thesis and beyond. I am so fortunate to have them as my supervisors, and to have them in every part of my journey. They have taken me through the whole breadth and depth of doing research and being an academic. I fear the end of being under their wings, but I also look forward to being more independent and continuing the journey with their presence.

My husband and son, Michael and Isaac, who have been quite simply my saviors through this turbulent period of my life. Their unreserved love, understanding and patience carried me through the darkest moments during this journey.

My family back in my native country of Taiwan has always been there for me like a harbor to a ship. The distance has made us closer than ever and their unspoken love, care and pride are heartfelt. I am deeply indebted to them. Lastly, this work is also dedicated to my older sister, who has been and always will be an inspiration for me to pursue my dreams and ambitions even in her absence.
Chapter I  Introduction

This thesis examines how firms interact with their counterparts based on the contextual understanding of their networked environment in which numerous other firms are interconnected and embedded. It focuses on one key theme, which is to understand the construct of organizational networking behaviors in business-to-business markets. Under this key theme two main issues will be addressed, which are built into the research program of three empirical studies: First, a systematic understanding of organizational behaviors in response to the embeddedness and interconnectedness of the network of business relationships is lacking in the existing literature. Secondly, this thesis is focused on examining the influences of organizational networking efforts on a firm’s behaviors related to those important members in the network. The research program, comprised of three sequential empirical studies, was initiated aiming to deepen our understanding of organizational networking behaviors. Figure 1 depicts the relationships between the key theme, the two issues and the three studies. In this chapter, the significance of the key theme that this thesis focuses on is outlined, followed by the theoretical lens employed to make sense of the two issues. This is followed by a section outlining the two key research questions and how they will be answered through the research program. Finally, the overview of the research program summarizes each study and the scope of the whole project.
1. An Embedded Business World

“Networks are ubiquitous.” (Thorelli, 1986, p. 44)

It is widely recognized that a firm’s network context impacts on its economic actions and outcomes (Granovetter, 2005; Gulati et al., 2000; Uzzi, 1996). Therefore, to better understand firms’ behaviors in relation to their performance, one must consider a network perspective (Dyer & Singh, 1998; Gulati et al., 2000; Salancik, 1995). The embedded context provides a firm with fertile ground for the information, resources and opportunities necessary for survival and for sustaining growth (Uzzi, 1996). At the same time, this network context also constrains a firm in the sense that the interdependencies among its relationships cannot be ignored as one wishes (Håkansson & Ford, 2002). This reality of the business world highlights the significance of managing in such a context in order to appropriately sense the dynamics in the network and seize the opportunities afforded by it (Ford & Håkansson, 2006; Pfeffer & Salancik, 1978). Without such adapting and regenerating abilities, firms might fail to meet the challenges brought about by the network dynamics (Dyer & Hatch, 2006; Teece et al., 1997). On the other hand, firms that recognize the critical aspects of network management and
utilize their web of network relationships accordingly, would occupy a strategic position that allows them to leverage the resources available within the network in their favor (Hoffmann, 2007; Zaheer & Bell, 2005). Therefore, the ability of sensing the network and seizing the opportunities can be a source of competitive advantage, which gives rise to the significance of this issue in both theory building and managerial practice in business-to-business markets (Gulati et al., 2000; Pfeffer & Salancik, 1978; Zaheer & Bell, 2005).

The importance of a firm’s direct relationships has been recognized and researched extensively in the business-to-business marketing literature (e.g. Morgan & Hunt, 1994; Palmatier, 2008; Palmatier et al., 2007). However, the interconnectedness of the relationships means that the synergies generated among the web of relationships can only be understood from a network perspective (Ahuja, 2000; Eisenhardt & Schoonhoven, 1996). In addition, a focal firm’s indirect relationships through its direct interacting partners, to some extent, influence the way the focal firm plans its interactions with various relationships as part of a portfolio (Rowley, 1997).

In dealing with the issue of strategizing in a firm’s business network there are therefore two inter-related network characteristics need to be taken into consideration: the interconnectedness of a firm’s business relationships and the embeddedness of those relationships (Granovetter, 1973; Grewal & Slotegraaf, 2007; Rowley et al., 2000). From a firm’s perspective, the former implies that changing the pattern of interactions with one partner can have an impact on other connected direct and/or indirect relationships with the firm. The latter signifies the frequency and/or intensity of the interactions in its direct strong- or weak-tie relationships, which implies that the firm needs to decide the level of investments in these interactions. In this thesis, the definition of organizational networking emphasizes on conceptualizing ‘direct and
indirect’ relationships in the construct, while the conceptualization of the ‘strong- and weak-tie’ relationships are implicitly embedded in the conceptualization of ‘direct’ relationships. In short, direct relationships include both strong- and weak-tie relationships, while indirect relationships are neither strong- nor weak-tie relationships.

During my visit to an UK-based plumbing and heating products manufacturer as part of my field work, the Commercial Director described how they had been changing the way they interact with the important parties based on their observations about the power shift among key players in their network.

“If you go 20 years back then the consulting engineers had a lot of power. Over the last 20 years, their power has been eroded...the power is shifting away from the consulting engineers to the contractors. So we’ve forgotten the consulting engineer, we’ve gone overboard, with all our attention on the contractors and are now trying to redress it so that we find a healthier balance in that.”

He then went on and argued that the company needed to address these power dynamics among the important network players in their business sphere since these changing dynamics will affect how the company performs currently and more importantly in the future.

“What I found was that we are, we were focusing a lot of our attention onto installers and contractors and merchants and not enough time was spent with consulting engineers. And when I started my job I felt that there was an important part of the market that we had neglected and we needed to rebuild again.”

At the time of meeting this manager, the company was going through restructuring the way and the intensity of interactions with the two important, yet very different key players (i.e. the consulting engineers and the merchants) in their business network. The
difference lies in the trading terms that these two players have with the focal firm. The merchants (distributors) are classified as direct customers, and the consulting engineers as indirect customers. Although the consulting engineers do not purchase the offerings of the focal firm, they advise the owners of building projects what should be purchased since the owners generally do not have the necessary knowledge to make an informed decision. In other words, these consulting engineers have significant influence on the focal firm’s business indirectly. By sensing the dynamics of the network the focal firm was able to then change the pattern of their interactions with relevant parties based on their anticipated goals. The Commercial Director continued the discussion:

“*It’s all got to do with where we want to be as a company with our brand, if we work with contractors and not with the consulting engineers, we’re sort of working on the tail end of the sales cycle*”.

This real example demonstrates that organizational economic behaviors are embedded in the network, and consequently these behaviors affect the economic outcome of the organization (Granovetter, 1985; Jack, 2005; Uzzi, 1996). This phenomenon cannot be understood unless a broader view of the business world is adapted (Gulati *et al*., 2000). In other words, the conventional relationship perspective alone with a focus on dyadic analysis would not be sufficient when the complexity of the network is acknowledged (Mattsson, 1997). The interconnectedness of a firm’s networked environment means that when the firm attempts to change the interactions with one party, the interactions with other relevant parties are changed at the same time (Anderson *et al*., 1994; Håkansson *et al*., 2009). This echoes the open system view of the world in which changes are interconnected and fluid (Håkansson & Snehota, 1989; Pfeffer & Salancik, 1978). Morgan and Smircich (1980) classify this particular ontology as “*an evolving process, concrete in nature, but ever-changing in detailed form*” in that
“everything interacts with everything else” (Morgan & Smircich, 1980, p. 495). A monadic or dyadic view therefore does not capture the motives behind actors' behaviors (Anderson et al., 1994). To understand firm performance in such an ontological setting, one must take into account how firms behave within the constraints of the embedded network context (Granovetter, 2005; Rowley, 1997).

The managerial activities that influence other actors in the network can be considered a focal company’s networking behavior (Ebers, 1997; Ford & Mouzas, 2013; Ritter, 1999). The concept of networking has been applied primarily at a personal or a small business level as a means to leverage information and resources surrounding a focal point (e.g. Chetty & Campbell-Hunt, 2003; Ferris et al., 2007; Semrau & Sigmund, 2010). Although networking as a concept has been researched, the discussion has not specifically focused on the conceptualization that captures organizational behaviors in response to the networks. This thesis is therefore concerned with how a firm senses its network environment and seizes the opportunities by exploiting the direct and indirect relationships it has with various counterparts. In keeping with this key theme, this thesis attempts to understand why and how firms interact with their counterparts that are directly and/or indirectly connected to them, and how they strategically utilize the resources as a means of realizing opportunities and mitigating threats in the network. This thesis assumes that some firms can leverage their network context better than others by strategically mobilizing and thereby utilizing the web of direct and indirect relationships they are embedded in (Hagedoorn & Duysters, 2002). This view is supported by the resource-based view (RBV) (Barney, 1991; Penrose, 1959; Wernerfelt, 1984), in that the ability of managing “social complexity” is seen as an important capability (Barney, 1991, p.110). The RBV acknowledges that certain resources, such as the reputation of a focal firm in the web of relationships with suppliers and
customers, can be a source of competitive advantage as it is difficult to imitate by competitors. However, the RBV does not provide a foundation for discovering a firm’s intention to acquire resources from other actors. This thesis therefore employs the resource dependence theory, which shares some similarity with the RBV, but the reference frame is not solely within the firm (Medcof, 2001; Nienhüser, 2008).

2. Theoretical Perspectives on Organizational Networking Behaviors

The Resource Dependence Theory (RDT) (Pfeffer & Salancik, 1978) provides an appropriate theoretical perspective for this thesis to explore the construct of organizational networking behaviors. This thesis also employs other relevant approaches, namely the notion of embeddedness and the industrial network approach, which provide more fine-grained underpinnings specifically to network structure and interactions between actors. The reason for this is that the RDT does not explicitly elaborate on the detailed form of the open system view of the business world.

2.1. The Resource Dependence Theory

The whole research program is based on the premise that organizations do not possess all the resources necessary for survival (Pfeffer & Salancik, 1978). In order to further compete and grow, organizations must continue to rely on gaining and utilizing resources from their counterparts. Therefore, they attempt to control certain resources that reside in their web of relationships based on their strategic goals (Pfeffer & Salancik, 1978; Salancik, 1995). In this context, the RDT serves as the overarching theoretical framework that guides this research program in examining the construct of organizational networking behaviors. Although the RDT does not explicitly articulate a network perspective, it acknowledges the interconnectedness of an open system view of a firm’s environment. In the republication of The External Control of Organizations
Pfeffer and Salancik (2003) stress that organizations are viewed “as being embedded in networks of interdependencies and social relationships” and that “dependencies are often reciprocal and sometimes indirect” (p. xii). These statements clearly indicate a network view of an organization’s ‘environment’ from which firms are able to acquire the desired information and resources. In addition, the interactive nature of a firm and its web of relationships are also claimed to be implicitly inherent in the RDT (Pfeffer & Salancik, 2003).

To some extent the RDT overlaps with the Social Exchange Theory (SET) (Emerson, 1976; Thibaut & Kelley, 1959) since both assume that actors’ behaviors are socially constructed and that these behaviors are seen as being interactive in nature. However, the key difference between these two theoretical perspectives is the reference point. The RDT uses an actor-centered approach to analyze the dynamics between an organization and its open system environment, whereas the SET employs a dyad as the base unit of analysis, which focuses on the exchanging behaviors in a dyad and more broadly taking into account the network structure. Still, they are complimentary in essence since the SET is a reference frame that “takes the movement of value things (resources) through social process as its focus” (Emerson, 1976, p. 359). This can be synthesized with the RDT in which the “dynamic interaction and evolution of organizations, environments, and interorganizational relations overtime as the various social actors maneuver for advantage” (Pfeffer & Salancik, 2003, p. xii).

A focus on sustaining a competitive advantage and utilizing and mobilizing the resources that are embedded in the interconnected system has made the RDT a better-suited theoretical perspective for this thesis. This is not to say that the SET has no place in helping this thesis make sense of the research issues. Rather, there are two theoretical approaches derived from the SET that have been employed for developing a deeper
understanding of the motives behind the construct of organizational networking behaviors. Emerson (1976) argues that the SET should not be seen as a ‘theory’; instead it is a ‘frame of reference’, which allows theories to be developed based on the principle of either exchange or resource flow processes. In particular, it helps to mitigate the shortcomings of the assumption of perfect competition in the economic theories, in the sense that it helps to explain economic actions and outcomes in a network context. It is for this reason that the notion of embeddedness and an interaction approach are built on this particular reference frame.

2.2. The Notion of Embeddedness in Economic Sociology

The central theme in the notion of embeddedness in economic sociology is that actors’ economic actions are embedded in the continuous evolving social structure (Granovetter, 1973; 1985). Therefore, the economic outcomes of an actor or a network can be best understood through the structure of the network of relationships (Granovetter, 2005; Rowley et al., 2000; Uzzi, 1996). This area of research has direct relevance to the research of organizational networking behaviors. Granovetter (1973) makes a distinction between the utility of strong ties and weak ties. He argues that weak ties are the key to novel and non-redundant resources and information, as evident in his study in the context of job searching. In a business-to-business context, Uzzi (1996) found that the use of strong ties help firms to sustain their business growth only to a certain extent. If a firm relies too much on its strong ties, it is likely to fail if its strong-tie partners have moved their business elsewhere and new relationships have not been established to offset the loss of those established relationships.

The aforementioned arguments have two implications to this thesis. First, this school of thought advocates that strong ties are important for the effective use of resources and problem solving mechanisms with trust acting as a facilitating agent (Coleman, 1988).
However, this requires the ability of a firm to understand the possible synergy and complementarity of the resources embedded in its relationship portfolio, including its customer and supplier network, and further to mobilize these resources accordingly (McEvily & Zaheer, 1999; Zaheer & Bell, 2005). Secondly, this school of thought also stresses the critical role of a firm’s weak-tie relationships in the sense that they provide an updated ‘network horizon’ (Holmen & Pedersen, 2003), which allows the firm to explore new business opportunities or to configure their resources differently to better respond to the networked environment (Mouzas & Naudé, 2007). However, weak ties are only valuable when they are ‘bridging’ ties (Burt, 2000; Granovetter, 1973; Tiwana, 2008). Bridging ties provide a focal firm with the access to useful resources, which are indirectly linked to the firm through these ties. The ability to identify and nurture the beneficial weak ties can thus become an integral part of a firm’s strategic planning practice that might be considered as a source of competitive advantage (Zaheer & Bell, 2005).

2.3. The Industrial Network Approach

The central theme of the industrial network approach (INA) can be condensed to the following statement by Håkansson and Snehota (1989, p. 256): “No business is an island”. This picture of an organization’s environment is in line with the RDT, which predominately sees organizations as being embedded in a network-like open system. Unlike in the RDT, ‘interactions’ between firms are at the core of the INA, which resembles that of the SET (Ford et al., 2001). The interaction model was developed to capture the ontological picture of the business world, which can be seen as a continuous process through the interactions of actors, resulting in changes to the pattern of resources and activities (Håkansson, 1982; Turnbull et al., 1996). Much like the RDT, the INA not only stresses the interconnectedness between actors in terms of direct and
indirect relationships, but also the difficulties for firms due to the complexity, uncertainty and dependencies (Ford et al., 2003; Pfeffer & Salancik, 1978). This implies that, from a focal organization’s point of view, the environment can be viewed as a network of numerous connected organizations (Astley & Fombrun, 1983; Miles & Snow, 1992; Thorelli, 1986). When using such a perspective, the links between these organizational actors, manifested by their interactions, i.e. the managerial activities creating and affecting these links, have to be considered. Organizations therefore are not atomistic, but instead they seek resources from their direct and indirect counterparts, and try to influence and mobilize others in order to gain control of desired resources (Pfeffer and Salancik, 1978). However, they are influenced by others at the same time, and thus, in turn allow certain business partners to benefit from their resources (Ford et al., 2001).

Most studies adopting the INA provide rich narratives without explicitly attempting to offer managerial implications. This tendency has attracted criticisms for their limited usefulness to practitioners (Baraldi et al., 2007; Brennan & Turnbull, 2002). The economic outcomes of the continuous interactions are not at the center of the research tradition, since the focus has been predominately on illustrating and explicating the process of changes as a historical narrative. Despite the fact that the competitiveness of firms has not often been in their research agenda, this approach has been widely accepted as a way to understand the exchanging behaviors between firms. Researchers taking the conventional INA are reluctant to link firms’ interactions to certain outcomes, as the outcomes of the interactions are often unpredictable (Ford & Mouzas, 2013; Håkansson et al., 2009). While this thesis has used the INA to understand the construct of organizational networking, the focus has also been on how these behaviors make an impact on economic performance. This proposition can only be supported by
using a combination of complementary theoretical perspectives: the RDT, the INA and the notion of embeddedness.

3. Research Questions and Expected Contributions

This thesis is concerned with two issues, which are built into the research program of three empirical studies. First, a systematic understanding of organizational behaviors in response to the embeddedness and interconnectedness of the network of business relationships is lacking in the existing literature. From a network perspective, the formation and structure of the network provide the basis for resource pooling and knowledge transfer among the web of relationships (Uzzi, 1996; 1997). However, from a firm’s perspective, being embedded in a network does not guarantee the effective use of the resources available to the firm (Zaheer & Bell, 2005). An assumption exists in this thesis that some firms utilize their network of relationships differently in the sense that they use the web of relationships in a way that allows them to achieve their anticipated goals better (McEvily & Zaheer, 1999). This involves the use of direct as well as indirect relationships due to their interconnectedness. In addition, it also involves the use of strong-tie and weak-tie relationships due to the embeddedness of the network (Granovetter, 1985; Tiwana, 2008). The difference in the way that firms utilize their web of various types of relationships in response to the network dynamics gives rise to the first research question: what are the different ways of utilizing these relationships?

The first question, derived from the first key issue, is dealt with by Study 1 and Study 2 through an exploratory qualitative research and a confirmatory quantitative research respectively, as depicted in Figure 1. It is necessary to not only qualitatively conceptualize a construct, but also furthermore to corroborate the conceptualized
framework through a quantitative validation process (Churchill, 1979; Gerbing & Anderson, 1988). In answering the first research question, this thesis provides a framework of organizational networking behaviors, which are conceptualized as the means by which a firm utilizes its webs of interconnected relationships based on its anticipated goals. The framework of organizational networking behaviors is tested and validated quantitatively through a rigorous measurement construction and validation process (Diamantopoulos et al., 2008; Diamantopoulos & Temme, 2013; Diamantopoulos & Winklhofer, 2001). Not only does this framework of organizational networking provide the existing literature with a systematic understanding of the construct, but it also has significant importance on a practical level. This framework can provide practitioners operating in business markets with a guideline for utilizing different types of relationships to achieve different anticipated goals. The validated framework will also offer managers a basis for configuring their networking behaviors and identifying the most important way(s) to utilize their different types of relationships.

The second issue this thesis is focused on is to determine the influences of organizational networking efforts on a firm’s behaviors and performance. More specifically, these behaviors are in relation to its important counterparts in the network. In reviewing the relevant business-to-business marketing literature, a chronological progression can be observed. In the 1990s, the implementation of the marketing concept within an organization became increasingly noticed ever since Kohli and Jaworski (1990) and Narver and Slater (1990) published their seminal works in the Journal of Marketing that conceptualized market orientation. This concept has earned celebrity status due to its application in a wide range of research settings (e.g. Cadogan et al., 2009; Carbonell & Escudero, 2010; Greenley, 1995; Grewal & Tansuhaj, 2001; Kumar
et al., 1998). The market orientation-performance link became an ever-popular topic (for a review, see Kirca et al., 2005; Liao et al., 2011). In 1994, a new paradigm surfaced. It was the turn for the research area branded as ‘relationship marketing’, the focus of which is moving outside of the organization to the business relationships (Anderson, 1995; Hallén et al., 1991; Morgan & Hunt, 1994). Successful relationship management has been recognized as the key driver of a superior performance (Palmatier, 2008; Palmatier et al., 2008). Gradually, academics called for a much wider perspective, which is moving from a dyadic approach to a network perspective, to consider the interconnectedness of a firm’s multi-relationship network (Achrol & Kotler, 1999; Gulati et al., 2000). A wider perspective of examining organizational behaviors in relation to the economic outcomes apparently became imperative since academics have attempted to develop a refined version of market orientation from a relationship perspective (e.g. Helfert et al., 2002; Lings & Greenley, 2009; Siguaw et al., 1998; Steinman et al., 2000) as well as a network perspective (e.g. Elg, 2008; Seevers, 2010).

From a behavioral perspective, it can be theorized that firms should have three sets of behaviors that signify how market-oriented, relationship-oriented and network-oriented they are. According to the literature, all three sets of behaviors should have some bearing on firm performance. There is evidence suggesting that market-oriented behaviors help firms to become more relationship-oriented due to a customer focus approach (Elg, 2002; Smirnova et al., 2011). To some extent, a relationship focus can be hypothesized to help firms to deal with the complexity of the network since it can be seen as the aggregate of multiple relationships, and the interdependencies among them (Gulati & Sytch, 2007; Hoffmann, 2007).
However, this raises a fundamental question: have the causal relationships of these three sets of behaviors been established partly based on the chronological progression in the literature? How do firms actually learn to behave in a way that they can appropriately address the issues of being market-oriented, relationship-oriented and network-oriented? How do these behaviors help them to perform better? This thesis takes a resource dependence perspective of a firm, which means that firms’ behaviors are socially constructed and that they learn about others by interacting with them, through which they learn about what they are and what they want to become (Pfeffer & Salancik, 1978). This argument echoes the view that networks are a source of learning through interactions (Anand & Khanna, 2000; Gulati, 1999; Hagedoorn & Duysters, 2002). Managing such social complexity of interacting with others in order to learn about the surroundings is seen as a source of competitive advantage (Barney, 1991).

The existing literature suggests that better-connected firms perform better in their business networks (Baum et al., 2013; Burt, 2000). However, this theory only holds if they are able to capitalize on the uniqueness of that network position and exploit the resources that are available to them (McEvily & Zaheer, 1999; Zaheer & Bell, 2005). The interactions that allow firms to mobilize resources and acquire valuable information are taken as given when such a causal relationship between a firm’s embedded context and its economic outcome is established (Kilduff & Krackhardt, 1994; Salancik, 1995). Firms’ behaviors are shaped by their network context, and these behaviors are part of the changing dynamics of the networks (Kilduff & Krackhardt, 1994). Therefore, there exists a need to study how firms’ behaviors, based on their understanding of the network dynamics, impact on other economic behaviors and economic outcomes. This gives rise to the second research question of the thesis: does a firm’s utilization of its
web of relationships affect the way it interacts with the important counterparts in its network, and consequently how do these networking efforts influence its performance?

The second research question will be answered by Study 3 through the conceptualization and testing of relevant hypotheses. In answering this research question, this thesis contributes to both theory and practice. Study 3 responds to the call by Kilduff and Krackhardt (1994) and Salancik (1995) that network studies need to bring organizational behaviors back into the equation, since relationships and interactions are taken as given in most network analyses. Study 3 theorizes that firms’ behaviors toward their networked environment are the drivers of other relevant firm behaviors towards their important counterparts in the network. These relevant behaviors are customer-oriented, competitor-oriented and relationship-oriented behaviors. This is important as it enhances our understanding of how different organizational behaviors oriented towards different aims are interacting (Day, 1994). In addition, this study establishes the role of firms’ network-oriented behaviors in driving firm performance from a behavioral perspective. This is important as it directly provides managerial guidance about which behaviors in relation to the wider business network firms should focus on in order to optimally sense network dynamics and seize the opportunities derived from these dynamics (Gulati et al., 2000). Thus, the insights from this study will provide practitioners operating in business markets with an alternative way to consider how they can become more customer-focused and aware of competitors. This might not be achieved completely organically (Pfeffer & Salancik, 1978). Instead, they can learn a great deal from their networked environment. The learning will subsequently contribute to their understanding of the important counterparts in context. In addition, it will also facilitate the effectiveness of interactions with them according to the understanding of their network picture (Corsaro et al., 2011; Ramos & Ford, 2011).
4. The Research Program

A research program of three empirical studies is designed to deal with the two overarching issues, which have been identified as being of significant importance to both the existing theoretical literature and managerial practice. Figure 2 provides an overview of the research program of the three studies and the key components undertaken within each study. The first study serves as the building block of the subsequent two studies. Since a systematic conceptualization and typology of a firm’s behaviors toward its network context is lacking in the literature, the first study explores the concept termed ‘organizational networking behaviors’. A multi-informant approach using semi-structured interviews was used to collect qualitative data from thirty-one executive managers (in fifteen manufacturing firms in the UK). An abductive analytical approach (Dubois & Gadde, 2002) allows this study to root itself firmly within the framework derived from the literature, while enabling the empirical data to provide a fine-grained pattern of networking behaviors. Organizational networking is seen as a firm’s continuous interactions in both strong- and weak-tie relationships, the utility of which are distinctively different (Granovetter, 1973; 1985; Uzzi, 1996). This study identified information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization as four types of organizational networking behaviors, which are formed by their respective sub-types.

The resulting conceptualization of organizational networking lays the foundation for the operationalization of the construct. While Study 1 takes an exploratory qualitative approach, Study 2 deploys a confirmatory quantitative approach since it is necessary to use multivariate statistics and statistical modeling techniques, such as exploratory factor analysis, confirmatory factor analysis and structural equation modeling, to support/refute the resulting typology from Study 1 (Churchill, 1979; Gerbing &
Anderson, 1988). A rigorous scale construction and validation process was followed in this study. The conceptualization of the measurement model was carefully considered based on its theoretical underpinning according to Study 1. The fact that a second-order formative measurement structure was conceptualized made the validation process more challenging than that of a ‘conventional’ reflective measurement model (Diamantopoulos, 2011; Petter et al., 2007). The analytical techniques, predominately revolving around the use of a multiple indicators and multiple causes (MIMIC) model, were employed specifically for the validation of such measurement model (Diamantopoulos, 2013; Diamantopoulos et al., 2008). The resulting validation confirms the structure of the four types of organizational networking behaviors, which is in line with the results of Study 1.

In dealing with the first research question through the exploratory and confirmatory research regarding the construct of organizational networking behaviors, the research program progressed to the application of the developed construct. Study 3 focuses on the second research question. It examines the causal relationships between a few key constructs. The conceptual model details how organizational networking behaviors serve as the driver of a firm’s customer-oriented, competitor-oriented and relationship-oriented behaviors due to the sensing and seizing aspects of networking. It was hypothesized that these behaviors toward a firm’s customers, competitors and relationships positively affect focal firm’s performance. The test of these hypotheses required survey data collection, which was done through an on-line questionnaire. The analytical challenges in Study 2 continued to prevail in Study 3, which are mainly related to the specification of the formative construct of organizational networking in a structural equation model (Diamantopoulos, 2011). The use of statistical modeling techniques is similar to that of Study 2. The results further corroborate the four types of
organizational networking as a construct and suggest that organizational networking does play an important role in driving other organizational behaviors toward a firm’s important counterparts in the networks. In addition, the effective management of the firm’s portfolio of relationships is found to mediate the positive impact of network-oriented behaviors on firm profitability.

In the following three sub-sections (4.1-4.3), the title, the abstract and the authorship of each paper will be outlined. Particularly, the contribution of the PhD candidate will be discussed against that of her co-authors.
Figure 2 The research program
4.1. Study 1

**Title:** Understanding Types of Organizational Networking Behaviors in the UK Manufacturing Sector

**Abstract:** This research is aimed at understanding firms’ different types of ‘networking behaviors’, i.e. how and why firms affect their strategic network position by activities/routines/practices\(^1\) aimed not just at their business partners, but beyond such direct relationships. Thus, we adopt a network perspective to examine how firms exploit their webs of direct and indirect business relationships in order to assess and embrace the potential opportunities and constraints in the network. Based on the industrial network approach (INA), this exploratory research specifically focuses on networking behaviors in the UK manufacturing sector. Thirty-one semi-structured interviews with executive managers from fifteen firms were conducted. We identify four types of organizational networking behaviors by the way in which firms utilize their web of relationships to achieve certain goals. By using the concept of networking behaviors based on the INA as well as the strong-and-weak-tie argument in economic sociology, purposeful networking behaviors can be categorized into the following: *information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization*. These four ‘types’ of organizational networking behaviors provide a deeper understanding of how firms operating in business-to-business

---

\(^1\) Activities, practices and routines are seen as a firm’s interactions with its counterparts in the context of organizational networking. Therefore, they can all be appropriately used to capture the interactions between a firm and its counterparts. However, they differ in how the interactions are defined and established by the firm in terms of their frequency and occurrence. Activities can take place aiming at a specific goal, as can practices and routines. However, practices are ‘regular activities’, and routines are ‘fixed activities’. For instance, a firm can acquire information from an important counterpart, such as its most important customer, through an activity initiated by a sales director as a one-off interaction. This interaction can be established as a practice through organizing regular visits (i.e. regular activity) to that customer, so that the firm can keep up with a specific information stream. Also, this interaction can become a routine, which means that the ‘regular activity’ is fixed as a longer-term commitment. Due to the above reasoning, these three terms are used interchangeably to capture the various forms of interactions in the context of organizational networking.
exchanges relate to and exploit their webs of direct and indirect relationships, taking
into consideration the embeddedness and interconnectedness of the network context.

**Authorship:** Sabrina C. Thornton a,b, Stephan C. Henneberg c, Peter Naudé b

a University of Huddersfield Business School, United Kingdom

b Manchester Business School, United Kingdom

c School of Business and Management, Queen Mary University of London, United Kingdom

**Contribution of the PhD candidate:** The conceptualization of this study was an
extension of the PhD candidate’s earlier work during her pre-PhD research program
(Master of Research in Business and Management). The initial idea was carried over
and refined and later on developed by the PhD candidate. The PhD candidate took full
command of the literature review, the development of the theoretical framework,
research design, interview data collection and data analysis. The write-up process was
predominately carried out by the PhD candidate. The contribution of her co-authors, her
PhD supervisors, was to provide guidance and insights that helped the candidate to
become aware of the importance of keeping the arguments streamlined and logical and
the art of crafting a piece of academic writing.

Note: This study has been published in *Industrial Marketing Management* (ABS 3*,
Understanding types of organizational networking behaviors in the UK manufacturing

**4.2. Study 2**

**Title:** Conceptualizing and Validating Organizational Networking As a Second-Order
Formative Construct
Abstract: Based on an existing conceptualization in the literature, this study operationalizes the construct of organizational networking, through a rigorous two-stage scale construction and validation process. Organizational networking refers to firm behaviors, i.e. the activities/routines/practices, which enable an organization to make sense of and capitalize on their networks of direct and indirect business relationships. We conceptualize the measurement model as a second-order formative construct with four first-order reflective constructs based on a four-dimensional view of organizational networking comprising information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. The scale validation was undertaken at the first- and second-order levels. The result confirms the four distinct first-order measurement models. At the second-order level, a MIMIC (multiple indicators and multiple causes) model was employed to assess the validity of the formative measurement model. The results suggest that all four components significantly contribute to the overarching construct of organizational networking, with strong-tie resource mobilization being the most important contributor. Thus, our operationalization confirms the uniqueness of the different dimensions of organizational networking that should be configured as a strategy of sensing and seizing opportunities in the network. The organizational networking scale will provide future research with a basis to explore different strategic patterns of networking behaviors in varying contexts, and its role in relation to other organizational behaviors and outcome variables, such as firm performance.

Authorship: Sabrina C. Thornton a,b, Stephan C. Henneberg c, Peter Naudé b

a University of Huddersfield Business School, United Kingdom
b Manchester Business School, United Kingdom
School of Business and Management, Queen Mary University of London, United Kingdom

**Contribution of the PhD candidate:** Similar to Study 1, the PhD candidate took full command of the literature review, the development of the theoretical framework, research design, online survey data collection and data analysis. The write-up process was predominately carried out by the PhD candidate. The contribution of her co-authors, her PhD supervisors, was to provide appropriate and timely guidance and advice that helped the candidate to continue learning to use writing as a powerful way of expressing the thought process and argument building.


**4.3. Study 3**

**Title:** Network-Oriented Behaviors in Business-to-Business Markets – An Empirical Study

**Abstract:** This study is concerned with the extent to which network-oriented behaviors directly and/or indirectly affect firm performance. It argues that a firm’s interactive behaviors in relation to an embedded network structure are key mechanisms that facilitate the development of important organizational capabilities in dealing with business partners. Such network-oriented behaviors, which are aimed at affecting the position of a company in the network, are consequently important drivers of firm performance, rather than the network structure alone. We develop a conceptual model that captures network-oriented behaviors as a driving force of firm performance in relation to three other key organizational behaviors, i.e. customer-oriented, competitor-
oriented and relationship-oriented behaviors. We test the hypothesized model using a dataset of 354 responses collected via an on-line questionnaire from UK managers, whose organizations operate in business-to-business markets in either the manufacturing or services sectors. Based on the research results all the hypothesized relationships are supported, except the moderation effect of technological turbulence on the relationship of network-oriented behaviors and relationship portfolio effectiveness. The research results indicate that a firm’s network-oriented behaviors positively impact on the development of customer-oriented and competitor-oriented behaviors. They also foster relationship coordination with its important business partners within the network. In addition, the effective management of the firm’s portfolio of relationships is found to mediate the positive impact of network-oriented behaviors on firm profitability.

Authorship: Sabrina C. Thornton a,b, Stephan C. Henneberg c, Peter Naudé b

a University of Huddersfield Business School, United Kingdom
b Manchester Business School, United Kingdom
c School of Business and Management, Queen Mary University of London, United Kingdom

Contribution of the PhD candidate: Similar to Study 1 and Study 2, the PhD candidate took full command of the literature review, the development of the theoretical framework, research design, online survey data collection and data analysis. The write-up process was predominately carried out by the PhD candidate. The contribution of the co-authors, her PhD supervisors, was to provide appropriate and timely guidance and advice that helped the candidate to continue learning to use writing as a powerful way of expressing the thought process and argument building. This paper has been submitted to three conferences for early review and is expected to be submitted to Industrial Marketing Management shortly.
4.4. PhD Timeline

All three studies were initiated after the candidate started the doctoral program at Manchester Business School. Table 1 outlines the timeline of each study, which shows that these three studies followed sequentially. Study 1 has spanned just over two years due to the fact that it is the foundation of the subsequent studies and extra time was invested in the publication process. Study 2 was initiated while the write-up of Study 1 commenced, using the momentum gained from Study 1. The initiation of Study 3 followed a similar pattern of that of Study 2. The completion of the write-up fell in March 2014, which equated to a duration of three years and six months for the whole PhD program.

Table 1 PhD timeline

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>YEAR 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calendar Year</td>
<td>Q4</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
</tr>
<tr>
<td></td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
</tr>
</tbody>
</table>

Study 1
- Conceptualization
- Research Design
- Data Collection
- Data Analysis
- Write-up

Study 2
- Conceptualization
- Research Design
- Data Collection
- Data Analysis
- Write-up

Study 3
- Conceptualization
- Research Design
- Data Collection
- Data Analysis
- Write-up

4.5. Thesis Format and Structure

This thesis conforms to an alternative format thesis, following the guidelines of the Presentation of Thesis Policy issued by the University of Manchester in December 2009. This format allows chapters to be in a format suitable for submission and
publication in peer-reviewed academic journals. In line with the guideline, the body of the thesis comprises of three standalone empirical studies in Chapters II (Study 1), III (Study 2) and IV (Study 3) respectively, each of which contains its own relevant problem framing, literature review, methodology, data collection, data analysis, contribution to theory and practice, research limitation and future research direction. Chapter I sets the scene for the thesis and contextualizes the following three chapters by providing an overall background of the thesis and theoretical perspectives used. Chapter V concludes the thesis by outlining the implications of the research program as a whole and reflecting on the journey of the PhD candidate in various aspects.

Since Chapters II and III of the thesis have been published in *Industrial Marketing Management*, the offprints of the journal articles are included, following the guideline of the alternative format thesis. Chapter IV is still in the form of a working paper, as this represents a manuscript under review. The pagination for each chapter is broken down to each section and subsection where applicable except for Chapters II and III, which only have the pagination that denotes the sequence of them in the thesis in order to accommodate the offprints’ own pagination.

The alternative format thesis has been a common practice in the division of Accounting and Finance at Manchester Business School, whereas in other divisions, such as the one the PhD candidate is in, the monograph format seems to be the format that is adopted by most if not all PhD candidates. The decision to use the alternative format for this thesis was made based on the composition of the thesis and the author’s development as a PhD candidate. Particularly, the submission of Chapter II to *Industrial Marketing Management* in December 2012 prompted her to consider the alternative format thesis with two further empirical studies in the pipeline. The decision not only provides advantages for her to pursue an academic career, but also opens many doors
for conversations and collaboration opportunities with other academics. The candidate appreciates the unreserved support and understanding from her supervisors and the director of Postgraduate Graduate Research for the approval of the application (see Appendix I for the approval form). For the purpose of coherence, American (US) spelling is used throughout this thesis due to the fact that Study 1 (Chapter II) and Study 2 (Chapter III) were published in an US journal, *Industrial Marketing Management*, and Study 3 is also aimed for an US publication outlet.
References


Chapter II  Understanding Types of Organizational Networking Behaviors in the UK Manufacturing Sector

1st published paper
Understanding types of organizational networking behaviors in the UK manufacturing sector

Sabrina C. Thornton a,b,⁎, Stephan C. Henneberg c,1, Peter Naudé b,2

a University of Huddersfield Business School, Queensgate, Huddersfield, HD1 3DH, United Kingdom
b mIMP Research Group, Manchester Business School, Booth Street West, Manchester, M15 6PB, United Kingdom
1 Queen Mary, University of London, School of Business and Management, The Bancroft Building, Mile End Road, E1 4NS, United Kingdom

A R T I C L E  I N F O

Article history:
Received 1 December 2012
Received in revised form 1 June 2013
Accepted 1 June 2013
Available online 30 July 2013

Keywords:
Organizational networking
Industrial network approach
Network management
Strong and weak tie
Abductive approach

A B S T R A C T

This research is aimed at understanding firms’ different types of ‘networking behaviors’, i.e., how and why firms affect their strategic network position by activities/routines/practices aimed not just at their business partners, but beyond such direct relationships. Thus, we adopt a network perspective to examine how firms exploit their webs of direct and indirect business relationships in order to assess and embrace the potential opportunities and constraints in the network. Based on the industrial network approach (INA), this exploratory research specifically focuses on networking behaviors in the UK manufacturing sector. Thirty-one semi-structured interviews with executive managers from fifteen firms were conducted. We identify four types of organizational networking behaviors by the way in which firms utilize their web of relationships to achieve certain goals. By using the concept of networking behaviors based on the INA as well as the strong-and-weak-tie argument in economic sociology, purposeful networking behaviors can be categorized into the following: information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. These four ‘types’ of organizational networking behaviors provide a deeper understanding of how firms operating in business-to-business exchanges relate to and exploit their webs of direct and indirect relationships, taking into consideration the embeddedness and interconnectedness of the network context.

© 2013 The Authors. Published by Elsevier Inc. All rights reserved.

1. Introduction

Networks of inter-organizational exchanges represent a specific form of markets, made up of direct as well as indirect business relationships (Achrol, 1997; Miles & Snow, 1992; Möller, Rajala, & Svahn, 2005). Understanding systemic structures such as networks, as well as the embeddedness of firms within these structures, has been regarded as a specific research orientation (Achrol, 1997; Thorelli, 1986). With it came a gradual shift in focus in the business marketing and the inter-organizational strategy literature from a monadic perspective, to dyadic business relationships, and finally to business networks (Achrol, 1997; Morgan & Hunt, 1994). In this context the importance of direct business relationships for a firm’s success has been well established (Morgan & Hunt, 1994; Palmatier, Dant, & Grewal, 2007). In addition, a focus on such direct business relationships has helped to understand the essence of business exchanges and interactions that take place in a relationship between two organizational actors (e.g., Anderson & Narus, 1990; Barnes, Naudé, & Michell, 2007; Hallén, Johanson, & Seyed-Mohamed, 1991).

However, direct business relationships do not exist in isolation (Anderson, Håkansson, & Johanson, 1994; Granovetter, 1985; Ritter, 2000). Instead, they are interconnected and aggregated as business networks, in which firms and numerous other actors are embedded. This means that while companies have a portfolio of direct relationships, within the network context many indirect business relationships exist, i.e., second-order connections where the relationship is mediated by one or several other actors. Therefore, a crucial question arises as to how firms can efficiently and effectively manage in such complex networks with regard to mobilizing not just their direct business relationships, but also to exploit the potential inherent in indirect business relationships (Ford, Gadde, Håkansson, & Snehota, 2003; Möller & Halinen, 1999; Mouzas & Naudé, 2007). In this context it has been suggested that a firm’s ability to utilize and capitalize on the wider business network (i.e., not just its direct business relationship portfolio) can become a source of competitive advantage, because possessing the ability to cope with, as well as shape and exploit the complexity of the business networks, represents a
capability that is difficult for competitors to imitate (Barney, 1991; Gulati, Nohria, & Zaheer, 2000).

Despite this significance of indirect business relationships, current research into how firms interact with their networked environment remains relatively unexplored compared to research on direct business relationships (Äyväri & Möller, 2008; Dyer & Hatch, 2006). Studies in economic sociology (e.g., Thorrell, 1986; Uzzi, 1996; Uzzi & Gillespie, 2002) show some of the key mechanisms that foster the efficiency and effectiveness of knowledge sharing and resource mobilization in the network. However, being embedded in a web of business relationships as part of a network can be a constraint at the same time (e.g., Burt, 2000; Granovetter, 1985, 2005; Rivera, Soderstrom, & Uzzi, 2010; Uzzi, 1996, 1997). In this context a single firm cannot control its network; nevertheless, it can manage within its web of direct and indirect relationships, given the constraints of the network (Håkansson & Ford, 2002). From a focal firm’s point of view, how and why companies strategically interact with various direct and indirect counterparts to realize the opportunities and safeguard against the constraints afforded by the network is still unexplored. Therefore, there exists the need to provide an understanding of organizational behaviors aimed at utilizing the multitude of direct as well as indirect business relationships. These behaviors will be subsumed under the construct of networking behaviors. We thus borrow this construct from the theory of managing in business networks (Ford et al., 2003; Håkansson et al., 2009), where it represents the notion that a firm’s behaviors are aimed at changing its network position.

Our perspective of networking, based on an interaction approach related to the Industrial Network Approach (INA) pertains to organizational behaviors. This study, based on the INA, assumes that some firms can leverage their network context better than others by strategically mobilizing and thereby utilizing the web of direct and indirect relationships that they are embedded within. These networking behaviors enable firms to go beyond managing ‘intentional nets’, i.e., a firm’s web of direct business relationships (Möller et al., 2005), and specifically focus on mobilizing multiple direct and/or indirect relationships within the wider network, thereby taking into account the interconnectedness and embeddedness of a firm’s network context (see Håkansson, 1982; Håkansson & Ford, 2002; Håkansson & Snehota, 1989; Turnbull, Ford, & Cunningham, 1996). Thus, these behaviors are not about how well firms can manage business relationships, but how firms manage and strategize in their network context to embrace the inherent opportunities and hindrances. We thus define the nature of networking behaviors by drawing on Day’s (1994) categorization of organizational capabilities, which distinguishes ‘inside-out capabilities’ (qualification practices) and ‘outside-in capabilities’ (strategizing practices). As networking behaviors are ‘outside-in capabilities’, they are aimed at utilizing different types of business relationships strategically based on a focal firm’s network position. Such behaviors relate to activities/routines/practices, which enable firms to make sense of and capitalize on their networks of direct and indirect relationships. Based on this definition, this study aims to answer the following research question: what different types of networking behaviors by a focal firm can be observed in business networks?

This article is organized as follows: First, we carry out a literature review on network management, organizational networking and strategizing in networks. Secondly, the research design will be introduced, and the research results will be presented. Finally, this article will conclude with a discussion of the research findings, the implications for existing literature and managerial practice, as well as outline limitations of this study and future research directions.

2. Network management

Network management is a research area derived from the need to go beyond dyadic customer or supplier relationship management, given that firms operate in a complex networked environment in which various counterparts are embedded (Ritter, 1999). There exist several concepts aimed at capturing firms’ network management, which are summarized in Table 1.

Network competence is defined as “the degree of network management task execution and the degree of network management qualification possessed by the people handling a company’s relationships” (Ritter, 1999, p.471). The concept was developed to capture the competence that ‘networking companies’ hold. It is the internal organizational ability that qualifies a firm to deal with its network of direct relationships and that enables a firm to carry out relationship-specific tasks. Network capabilities, on the other hand, are the “abilities to initiate, maintain and utilize relationships with various external partners” (Walton et al., 2006, p. 546). Note that the former concept takes a competence-based approach, whereas the latter has an emphasis on a dynamic capabilities perspective. Network competence is treated as organizational qualification practices, while network capabilities are seen as an organizational characteristic. Nevertheless, they share some similarities in that they relate to the management of the web of a firm’s direct relationships with various counterparts, which relates to ‘inside-out’ organizational capabilities (Day, 1994). The main contribution of these two studies is therefore in adding another layer of understanding on top of dyadic relationship management and identifying the way in which firms can manage multiple relationships more efficiently.

Networking capability, a concept developed by Mort and Weerawardena (2006), encapsulates how small entrepreneurial firms develop some sort of routines within their networks to configure and reconfigure resources through the networks they build during the process of internationalization. The authors suggest that such capabilities have to be developed and nurtured by the owners of the firms. A recent study by Mitrega et al. (2012) also uses the same term, networking capability to denote the organizational capabilities of initiating, developing, and terminating business relationships, which is conceptually similar to network capabilities by Walter et al. (2006), except that the former incorporates relationship termination in the conceptualization in order to capture the full life cycle of relationships.

Based on the review of the above network management studies, this growing stream of research has adopted a competence- or capability-based perspective to understand how firms internally ‘gear up’ as part of a portfolio approach for efficiently initiating, developing and terminating business relationships, through which firms can benefit from combining and configuring resources from various counterparts. While the relationship and network management literature provides ample evidence showing the need for firms to engage in business relationships with various counterparts in order to compete successfully in the market place, these results must be qualified when a network perspective is adopted. In this context, resources and information can flow from one point to another and across the whole network of connected organizations, through webs of connections comprised of direct and indirect relationships. When firms develop relationships with their counterparts, not only do they form connections within these relationships, but also further relationships that are indirectly connected with them; thus, relational outcomes can result from interactions across various partners, even those without direct contact (Anderson et al., 1994). Relationships can therefore be argued to be useful not only to mobilize resources in direct relationships, but also in indirectly connected ones (Gargiulo, 1993; Wuyts, Dutta, & Stremersch, 2004).

3. Organizational networking

Organizational networking is an emerging research area that deserves more attention from business marketing researchers (Ford &
we agree with Håkansson et al. (2009) that networking is conscious, it their networked environment (Mouzas & Naudé, 2007). Therefore, networking is strategic and purpose-led organizational network to achieve certain goals they envisage. The patterns of connections among actors and dependencies among activities due to the dynamics in structural consumables supplier. The patterns of connections in a triad setting based on a case study of an engineering Laage-Hellman (1992) provide some insights into how triadic connec-
tions between companies can be typified. They propose seven patterns of connections in a triad setting based on a case study of an engineering firm’s networking behaviors on its performance is limited. While research into network management from a capability or competence perspective has provided some results in conceptualizing and operationalizing the construct of network management, there is scant effort in conceptualizing organizational networking from a strategic or behavioral perspective. The concept of networking beh-
vior has been mostly applied in the context of small entrepreneurial firms at the individual level (owner or manager) and particularly linked to the process and success of internationalization (e.g., Chetty & Campbell-Hunt, 2003; Ferris et al., 2007; Jaklic, 1998; Semrau & Sigmund, 2010). Although these studies explicitly discuss the concept of networking, it has not been conceptualized in a systematic way to capture organizational behaviors in response to the characteristics of networks, i.e., connectedness and embeddedness. According to Ebers (1997, p. 4), organizational networking can be seen as “a particular form of organizing, or governing, exchange relationships among organizations”, while Håkansson et al. (2009, p. 193) define net-
working as “the efforts of individual managers to influence the content and direction of the interaction between them”, and further argue that these efforts are “conscious attempts to affect interaction” (p. 197). They are, however, reluctant to link networking to specific outcomes. Although we agree with Håkansson et al. (2009) that networking is conscious, it should also follow that networking serves certain purposes, and firms network to achieve certain goals they envisage before they take the actions. Therefore, networking is strategic and purpose-led organizational behavior that firms employ in order to understand, embrace and mobilize their networked environment (Mouzas & Naudé, 2007).

In terms of the patterns or types of networking behaviors, Smith and Laage-Hellman (1992) provide some insights into how triadic connections between companies can be typified. They propose seven patterns of connections in a triad setting based on a case study of an engineering consumables supplier. The patterns of connections among firms are driven by two causes: changes in activities due to the dynamics in structural dependencies among actors and “actor’s subjective will or networking” (p. 51). Thus, similarities exist with our conceptualization of organizational networking behavior as being actor-centered. In this context, the motive for networking behavior is based on actors’ assessment of the perceived network dynamics and their anticipation of positive or negative outcomes of such networking behavior (Anderson et al., 1994). Actors are proactive but also reactive to changes, and attempt to influence other members in the network, which can be seen as the ability to ‘strategize’ in the network (Holmen & Pedersen, 2003).

Table 1: Different perspectives of network management.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>Dimension(s)</th>
<th>Theoretical perspective(s)</th>
<th>Unit of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network competence (Ritter, 1999; Ritter &amp; Gemünden, 2003)</td>
<td>The degree of network management task execution and the degree of network management qualification possessed by the people handling a company’s relationships.</td>
<td>• Task execution 1. Relationship specific 2. Cross relational • Qualification 1. Specialist 2. Social</td>
<td>Industrial network approach &amp; Competence-based view</td>
<td>Firm</td>
</tr>
<tr>
<td>Network capabilities (Walter, Auer, &amp; Ritter, 2006)</td>
<td>The abilities to initiate, maintain, and utilize relationships with various external partners.</td>
<td>• Coordination • Relational skills • Partner knowledge • Internal communication Adopted from (Kale, Dyer, &amp; Singh, 2002)</td>
<td>Dynamic capabilities</td>
<td>Firm</td>
</tr>
<tr>
<td>Networking capability (Mort &amp; Weerawardena, 2006)</td>
<td>The capacity of the firm to develop a purposeful set of routines within its networks, resulting in the generation of new resource configurations and the firm’s capacity to integrate, reconfigure, gain and release resource combinations.</td>
<td>• Resource configuration 1. Build 2. Reconfigure 3. Add 4. Delete</td>
<td>Dynamic capabilities</td>
<td>Firm</td>
</tr>
<tr>
<td>Networking capability (Mitrega, Forkmann, Ramos, &amp; Henneberg, 2012)</td>
<td>The set of activities and organizational routines, which are implemented at the organizational level of the focal company to initiate, develop, and terminate business relationships for the benefit of the company.</td>
<td>• Relationship initiation capability • Relationship development capability • Relationship termination capability</td>
<td>Dynamic capabilities</td>
<td>Firm</td>
</tr>
</tbody>
</table>

Mouzas, 2013). Not only is a systematic conceptualization and typol-
ology lacking in the literature, but empirical evidence regarding the ef-
ects of a firm’s networking behaviors on its performance is limited. Based on this review of network management and networking ap-
proaches in the literature, the conceptualization of organizational net-
working behavior in our study differs from the existing concepts in three ways. First, organizational networking behaviors are neither characteris-
tics nor qualifications of a firm, and are thus different from those net-
work management studies taking a capability perspective. Secondly, networking behaviors are actions towards direct as well as indirect coun-
terparts (including the combination of the two) at a collective organiza-
tional level. These behaviors are derived from the goals (purposes) of the focal organizations, and thus result in purposeful actions that are planned and accordingly enacted. Thirdly, networking behaviors are not merely about mobilizing and reconfiguring resources. Instead, they are potentially aimed at utilizing different types of relationships based on the focal company’s network position to serve various organizational purposes.

4. Strategizing in networks

Before we discuss the strategic implications of organizational net-
working, drawing from research in economic sociology, it is imperative to make clear that the essence of ‘networking’ in this tradition is in line with that in the INA. The school of economic sociology derives from the wider theoretical framework of social exchange theory (see Cropanzano & Mitchell, 2005; Emerson, 1976) and the realization that the neoclassical theory (e.g., transaction cost economics) has many lim-
itations when it comes to explain how individuals or firms, which are embedded in interconnected relationships, perform (Uzzi, 1996). Al-
though the concept of a social network originates from the context of inter-
personal social relationships, its applicability has spanned across both business-to-consumer as well as business-to-business marketing, and it has been used to explain the phenomena provoked by network embeddedness of actors (Van Den Bulte & Wayts, 2007). The pivotal thesis in economic sociology, i.e., the strong-and-weak-tie argument, is therefore suited to our discussion here. Such ties have been empirically
researched in the context of business market settings, and the concept of networking provides strategic insight into the utility of these two different ties in relation to organizational economic behaviors and outcomes (e.g., Rowley, Behrens, & Krackhardt, 2000; Uzzi, 1996; Uzzi & Gillespie, 2002; Wuyts et al., 2004).

Scholars in economic sociology strongly believe that the way in which firms utilize their web of ‘strong and weak ties’ (i.e., established as well as arm’s-length relationships) determines their performance (e.g., Granovetter, 1973, 2005; Uzzi, 1996). This established stream of research looks at how the web of relationships that a person or a firm has impacts on specific outcomes. It has been argued that both strong- and weak-tie relationships have their advantages, and that they serve different purposes for a focal firm. Uzzi (1996) argues that strong-tie relationships (called embedded ties in his study), i.e., relationships characterized by high levels of trust, information sharing and problem-solving coordination, enable a firm to gain access to desired information and opportunities provided within the network. It can be inferred that when a firm has strong relationship management skills, it raises the possibility of strengthening the ability to capitalize on its network through strong ties. Granovetter (1973), on the other hand, contends that the structure of the organizational or personal network is the key for accessing novel information and opportunities (also see Granovetter, 2005). He argues that weak-tie relationships (which can be newly formed or indirect ones) serve as bridges for a focal firm to link with other indirect actors, which might subsequently result in accessing novel information and opportunities that cannot be gained via other strong-tie relationships. This argument is partially shared by Burt’s (2000) notion of structural holes, where a weak-tie relationship can potentially work in a focal firm’s favor by providing a connection with the wider context. The strong- and weak-tie argument has shed some light on firm performance from a structural network perspective, but the challenge for individual firms remains somewhat unexplored, i.e., how to exploit these two different types of relationships through specific types of behavioral patterns.

On the other hand, the aforementioned network management literature suggests that direct interaction partners, which are comparable to the notion of strong ties, serve to act as conduits for a focal firm to mobilize resources and reach opportunities embedded in the wider network, but they also buffer a focal firm from threats or cushion the impact of fast-changing dynamics in a volatile environment. Ritter and Gemünden (2003) argue that the management of the web of connected relationships can bring about synergies and increase economic outcomes (e.g., innovation success). As each firm’s position in the network is unique from any other network member, any possible synergies are idiosyncratic or unique to a focal firm. This uniqueness in position gives rise to some opportunities and threats afforded by the network, and thus provides strategic implications from a firm’s perspective (Johanson & Vahlne, 2011).

However, opportunities are not freely available to firms embedded in the network. Jack (2005) argues that only when firms interact closely with directly connected counterparts, are they able to embrace these opportunities, which reside in indirect relationships. This provides us with a foundation to posit that it requires strategic ‘networking’, i.e., specific managerial networking behaviors, to access and capitalize on the resources that exist beyond the direct reach of a focal firm (Jack, 2005; Uzzi, 1996). Thus, networking behaviors need to be understood in conjunction with the way in which firms manage their direct relationships with customers and suppliers (as well as with other important organizations, e.g., trade associations) because they are the basis for exchanging resources and information. In summary, firms ‘network’ to get access to proprietary information, mobilize resources among relationships, reach new opportunities, and maneuver themselves into a desired network position. Therefore, firms need a web of relationships to provide them with the access to the desired information and resources, and to manage in this web they employ certain networking behaviors vis-à-vis direct and indirect relationship partners.

Therefore, the ability to change the network position of a firm in its favor is crucially important as it determines the kinds of resources and information that could be accessible to a focal firm through utilizing these relationships by means of interactions. Zaheer and Bell (2005) argue that network-enabled capabilities (i.e., the combination of a superior set of internal resources and a beneficial network structure of a focal firm) are crucial causes of superior performance. Although the concept of internal resources in their study is not directly linked to networking behaviors, it provides some pointers to the beneficial effects of firms’ behaviors towards the networks. It also implies that advantages related to a superior network position alone do not warrant a superior performance without the capability of the focal firm to access and mobilize the desired resources resulting from this network position through interacting with manifold business partners and other influential parties.

5. Research design

The main objective of this study is to delineate the scope and conceptualize the content and distinct types of organizational networking behaviors, which is done using a qualitative and exploratory empirical research design. This study uses a semi-structured interview method based on multiple respondents from a variety of focal firms.

5.1. Research context and sample

The manufacturing sector in the UK was chosen as the research setting for this study. Given the strong challenge from emerging countries with lower-cost labor offerings, the manufacturing sector in the UK has shrunk dramatically (Department for Business, Innovation, & Skills, 2010). As these emerging countries are moving up the value chain by enhancing their technological capacity, manufacturers in the UK have to differentiate their offerings in order to survive, as do the manufacturers in other developed countries. Therefore, manufacturers in the UK need to constantly seek opportunities to innovate and expand (or try to maintain the same level of) their business scale by utilizing their web of relationships and the accompanied resources.

Manufacturing firms in the UK across different sectors are included to form a sampling frame. The Fame Database (UK financial company information and business intelligence) provided the sample population, which was further filtered to include only companies with more than 25 employees. We randomly selected a spread of manufacturing firms within different sectors, thereby cutting across different levels of technological and competitive intensity. A total of 76 potential participating companies were identified and sent a research participation invitation by email, which detailed the purpose of the study and assured potential respondents about confidentiality. A reminder was sent to those who had not replied to the invitation after two weeks. An agreed date for face-to-face interviews was scheduled with each respondent who confirmed his/her participation. Before each interview the participant was contacted via e-mail with a briefing letter detailing the procedure of the interview. The number of participating companies was not a pre-set goal. The sample size was determined by our judgment regarding whether we had reached a ‘point of saturation’, i.e., a situation when only very few novel insights emerged from each new interview (Kvale, 2007, p. 44). This led to 15 companies participating in this study; using a multi-respondent approach resulted in a total of 31 respondent managers (see Appendix A for the profile of the interviewees).

5.2. Data collection

Organizational networking behavior is the means to efficiently and effectively sense and capitalize on a firm’s network context by exploiting the web of direct and indirect relationships. Therefore, the respondents have to be specifically chosen to ensure that they have an overall vision of organizational strategy decisions about interacting with important
counterparts in the network. At least two respondents from each participating company were interviewed in order to get a multi-layered perspective enabling comparison and cross-validation. However, in one instance one interviewee provided a ‘saturated’ view of his company’s networking behaviors, and therefore no further interview was required for that particular organization. In cases where a firm is part of an amalgamation of companies, we decided to recruit more than two respondents as they have working relationships with both ‘internal’ (sister companies) and ‘external’ partners (companies outside of the group). We focused on executive managers, e.g., CEOs, general managers, managing directors, marketing directors, sales directors and supply chain directors.

The duration of the interviews ranged from 45 to 90 minutes, with most of them lasting for around one hour. The interviews were carried out with the aid of an interview guide (Kvale, 1983). The interview questions (including probing questions) were developed based on the initial theoretical considerations regarding networking behaviors (Kvale, 2007). However, the interview guide evolved as the empirical study progressed and was modified accordingly following the outcome of each interview to ensure the appropriateness to the topic, thereby increasing the internal validity of the interview (King, 2004). During the process of our data collection the nature, the wording and the order of the questions were adjusted to suit the specific respondent. Interviews were tape recorded and then transcribed verbatim for subsequent data analysis.

5.3. Data analysis

Content analysis is used to analyze the data. Coding is a key feature in content analysis, which was first introduced in grounded theory development, a research design for qualitative analysis developed by Glaser and Strauss (1967). In content analysis, the researcher can give words, sentences and paragraphs meaning, and then codes the meaningful text into various themes, which can be quantified as to how frequently specific themes appear in a text, and in what context (Kvale, 2007). The themes can be decided upon before analyzing the data or emerging themes can be created ad hoc. As this study relates to an under-developed research area and is exploratory, ad hoc theme categorizations are used, which have the advantage of being flexible in existing developed concepts from the literature with the emerging concepts from the empirical work in an hermeneutical circle (Krippendorff, 2012).

NVivo (version 8) is used as an aid for coding large amount of text into themes in a systematic manner. It allows the researcher to code the data (e.g., text and images) into themes, which might be in a hierarchical form. It also makes quantifying qualitative data easier, e.g., via the function of counting the frequency of certain words or codes, and it provides a cross-comparison of the attributes of the cases. For instance, a researcher can easily ascertain whether the themes that appear are different for companies of different sizes.

Our content analysis is informed by Dubois and Gadde’s (2002) ‘systematic combining’ approach using the logic of abductive research to analyze the data from the 31 interviews. We rely on both the literature and the empirical study to guide us through the process of coding themes and grouping them. As coding is an iterative process of going backward and forward between the literature and empirical data, the three researchers discussed the content of these themes regularly throughout the process of data coding. The aim was to form an agreement among them regarding how the themes are defined, separated from one another, and also delineated from other existing concepts in the relationship and network management literature. Initially, one of the three researchers looked for activities/routines/practices, which enable firms to make sense of and capitalize on their networks of direct and indirect relationships. In the initial stage of the coding, we purely extracted the themes related to any activities, routines or practices, which are interactive in nature. We focused particularly on the three aspects, information, resources and opportunities, as identified in the literature (Granovetter, 2005; Uzzi, 1996). As we proceeded with the coding, we observed that resource mobilization can be achieved through two different approaches: interacting with counterparts that are in established relationships with a focal firm as well as with counterparts that are in arm’s-length (less established) or indirect relationships, thereby echoing the notion of strong and weak ties in economic sociology. At the same time, Smith and Laage-Hellman’s (1992) seven transformation patterns in triads helped us to eliminate unnecessary themes and allowed identified themes to be more systematically organized. Thus, during the process of coding the data, we observed emerging patterns in certain themes that were already identified in the literature. We then arrived at the point where all researchers involved agreed on the identified themes, and the identified themes were categorized into distinct types of organizational networking behaviors.

6. Research results

The themes identified provide four sets (types) of networking behaviors that firms employ to fulfill different goals. They are information acquisition, opportunity enabling, strong tie resource mobilization and weak tie resource mobilization. Table 2 shows the detailed sub-types, corresponding to the four types of networking behaviors, and the descriptions of the sub-types. The sub-types are the results of the themes we identified through data coding after merging and separation. These sub-types were then categorized into the resulting four types by a focal firm’s underlying goals.

These four types of networking behaviors complement network activities suggested by Ford et al. (2003), which help firms cope with different network paradoxes that constrain as well as enable the interactions with their business counterparts. While their framework emphasizes aspects of managing interactions in relationships, it does not provide an understanding of different means of networking that help firms achieve their networking goals. On the other hand, our respondents stress the importance of differentiating between different anticipated outcomes underlying the focal firm’s motivation for their networking behaviors as part of conscious and purposeful managerial decisions, and the resulting strategic activities/routines/practices. We believe that by categorizing networking behaviors based on their purposes produces a more fine-grained conceptualization, which will allow us to contrast networking in direct and indirect business relationships with the current business network literature.

Appendix B provides a detailed matrix relating to the content analysis of the interviews; in it the different themes are related to different respondents and their companies. In the following sub-sections we focus our discussion on explicating each type of networking behaviors, including its corresponding sub-types, by using quotes from the interviews.

6.1. Networking behavior type 1: information acquisition

Information in this context can take many different forms. The desired information from the point of the focal company could relate to competitors, potential suppliers and customers, technological development, gaps in the market, local knowledge of a new market, etc. All of these aspects of information can be crucial for firms to sustain and grow their business. Information acquisition usually does not directly impact upon sales figures, but it is important for firms to obtain a whole range of information to make informed decisions and develop and improve their offerings (Cui & O’Connor, 2012). Subsequently, it will enhance the chance of performing better against competitors, and therefore, gaining such information regarding different aspects of the business network is an important motivation for firms to network. The Managing Director of Company B explained:

“... the information that you bring back in the organization, that is really key to our business. It’s not about the sales or the profit. It’s about the information. And then it’s up to us what we do with that information.”
interaction partners, such as customers and suppliers, which are the basis of the experience of their past dealings (Uzzi, 1996). As such, the information (often complex and/or valuable) is shared on the market (i.e., against its competitors). The mutual understanding and trust between two parties in direct business relationships means that the information is often ‘shaped’ to suit the circumstances of their relationship. Second, informal contacts or “unsolicited contacts” (mentioned by the Purchasing General Manager of Company C) that do not have trading relationships with the focal firm, are another important source of information, especially novel information (Cui & O’Connor, 2012). As such interactions are aimed at actors not in close relationships with the focal firm. These contacts could also transfer knowledge domains from their own sphere to that of the focal firm through infrequent interactions (e.g., via benchmarking across industry boundaries). Lastly, firms can gather a wide range of information from trade events, such as trade shows, trade associations, industry committee meetings and seminars.

The respondents identified customers as an important source of information, which has been widely researched in the supply chain literature (e.g., Nyaga, Whipple, & Lynch, 2010; Zhou & Benton, 2007) and the strategic network management literature (e.g., Dyer & Hatch, 2006; Gulati, 1999). Customers can provide insights into a focal firm’s competitors without breaching the competition law. Although they cannot disclose sensitive information, such as pricing agreements or cost structure and production capacity of competitors, they nevertheless can offer insights into why the competitor in question is doing well in the market from a customer’s perspective. This is valuable since information regarding competitors is difficult to obtain. The Sales and Engineering Director of Company J stated:

“Most of our information about competitors probably comes from our customers. Our customers have an interest in sharing information, on what our competitors are doing and we pick up on that.”

Customers also provide their views of the market dynamics, which can foster innovation within the focal firm, as the General Manager of Company C explained:

“They [the customer] will often come to us and say we’ve seen another opportunity… we get a lot of our ideas through the customer base.”
The multitude of channels where firms can obtain valuable information means that they need to identify important sources and establish relationships with them in order to form the base for (often exclusive) information sharing agreements. The findings from our qualitative work corroborate the strong-and-weak-tie argument in economic sociology. Based on a focal firm's web of direct and indirect relationships, various types of information can be mobilized and obtained by interacting with important direct counterparts, informal contacts (who are not necessarily trading with the focal firm) and in the trade events. Although novel information can be brought about by newly formed relationships, the information sharing governed by trust in established relationships can be the dominant mechanism for firms to realize the opportunities derived from acquiring novel information. Therefore, a combination of established, less-established, new and indirect relationships could place firms in a strategic position where they ensure reaping the benefits from being embedded in rich information environments. Interactions based on business exchanges are obviously important for obtaining information (as outlined in the INA, Håkansson & Wootz, 1979), but economic sociology has enriched these aspects of information acquisition by elaborating on the characteristics and functions of the strong- and weak-tie relationships and the strategic importance of wider informal and even indirect relationships within the business network.

6.2. Networking behavior type II: opportunity enabling

We identified three sub-areas of behaviors in the networking behavior type of business opportunity enabling (which is a more direct and goal-oriented behavior compared to information acquisition).

First, the focal firms' tendency to network with different types of organizations within or outside of their industry was observed as a "go out there and speak to people" behavior, as the Managing Director of Company B put it. The channels, which firms use to sense and realize business opportunities, are similar to those for information acquisition. However, there exists one difference related to the fact that interactions are based on behaviors aimed directly at benefiting from being exposed to a wide range of familiar and especially unfamiliar organizations. That gives a focal firm the exposure to a wide range of potential suppliers and customers. Through attending seminars, conferences and exhibitions, and even through behaviors relating to "unsolicited contacts", firms sense and seize such opportunities. The majority of our respondents are in agreement that such "Type II" efforts of networking behavior, e.g., attending trade events, are sometimes not as useful as expected. However, issues around opportunity enabling are seen to be of such importance that they nevertheless engage in these events and provide budgets for them. A certain fear exists that otherwise they would never know whether some opportunities might exist, and they might miss out on opportunities (or they are snapped up by their competitors). In this context the Managing Director of Company B argued:

"Now, you don't always find yourself as lucky as that in every networking event, but that is always the question that I always ask myself: if I don't go, what am I missing out on?"

The types of opportunities associated with this type of networking behavior vary. For instance, there might be potential buyers who are looking for certain offerings, potential suppliers who provide novel technologies that can be acquired to produce new offerings, or a referral could provide an opportunity for a firm to get in contact with potential customers. Opportunity enabling events are a fertile ground for firms to get together and sense the chances of collaboration, which might give them the edge against their competitors, if the collaboration can produce novel offerings, processes or business models. One participating company in a mature manufacturing industry has recently got involved in projects with companies from very different industries. It all began with a trade fair where they first met their new partner and spoke 'casually' about the possibility of a collaboration that would benefit both parties. The Manufacturing Director of Company E explained:

"... a chance meeting got us into the footwear industry or the potential to get into the footwear industry, so it's hard to say where these things come from."

Furthermore, joining trade associations and industrial-specific committees (including lobbying groups) is another way of sensing opportunities. Through such organizations firms can influence demand by lobbying relevant legislative bodies to shape regulations, subsidies, standards, etc. However, this type of behavior is very specific to certain industries where legislation is heavily influential and directly affects business models, business relationships and offerings. Firms can also interact with various organizations to try and signal their own capabilities and, thereby, try to drive demand by building their reputation in the wider network. This set of behaviors can be named network identity management, based on a concept originating in Håkansson and Johanson (1988). They define network identity as "the views – both inside and outside the firm – about the firm's role and position in relation to other firms in the industrial network" (p. 373). Through interactions with various parties, firms can develop and build up their strategic network identity, as perceived by other actors. Thus, a firm's network identity can be managed and molded as part of networking behaviors, for example, by establishing connections with highly reputable suppliers or customers in the hope that other network members recognize the ability of the focal firm represented by the existence of these relationships. Such behavior was also represented by the companies in our research; the Sales and Engineering Director of Company J told us that having been working with 'big' players in the automotive industry has helped them get business easier due to the reputation brought about by continually working well with such highly reputable companies. The General Manager of Company C explained:

"There are other situations where we've worked for 10/15/20 years trying to get into a company that has a very strong brand that currently doesn't use any of our products, but we see it as strategically the right thing to do and that may take us many, many years to get to that point but we don't give up. We continue to-, you know, to try and gain those [reputable] relationships and produce products that we think will be of interest to them."

As the General Manager of Company C pointed out, it is a 'strategic' decision to keep pursuing a specific customer. Without the vision of where the firm wants to be in the network, the decision to work on reputation-enhancing relationships would not have been made. Therefore, network identity management represents a long-term strategic planning practice that needs to be continually assessed and nurtured. Although network identity has been defined as a self-perceived attractiveness to other network members, firms can manage their identity by strategically interacting with certain counterparts, make them aware of its capability or use their interactions to signal to others in the hope that they will become more attractive in the network (Anderson et al., 1994; Håkansson & Johanson, 1988).

6.3. Network behavior type III: strong-tie resource mobilization

Strong-tie relationships are characterized by high levels of trust, and therefore, they foster exchanges based on mutual understanding, which is developed over time (Dwyer, Schurr, & Oh, 1987; Ford, 1980). A well-established relationship may enable both parties to mobilize part of their counterparts' resources, as well as the resources, which are indirectly involved (e.g., customer's customer, customer's supplier or supplier's supplier). The main pre-requisite
for this to happen is a high level of trust between both parties in the strong-tie relationship. This aspect of resource mobilization is particularly important as a mechanism to solve an identified problem that requires multiple parties’ involvement in order to come up with a solution that would warrant an on-going cooperation (Ford et al., 2001). The Sales and Marketing Director of Company F explained:

“If they aren’t happy with the trays that the supplier is using, then somebody like Customer A will tend to put us in touch with [customer A’s supplier] and then we can come up with a different type of tray.”

There are three different sub-types of resource mobilization in Type III networking behaviors. First, resource adjusting concerns the adjustment of invested resources in the existing relationships based on a focal firm’s assessment of anticipated positive or negative effects (Anderson et al., 1994). It means that firms have to decide as to whether investments should be made, should be continued, and at what level these investments should be kept (Anderson et al., 1994). A Firm needs to assess the possible pooling of resources that are linked with a particular counterpart and envisage how benefits from those resources will fit with its future offering development needs. The General Manager of Company C explained how they decided to increase relationship-specific investments with a supplier:

“We want to move-лет’s say we want to move into some of the emerging countries and markets that are becoming available to us and we see that, for example, the products that that market demands or that country demands we don’t currently have but we know that a supplier is working in another part of the world and has that capability, we would move them into a more strategic partnership arrangement for a given period in a given market.”

Secondly, resource transferring networking behavior is also important for firms to utilize resource synergies, which they could gain from working with similar types of counterparts, as the associated learning can often be transferred across other relationships (Anderson et al., 1994). It means that firms could manage similar business relationships in an isomorphic manner, which forms an efficient and effective aspect of resource usage via common routines and practices, as mentioned by the General Manager of Company C:

“We know the synergies between some of these organizations and our product planning and how that aligns and down-, right down to some of the more regional smaller customers.”

Thirdly, resource pooling can take place in one or more relationships. In the case of more than one relationship a focal firm could coordinate between its supplier and its customer and try to marry its supplier’s capability with its own in order to provide offerings that meets customer’s needs. Therefore, the supplier does not merely provide raw material or a component to go into a firm’s offering, it’s involvement in the process of offering development means that the synergy produced by the cooperation cannot be imitated easily by competition. The General Manager of Company C observed:

“...a lot of our products are only successful as a result of the innovation that the suppliers bring, the added value that the supplier brings.”

The resource pooling behavior is similar to those described in Smith and Laage-Hellman (1992). They argue that firms can either pool resources in existing or in new relationships. However, we found that to pool resources, firms need to build a certain minimum level of trust and mutual understanding before they could combine resources in newly formed relationships. In other words, established relationships are better suited for this purpose. This view is consistent with the strong-and-weak-tie argument as trust is the catalyst for successful resource pooling (Finch, Wagner, & Hynes, 2010; Uzzi & Gillespie, 2002).

Strong-tie relationships play a critical part in mobilizing resources around a focal firm. Networks are rich in resources (and information), but firms need to understand and mobilize them. Interactions play an important role in networking behaviors of Type III, but it is the mutual understanding and trust of strong-tie relationships that serve as the foundation to enable firms to exploit such resource environments (Zaefarian, Henneberg, & Naudé, 2011). Resource mobilization in this context is not confined within a relationship between two parties, but multiple parties can be involved to form “resource constellation” (Ford, Gadde, Håkansson, & Snehota, 2006, p. 34). In addition, the empirical study of Roseira, Brito, and Henneberg (2010) provides evidence that a buyer can mobilize resources among its suppliers in its favor, even in the case of there being no or limited direct links between those suppliers.

6.4. Networking behavior type IV: weak-tie resource mobilization

Unlike strong-tie relationships, weak-tie relationships are characterized by lower levels of trust as the interactions between two parties are not usually as frequent as in strong-tie relationships, and partners keep each other at arm’s length. However, such weak-tie relationships are important in some instances where firms need to quickly penetrate a new market or obtain novel knowledge in a new area, which cannot be obtained through strong-tie relationships. Networking behaviors in this type are partly about changing the formation of the existing relationships in the network, which involves introducing new relationships by ways of either utilizing existing weak tie relationships or making links with the new counterparts (Smith & Laage-Hellman, 1992).

There are three ways of utilizing weak tie relationships in Type IV networking behaviors, depending on a focal firm’s underlying goals. The main goals, mentioned by the managers, are bridging, bypassing-flanking and bypassing-avoidance. These different concepts can also be related to Smith and Laage-Hellman’s work (1992); we adopt some of their terms to describe the weak-tie-based networking behaviors. First, when going to a new foreign market, the language and cultural barriers have been mentioned by several respondents as one of the issues that stand in the way of establishing business relationships with local customers and suppliers (Johanson & Vahlne, 1977). Firms initially resolve the issues by using a local distributor or agent as a partner instead of setting up their own operations locally to reduce the risk of possible failure. Through the local partner(s) they then establish local connections (i.e., local suppliers and customers). Our empirical findings are in line with the International Process Model (Johanson & Vahlne, 1977, 2009), suggesting that a firm initially utilizes newly formed relationships with the view to reduce the risk of failing and exploit the resources such relationships potentially offer. Through nurturing relationships (as long as there are foreseeable benefits), a firm can gradually capitalize on the local knowledge, resources and established relationships, which their new partners have.

The search for a suitable business partner locally can be time-consuming, and it takes various forms of preparation. The General Manager of Company C described the process of choosing a suitable local partner as a “calculated gamble”, because it is difficult to foresee how well two parties can work together without having any experiences with regard to each other, albeit due diligence assessments. However, once a working relationship is established, the benefits of quickly capitalizing on the web of the supplier and customer base that the local business partner provides are an important conduit for penetrating a new market. Through utilizing the resources and market-specific expertise of the local partner, a firm can establish relationships with potential customers and with new suppliers much quicker and more effectively. We call this way of networking behavior bridging, where firms identify the best-suited partner locally in order to utilize its established network of relationships and the accompanied rich information and resources that come with it. Although this sub-type of Type IV networking behavior is particularly
applicable to operations in a foreign market, we also found that it is equally applicable in a local market when a firm is faced with a less familiar territory or an unfamiliar potential customer. The Sales and Marketing Director of Company F described this behavior:

“Once we look to build a relationship up with a supermarket, they will then tell us who their suppliers are and we’ll look to build up relationships with their suppliers. And so therefore we’re always putting new people into the part as regards potential customers.”

Secondly, firms sometimes need to make connections and interact with peripheral yet relevant key actors, which are surrounding their existing or potential customers and suppliers. Although these actors do not contribute directly to sales, the novel possibilities of new resource combination residing in their involvement could be crucial for firms. We term this way of networking bypassing-flanking as firms can go past their direct customers or suppliers and try to interact with relevant parties surrounding specific target organizations (e.g., important or potential customers) in order to influence the demand for their offerings. The final aim of this tactic is to try to be closer to target customers or suppliers (thus flanking). The Head of Purchasing of Company A stressed that:

“We have a very big sales force, many of who are targeting on meeting the specifiers [who are not their customers, i.e., they do not purchase the offerings, but specify them] and meeting the end users and trying to help them with their technical problems and making sure our product is specified and subsequently purchased by the customers.”

Thirdly, a different bypassing networking behavior was observed, where firms identify their direct competitors’ customers or suppliers, and try to approach them in order to expand their business. We call this bypassing-avoidance networking behavior. This situation often happens when firms enter a new market, which their competitors are already operating in, and have an established network of customers and/or suppliers. It could also happen in existing markets where new customers are rare, and the only way of growing the business is by “grabbing competitors’ market share” as the Sales Manager of Company K explained:

“...you go to a man with a pump and we know where our pumps are used, so in a new market, we could go to a place where he has someone else’s pump. So we go and ask him questions like ‘are you getting the service you require for this product, can you get the spares easily, is your pump easy to maintain’, for example.”

6.5. Synthesizing networking behavior types

The results of the content analysis (see Appendix B) reveal that, at an aggregate level, all of the participating companies, except Company H, utilize all four types of networking behaviors, with at least one sub-type being mentioned in each interview. The multi-respondent approach has allowed us to capture this holistic picture of how the members of a focal firm, collectively, network to try to grasp the dynamics of the network and further utilize their understanding to interact with others in order to achieve their networking behavior goals. We infer that the reason why Company H does not have any Type IV networking behavior, i.e., the weak-tie resource mobilization, is related to the characteristics of the company and the network position it occupies. We observe that this company is the smallest across all the participating companies with 48 employees, and that it does not have the ‘vision’ to mobilize resources further afield, e.g., going beyond direct relationships. It could be that because of its size, its limited resource pool does not allow it to invest in such networking behaviors with indirect partners, which arguably requires a long-term orientation of an organizational vision as well as attractive resources (to others) or a superior reputation in the network. We also observe that lobbying is a very specific sub-type of networking behavior that is crucially important to companies operating in close proximity to the public sector, and in industries where governmental regulations are highly influential. Only Companies A, C and L revealed that they lobby to influence how the relevant regulations are shaped and implemented.

Overall, these four types of networking behaviors are essential at an aggregate level to our participating UK manufacturing firms for understanding their position in the network and capitalizing on that position. However, when assessing how firms network at the sub-type level, there are differences across companies due to their unique organizational characteristics, the industry specifics and the company’s network position. Thus, the effectiveness of different networking behaviors also depends on the unique combination of each firm’s characteristics (e.g., the size, the complexity of its offerings and management style), the relationship portfolio and the network dynamics in the wider environment.

The typology we developed in this study is different from those existing concepts in the relevant research areas (see Table 1) because of the theoretical interaction perspective (based on the INA) we employed, as well as due to the consideration of particular network characteristics in our conceptualization. Our typology of networking behaviors is defined by the purposes of focal firms, which share a similar rationale with the work of Zaefarian et al. (2011). They suggest that firms can utilize five resource acquisition strategies to gain access to the resources that reside in their direct business relationships. However, our typology differs from their resource acquisition strategies in two ways. First, our conceptualization of networking behavior considers the resources available to firms in a wider context, including both direct and indirect relationships, as opposed to firms’ relationship portfolio alone (i.e., direct relationships only). Secondly, the conceptualization of networking behavior incorporates both strong- and weak-tie relationships, and makes clear that they serve different purposes. Therefore, our typology enhances the resource acquisition strategies framework by taking into consideration a wider context, i.e., the embeddedness and interconnectedness of direct and indirect relationships, including resources embedded in those indirect relationships.

7. Discussion

We have identified four types of organizational networking behaviors by the way in which firms utilize their web of relationships to achieve different goals. These purposeful behaviors can be categorized into: information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. These networking behaviors are both reactive and proactive in nature. Firms need to network to sense the network dynamics in order to respond to the changes that might have a negative impact if not dealt with timeously and appropriately (reactive networking behaviors). On the other hand, firms can actively maneuver themselves into a position where they are able to capture the benefit of mobilizing certain desired resource through interacting with relevant counterparts (proactive networking behaviors).

By adopting a network view through using an interaction approach, this study provides insights into how firms operating in business markets exploit their webs of relationships with a multitude of counterparts. We did not restrict ourselves to one perspective, nor did we rely purely on literature or empirical data. Instead, we employed the systematic combining approach using abductive reasoning, and the strong-and-weak-tie argument originating from economic sociology to complement the interaction approach, both of which provide the theoretical framework for analyzing the data.

7.1. Findings

First, information acquisition is an important aspect of business development. Although how firms utilize the information they obtain through
networking behaviors is out of the scope of this study, through ‘useful’ information firms can, for example, improve their offerings. Based on our empirical data, we found that firms are more openly sharing information in well-established relationships, but the novel information very often come about via other types of counterparts, with which firms do not necessarily have long-term, established relationships. This stresses the importance of identifying and keeping a wide range of ‘information hubs’ through constantly interacting with various counterparts, although it might not necessarily contribute directly to sales.

Secondly, opportunity enabling behaviors are ways in which firms constantly have a strong desire to ‘go out there and speak to people’, whether they be looking out for new technologies, potential customers and suppliers, lobbying, etc., all of which require proactive interactions with various counterparts. As noted by several managers, the effectiveness of these networking behaviors cannot be predicted easily, but the strong tendency to network with various counterparts is essential for firms that are constantly trying to sense and seize opportunities. Not only do firms seek opportunities, but create them. By interacting with relevant network members (e.g., potential customers and important parties surrounding customers) firms can strategically disseminate their self-perceived network identity to these network members. This has important implications, as firms can greatly benefit from their reputation within the network to improve their network positions (Anderson et al., 1994; Hákkansson & Johanson, 1988).

Thirdly, we also observed that the effectiveness of certain networking behaviors, particularly those in strong-tie resource mobilization, rely heavily on the quality of the relationships and whether or not these relationships are characterized by a high level of trust. In other words, to be able to mobilize resources surrounding a focal relationship requires high levels of trust and cooperation in that relationship. This ability is critical for solving problems and improving offerings, particularly in technology-intensive environments. By mobilizing resources, such as technologies or know-how from different parties, a focal firm’s offerings can be developed in order to differentiate them from those of the competitors. Without the backing of strong relationships, the mobilization of such ‘sticky’ resources to form a joint problem-solving mechanism would be difficult as they are often complex and valuable (Uzzi, 1996). Therefore, not only does a good relationship help to sustain repeating transactions, but it also brings about rich resources that are only accessible for a focal firm through the interactions as part of these relationships. However, firms need to sense and realize this potential opportunity and mobilize the resources to respond to the market and innovate faster, which increases competitiveness (Mouzas & Naudé, 2007).

Lastly, weak-tie resource mobilization has shown to be effective in some instances, particularly where firms need to penetrate a new market. Relationships that are at arm’s length or newly formed could link firms to those indirect relationships, hence potentially a whole new set of resources. The novel information, technologies and business opportunities are embedded in the other side of this ‘bridging’ relationship, and through its linkages with its less established counterparts, a firm is able to quickly form relationships with others. In some cases, this can be planned and managed. Firms are able to assess, for instance, what kind of customer base a particular potential business partner holds to determine whether it is the right decision to initiate and form a new partnership (Anderson et al., 1994).

7.2. Theoretical and practical implications

This study provides three theoretical contributions to the existing literature. First, we conceptualize organizational networking behavior through the lens of an interaction approach based on the INA since networking is interactive, conscious and strategic in nature. Firms utilize networking behavior as the means to cope with the embeddedness, interconnectedness and the resulting complexity of their web of direct and indirect relationships.

Secondly, the four types of purposeful organizational networking behaviors are identified, and differentiated from other network management studies in the literature. The contribution does not lie in the individual components we have identified as part of the empirical study. Rather, it rests in the totality of all four types and sub-types of networking behaviors and how they are systematically identified. Using Day’s (1994) categorization of organizational capabilities to interpret our findings, we demonstrate that networking behaviors are not only about ‘inside-out capabilities’ (qualification practices), but especially about ‘outside-in capabilities’ (strategizing practices). Networking behaviors as strategizing in business networks and thus can be viewed as the systematic configurations of the comprehensive four types and their sub-types.

Thirdly, this study demonstrates the applicability of the established strong-and-weak-tie hypothesis in economic sociology from a focal firm’s perspective. By introducing the specifics of the strong-and-weak-tie concept (e.g., the unique information and opportunities brought about by the network structure), this study has enriched the understanding of networking behaviors from an interaction perspective. This approach has helped to produce a more fine-grained typology of organizational networking behaviors. Although the strong-and-weak-tie approach is a well-developed concept, a deeper understanding is needed to shed light on how different types of business relationships can be utilized from a firm’s perspective, as the concept was originally developed to capture personal relationships (Jack, 2005). This study demonstrates that the ‘tie’ approach provides insights into the different utilities and purposes of business relationships from a focal firm’s perspective, i.e., the strong-tie resource mobilization and the weak-tie resource mobilization.

The four types of networking behaviors can provide practitioners operating in business markets with a guideline for utilizing different types of relationships to achieve different outcomes. Based on our findings, we suggest that manufacturing firms in the UK should more carefully plan and configure their usage of the four types of networking behaviors according to their circumstances, e.g., their organizational characteristics, self-perceived network identity, or the dynamics in their networks. The effectiveness of the networking behaviors is conditioned by these factors. Particularly, some sub-types of networking behaviors might require more investments than the others, depending on the circumstances of a firm, and therefore, firms need to be mindful of how likely their anticipated networking outcomes can be realized in a given time frame. Furthermore, certain sub-types of networking behaviors (particularly those in the weak-tie resource mobilization, and in opportunity enabling) require longer-term investments, the outcome of which is not easily foreseeable. Due to this reason, firms might not be forthcoming with these networking behaviors. On the other hand, certain sub-types of networking behaviors might cost little for firms, such as acquiring information through a wide range of counterparts, but they could potentially generate an enormous benefit. Therefore, firms need to carefully plan these different types of networking activities/structures, using a portfolio approach, to maximize the utility their network context can afford.

7.3. Limitations and future research

We acknowledge that this study has limitations, mainly related to the research setting. We study organizational networking behaviors in the context of the UK manufacturing sector. Although we tried to cover as many industries as possible, the coverage is still limited. There is a possibility that other types of networking behaviors are not discovered due to this limitation. It is, therefore, possibly fertile to look at this issue in future research and in other research settings. For instance, although we observed that firms in high technology industries heavily rely on mobilizing resources in their networks, the
number of the firms we interviewed in those industries is too small to generate further insights into how they network. Therefore, future research may follow this line of study to investigate the networking behaviors of firms in high technology industries specifically to provide an understanding regarding how the networking behaviors differ from the ones we have identified in this study. Furthermore, the service industry is arguably very different from the manufacturing industry, which makes it a possible research setting to study, thereby contrasting manufacturing firms’ networking behaviors. The four types of networking behaviors we identified also provide a foundation for future research to further refine and operationalize the construct. It would be necessary to ascertain whether these four types are in fact different, and the extent to which they are related to other organizational behaviors (e.g., relational capabilities) and firm performance under different contextual factors (e.g., high vs. low environmental turbulence).

Appendix A. Profile of participating companies and respondents

<table>
<thead>
<tr>
<th>Company</th>
<th>Turnover (last available year, thousand GBP)</th>
<th>Job title</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>153,646</td>
<td>A1 UK Sales Director (Commercial)</td>
</tr>
<tr>
<td>B</td>
<td>10,622</td>
<td>B1 Managing Director</td>
</tr>
<tr>
<td>C</td>
<td>1,373,528</td>
<td>C1 General Manager (Business Unit 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C2 General Manager (Business Unit 2)</td>
</tr>
<tr>
<td>D</td>
<td>4,000</td>
<td>D1 Commercial Director</td>
</tr>
<tr>
<td>E</td>
<td>24,834</td>
<td>E1 General Manager (Business Unit 1)</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>F2 General Manager</td>
</tr>
<tr>
<td>G</td>
<td></td>
<td>G1 General Manager</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>H1 Technical Manager</td>
</tr>
<tr>
<td>I</td>
<td>18,406</td>
<td>I1 Business Development Manager</td>
</tr>
<tr>
<td>J</td>
<td>31,058</td>
<td>J1 Chief Executive</td>
</tr>
<tr>
<td>K</td>
<td>44,107</td>
<td>K1 Group Managing Director</td>
</tr>
<tr>
<td>L</td>
<td>34,547</td>
<td>L1 Managing Director</td>
</tr>
<tr>
<td>M</td>
<td>137,293</td>
<td>M1 Supply Chain Director</td>
</tr>
<tr>
<td>N</td>
<td>192,300</td>
<td>N1 Business Development Manager</td>
</tr>
<tr>
<td>O</td>
<td>107,872</td>
<td>O1 Supply Chain Director</td>
</tr>
</tbody>
</table>

Appendix B. Matrix of content analysis

<table>
<thead>
<tr>
<th>Company</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewee</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

I. Information Acquisition
1. Acquiring via business partners
2. Acquiring via business contacts
3. Acquiring via trade events

II. Opportunity Enabling
1. Sensing through networking events
2. Sensing/influencing through lobbying
3. Signaling self-perceived network identity

III. Strong-tie Resource Mobilization
1. Mobilizing through adjusting resources
2. Mobilizing through transferring resources
3. Mobilizing through pooling resources

IV. Weak-tie Resource Mobilization
1. Mobilizing through bridging weak-tie relationships
2. Mobilizing through bypassing-flanking
3. Mobilizing through bypassing-avoidance

*0 denotes the absence of the theme in the interview, whereas 1 denotes the presence of the theme in the interview.*


Sabrina C. Thornton is a Lecturer in Marketing at the University of Huddersfield Business School, UK, and a PhD student at Manchester Business School, UK. Her main research interests lie in the area of business relationships and strategic network management.

Stephan C. Henneberg is Chair Professor of Marketing and Strategy at Queen Mary, University of London, UK. He is also the Director of the Business Ecosystem Research Centre. His main research interests are in the areas of strategic marketing, business relationships and network.

Peter Naudé is Professor of Marketing at Manchester Business School, UK. His research interests focus on the application of quantitative methodologies in industrial marketing.
Chapter III  Conceptualizing and Validating Organizational Networking as a Second-Order Formative Construct

2nd published paper
Conceptualizing and validating organizational networking as a second-order formative construct

Sabrina C. Thornton a,b,⁎, Stephan C. Henneberg c,1, Peter Naudé b,2

a University of Huddersfield Business School, Queensgate, Huddersfield HD1 3DH, UK
b mIMP Research Group, Manchester Business School, Booth Street West, Manchester M15 6PB, UK
c Business Ecosystem Research Group, Queen Mary University of London, School of Business and Management, The Bancroft Building, Mile End Road, London E1 4NS, UK

A R T I C L E   I N F O

Article history:
Received 20 February 2014
Received in revised form 29 March 2014
Accepted 29 March 2014
Available online 23 May 2014

Keywords:
Organizational networking
Network management
Strong and weak ties
Scale development
Formative measurement model

A B S T R A C T

Based on an existing conceptualization in the literature, this study operationalizes the construct of organizational networking, through a rigorous two-stage scale construction and validation process. Organizational networking refers to firm behaviors, i.e. the activities/routines/practices, which enable an organization to make sense of and capitalize on their networks of direct and indirect business relationships. We conceptualize the measurement model as a second-order formative construct with four first-order reflective constructs based on a four-dimensional view of organizational networking comprising information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. The scale validation was undertaken at the first- and second-order levels. The result confirms the four distinct first-order measurement models. At the second-order level, a MIMIC (multiple indicators and multiple causes) model was employed to assess the validity of the formative measurement model. The results suggest that all four components significantly contribute to the overarching construct of organizational networking, with strong-tie resource mobilization being the most important contributor. Thus, our operationalization confirms the uniqueness of the different dimensions of organizational networking that should be configured as a strategy of sensing and seizing opportunities in the network. The organizational networking scale will provide future research with a basis to explore different strategic patterns of networking behaviors in varying contexts, and its role in relation to other organizational behaviors and outcome variables, such as firm performance.

© 2014 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/3.0/).

1. Introduction

The implications of firms being embedded in business networks have been well established in the literature, suggesting that the business relationships, which make up these networks, enable firms to identify opportunities, access rich information, and undertake effective and efficient knowledge transfer and resource mobilization (Achrol & Kotler, 1999; Möller & Rajala, 2007; Uzzi, 1996). From a network structure perspective, achieving a ‘beneficial’ network position that allows firms to explore business opportunities is critically important and a main strategic aim of firms (Baum, Cowan, & Jonard, 2013; Hagedoorn, Roijakkers, & Van Kranenburg, 2006). However, understanding organizational behaviors, i.e. how a firm can increase its competitiveness through consciously changing its network position and utilizing resource synergies identified in its network, is a complex and under-researched issue. Given the importance of this topic and its potential implications for practitioners operating in business markets, there is surprisingly little in the current literature when it comes to empirical studies that investigate the scope and the content of such active strategic network management.

Academics in business-to-business marketing have attempted to conceptualize and operationalize different perspectives of network management from the vantage point of a focal firm; this was mostly based on a dynamic capability perspective (e.g. Mitrega, Forkmann, Ramos, & Henneberg, 2012; Ritter, 1999; Walter, Auer, & Ritter, 2006). This approach has deepened our understanding of how firms can efficiently and effectively manage their relationship portfolio (and therefore their network position) by developing and establishing internal processes to deal with multiple direct relationships simultaneously. However, there is an underdeveloped and yet steadily growing stream of research focusing on the strategic aspect of outward-facing networking behaviors, aimed at indirect business relationships as well. These behaviors are employed by firms to understand the wider network dynamics and capitalize on them based on their perceptions of the network (Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009). In this wider context the concept of organizational networking becomes important.

From a conceptual perspective, a better understanding of the definition as well as the dimensions of organizational networking is needed.
Recent studies have contributed to the conceptualization of organizational networking, which established the essence of such focal firm behaviors that are aimed at the wider network context through the theoretical lens of the industrial network approach (INA) (Ford & Mouzas, 2010, 2013; Håkansson et al., 2009). In addition, economic sociology embedded in the wider social exchange theory has provided some evidence to indicate the strategic implications of utilizing different types of relationships in relation to firm performance from a structuralist perspective (Granovetter, 1985; Uzzi, 1996). However, further research is needed to understand the implications of a focal firm being embedded in a network, and its strategic organizational behaviors in terms of networking in response to a networked environment. To date research in this area remains largely conceptual, and it is still in need of empirical and quantitative research to further advance our understanding of organizational networking.

Such conceptual considerations are linked to issues around operationalization: a scale for measuring organizational networking behavior is needed, which will enable future studies to advance our understanding of the implications of such a construct in relation to other existing organizational behavioral constructs and outcome variables (e.g. firm performance). In addition, since existing studies identify different aspects of organizational networking, specific justification needs to be provided for specifying organizational networking as a measurement model, for example as an overarching higher-order construct that includes different aspects of networking. In short, a conceptually derived and empirically tested measurement model specification for organizational networking is needed. This will also provide useful managerial implications, as firms operating in business markets will benefit from a clear framework of how they might be able to sense and seize network opportunities embedded in direct and indirect business relationships, which will help them to interact more responsively and effectively with their partners in the business network.

Our argument will provide such a conceptually derived and empirically tested measurement model specification for organizational networking. Based on the above issues, this paper is organized as follows. First, we review, compare and contrast the existing organizational networking studies in the literature. Secondly, a two-stage research design for the scale development as part of the measurement model will be introduced, and the data analyses regarding scale purification and testing, as well as the empirical results will be presented. Finally, we will conclude with a discussion of our findings, contributions to the existing literature, as well as identifying limitations and future research direction.

2. The construct of organizational networking

Networking as a concept has been commonly used at a personal level to reflect the set of social skills of a person (e.g. owner of a firm) to leverage social relationships in order to benefit from them (e.g. Chetty & Campbell-Hunt, 2003; Ferris et al., 2007; Jalilic, 1998; Semrau & Sigmund, 2010). As such, the ability to realize benefits that arise from the network structure and the web of different types of relationships can be seen as an actor’s social capital (Coleman, 1990). However, we focus our discussion on organizational networking. We are interested in the strategic aspect of organizational networking (in line with the INA), and therefore we refrain from studying personal networking in business (such as in the area of entrepreneurship and SMEs) (e.g. Ferris et al., 2007; Semrau & Sigmund, 2010).

In this context of organizational networking, the perspective of our study is a focal firm embedded in its business network which consists of various types of direct and indirect business relationships that link this firm to the wider network context (Anderson, Håkansson, & Johanson, 1994; Pfeffer & Salancik, 1978). The position of the firm in the network is therefore related to these relationships and provides unique opportunities as well as threats. The set of available resources, which can be mobilized by the firm, is linked to its network position, i.e. derived from its web of relationships and the wider context (Burt, 2000; Zaheer & Bell, 2005). As such, the focal firm’s behaviors and decisions are influenced and shaped by the dynamics derived from its web of relationships (Astley, 1984). In line with the INA it is posited that companies affect their network position by certain strategic activities, such as behaviors aimed at instigating new business relationships, changing existing ones, as well as ending some interactions with business partners (Mitrega et al., 2012). These strategic activities are subsumed under the concept of networking as part of Ford, Gadde, Håkansson, and Snehota’s (2003) theory of managing in business networks. However, while the concept is well introduced in studies of business marketing and supply chain management, there exists only very limited empirical research on aspects of organizational networking (Ford & Mouzas, 2013). Therefore, in this section we first position the construct, i.e. organizational networking, in relation to the relevant research area, i.e. network management. This allows us to proceed to a critical appraisal of the relevant studies that specifically focus on aspects of organizational networking.

2.1. Differentiating organizational networking

The literature provides a number of studies that focus on conceptualizing and operationalizing different aspects of network management, which are conceptually related but different from the construct of organizational networking. For clarification purposes we provide a concise summary of the key differences based on a detailed analysis by Thornton, Henneberg, and Naudé (2013). The conceptualization and operationalization of network competence by Ritter (1999) signify the need for a firm to develop routines and practices in response to the embedding multi-firm network. Such competence allows a firm to execute relationship-specific tasks. Based on this initial conceptualization of network management, various studies follow this perspective, often using a dynamic capabilities perspective (Teece, Pisano, & Shuen, 1997). For instance, networking capabilities consider a firm’s ability to manage and utilize business relationships (Mitrega et al., 2012), with particular attention to the completeness of the relationship life cycle. The key components of networking capabilities are relationship initiation, development and termination. The above studies deepen our understanding of how a firm can manage its web of direct relationships by establishing certain internal organizational practices. Based on Day’s (1994) categorization of organizational capabilities, such conceptualizations of network management capture the inside-out practices, which are established as internal processes to deal with the efficiency of a firm’s relationship portfolio.

Following the logic of Day (1994), organizational networking on the other hand should be viewed as the outside-in capabilities of organizations, which are related to network sensing and strategizing (Holmen & Pedersen, 2003). The focal point of these practices is therefore externally focused. In contrast to research in network management, organizational networking captures the strategic intent of a firm in relation to its embedding business network (Thornton et al., 2013). Organizational networking goes beyond managing direct relationships. Instead, the structure of the network, related to a firm’s network position, gives rise to the patterns of interactions by the focal firm (Ford & Mouzas, 2013). These interactions are not only with directly connected counterparts of a firm, but also indirectly connected ones. Within this context, direct relationships of a firm serve not only as the means to capture resources (Zaefarian, Henneberg, & Naudé, 2011), but also as the bridge for mobilizing the resources that are embedded in indirect relationships (Mouzas & Naudé, 2007).

In contrast to existing research on network management, organizational networking is a relatively underdeveloped construct (Ford & Mouzas, 2013). Existing studies, which contextualize and conceptualize the construct, provide limited empirical evidence to suggest what constitutes organizational networking (Thornton et al., 2013). We therefore collated studies that specifically focus on the conceptualization of organizational networking to form the basis for the discussion and analysis.
Table 1: Conceptualization of organizational networking.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Dimension(s)</th>
<th>Level of network</th>
<th>Empirical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking as managing relationship portfolio (Ebers, 1997)</td>
<td>The content of relationships</td>
<td>Relationship</td>
<td>Conceptual</td>
</tr>
<tr>
<td>Networking as positioning in the network (Hagedoorn, Roijakkers &amp; Van Kranenburg, 2006)</td>
<td>Strategic centrality-based network capabilities (network positioning)</td>
<td>Relationship</td>
<td>International pharmaceutical biotechnology industry</td>
</tr>
<tr>
<td>Networking as changing the nature of interactions (Ford &amp; Mouzas, 2013)</td>
<td>Strategic efficient-based network capabilities (network transforming)</td>
<td>Relationship</td>
<td>Secondary quantitative data of 1325 R&amp;D partnerships from 230 companies.</td>
</tr>
<tr>
<td>Business networking is the conscious problem-driven attempts of one or more business actors to change or develop some aspect(s) of the substance of interaction in relationships in which they and others are involved.</td>
<td>Confront/conform within single relationships</td>
<td>Relationship</td>
<td>Single-case study with single-unit of analysis – Case: Procter &amp; Gamble (P&amp;G) in Germany</td>
</tr>
<tr>
<td>Networking as sensing and capitalizing on the network (Thornton et al., 2013)</td>
<td>Create/consolidate between different relationships</td>
<td>Relationship</td>
<td>Single-case study with multiple units of analysis – Case: UK manufacturing sector</td>
</tr>
<tr>
<td>Activities/routines/practices, which enable firms to make sense of and capitalize on their networks of direct and indirect relationships.</td>
<td>Coerce/concede in relationships</td>
<td>Relationship</td>
<td>Multiple firms (15) – multiple informants (2-3)</td>
</tr>
<tr>
<td></td>
<td>Information acquisition</td>
<td>Relationship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opportunity enabling</td>
<td>Relationship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strong-tie resource mobilization</td>
<td>Relationship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Weak-tie resource mobilization</td>
<td>Relationship</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 contains an overview of the conceptual and empirical studies on organizational networking as well as some closely related concepts, such as strategic network capabilities (Hagedoorn et al., 2006) and network strategizing (Holmen & Pedersen, 2003). While most of the studies concerning organizational networking are built on the theoretical foundation provided by the INA, the empirical study by Hagedoorn et al. (2006) draws on the extant literature in strategic management, and Thornton et al. (2013) utilize the INA coupled with the notion of embeddedness linked to economic sociology.

The following discussion will juxtapose the relevant conceptualizations based on the proposed definitions and dimensions of organizational networking, their use of the network context (i.e. the level of network characteristics included in the definition), and their empirical base. Through this analysis, relevant studies related to organizational networking are assessed conceptually and empirically, which serves as a prerequisite for the purpose of rigorously operationalizing the construct at hand (Churchill, 1979).

2.2. Definitions and dimensions

Organizational networking has been conceptualized in slightly varying forms by the studies listed in Table 1. Smith and Laage-Hellman (1992) and also Ford and Mouzas (2013) see networking in a similar vein and conceptualize it as actors’ attempts to change the content and pattern of their interactions with business partners (also see Ford & Mouzas, 2010; Häkansson et al., 2009). They do, however, differ in the dimensions identified to capture organizational networking. The former utilizes a triadic approach to illustrate different types of connection patterns as the result of actor-centered efforts to change the relationship formation, while the latter predominately focuses on the idea of networking as a means for ‘problem-coping’ by changing the pattern of the business interactions. Thus, Ford and Mouzas (2013) define networking as “the conscious problem-driven attempts of one or more business actors to change or develop some aspect(s) of the substance of interaction in relationships in which they and others are involved” (p. 436). Networking is thus the process of making choices regarding their business relationship portfolio when firms are faced with problems of dealing with complex networks. They further argue that “the conscious attempts to change the structure or process of interaction and the unplanned outcomes” (p. 436) should be clearly distinguished. Within the INA, organizational networking is a problem-driven process without specific outcomes that can be pre-specified.

On the other hand, Ebers (1997), Holmen and Pedersen (2003) and Thornton et al. (2013) provide an overlapping view in their conceptualization of organizational networking. These three studies explicitly incorporate strategic intent as a driver of organizational networking in their conceptualization, thereby emphasizing resource mobilization and information gathering as the key motives of networking (Pfeffer & Salancik, 1978; Zaefarian et al., 2011). Therefore, such a perspective of organizational networking, based on a focal firm’s strategic intent, takes into account the cognitive processes of actors as they consciously act/react, with certain anticipated effects in mind. Firms thus consciously interact with their direct, indirect or new business counterparts. This way of thinking about organizational networking has some conceptual similarity to the argument by Hagedoorn et al. (2006). Their study, adopting a dynamic capabilities approach coupled with a social network perspective, proposes two key dimensions for capturing a focal firm’s strategic networking, which mainly tap into network positioning and relationship portfolio management for the purpose of maximizing useful information and resources afforded by its network. However, the actor’s cognitive process and the interactive nature of organizational networking are not at the center of their conceptualization.

We partly agree with Ford and Mouzas (2013) that networking outcomes are unpredictable, but contend that firms act or react based on the anticipated outcome of networking, rather than using networking
purely as a coping device. Although the strategic intent, which is guiding networking behaviors, does not necessarily force the anticipated outcomes to be realized, networking behaviors are nevertheless planned and thus based upon actors’ perception of the network dynamics and the anticipated effects they wish to achieve (or wish to avoid). In addition, the recent study by Thornton et al. (2013) incorporates the idea of tie strength, originating from economic sociology, in their conceptualization of organizational networking. This has resulted in different yet complementary dimensions of organizational networking being identified, compared to those of Ebers (1997) and Holmen and Pedersen (2003). Thornton et al.’s (2013) empirical data suggests that strong- and weak-tie relationships have different benefits for a focal firm, and these differences are reflected in the distinct networking dimensions they identified, namely information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. These four dimensions encompass “activities/routines/practices, which enable firms to make sense of and capitalize on their networks of direct and indirect relationships” (p. 1155). Although these activities are all based on the interactions that take place in either established or less established relationships, the authors argue that the four dimensions are conceptually distinct from one another, and that the different purposes guide firms to undertake different forms of networking.

2.3. Level of network characteristics

Ford and Mouzas (2013) propose a three-level framework for the context of organizational networking, namely relationship, small world and wider world. At the relationship level, the unit of analysis is dyads, whereas the small world includes interconnected direct and indirect relationships. In addition, the wider world taps into those areas of the network that go beyond a firm’s small world, and are less ‘visible’ to the firm and form a kind of amorphous ‘environment’. This approach echoes Hagedoorn’s (2006) three levels of embeddedness (i.e. dyadic, interorganizational, including direct and indirect relationships, and environmental embeddedness) with the exception that the environmental embeddedness is further divided into macro (e.g. country) and meso (e.g. industry) levels.

The above studies have deepened our understanding of firms’ behavioral patterns within the context of being embedded in the network (Zaheer, Gözübüyük, & Milanov, 2010). However firms themselves act and react to network changes based on their perception of the network (Corsaro, Ramos, Henneberg, & Naudé, 2011; Henneberg, Mouzas, & Naudé, 2006; Ramos & Ford, 2011). Academics using an INA approach argue that actors have limited cognitive ability, and therefore they can only understand the complex network in an idiosyncratic manner, which implies that they choose their own ‘network theories’ (Johannson & Mattsson, 1992; Wilkinson & Young, 2002). This makes the boundary or horizon of individual firms’ perceived networks somewhat arbitrary (Anderson et al., 1994; Holmen & Pedersen, 2003). However, firms are usually more aware of their close network context compared to aspects further afield, and there is always an ‘unknown’ (or less-known) part of the network. Nevertheless, through interacting with their counterparts, firms can develop an understanding even of those unexplored areas of the network (Jack, 2005; Thornton et al., 2013). It is therefore important to assess the organizational networking studies based on their conceptualization, incorporating the network structure characteristics, such as the interconnectedness and embeddedness. We thus determine at which level(s) these organizational networking studies are operating, which will allow us to form a picture of how these studies have contributed to the concept of organizational networking.

As outlined in Table 1, most studies cover a dyadic perspective as well as ‘small world’ organizational embeddedness, except Ford and Mouzas (2013) and Thornton et al. (2013). We note that although Ford and Mouzas (2013) suggest that it is possible to look at organizational networking at all different network levels, their proposed definition and the suggested dimensions do not seem to include the multi-level view and the wider network context. On the other hand, the definition and the dimensions of organizational networking by Thornton et al. (2013) capture a wider network context, at least including the meso level (i.e. industry) of the wider network context suggested by Hagedoorn (2006). Thornton et al. (2013) identify some networking behaviors that firms utilize to understand and influence the shaping of the industry through interacting with various parties, particularly with those that are not in close proximity and that are not trading with them (i.e. weak-tie relationships).

2.4. Empirical base

The main objective of our study is to operationalize the construct of organizational networking. It is therefore critically important to assess the research design of already existing conceptualizations, in order to evaluate whether the proposed definitions and the dimensions are suitable for the purpose of developing a measurement model (i.e. an operationalization). This reasoning is in line with the scale development process proposed by Churchill (1979). To form a comparable analysis regarding the research design of the studies listed in Table 1, we put less emphasis on the study by Hagedoorn et al. (2006) due to the fact that it has a very different methodological base (i.e. quantitative analyses based on secondary data) and it focuses on the construct of organizational networking to a far lesser extent than the other studies. Similarly, we also put less emphasis on the purely conceptual study by Ebers (1997) as it does not provide any evidence beyond conceptual reasoning for its concept definition of organizational networking, which leaves the four remaining empirical case studies to form the basis for the following discussion. According to Yin (2009), to judge the quality of the research design of an exploratory case study, one must understand its construct validity, external validity and reliability.

First, construct validity in the case study sense is related to the definition of the constructs under study and the identification of key themes of the constructs. All four studies satisfy the first criterion by explicitly defining organizational networking. As far as the second criterion of satisfying construct validity is concerned, only two studies discuss construct validity related to the key themes or operational measures in a qualitative sense. Holmen and Pedersen (2003) used multiple sources of evidence, such as interviews and observations, to form their findings. Thornton et al. (2013) utilized an abductive approach in an iterative process of data collection and analysis (see Dubois & Gadde, 2002), using multiple researchers to interpret the data.

Secondly, external validity is related to the extent to which the research findings can be generalized analytically. As three out of the four studies have chosen a single focal firm as their subject of study, they do not display a strong external validity. It is not clear how they “generalize a particular set of results to some broader theory” (Yin, 2009, p. 43). Although Holmen and Pedersen (2003) utilized a replication logic of multiple interviews with different individuals, it does not contribute to the study’s external validity as the construct being studied is at a firm level, rather than the personal level. Thornton et al. (2013) chose the UK manufacturing sector as a single-case with 31 executives from 15 firms embedded within the case. They also use a replication logic of a multiple informant approach to cross-validate the themes identified across two or three informants within each firm. The research findings thus have some degree of generalizability.

Thirdly, reliability is related to the extent to which the procedure of a case study can be repeated and generate the same findings. Only Holmen and Pedersen (2003) and Thornton et al. (2013) provide a detailed description of the way in which the researchers carry out their investigation, such as recruiting participant firm(s), the sources of evidence, data collection process and data analysis.
2.5. Operationalizing organizational networking

Based on the critical appraisal of these studies’ empirical base, we conclude that the study by Thornton et al. (2013) has demonstrated a suitable foundation for further operationalization of the construct of organizational networking. First, the definition and dimensions identified by their empirical study encapsulate the cognitive processes by conceptualizing the construct of organizational networking as an anticipated-outcome driven interaction. Secondly, the conceptualization covers direct and indirect relationships as well as the meso level of the wider network context. Finally, the research results have an adequate level of construct validity, external validity and reliability, which is a prerequisite for operationalizing any constructs (Churchill, 1979). Based on the above discussions, we therefore adopt their definition and the suggested dimensions as a starting point for our operationalization of organizational networking. The construct of organizational networking is thus defined as “activities/routines/practices, which enable firms to make sense of and capitalize on their networks of direct and indirect relationships” (Thornton et al., 2013, p. 1155). This definition captures the strategic intent of organizational networking by focusing on sensing the network and anticipating the inherent opportunities and threats.

Four key dimensions of anticipated-outcome driven networking behaviors are information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. Each dimension reflects its manifested behaviors, which captures a distinct way in which firms utilize their business relationships in an attempt to achieve their anticipated goals (see Appendix A for definitions and descriptions of the four dimensions of organizational networking). Given that Thornton et al.’s (2013) conceptualization of organizational networking was developed within the context of the UK manufacturing sector and the distinctions between the four dimensions have only been evaluated qualitatively, our study aims at furthering their research findings in order to develop a rigorous measurement model and to establish its validity across both manufacturing and service firms.

3. Operationalization methodology

The research design entails a two-stage empirical process, which is detailed in Fig. 1. The first stage involves the generation and the qualitative pretest of an item pool based on the conceptualization by Thornton et al. (2013) to form a scale for organizational networking, which is detailed in Section 3.1. In stage two, the scale is subjected to a series of quantitative tests through a resulting web-based survey, which is outlined in Section 3.2. This research design allows us to test the reliability, validity and generalizability of the first-order four-dimension measurement model as well as the validity of the specified second-order formative measurement model. For the purpose of clarity, each step within each stage is labeled in Fig. 1 using its corresponding subsection.

3.1. Stage 1: scale construction

3.1.1. Measurement model conceptualization

We conceptualize organizational networking as a formative second-order construct that is created by four first-order constructs, namely information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. These are assumed to be reflective in nature. We use the terminology of a formative second-order measurement model in line with Petter, Straub, and Rai (2007) and Diamantopoulos, Riefler, and Roth (2008). This measurement structure is what Diamantopoulos et al. (2008) classify as a Type II measurement model. It is necessary to allow these two levels (orders) of abstraction in order to understand the characteristics of the key construct, i.e. organizational networking. Mackenzie, Podsakoff, and Jarvis (2005, p. 715) state that a second-order formative measurement model “faithfully represents all of the conceptual distinctions that the researcher believes are important, and it provides the most powerful means of testing and evaluating the construct”.

In light of the continued debate about the validity and applicability of formative measurement models in recent special issues in the Journal of Business Research (2008 & 2013) and the Academy of Marketing Science Review (2013), the conceptualization of the measurement model addresses two key issues highlighted in the literature. The first issue is related to the conceptualization of a formative measurement model. While some scholars argue that no construct is inherently reflective or formative (Baxter, 2009; Wilcox, Howell, & Breivik, 2008), others suggest that a construct must be either reflective or formative based on its conceptual meaning (Diamantopoulos & Winklhofer, 2001; Jarvis, Mackenzie, & Podsakoff, 2003; Podsakoff, Mackenzie, Jeong-Yeon, & Podsakoff, 2003). We take the stance of the latter view on the basis that the construct in question has a clear definition and specified dimensions, which were established through a qualitative research. This conceptualization indicates a formative nature.

We based our conceptualization of the formative measurement model on two conceptual criteria suggested by Bollen and Bauldry (2011). First, if the set of indicators is indeed causal to the latent variable, then they should be “essential” to the latent variable (p. 272). Secondly, a change in any indicators must also result in a change in the latent variable. According to the results of their empirical research, Thornton et al. (2013, p. 1162) conclude that “these four types of

![Fig. 1. Two-stage scale development process.](image-url)
Networking behaviors are essential [emphasis in original]” to firms in order to strategize in the network. This implies that organizational networking is formed by these four types of behaviors, and that each type contributes independently to the totality and the configuration of a firm’s organizational behaviors. From a measurement perspective, each first-order construct has its unique property that is distinct from others and therefore the removal of any component “is omitting a part of the construct”, which will substantially change the meaning of the second-order formative construct (Bollen & Lennox, 1991, p. 308). Thus, it is posited that when one component of organizational networking changes, organizational networking itself as the overarching latent construct will change accordingly. For instance, we infer that when a firm changes its interaction patterns in its strong-tie relationships, this is likely to change the way they network overall. On the other hand, each first-order construct is reflected by the manifested networking behaviors as represented by its specific measurement items, which overlap and are interchangeable within their corresponding construct. Within this measurement conceptualization organizational networking can thus be seen as an overarching construct that serves to represent four dimensions, and the higher level of abstraction is “theoretically meaningful and parsimonious” (Law, Chi-Sum, & Mobley, 1998, p. 741).

The second key issue is that a formative measurement by nature is sensitive to its outcome variables (Lee & Cadogan, 2013; Wilcox et al., 2008). The path coefficients of the causal indicators and the disturbance term (error term) of the formative measurement respond to different outcome variables used. This implies that using the same formative measurement to predict different outcome variables would to some extent change the nature of the formative construct. This has been argued as being a major hindrance for formative measurement to advance theory building (Blalock, 1982). Bollen and Bauldry (2011) suggest that causal indicators should demonstrate a stable tendency toward their formative latent variable vis-à-vis different outcome variables of that formative latent variable. However, one can only realize this by subjecting the formative measurement model to empirical tests (Diamantopoulos, 2013; Diamantopoulos & Temme, 2013; Petter et al., 2007). This implies that a step-wise approach needs to be taken by initially conceptualizing the structure of the measurement model, and then subjecting it to empirical tests to determine whether the data does fit the specified model, as suggested by Bollen and Bauldry (2011). More importantly, the validity of such a measurement model needs to be examined in future research.

### 3.1.2. Item generation

For the operationalization of the first-order measurement models with reflective indicators, we follow Churchill’s (1979) scale development procedure by first generating several overlapping measurement items that capture the key aspect of each first-order construct to form an exhaustive pool of items. The initial pool was refined before we arrived at a preliminary list of 37 measurement items. We paid particular attention to the clarity of the statements. It is already necessary at this stage to ensure the content validity of these items, which will in turn strengthen the overall construct validity (Peter, 1981).

### 3.1.3. Qualitative pretests

A three-step qualitative pretest was carried out to ensure that the construct of organizational networking is clearly captured by the measurement items developed. We first checked with two senior academics, whose research domain is in business-to-business marketing, regarding the face validity of the measurement items. They both supported our conceptualization of the four dimensions of organizational networking being distinctive and different from a theoreti
cal perspective. They also suggested some minor changes to ensure the clarity of the suggested items. Secondly, we recruited five executive managers for in-depth interviews. The purpose of these interviews was to corroborate whether our interpretation of the measurement items is in line with organizational networking in practice. We compared all the points raised by the five managers and focused particularly on those items that were frequently questioned by the managers. We amended the item pool accordingly. Lastly, the amended scales were then tested on a small group of 30 experienced MBA students with business-to-business management experience from a leading business school in the UK. This test was administered in the form of a questionnaire, the purpose of which was to further purify the scales before they were subjected to a large scale survey. After the last step of the qualitative pretest, we arrived at an initial item pool of 37 items (see Appendix B).

### 3.2. Stage 2: Scale validation

In the scale validation stage, we conducted a web-based survey using Qualtrics, an integrated platform for survey design and data collection, and subsequently subjected the collected data to a series of validation tests, in particular to ascertain whether organizational networking is best represented as a formative second-order construct with four reflective first-order constructs. The fact that organizational networking is a higher-order construct means that the measurement assessment needs to be undertaken at two levels after an initial scale purification using exploratory factor analysis (EFA). First, at the first-order construct level construct validity, including internal indicator consistency, convergent validity and discriminant validity of the measurement model of the four first-order dimensions, will be assessed using confirmatory factor analysis (CFA) (Churchill, 1979; Gerbing & Anderson, 1988). In addition, a measurement invariance test is employed, using multi-group CFA to cross-validate the measurement structure for the two sub-groups of manufacturing and service firms (Steenkamp & Baumgartner, 1998).

Secondly, at the second-order construct level, the proposed relationships between the first-order constructs and the second-order construct need to be assessed in terms of their “significance and strength” (Mackenzie et al., 2005, p. 727). We follow the procedure of evaluating a formative measurement model provided by Diamantopoulos and Winklhofer (2001) and Mackenzie et al. (2005). The evaluation requires the usage of a multiple indicators and multiple causes (MIMIC) model in order to identify the model due to the fact that a formative measurement model is naturally not identified (Diamantopoulos & Winklhofer, 2001). Fig. 2 depicts the MIMIC measurement model that is subjected to a validity test. This approach requires the construct, which includes four formative components, to be measured additionally by at least two reflective indicators that serve as the effects of the construct (ON1–3 in Fig. 2).

### 3.2.1. Data collection

Not only the measurement items for the four dimensions of organizational networking were included in the questionnaire, but also other relevant existing scales (see Appendix C for the full list of items), which will be used to assess the nomological validity of the final measurement model of organizational networking. A seven-point Likert scale (labeled at the two endpoints, 1 = ‘completely disagree’ and 7 = ‘completely agree’) was used for all the items of the substantive constructs. We utilized a sampling frame of 3500 managers from a proprietary international database.

An invitation was initially sent to all potential respondents in November 2012, followed by three reminders at one-week intervals. At the end of the survey period 1249 responses were recorded, including partially completed responses. After deleting 460 unfinished responses, the survey resulted in 789 completed responses, which yields a response rate of 23%. However, to ensure the quality of the dataset, we further eliminated responses completed in less than 15 min, which gives 603 valid responses for the subsequent analyses. The threshold of 15 min was decided as the cut-off point of a ‘valid’ response based on a pretest which showed that faster results indicated ‘pattern responses’ (Fricker, Galesic, Tourangeau, & Ting, 2005).
Table 2 summarizes the profile of the respondents and their organizations. A total of 45.1% of 603 respondents come from service industries, while 30.7% work in the manufacturing sector (public sector: 3.8%, and others: 20.4%). In terms of their organization size, the three largest groups by the number of employees are ≥5001 (32.7%), 51–250 (15.4%) and 751–2500 (14.9%). With regard to respondent characteristics, the majority of the respondents are at a position of either middle to high management (67.1%) or top-level director (15.3%) in their organizations. In addition, 40.2% of the respondents have 6–10 years of managerial experience, followed by 3–5 years (31.6%) and 11–15 years (12.3%).

3.2.1.1. Assessing non-response bias. The literature suggests three methods for estimating nonresponse bias, namely a comparison with known values for the population, subjective estimates and extrapolation methods (e.g. comparing early and late responses) (Armstrong & Overton, 1977). We chose to use two methods, (1) comparing early and late responses and (2) comparing survey results with known values for the population, to help assess the possible nonresponse bias in our data.

First, as we had four waves of responses (based on the initial invitation letter, and the three reminders) we compared the responses collected before the first reminder letter with the responses after the third reminder letter was sent. The former group represents the early respondents, and the latter group represents late respondents (and are assumed to approximate those who did not respond at all, i.e. non-respondents). We assess non-response bias for all the measurement items of networking behaviors, and the respondent characteristic variables. Chi-square tests were performed for assessing whether these two groups of respondents gave significantly different responses. The results show that there is no significant difference in the respondent characteristics, as well as in most of their responses for the organizational networking items. We further examined the four variables (one item in Dimension 1 and three items in Dimension 2), which show

---

**Table 2**

Profile of the respondents.

<table>
<thead>
<tr>
<th>Firm profile</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Job position</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>272</td>
<td>45.1</td>
<td>CEO</td>
<td>7</td>
<td>1.2</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>185</td>
<td>30.7</td>
<td>Owner or joint-owner</td>
<td>15</td>
<td>2.5</td>
</tr>
<tr>
<td>Public sector</td>
<td>23</td>
<td>3.8</td>
<td>Managing director</td>
<td>19</td>
<td>3.2</td>
</tr>
<tr>
<td>Others</td>
<td>123</td>
<td>20.4</td>
<td>Other top-level director</td>
<td>92</td>
<td>15.3</td>
</tr>
<tr>
<td>Number of employees</td>
<td></td>
<td></td>
<td>Middle/high level manager</td>
<td>404</td>
<td>67.1</td>
</tr>
<tr>
<td>1–10</td>
<td>20</td>
<td>3.3</td>
<td>Others</td>
<td>65</td>
<td>10.8</td>
</tr>
<tr>
<td>11–25</td>
<td>23</td>
<td>3.8</td>
<td>Years of managerial experiences</td>
<td>62</td>
<td>10.3</td>
</tr>
<tr>
<td>26–50</td>
<td>45</td>
<td>7.5</td>
<td>0–2</td>
<td>190</td>
<td>31.6</td>
</tr>
<tr>
<td>51–250</td>
<td>93</td>
<td>15.4</td>
<td>3–5</td>
<td>242</td>
<td>40.2</td>
</tr>
<tr>
<td>251–750</td>
<td>79</td>
<td>13.1</td>
<td>6–10</td>
<td>74</td>
<td>12.3</td>
</tr>
<tr>
<td>751–2500</td>
<td>90</td>
<td>14.9</td>
<td>11–15</td>
<td>18</td>
<td>3.0</td>
</tr>
<tr>
<td>2501–5000</td>
<td>56</td>
<td>9.3</td>
<td>16–20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5001 and above</td>
<td>197</td>
<td>32.7</td>
<td>21 and above</td>
<td>16</td>
<td>2.7</td>
</tr>
</tbody>
</table>
significant differences between early and late responses. Across all four items the responses from the early respondents have a significantly higher mean than those from the late respondents. However, these four items are similar to other items in their corresponding dimensions and the assessment of the respondent characteristics and the responses in the majority of the variables in these two groups indicate no significant differences. We conclude that the differences that exist in these four variables are not a result of differences in early and late respondents.

Secondly, we compared via Chi-square tests of known values such as industry sectors for the population with our survey sample. Non-significant Pearson’s Chi-squares suggest that the survey respondents are not dissimilar from the overall population. The results of these two tests allow us to conclude that nonresponse bias is not a concern for our data.

3.2.2. First-order measurement purification and validation

3.2.2.1. Two-step purification. In order to purify the measurement items, an EFA was performed using principal components as an extraction method with varimax rotation, using SPSS 19.0. A seven-factor model initially fits the data with sums of squared loading at 62.11%, which displays an adequate level of explanatory power. The item pool originally contained 37 items, which were reduced to 28 items after eliminating items that are cross-loading (cut-off point of 0.32) and that have low factor loadings (lower than 0.5) on their factors. Note that this process is not completely data driven. We checked the item descriptions for further consideration to assess the importance of those items for their corresponding latent construct (Clark & Watson, 1995; Hinkin, 1995). We thus took the integrity of the conceptualization and operational definition of the constructs into account during the item elimination process. After an iterative process a six-factor solution resulted: 21 out of 28 items loaded on their corresponding dimensions, which corroborate the four-dimension measurement, while the other 7 items appear to form two distinctively separate factors.

A close examination of these two factors was needed in order to determine whether the adopted conceptualization of organizational networking has comprehensively captured all the key aspects. Five out of those seven items related to organizations attending trade events, including taking part in trade shows, seminars and meetings. We investigated the possible reasons for them to load on a separate factor rather than their supposed corresponding factor. Out of these five items two (items 31 and 32, Dimension 1, see Appendix B) are behaviors regarding gathering information, while the other three items (11, 13 and 14, Dimension 2, see Appendix B) are about opportunity sensing. These two purposes in some way overlap in this context, as sensing opportunities can be interpreted as gathering information regarding business opportunities at a trade event.

The channels through which firms can sense and seize opportunities in their networks are not defined in the definition of organizational networking. However, firms in general utilize an array of behaviors to network for various purposes through two main channels, i.e. established relationships and non-established indirect relationships. Trade events can be defined as a stage for firms to interact as part of such relationships. We can further infer that the reason why the five items depart from their originated constructs is that trade events are an occasion for interactions to take place rather than interactions within and across different types of relationships, the latter of which is the core of organizational networking. When considering the integrity and parsimony of the overarching organizational networking construct, we decided to eliminate these five items. Furthermore, by eliminating all items related to trade events, the resulting scale is more universally useful to various industries (i.e. also those where trade shows are less common, as in the service sector), and at the same time it still captures the importance of sensing the market by interacting with business partners and business contacts, both of which in some way include those firms they would meet during trade events.

In addition, items 21 and 22 in Dimension 2 (see Appendix B), i.e. interactions with regulatory bodies, are important for several firms, particularly in the industries where offerings have to comply with regulations set by governing bodies, or if customers are in the public sector. Furthermore, being able to lobby seems to require certain resources or being in a strategic position where a firm can interact with such regulatory bodies. Thornton et al. (2013) note in their study that only relatively large companies (in specific industries) find themselves benefiting from lobbying in order to change or create demand in their favor, whereas smaller companies do not lobby in a way, which would generate comparable benefits that would warrant such resource investments. The survey data seems to confirm this point as the relevant items are separated from the factor they originated from. We examined the correlation between company size and these two items (21 and 22, Dimension 2, see Appendix B), and it shows that both of them correlate significantly with company size ($r = 0.178**$ and $0.195**$, $p < 0.05$ respectively), while most of the items in the original factor display no such correlation. This partly explains why the factor does not fit the data as expected. Based on our observations in the qualitative data from Thornton et al. (2013) and evidence from our quantitative survey, we thus decided to eliminate these two items from the scale in order to preserve the integrity of the conceptualization and the generalizability of the scale.

After the elimination process, we arrived at a four-factor solution with 21 items. As far as the adequacy of the sample size for assessing this measurement model is concerned, the KMO (Kaiser–Meyer–Olkin) measure of sample adequacy of 0.92 indicates that the number of responses ($n = 603$) is sufficient for the purpose of model assessment. The final measurement model explains 60.58% of the variance of the underlying construct, which shows a good level of explanatory power. Each factor under the overarching construct also displays fair to good levels of reliability. Information acquisition, opportunity enabling, and strong-tie resource mobilization have Cronbach’s $\alpha$ of 0.86, 0.89 and 0.84 respectively, while weak-tie resource mobilization has a slightly lower reliability with Cronbach’s $\alpha$ at 0.74, which is still above the cut-off point of 0.70 (Nunnally, 1978). Next, the final result concluded from the EFA is subjected to a CFA, using Lisrel 8.8. Initially, the measurement model achieves an acceptable model fit ($\text{RMSEA} = 0.05$, $\text{SRMR} = 0.054$, $\text{NFI} = 0.97$, $\text{CFI} = 0.98$, $\text{IFI} = 0.91$, $\text{AGFI} = 0.88$).

However, the slightly low $\text{AGFI}$ (0.88) and high $\chi^2$ ($458.29$, $df = 183$, $p < 0.001$) indicate the possibility of further improvement. We eliminated a further four items from the measurement model (EFA solution): Dimension 1 (item 11), Dimension 3 (item 12) and Dimension 4 (items 12 and 22) (Appendix B) based on the cross examination of factor loadings and model diagnostics, i.e. path estimates, modification indices and standardized residuals (Hair, Black, Babin, & Anderson, 2008). Note that the elimination of these items does not affect the integrity of the factors as we only eliminated items, which were covered to a large extent by other (overlapping) items as well. The elimination of these items improved all model fit indices. Although $\chi^2$ is still significant ($p < 0.001$), it has been substantially improved ($\Delta \chi^2 = 242.62$, $df = 70$, $p < 0.001$). Hair et al. (2008) suggest that when the sample size is more than 250 ($n = 603$ in the CFA analysis) and the observed variables are between 12 and 30 (the resulting number of indicators is 17), a significant $\chi^2$ can be expected and still indicates a good model fit. We therefore conclude that the fit of the measurement model is deemed to be satisfactory, given the excellent fit indices after the second purification process (RMSEA = 0.039, SRMR = 0.046, NFI = 0.98, CFI = 0.99, IFI = 0.99, GFI = 0.94, AGFI = 0.92).

3.2.2.2. Convergent and discriminant validity. Convergent validity is concerned with whether or not a set of items share a high proportion of common variance. Hair et al. (2008) suggest the following criteria for
satisfying acceptable convergent validity: (1) factor loadings should be above 0.5, (2) average variance extracted (AVE) should reach 0.5 as a minimum, and (3) composite reliability (CR) should be above 0.6–0.7. All the items have factor loadings above 0.6 (0.63–0.90) with the exception of one item at 0.57, which is still above the cut-off point of 0.5. All four factors have an AVE value that is above 0.5, and they all show very good levels of internal consistency, as their CR are between 0.76 and 0.89 (see Table 3). Based on the above evaluation, we conclude that the measurement model has satisfied the criteria of convergent validity.

Secondly, discriminant validity is the extent to which a construct distinctly differentiates from others. In this context, we assess whether the four factors are different from one another by testing whether the square root of the AVE for any given two factors is greater than the correlation between these two factors (Fornell & Larcker, 1981). According to Table 3 this is the case, leading us to conclude that these four factors, derived from theory, have distinctive properties that capture different aspects of organizational networking.

### 3.2.2.3. Measurement invariance test

The conceptualization of organizational networking we employ was originally developed based on interview data gathered from UK manufacturing firms (Thornton et al., 2013). Our operationalization, on the other hand, is aimed also at service firms. Although these two sectors are different in terms of the offerings they produce, they are often mixed in a business network, and they both interact with direct counterparts as well as indirect ones (Batt & Purchase, 2004; Gummersson, 1987). We do not expect the way in which service firms network to be substantially different from that of manufacturing firms. However, from a measurement validation perspective there is still a need to understand the extent to which this scale is applicable to the service sector. We thus undertake two invariance tests with nested competing multi-group (services vs. manufacturing) models in order to assess the applicability of the scale across manufacturing and service firms. A full matrix invariance test is executed to answer the question as to whether the managers from manufacturing and service firms interpret and use the scales in a same way (Hair, Black, Babin, Anderson, & Tatham, 2007). Finally, a scalar invariance test provides the answer to the question of whether or not these four dimensions of networking have the same meaning to manufacturing and service firms (Hair et al., 2007).

Table 4 summarizes the results of the full matrix invariance test and scalar invariance test. The baseline model specifies the hypothesized structure of the measurement model that has been confirmed in Section 4.1 and allows all parameters to be freely assessed in both groups. It is meant to confirm that the measurement model contains the same number of latent constructs and the observed variables associated to them across two groups. It displays a good level of model fit based on the suggested fit indices for assessing competing models, as such as RMSEA (0.041), PNSI (0.80) and CFI (0.99) (Hair et al., 2007). Next, two competing models are created with the constraints of (1) factor loadings and (2) factor loading and inter-factor covariance being set to equivalence across the two groups. These two models represent different levels of constraint with (1) being the more constrained than the baseline model, and (2) being more constrained than (1). Each model was compared against the baseline model (without constraint) to see whether the increase of degree of freedom (Δdf) would substantially worsen the model fit (Δχ²) (Byrne, 1998). Based on the results of the metric invariance test in Table 4, the scale demonstrates equal measures in factor loadings (Δχ² = 12.43, Δdf = 13, p = 0.49) and interconstruct relationships (Δχ² = 24.52, Δdf = 19, p = 0.18) across service and manufacturing sectors.

The scalar invariance test indicates the invariance of the observed variable intercepts (means) on their associated latent constructs (Δχ² = 24.40, Δdf = 26, p = 0.55), which allows for a meaningful comparison for the construct means of the four factors across the two groups. The result suggests that manufacturing firms and service firms network similarly based on the four dimensions. The Kappa parameters were estimated for the service group (i.e. latent construct mean differences compared to manufacturing group), which are −0.14 (t = −1.62, p = 0.11), −0.04 (t = −0.34, p = 0.71), −0.19 (t = −1.88, p = 0.06) and −0.18 (t = −1.79, p = 0.08) for information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization respectively. Although service firms show lower means in all four dimensions, none of the differences are statistically significant.

### 3.2.3. Second-order MIMIC measurement model validation

An essential assessment for any formative measurement model relates to establishing whether multicollinearity is present among the formative components. High levels of multicollinearity will make it difficult to assess the unique contribution from each component (Diamantopoulos & Winklhofer, 2001). The variance inflation factors (VIF) among the four components range from 1.334 to 1.657, which is well below the suggested threshold of 10 (e.g. Hair et al., 2008), and within the more stringent cut-off point of 3 (Petter et al., 2007). Multicollinearity therefore does not pose a problem for the formative measurement model operationalization. Next, we proceed to assess the MIMIC model as depicted in Fig. 2, using structural equation modeling (LISREL 8.8). Given that the reflective measures of the four first-order components are deemed satisfactory, now the focus turns to the assessment of the proposed relationships of these four components as part of organizational networking. Three extra reflective indicators were used to measure organizational networking: the tendency to acquire useful information through relationships, the effectiveness of resource mobilization among relationships, and fast response to competitors’ actions. The first two items were developed for this study specifically to capture the construct in question. We were also able to make use of one item (response to competition) from the existing scale of competitor orientation, originally developed by Narver and Slater (1990).

There is an on-going debate regarding how the weights of formative components and the error term of the formative construct should be specified, either allowing them to be freely assessed (Diamantopoulos, 2013; Diamantopoulos & Tenmme, 2013) or predefined by the researcher (Lee & Cadogan, 2013). In light of the debate we provide two solutions for the MIMIC measurement model in the overall sample, the results of which are presented in Table 5. We performed the alternative measurement model assessments by constraining the weights of the first-order constructs to be equal at 0.25 (1 divided by number of formative components) and the disturbance (error term) of the second-order construct to be 0 (Diamantopoulos & Tenmme, 2013; Lee & Cadogan, 2013).

#### Table 3: Statistics for convergent and discriminant validity.

<table>
<thead>
<tr>
<th>Component</th>
<th>α</th>
<th>CR</th>
<th>AVE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Acquisition</td>
<td>0.86</td>
<td>0.88</td>
<td>0.64</td>
<td>(0.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity Enabling</td>
<td>0.89</td>
<td>0.89</td>
<td>0.62</td>
<td>0.56</td>
<td>(0.78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong-tie-approach Resource Mobilization</td>
<td>0.84</td>
<td>0.83</td>
<td>0.50</td>
<td>0.46</td>
<td>0.65</td>
<td>(0.70)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak-tie-approach Resource Mobilization</td>
<td>0.74</td>
<td>0.76</td>
<td>0.52</td>
<td>0.45</td>
<td>0.58</td>
<td>0.57</td>
<td>(0.72)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship Coordination</td>
<td>0.86</td>
<td>0.86</td>
<td>0.56</td>
<td>0.55</td>
<td>0.68</td>
<td>0.69</td>
<td>0.55</td>
<td>(0.75)</td>
<td></td>
</tr>
<tr>
<td>Competitor Orientation</td>
<td>0.86</td>
<td>0.86</td>
<td>0.60</td>
<td>0.36</td>
<td>0.54</td>
<td>0.63</td>
<td>0.53</td>
<td>0.67</td>
<td>(0.78)</td>
</tr>
</tbody>
</table>
As expected the standardized parameters (standard MIMIC model) for the four formative components are all significant. Strong-tie resource mobilization ($\lambda = 0.42$) is the most important component that contributes to the overall organizational networking, followed by information acquisition ($\lambda = 0.29$), opportunity enabling ($\lambda = 0.28$) and lastly, weak-tie resource mobilization ($\lambda = 0.18$). The four components explain 90% of the variance in organizational networking. Overall, the MIMIC model displays a very good fit (RMSEA = 0.041, SRMR = 0.048, NFI = 0.98, CFI = 0.99, IFI = 0.99, GFI = 0.93, AGFI = 0.91).

With regard to the constrained measurement model, the disturbance term at the second-order construct level is set to 0, and the weights of all four first-order constructs are set to be equal at 0.25 as there is no a priori rule that could guide us on predefining the weights (Diamantopoulos & Temme, 2013). Contrary to the findings of Diamantopoulos and Temme (2013), the fit indices of our constrained MIMIC model show that the constraints did not cause the model fit to deteriorate drastically. Their study also demonstrated that the predefined weights are not the cause for the substantial drop in fit, but the fixed error terms are. As the four components explained 90% of the variance, the relatively small error term might have been the reason why our model fit does not decrease drastically when the constraint on the error term was imposed.

Lastly, nomological validity is concerned with the extent to which a construct is related to other existing relevant constructs. Organizational networking is assumed to provide important implications to management practice in business-to-business markets, e.g. in terms of how it

### Table 4

<table>
<thead>
<tr>
<th>Metric invariance</th>
<th>Factor structure equivalence (baseline)</th>
<th>Factor loading equivalence</th>
<th>Factor loading and inter-factor covariance equivalence</th>
<th>Zero-intercept terms equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMSEA</td>
<td>0.041</td>
<td>0.040</td>
<td>0.041</td>
<td>0.039</td>
</tr>
<tr>
<td>PNFI</td>
<td>0.80</td>
<td>0.85</td>
<td>0.87</td>
<td>0.89</td>
</tr>
<tr>
<td>CFI</td>
<td>0.99</td>
<td>0.99</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>313.52 ($P = 0.00010$)</td>
<td>325.95 ($P = 0.00016$)</td>
<td>338.04 ($P = 0.00007$)</td>
<td>337.92 ($P = 0.00024$)</td>
</tr>
<tr>
<td>df</td>
<td>226</td>
<td>239</td>
<td>245</td>
<td>252</td>
</tr>
<tr>
<td>$\Delta \chi^2$</td>
<td>12.43</td>
<td>24.40</td>
<td>24.52</td>
<td>24.4</td>
</tr>
<tr>
<td>$\Delta df$</td>
<td>13</td>
<td>19</td>
<td>26</td>
<td>Non-sig. ($p = 0.18$)</td>
</tr>
<tr>
<td>Sig.</td>
<td>Non-sig. ($p = 0.49$)</td>
<td>Non-sig. ($p = 0.18$)</td>
<td>Non-sig. ($p = 0.55$)</td>
<td></td>
</tr>
</tbody>
</table>

Type I error rate = 0.05.

### Table 5

<table>
<thead>
<tr>
<th>2nd order formative MIMIC model</th>
<th>All (n = 603)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Networking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standardized parameter ($\lambda$)</td>
</tr>
<tr>
<td>Information acquisition (IA)</td>
<td>0.29***</td>
</tr>
<tr>
<td>IA1</td>
<td>0.65</td>
</tr>
<tr>
<td>IA2</td>
<td>0.81</td>
</tr>
<tr>
<td>IA3</td>
<td>0.89</td>
</tr>
<tr>
<td>IA4</td>
<td>0.82</td>
</tr>
<tr>
<td>Opportunity enabling (OE)</td>
<td>0.28**</td>
</tr>
<tr>
<td>OE1</td>
<td>0.75</td>
</tr>
<tr>
<td>OE2</td>
<td>0.82</td>
</tr>
<tr>
<td>OE3</td>
<td>0.86</td>
</tr>
<tr>
<td>OE4</td>
<td>0.80</td>
</tr>
<tr>
<td>OE5</td>
<td>0.67</td>
</tr>
<tr>
<td>Strong-tie resource mobilization (SRM)</td>
<td>0.42***</td>
</tr>
<tr>
<td>SRM1</td>
<td>0.70</td>
</tr>
<tr>
<td>SRM2</td>
<td>0.68</td>
</tr>
<tr>
<td>SRM3</td>
<td>0.82</td>
</tr>
<tr>
<td>SRM4</td>
<td>0.65</td>
</tr>
<tr>
<td>SRM5</td>
<td>0.64</td>
</tr>
<tr>
<td>Weak-tie resource mobilization (WRM)</td>
<td>0.18**</td>
</tr>
<tr>
<td>WRM1</td>
<td>0.56</td>
</tr>
<tr>
<td>WRM2</td>
<td>0.80</td>
</tr>
<tr>
<td>WRM3</td>
<td>0.77</td>
</tr>
<tr>
<td>Reflective indicators</td>
<td></td>
</tr>
<tr>
<td>ON 1</td>
<td>0.51</td>
</tr>
<tr>
<td>ON 2</td>
<td>0.56</td>
</tr>
<tr>
<td>ON 3</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Fit indices (fit indices with constraints)$^*$

<table>
<thead>
<tr>
<th>$\chi^2$, df, p</th>
<th>319.73, 160, 0.00</th>
<th>330.51, 165, 0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>0.9</td>
<td>1.0</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.041</td>
<td>0.041</td>
</tr>
<tr>
<td>SRMR</td>
<td>0.048</td>
<td>0.055</td>
</tr>
<tr>
<td>NFI</td>
<td>0.98</td>
<td>0.98</td>
</tr>
<tr>
<td>CFI</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>IFI</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>GFI</td>
<td>0.93</td>
<td>0.93</td>
</tr>
<tr>
<td>AGFI</td>
<td>0.91</td>
<td>0.91</td>
</tr>
</tbody>
</table>

$^*$ $p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$.

$^*$ The disturbance term ($\zeta$) is set to 0. The weights of all four formative 1st order constructs are set to be equal at 0.25.
fosters or amplifies other important organizational capabilities. We establish the nomological validity based on two hypotheses. First, organizational networking increases a firm's ability to coordinate among their portfolio of relationships. Through networking a firm understands better how to allocate resources vis-à-vis specific business partners, and therefore, it will be able to better organize and coordinate these relationships based on this understanding (Håkansson et al., 2009; Holmen & Pedersen, 2003). Secondly, organizational networking increases a firm's competitor orientation, because it allows a firm to gauge its competitors' actions more effectively, and respond to them in a timely and appropriate manner (Tsai, 2001). Fig. 3 shows the structural model that we propose to test the relationships between organizational networking and the two dependent constructs. We utilized existing scales for relationship coordination (Walter et al., 2006) and competitor orientation (Narver & Slater, 1990), both of which have Cronbach’s α of 0.86. We assess the discriminant validity of the six constructs in the proposed model, shown in Fig. 3 (Fornell & Larcker, 1981). The result shows that the discriminant validity for the given six constructs is satisfactory (see Appendix D).

The results of the structural equation model show that the two structural paths emanating from organizational networking are significant with the standardized coefficient of organizational networking on relationship coordination at 0.89 (p < 0.001) and competitor orientation at 0.75 (p < 0.001). The overall model displays a good fit (RMSEA = 0.038, SRMR = 0.050, NFI = 0.98, CFI = 0.99, IFI = 0.99, AGFI = 0.89). In addition, organizational networking explains 60% and 43% of the variances of relationships coordination and competitor orientation respectively, which shows a considerable explanatory power (see Fig. 3). The results support the nomological validity of organizational networking as a second-order formative construct (for the standardized coefficients of each indicator in the model please see Appendix D).

4. Discussion and implications

Organizational networking as a construct has implications in four areas: theory, conceptualization, measurement and practice. We organize the discussion around these areas.

4.1. Theory building in organizational networking

We utilize three criteria to critically review a small body of literature focusing on the strategic aspects of organizational networking based on their definitions and dimensions, the network characteristics and the empirical base. These three ‘qualifiers’ provide insights into the state of literature on organizational networking, which is still in need of more empirical research. We concluded that the definitions and the dimensions need to reflect explicitly the strategic intent of a focal firm in order to capture its motives for initiating different ways of networking behaviors, because these are largely driven by anticipated outcomes (even if these subsequently do not materialize). In addition, the definition and the used dimensions of organizational networking also need to reflect the level(s) of network structures, because organizational networking is the way in which firms learn about their surroundings and accordingly, reap the benefit from them or mitigate potential harmful network effects. Without considering all three levels of network embeddedness, i.e. dyadic, organizational and environmental embeddedness as suggested by Hagedoorn et al. (2006), organizational networking as a firm-centered construct cannot be fully understood and conceptualized. Finally, for the purpose of operationalizing the scale for the construct by utilizing dimensions provided by one of these existing empirical studies, we assess their empirical base by examining the construct validity, external validity and reliability in a qualitative sense (Yin, 2009). This is critically important when developing a scale from a conceptualization based on qualitative studies (Churchill, 1979).

4.2. The Conceptualization of organizational networking

Our empirical study corroborated and further advanced the organizational networking typology developed by Thornton et al. (2013). We conceptualize organizational networking as a second-order formative construct that is created from four reflective first-order constructs, information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. The quantitative results suggest that these four dimensions, driven by firms’ anticipated

---

**Fig. 3.** Structural model for nomological validity assessment.
outcomes, are a valid way of conceptualizing organizational networking. Individually, they are distinct from each other (based on their discriminant validity), and together, they cover almost the entire breadth of organizational networking ($R^2 = 90\%$). Although each of them makes a significant contribution to explain organizational networking, strong-tie resource mobilization is the most important component of all. Strong-tie relationships can be utilized relatively effectively compared to weak-tie relationships for information sharing and resource mobilization, due to the fact that trust serves as catalyst to facilitate problem solving and cooperation between firms (Uzzi, 1996). However, without other components, organizational networking as a whole is not complete from a conceptual perspective (Thornton et al., 2013). This echoes our proposition regarding the theoretical considerations outlined above in that organizational networking needs to include actors’ actions toward different levels of network embeddedness, which bring about different types of activities firms make use of for different purposes, based on their own idiosyncratic understanding and definition of the network.

4.3. The operationalization and measurement model specification

We implemented a thorough two-stage scale construction and validation process. We posit that the measurement model for organizational networking consists of four first-order reflective constructs, which cause the overarching second-order formative construct. The two-stage validation process was designed to purify the items and validate the measurement model at the first- and second-order levels respectively. At the first-order level the results suggest that the measurement model displays an excellent model fit, and that the four first-order constructs are indeed distinct from each other. The measurement model also withstands an invariance multi-group test at its strictest level, which makes it applicable in both manufacturing and service contexts. At the second-order level, the causal relationships of the four reflective first-order constructs on the second-order construct were examined using a MIMIC model proposed by Diamantopoulos and Winklhofer (2001). The MIMIC model, which we specified for organizational networking, shows a very good model fit, and it also exhibits adequate nomological validity. The results show that organizational networking positively affects competitor orientation and relationship coordination and explains much of their variances ($R^2 = 43\%$ and 60\%).

In light of the on-going debate regarding the validity of formative measurement models and whether or not the weights of the causal relationships should be predefined, we also provided an alternative solution to reflect this discussion (i.e. constrained weights and error term at the second-order construct level). The results are not comparable to those of Diamantopoulos and Temme (2013). However, our position on the matter of whether or not to pre-define weights for formative components is in agreement with Diamantopoulos and Temme (2013) and Petter et al. (2007) in that the relationships between first- and second-order constructs and the components of a formative construct need to be subjected to hypothesis tests, rather than purely based on a researcher’s discretion. Since organizational networking captures the way in which firms utilize different types of interactions with their counterparts in order to achieve their anticipated goals, it follows that predefining how important a certain type of networking is in relation to the total networking portfolio is not reasonable. More specifically, the ‘fixed’ approach would compromise a deeper understanding of how firms network in different contexts, such as different industries and varying levels of technological turbulence.

4.4. Managerial implications

Since the measurement assessment confirms that organizational networking is formed by the identified four components of Thornton et al. (2013), firms operating in business-to-business markets need to consider and plan their networking efforts based on these components. The results show that although the four components of networking are all significant contributors toward the overall organizational networking, strong-tie resource mobilization remains the most important way of networking for firms operating in business-to-business markets. This gives rise to the importance of maintaining strong-tie relationships as a focus within the available resources that can be used to generate synergies for firms. This also implies that the assessment of the investment level aimed at each relationship has to be placed in a wider picture of the relationship portfolio as resource mobilization of this kind often involves pooling resources from various partners (Cui, 2013; Roseira, Brito, & Henneberg, 2010). Although less important, information acquisition, opportunity enabling and weak-tie resource mobilization remain significant in relation to the overall networking portfolio. As networking allows firms to both sense and seize, i.e. utilize their network of direct and indirect relationships, these two aspects of networking should inform each other. This means that information acquisition and opportunity enabling allow firms to learn about their network. Simultaneously, the internalization of this knowledge serves as a foundation, which allows firms to mobilize resources in a way that is difficult for competitors to imitate. Such a rationale hints at the fact that these dimensions have to be seen as a configuration, i.e. a constellation of different aspects of organizational networking, which interact with each other, in line with Gestalt theory (see Dess, Newport, & Rasheed, 1993; Wertheimer, 1938).

5. Limitations and future research directions

Our study has its limitations mainly related to the sample we chose for the scale development. We utilized experienced international managers from a wide variety of industries to test the new scale. At the first-order construct level, although the resulting scale has a certain level of generalizability due to the same characteristics, we cannot be fully confident of generalizability unless the test is repeated and applied in different populations. It is equally true to say that we cannot be certain whether the results will hold if the survey is to be applied in a specific industry setting, e.g. high technology industries. Therefore, the resulting scale from this study provides the basis for future research to implement it in various settings to generate further insights and establish stronger evidence of generalizability. At the second-order construct level, the issue regarding the sensitivity of formative measurement models to different outcome variables potentially offers a promising research avenue for theory building in organizational networking. We used outcome variables that are closely related to the concept of market orientation and relationship coordination in this study. Future research can follow this line of research to replicate the model and thereby allow for a comparison of the stability of the formative measurement model. Furthermore, it is interesting in itself to see how the dimensions of organizational networking vary in different settings, and what kind of different configurations may help firms achieve certain outcomes in certain contexts. For instance, is there a best mix of these four components that would facilitate firms’ innovation efforts in high technological turbulence environments? Are there different configurations, which all provide superior outcomes, e.g. does equifinality exist?

Another future research direction relates to the role that organizational networking plays in relation to other organizational behavioral constructs and different performance constructs, such as relationship outcomes, firm performance and innovation success. From the results of the nomological validity assessment, we can infer that organizational networking has a positive impact on firms’ competitor orientation and relationship coordination, but there is still a need for a deeper understanding of how organizational networking impacts upon the development of other organizational capabilities, e.g. relational capabilities, and whether organizational networking has a positive indirect impact on firm performance mediated by other organizational capabilities.
### Appendix A. Dimensions of networking behavior and their sub-types

<table>
<thead>
<tr>
<th>Dimensions of Networking Behavior</th>
<th>Observed behaviors</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Networking Behavior Type I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Information Acquisition</strong></td>
<td>1. Acquiring via business partners (trading relationships)</td>
<td>Firms utilize their business partners, such as important customers and suppliers, as the source of information.</td>
</tr>
<tr>
<td><strong>Network Need to Make Contact</strong></td>
<td>2. Acquiring via business contacts (non-trading relationships)</td>
<td>Firms utilize their business contacts, such as organizations operating in different industries, as the source of information.</td>
</tr>
<tr>
<td><strong>Network Sense of Opportunity</strong></td>
<td>3. Acquiring via trade events</td>
<td>Firms utilize trade events, such as trade shows, trade-specific meetings and seminars, and trade organizations as the source of information.</td>
</tr>
</tbody>
</table>

#### Opportunity Enabling

| The activities/routines/practices that firms employ to sense the opportunities and build their reputation by consciously interacting with relevant parties in their business sphere. | 1. Sensing through networking events | Firms attempt to interact with various counterparts in order to sense the opportunities. |
|                                                                                   | 2. Sensing/influencing through lobbying | Firms attempt to influence the legislations in their favor by interacting with relevant governmental bodies and trade organizations. |
|                                                                                   | 3. Signaling self-perceived network identity | Firms attempt to build their reputation as an attractive partner by consciously working with well-regarded partners and by signaling their ability that matches their intended partners’ needs. |

#### Strong-tie Resource Mobilization

| The activities/routines/practices that firms employ to mobilize resources that are linked to their direct/established relationships. | 1. Mobilizing through adjusting resources | Firms adjust the level of relational investments based on the assessment of their overall relationship portfolio and the future benefit of maintaining the level of investment. |
|                                                                                   | 2. Mobilizing through transferring resources | Firms transfer resources across different relationships by using the synergies that they have built over a period of time with their important partners. |
|                                                                                   | 3. Mobilizing through pooling resources | Firms pool resources among two or more relationships in order to solve an identified issue or improve a process/offerings. |

#### Weak-tie Resource Mobilization

| The activities/routines/practices that firms employ to mobilize resources that are linked to their indirect/less established/new relationships. | 1. Mobilizing through bridging weak-tie relationships | Firms utilize a weak-tie relationship, such as an in-person contact, to get access to its local knowledge and its established web of relationships. |
|                                                                                   | 2. Mobilizing through bypassing-flanking | Firms utilize a weak-tie relationship, such as a newly formed relationship with a partner in a new market, to get access to its local knowledge and its established web of relationships. |
|                                                                                   | 3. Mobilizing through bypassing-avoidance | Firms identify and interact with potential partners through bypassing important network members, such as competitors. |

### Appendix B. Scale purification

<table>
<thead>
<tr>
<th>Initial item pool</th>
<th>Items dropped</th>
<th>Items kept</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimension 1: Information acquisition (8)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 We ask our business partners when we need information regarding any of the following: new business opportunities, competition or technology developments in the market.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12 Our business partners share sensitive information (in line with anti-competition law) with us.</td>
<td>1a</td>
<td></td>
</tr>
<tr>
<td>13 Information provided by our business partners is helpful for us to make an informed decision.</td>
<td>IIA</td>
<td></td>
</tr>
<tr>
<td>21 By speaking to our business contacts, we are able to obtain the information that is crucial to us.</td>
<td>IIB</td>
<td></td>
</tr>
<tr>
<td>22 We recognize that information from our business contacts is useful for us.</td>
<td>IIC</td>
<td></td>
</tr>
<tr>
<td>23 Information from our business contacts who work in a similar market can be useful for us.</td>
<td>IID</td>
<td></td>
</tr>
<tr>
<td>31 We attend important trade events for gathering information.</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td>32 We attend important meetings and seminars held by industry-specific organizations for gathering information.</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td><strong>Dimension 2: Opportunity enabling (11)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 We proactively take part in various trade events.</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td>12 We proactively interact with trade associations, trade committees or regulatory bodies.</td>
<td>1a</td>
<td></td>
</tr>
<tr>
<td>13 We encourage our employees to ‘go out there’ to trade events to seek out new opportunities.</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td>14 We ask our business partners to refer/guide us to the right person(s)/organization(s) that can help our business grow.</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td>21 We lobby to influence/shape the relevant legislations in our favor by interacting with regulatory bodies (e.g. politicians, parliament and local councils).</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td>22 By actively being involved in the industry-specific trade organizations (e.g. committees and associations), we can put our weight on shaping the development of our industry.</td>
<td>1b</td>
<td></td>
</tr>
<tr>
<td>31 We make every effort to go out and network in order to increase our reputation in the market.</td>
<td>OE2</td>
<td></td>
</tr>
<tr>
<td>32 We recognize that the value of working well with our business partners adds to the reputation of our products or services.</td>
<td>OE3</td>
<td></td>
</tr>
<tr>
<td>33 We invest in building up our reputation in the market by networking with our business partners.</td>
<td>OE4</td>
<td></td>
</tr>
<tr>
<td>34 We work toward becoming an effective business partner for other companies in the market (e.g. potential customers or suppliers).</td>
<td>OE5</td>
<td></td>
</tr>
<tr>
<td>35 We recognize the benefit of word-of-mouth among our business partners.</td>
<td>OE6</td>
<td></td>
</tr>
<tr>
<td><strong>Dimension 3: Strong-tie resource mobilization (10)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Our investments in strategic relationships are linked to the relationships’ long-term value.</td>
<td>1a</td>
<td></td>
</tr>
<tr>
<td>12 We assess our overall supply chain (i.e. the suppliers of our suppliers) in order to ensure our offering is suitable (non-trading relationships)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>21 The experiences we have had with certain strategic business partners are useful in other relationships.</td>
<td>1a</td>
<td></td>
</tr>
<tr>
<td>22 Being able to pool resources (e.g. know-how, information, people and assets) among different customers and utilize them is crucial for our success.</td>
<td>1a</td>
<td></td>
</tr>
<tr>
<td>23 We plan our business strategies based on the assessment of the strategic importance of the customers.</td>
<td>1a</td>
<td></td>
</tr>
<tr>
<td>31 Matching our suppliers’ capacity to the demands of our customers has been an important practice in our organization.</td>
<td>SIRM1</td>
<td></td>
</tr>
<tr>
<td>32 Our suppliers’ ability is critical for us to satisfy our customers.</td>
<td>SIRM2</td>
<td></td>
</tr>
<tr>
<td>33 Having good relationships with both suppliers and customers has enabled us to adapt to changes in the market place.</td>
<td>SIRM3</td>
<td></td>
</tr>
</tbody>
</table>

(continued on next page)
Appendix B (continued)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Items dropped</th>
<th>Items kept</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>When necessary, we coordinate between our business partners in order to resolve a particular issue/problem or improve the performance of a process.</td>
<td></td>
<td>SRM4</td>
</tr>
<tr>
<td>35</td>
<td>Our customer-focused approach is communicated to suppliers, so that they are aware of how we serve our customers and can contribute to the success of delivering the offerings.</td>
<td></td>
<td>SRM5</td>
</tr>
</tbody>
</table>

Dimension 4: Weak-tie resource mobilization (8)

11. We continuously look to work with new business partners who could bring about new opportunities.
12. We often use agents/local representatives to penetrate a new market by utilizing their network of relationships.
13. We initiate relationships with new business partners to gain local knowledge in a new market.
21. Understanding our customers' environment enables us to improve our offerings.
22. We interact with the customers of our customers.
31. We approach our competitors' customers when we think the time is appropriate.
32. Identifying our competitors' major customers helps us to getting to know the needs and requirements of potential customers.

Items dropped: 1a = in the initial round of the first-step purification; 1b = in the second round of the first-step purification; 2 = in the second-step purification.

Appendix C. Scales used for the second-order MIMIC measurement model validation

Information acquisition (developed as part of this study)

IA1. Information provided by our business partners is helpful for us to make an informed decision.
IA2. By speaking to our business contacts, we are able to obtain the information that is crucial to us.
IA3. We recognize that information from our business contacts is useful for us.
IA4. Information from our business contacts who work in a similar market can be useful for us.

Opportunity enabling (developed as part of this study)

OE1. We make every effort to go out and network in order to increase our reputation in the market.
OE2. We recognize that the value of working well with our business partners adds to the reputation of our products or services.
OE3. We invest in building up our reputation in the market by networking with our business partners.
OE4. We work toward becoming an effective business partner for other companies in the market (e.g. potential customers or suppliers).
OE5. We recognize the benefit of word-of-mouth among our business partners.

Strong-tie resource mobilization (developed as part of this study)

SRM1. Matching our suppliers' capacity to the demands of our customers has been an important practice in our organization.
SRM2. Our suppliers' ability is critical for us to satisfy our customers.
SRM3. Having good relationships with both suppliers and customers has enabled us to adapt to changes in the market place.
SRM4. When necessary, we coordinate between our business partners in order to resolve a particular issue/problem or improve the performance of a process.
SRM5. Our customer-focused approach is communicated to suppliers, so that they are aware of how we serve our customers and can contribute to the success of delivering the offerings.

Weak-tie resource mobilization (developed as part of this study)

WRM1. We need to work closely with influential parties who have relationships with our direct customers to stimulate demand.
WRM2. We approach our competitors' customers when we think the time is appropriate.
WRM3. Identifying our competitors' major customers helps us to getting to know the needs and requirements of potential customers.

Reflective indicators for organizational networking

ON1. As a company we constantly seek useful information from various channels, for example, other companies, relevant contacts or from the public domain (developed as part of this study)
ON2. Our established relationships with important business partners have enabled us to pool and utilize the resources between those relationships (developed as part of this study)
ON3. We target customers where we have an opportunity for competitive advantage (Narver & Slater, 1990).

Relationship coordination (Walter et al., 2006)

RC1. We analyze what we would like to achieve with different business partners.
RC2. We match the use of resources (e.g. know-how, information, people and assets) to the individual relationship.
RC3. We inform ourselves of our business partners' goals, potentials and strategies.
RC4. We judge in advance which possible business partners to talk to about building up relationships.
RC5. We appoint coordinators who are responsible for the relationships with our business partners.

Competitor orientation (Narver & Slater, 1990)

CO1. We rapidly respond to competitive actions that threaten us.
CO2. Top management regularly discusses competitors' strategies.
CO3. We target customers where we have an opportunity for competitive advantage.
Appendix D. Nomological validity of organizational networking

<table>
<thead>
<tr>
<th>2nd order formative MIMIC model</th>
<th>All (n = 603)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational networking</td>
<td></td>
</tr>
<tr>
<td>1st order component with reflective indicators</td>
<td>α</td>
</tr>
<tr>
<td>Information acquisition (IA)</td>
<td>0.86</td>
</tr>
<tr>
<td>IA1</td>
<td>0.65</td>
</tr>
<tr>
<td>IA2</td>
<td>0.81</td>
</tr>
<tr>
<td>IA3</td>
<td>0.89</td>
</tr>
<tr>
<td>IA4</td>
<td>0.82</td>
</tr>
<tr>
<td>Opportunity enabling (OE)</td>
<td>0.89</td>
</tr>
<tr>
<td>OE1</td>
<td>0.75</td>
</tr>
<tr>
<td>OE2</td>
<td>0.81</td>
</tr>
<tr>
<td>OE3</td>
<td>0.86</td>
</tr>
<tr>
<td>OE4</td>
<td>0.80</td>
</tr>
<tr>
<td>OE5</td>
<td>0.67</td>
</tr>
<tr>
<td>Strong-tie resource mobilization (SRM)</td>
<td>0.84</td>
</tr>
<tr>
<td>SRM1</td>
<td>0.71</td>
</tr>
<tr>
<td>SRM2</td>
<td>0.67</td>
</tr>
<tr>
<td>SRM3</td>
<td>0.81</td>
</tr>
<tr>
<td>SRM4</td>
<td>0.65</td>
</tr>
<tr>
<td>SRM5</td>
<td>0.64</td>
</tr>
<tr>
<td>Weak-tie resource mobilization (WRM)</td>
<td>0.74</td>
</tr>
<tr>
<td>WRM1</td>
<td>0.56</td>
</tr>
<tr>
<td>WRM2</td>
<td>0.81</td>
</tr>
<tr>
<td>WRM3</td>
<td>0.76</td>
</tr>
<tr>
<td>Outcome variables</td>
<td></td>
</tr>
<tr>
<td>Relationship coordination</td>
<td>0.86</td>
</tr>
<tr>
<td>RC1</td>
<td>0.82</td>
</tr>
<tr>
<td>RC2</td>
<td>0.76</td>
</tr>
<tr>
<td>RC3</td>
<td>0.78</td>
</tr>
<tr>
<td>RC4</td>
<td>0.75</td>
</tr>
<tr>
<td>RC5</td>
<td>0.62</td>
</tr>
<tr>
<td>Competitor orientation</td>
<td>0.86</td>
</tr>
<tr>
<td>CO1</td>
<td>0.77</td>
</tr>
<tr>
<td>CO2</td>
<td>0.80</td>
</tr>
<tr>
<td>CO3</td>
<td>0.81</td>
</tr>
<tr>
<td>CO4</td>
<td>0.71</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01, ***p < 0.001.

Acknowledgment

This work was supported by the Economic and Social Research Council [grant number ES/I903445/1]. The authors thank the four anonymous reviewers for their constructive criticisms, which allowed the authors to substantially improve this paper. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. The dataset used in this study is available upon request from the first author.

References

Chapter IV  Network-Oriented Behaviors in Business-to-Business Markets: An Empirical Study
Network-Oriented Behaviors in Business-to-Business Markets:

An Empirical Study

Sabrina C. Thornton\textsuperscript{a,b} \textsuperscript{*}

Stephan C. Henneberg\textsuperscript{c}

Peter Naudé\textsuperscript{b}

\textsuperscript{a} University of Huddersfield Business School, Queensgate, Huddersfield, HD1 3DH, UK

\textsuperscript{b} mIMP Research Group, Manchester Business School, Booth Street West, Manchester, M15 6PB, UK

\textsuperscript{c} Business Ecosystem Research Group, Queen Mary, University of London, School of Business and Management, The Bancroft Building, Mile End Road, London E1 4NS, UK

Submitted for review

Industrial Marketing Management

September 2014

\textsuperscript{*}Corresponding author. Tel.: +44 (0) 1484 472565.

E-mail addresses: s.thornton@hud.ac.uk (S.C. Thornton), s.henneberg@qmul.ac.uk (S.C. Henneberg), peter.naude@mbs.ac.uk (P. Naudé)

1 Tel.: +44 (0) 20 7882 8570.

2 Tel.: +44 (0) 161 275 7782.

This work was supported by the Economic and Social Research Council [grant number ES/I903445/1].
Abstract

This study is concerned with the extent to which network-oriented behaviors directly and/or indirectly affect firm performance. It argues that a firm’s interactive behaviors in relation to an embedded network structure are key mechanisms that facilitate the development of important organizational capabilities in dealing with business partners. Such network-oriented behaviors, which are aimed at affecting the position of a company in the network, are consequently important drivers of firm performance, rather than the network structure alone. We develop a conceptual model that captures network-oriented behaviors as a driving force of firm performance in relation to three other key organizational behaviors, i.e. customer-oriented, competitor-oriented and relationship-oriented behaviors. We test the hypothesized model using a dataset of 354 responses collected via an on-line questionnaire from UK managers, whose organizations operate in business-to-business markets in either the manufacturing or services sectors. The research results indicate that a firm’s network-oriented behaviors positively impact on the development of customer-oriented and competitor-oriented behaviors. They also foster relationship coordination with its important business partners within the network. In addition, the effective management of the firm’s portfolio of relationships is found to mediate the positive impact of network-oriented behaviors on firm profitability.

Keywords
Network-oriented behavior; business-to-business markets; structural equation modeling; latent interaction
1. Introduction

From a focal firm’s perspective, its business relationships are some of the most important sources of competitive advantage. They provide combinations of resources embedded in these relationships, which are unique and difficult to imitate by the competition (Gulati et al., 2000; Spector, 2006; Zaefarian et al., 2011). This has an important implication for firms operating in business-to-business markets, since they need to develop strategies for collaborating with both their customers and suppliers within the business network (Day, 2000). However, overly relying on established relationships and overlooking the critical aspect of introducing new relationships might lead to a lack of novel information and the resources needed for innovation success (Uzzi, 1996; 1997). Therefore, a firm’s ability to change the formation of its relationship portfolio in response to changes in the wider business network has strategic implications for its performance (Baum et al., 2013; Cui & O'Connor, 2012; Gulati et al., 2000).

Such business networks have a profound impact on firms’ performance (Jack, 2005; Uzzi, 1996). Although the causal link between a focal firm’s network position in the context of its portfolio of business relationships, and its performance, has been researched from a structural perspective, empirical evidence regarding this link with regard to behavioral issues is still missing (Baum et al., 2013). Salancik (1995) suggests that the fact that relationships and interactions are taken as given in network analyses might have contributed to this lack of behavioral research. Based on the resource dependence theory (Pfeffer & Salancik, 1978), we argue that there is a need to study this pivotal causal relationship from a firm’s behavioral perspective. Firms have the ability to proactively seek the resources they need. Through doing so, they can potentially change their relationship portfolio, and with it, their position in the network,
by managing their interactions and business relationships (Johanson & Mattsson, 1992; Salancik, 1995; Stevenson & Greenberg, 2000). On the other hand, firms’ behaviors are also shaped by their web of relationships, which constitute the network structure (Granovetter, 1985; Rivera et al., 2010). Firms embedded in the network are all assumed to be “perceiving and opportunity-seeking actors” in the sense that their actions are based on their perception of their surroundings and their intention to sense and seize opportunities afforded by the network (Kilduff & Krackhardt, 1994, p. 88). However, the way in which a firm responds to other actors changes the dynamics of the network (Kilduff & Krackhardt, 1994; Porac et al., 2011). Firms attempt to shape their networked environment by changing the pattern of their interactions with their counterparts in order to grasp the network dynamics and further capitalize on these dynamics based on their understanding of the network (Andersson & Mattsson, 2010). The bilateral influences between a focal firm and its business network are an on-going interactive process, manifested in the interactions between the firm and its counterparts, which are either directly or indirectly connected to it (Håkansson & Ford, 2002).

In this context it is important to consider that from a strategic perspective, firms interact differently within their business relationships, in that they have different behavioral options open to them. They can actively shape the network through strong- or weak-tie relationships based on the anticipated business outcomes (Thornton et al., 2013). However, the resulting interaction behaviors do not necessarily contribute to firm performance, as the outcomes of such acts cannot be foreseen (Ford et al., 2003; Thornton et al., 2013). Furthermore, firms can reactively sense network dynamics, which can be seen as part of a firm’s ability to respond to the network. This set of sensing behaviors relate to learning from, and utilizing of the context in which its important counterparts are embedded (Ford & Mouzas, 2013).
Following this argument, we infer that a firm’s interactive behaviors in relation to an embedding network structure are key mechanisms that facilitate the development of important organizational capabilities in dealing with its business partners. Such *network-oriented behaviors* (Thornton *et al.*, 2013) are consequently important drivers of firm performance, rather than the *network structure* alone (Salancik, 1995). This proposition provides the starting point and research objective for our study: it is concerned with the extent to which network-oriented behaviors directly or indirectly affect firm performance. Building on the existing literature of network theory and business-to-business marketing, this research contributes to the literature in two ways. First, it conceptualizes and validates a nomological model in which network-oriented behaviors are hypothesized as the drivers of other important firm behaviors towards their important counterparts in the network, such as customer-oriented, competitor-oriented and relationship-oriented behaviors. This is important as it enhances our understanding of how different organizational behaviors oriented towards different aims are interacting (Day, 1994). Secondly, this study establishes the role of firms’ network-oriented behaviors in driving firm performance from a behavioral perspective. This is important as it directly provides managerial guidance about which behaviors in response to the wider business network firms should focus on in order to optimally sense the network dynamics and seize the opportunities (Gulati *et al.*, 2000).

This study aims at providing a conceptual model that outlines how a firm can utilize different organizational behaviors to understand its customers and competitors, and coordinate with its important business partners within the network. This framework provides an explanation as to how these strategic behaviors contribute to firm performance, either directly or indirectly. The argument will develop as follows: through a concise review of the relevant literature, we develop a conceptual model that
captures network-oriented behaviors as a driving force of firm performance in relation to three other key organizational behaviors (i.e. customer-oriented, competitor-oriented and relationship-oriented behaviors). Next, we outline our empirical research design and test the hypothesized model using a dataset of 354 responses collected from UK managers, whose organizations operate in business-to-business markets in either the manufacturing or services sectors. Lastly, we conclude with a discussion of theoretical and practical implications of the study, acknowledge the limitations, and provide directions for future research.

2. Business Interactions and Network-Oriented Behaviors

Firms are unavoidably embedded in business networks (Ford et al., 2003). The general consensus in the network literature is that networks have some properties that allow firms to achieve certain economic outcomes, such as faster knowledge transfer and more effective resource utilization (Achrol & Kotler, 1999; Granovetter, 2005; Jack, 2005). This is done by mobilizing other actors, such as customers or suppliers, in the network (Mouzas & Naudé, 2007; Zaefarian et al., 2011). Furthermore, such mobilizing activities, i.e. interacting and building relationships with business partners, are linked to specific behaviors by a firm and thus economic outcomes are influenced by the way in which firms interact with others (Granovetter, 1985). We conceptualize such interaction behaviors as network-oriented behaviors. They are derived from the need of a firm to sense its position in the network (i.e. the opportunities and threats associated with its direct and indirect business relationships) and seize the opportunities derived from this position accordingly (Thornton et al., 2013). Thorelli (1986) suggests that one of the key issues related to such ‘networking’ is the way in which a firm positions itself in the network by changing its portfolio of relationships. Therefore, it
can be assumed that firms’ ability to maneuver themselves in the networks differ, depending on how well they use network-oriented behaviors, and that such differences will help generate insights related to firm performance differences (Zaheer & Bell, 2005).

Given the importance of such network-oriented behaviors, most studies in the existing network literature adopt structural network measures, such as the centrality and density of a focal firm’s network, to understand firm performance differences (e.g., Hagedoorn et al., 2006; Hendry & Brown, 2006; Zaheer & Bell, 2005). Empirical research that focuses on firms’ behaviors towards their networks is still scarce (Ford & Mouzas, 2013). There are, however, some studies that discuss network-oriented behaviors, e.g. under the name of organizational networking (Thornton et al., 2013) or business networking (Ford et al., 2003; Ford & Mouzas, 2013). These studies adopt an Industrial Network Approach (INA), which allows researchers to understand how firms interact with others in order to cope with organizational problems at hand by utilizing ‘external’ resources and reconfiguring the combination of them (Håkansson, 1982; Håkansson & Snehota, 1989). Such behaviors have also been conceptualized as actions taken by a firm to change the formation of its network in favor of its business aims (Smith & Laage-Hellman, 1992). Initiating, maintaining and terminating relationships as part of a portfolio approach have been identified as important capabilities that enable firms to effectively form a pool of accessible resources that are embedded in their relationship portfolio (Cui & O’Connor, 2012; Mitrega et al., 2012; Zaefarian et al., 2011). In this context Thornton et al. (2013) conceptualize organizational networking as sets of anticipated outcome-driven behaviors, specifically information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. Each of these dimensions reflects manifested behaviors, which capture a
distinct way in which firms utilize their relationships in an attempt to achieve their anticipated goals. First, information acquisition refers to a firm’s tendency to use both strong-tie and weak-tie relationships in order to obtain desired information for making informed decisions. Secondly, opportunity enabling relates to a firm’s conscious acts to sense the opportunities by strategically interacting with relevant parties in its network. Thirdly, strong-tie resource mobilization is utilized by a firm to adjust, transfer and pool resources across various established relationships in order to address certain firm challenges. Finally, weak-tie resource mobilization refers to the ability to mobilize resources that are linked to firms’ less established relationships.

This conceptualization is in line with our research objective of conceptualizing the way in which firms interact with their embedding network. We therefore use the four behavioral dimensions by Thornton et al. (2013) to conceptualize network-oriented behaviors related to a focal firm’s business relationships, be they direct or indirect.

3. A Model of Organizational Behaviors and Firm Performance

3.1. Nomological Model Development

The extant literature has established the role of different organizational behaviors for driving firm performance; in this context market-oriented behaviors have been identified as key drivers of favorable firm performance (Jaworski & Kohli, 1993; Narver & Slater, 1990). However, empirical evidence also suggests that these behaviors are moderated by contextual factors (e.g. Cadogan et al., 2009; Ellis, 2006; Kirca et al., 2005), or have no influence on firm performance (e.g. Grewal & Tansuhaj, 2001). A longitudinal study by Kumar et al. (2011) provides evidence that market oriented-behaviors have recently become a prerequisite, rather than a competitive advantage, for any firm to compete in the market place. Furthermore, being market-oriented could be a
mere ‘self-portrait’ rather than a true representation of a market-centric approach (Deshpandé et al., 1993).

Besides market-oriented behaviors, relationship-oriented behaviors are also seen as key drivers of firm performance in the business-to-business marketing literature (e.g. Morgan & Hunt, 1994; Palmatier et al., 2007; Palmatier et al., 2008). This is backed by a stream of research on business relationships based on the Industrial Network Approach which focuses on the interconnectedness of the business relationships within which a firm is embedded (e.g. Ritter & Gemünden, 2003; Walter et al., 2006). Similarly, in the literature on strategic management, the main focus has moved from the resource-based view to a relationship-centric approach of business relationship management. However, in addition to this movement from a monadic firm-centered view to a dyadic relationship-centered perspective, Vargo and Lusch (2011) as well as Anderson, Håkansson and Johanson (1994) argue that dyadic business relationships need to be placed in a wider context. Without an understanding of the important direct and indirect actors surrounding the focal firm, i.e. the network context, the understanding of firms’ market- and relationship-oriented behaviors is only limited.

We therefore hypothesize that network-oriented behaviors are the antecedents of market- and relationship-oriented behaviors. Firms are able to understand their key players in a broader context through network-oriented behaviors. The sensing and seizing network-oriented behaviors, as described by Thornton et al. (2013), allow a focal firm to make more informed decisions in relation to customers and competitors (Thorelli, 1986). This issue relates to the fact that when managing relationships successfully in a dyadic sense, the interconnectedness of all these relationships as part of a focal firm’s relationship portfolio needs to be managed in a holistic way (Hoffmann, 2007; Roseira et al., 2010; Vargo & Lusch, 2011). Network-oriented
behaviors facilitate such coordination of different relationships as part of a relationship portfolio approach, based on an understanding of the available resources and opportunities (e.g. opportunities for synergies) that lie beyond the direct dyadic relationships of a firm (McEvily & Zaheer, 1999; Rowley, 1997).

However, these effects of network-oriented behaviors are likely amplified in a fast moving technological environment (Achrol and Kotler (1999), e.g. the level of technological turbulence has become an important contextual factor in affecting the effectiveness of firms’ endeavors to respond to markets (Jaworski & Kohli, 1993; Kumar et al., 2011). On the other hand, the effectiveness of network-oriented behaviors is also hypothesized to be affected by how well a focal firm interacts with the end users of a firm’s offerings. Firms that are able to interact and/or understand their indirect final customers might utilize their network-oriented behaviors in a more effective way (Henneberg et al., 2009). Following the aforementioned key areas of research, we derive a nomological model, as depicted in Figure 1, based on three key construct groups: (1) network-oriented behaviors as a driver of market-oriented and relationship-oriented behaviors, (2) the effects of market-oriented and relationship-oriented behaviors on firm performance, and (3) the direct role of network-oriented behaviors on firm performance. Technological turbulence as well as closeness to end-users are included as important moderating constructs on the effect of network-oriented behaviors.
3.2. Network-Oriented Behaviors as Driver of Market- and Relationship-Oriented Behaviors.

Network-oriented behaviors are defined as “activities/routines/practices, which enable firms to make sense of and capitalize on their networks of direct and indirect relationships” (Thornton et al., 2013, p. 1155). Following this conceptualization, we define the construct of network-oriented behaviors as a set of behaviors using direct and indirect relationships, which include both strong-tie and weak-tie relationships, in order to achieve four different anticipated outcomes. In other words, it is the combination of these four dimensions of networking, information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization, which represent a firm’s network-oriented behaviors. It is important to note that these behaviors have to be understood as a systemic whole, e.g. the utilization of strong-tie and weak-tie relationships are complementary (Tiwana, 2008). In his empirical study Uzzi (1996) suggests that the balanced use of strong-tie and weak-tie relationships can minimize a firm’s failure rate, which means that the use of these two types of relationships need to
be examined in combination rather than isolation. Following a similar argument, Tiwana (2008) argues that it is imperative to go beyond the dyadic relationships of a firm and consider the portfolio of both strong-tie and weak-tie relationships, which resemble its network structure, particularly when assessing firm performance.

Market-oriented behaviors are derived from the behavioral market orientation concept developed by Narver and Slater (1990), which includes customer orientation, competitor orientation and inter-functional coordination. Most studies have treated these three components as the manifestations of a firm’s market orientation based on a reflective measurement model. This way of conceptualizing market orientation is not without criticisms (e.g. Cadogan et al., 2008) as it implies that the three components of market-oriented behaviors are interchangeable and replaceable. Therefore, the uniqueness of these three components is not accounted for. This, in our view, neglects the important and distinct implications of how a firm’s customer and competitor-oriented behaviors are affected by, and affect other constructs, when placed within a nomological model.

We focus on customer and competitor-oriented behaviors as part of a market orientation since these capture a firm’s market-oriented behaviors on the basis that customers and competitors are two key players in a firm’s network environment (Mattsson, 1997; Möller & Halinen, 1999). We are particularly interested in how network-oriented behaviors affect firm’s behaviors towards these two network actors. First, customer-oriented behaviors refer to firms’ tendencies to continuously create superior value for their customers based on a sufficient understanding of customers’ business environments (Narver & Slater, 1990). Secondly, competitor-oriented behaviors refer to firms’ tendencies to continuously seek to sense competitor actions and respond to them timely and appropriately (Narver & Slater, 1990). The means by
which a firm generates the necessary information and mobilizes certain resources (e.g. knowledge) in order to appropriately recognize, address and respond to customer needs and competitor actions have not been well articulated in the literature. Kohli and Jaworski (1990) merely describe in their seminal work that “a customer focus involves obtaining information from customers about their needs and preferences […] it goes far beyond customer research” (p. 3). They also stress that the necessary information for understanding customers’ current and future needs to include “exogenous market factors (e.g., competition, regulation)” (p. 3). In essence, behaviors aimed at going beyond direct interaction partners, such as network-oriented behaviors, are driving the process of recognizing, addressing and fulfilling customer needs.

Through its unique network position a firm can potentially obtain useful, possibly critical, information by interacting with its web of different types of relationships, be they well established or newly formed (Uzzi, 1996). Such network-oriented behaviors comprise different aspects: strong-tie relationships foster effective tacit or complex information transfer and resource mobilization across relationships, because of their established trust mechanism. On the other hand, weak-tie relationships provide a bridge that links novel information and resources to the focal firm. The combination of these two types of relationships to a certain extent would increase a firm’s success rate (Uzzi, 1996), since it can better understand its customers as well as its competitors by means of seeking information dispersed in the network that help ‘contextualize’ the identified issues at hand. We therefore hypothesize that:

**H1:** A firm’s network-oriented behaviors positively affect its customer-oriented behaviors.

**H2:** A firm’s network-oriented behaviors positively affect its competitor-oriented behaviors.
Relationship-oriented behaviors refer to a firm’s activities to coordinate with its counterparts based on involved parties’ mutual goals (Walter et al., 2006). Relationship-oriented behaviors are not specific to customers; rather they are also intended for suppliers, as well as other relevant business partners. The resource mobilization within a confined set of established relationships will allow firms to more effectively coordinate with each partner due to the level of trust and relational norms that have been established (Wuyts et al., 2004; Zaefarian et al., 2011). In addition, the understanding of the resource constellations surrounding the focal firm and the ability to mobilize resources via network-oriented behaviors allows the firm to utilize the available resources pooled from its relationship portfolio (Håkansson & Ford, 2002; Mouzas & Naudé, 2007). This has two strategic implications. First, firms are able to reconfigure the combinations of the available resources based on its goals (Hoffmann, 2007; Roseira et al., 2010). Secondly, they can identify other desirable resources that are not currently within the direct reach of the firms (Hoffmann, 2007). The contextual understanding of the resources embedded in the network and the ability to configure/reconfigure those resources through the use of network-oriented behaviors will allow a firm to make decisions as to whether or not to adjust the levels of relationship investments with each existing business partner, given their mutual goals. We therefore hypothesize:

H3: A firm’s network-oriented behaviors positively affect its relationship-oriented behaviors.

3.3. The Effects of Market- and Relationship-Oriented Behaviors

The effects of market-oriented and relationship-oriented behaviors have been well established and documented through empirical evidence in the literature (for a summary see Liao et al., 2011). Therefore, we treat the resulting hypotheses as an integral part of
the overall nomological model, which helps to conceptualize the impact of different firm behaviors on firm performance. Firm performance in this study refers to two different outcomes, namely financial performance and relational performance, the latter of which is particularly applicable for business-to-business studies (Bhappu & Schultze, 2006). Financial performance is based on a firm’s assessment of its profitability compared to its competition, in line with Venkatraman (1989). Relational performance refers to the overall effectiveness of a firm’s relationship portfolio (Johnson et al., 2004).

Being customer-oriented has been the pivot of the argument as to why businesses exist in that “to satisfy the customer is the mission and purpose of every business” (Drucker, 1973, p. 79). Being customer-oriented allows firms to more effectively deal with other important business partners in order to satisfy customers’ need (Smirnova et al., 2011). Customer-orientated behaviors therefore inform firms’ relationship coordinating activities that aim at better satisfying those needs. This is done, for example, through activities of demand chain integration (Jüttner et al., 2010). Hence:

\[ H4: \text{A firm's customer-oriented behaviors positively affect its relationship-oriented behaviors.} \]

In addition, customer-orientated behaviors help firms to become more aware of competition since satisfying customers require the identification of a competitive advantage over major competitive offerings and also relate to how firms react to competitor’s activities (Narver & Slater, 1990). Our next hypothesis is therefore:

\[ H5: \text{A firm's customer-oriented behaviors positively affect its competitor-oriented behaviors.} \]
The majority of the extant literature shows that more market-oriented firms perform better in their financial outcomes (Greenley, 1995; Jaworski & Kohli, 1993; Narver & Slater, 1990) and innovation success (Deshpandé et al., 1993; Narver et al., 2004). However, there is no specific empirical evidence to support the notion that both customer- and competitor-oriented behaviors independently lead to a superior profitability due to the fact that these two constructs are often conflated within the overarching market orientation construct. For example, Deshpandé et al. (1993) base their conceptualization of ‘customer orientation’ on the combination of Narver and Slater (1990) ‘customer orientation’ and ‘competitor orientation’, and provide evidence that of a positive effect on firm performance. We can therefore hypothesize that:

**H6: A firm’s customer-oriented behaviors positively affect its financial performance.**

**H7: A firm’s competitor-oriented behaviors positively affect its financial performance.**

Ample evidence in the literature of business-to-business marketing suggests that effective relationship management allows firms to achieve favorable relational outcomes, such as customer trust (Palmatier et al., 2008) and cooperation (Morgan & Hunt, 1994), as well as beneficial financial outcomes, such as customer value capture (Palmatier, 2008) and business performance (Smirnova et al., 2011). In addition, Johnson et al. (2004) suggest that a firm’s ability to manage relationship activities and initiate cooperation with business partners increases the effectiveness of the overall relationship portfolio. Given the evidence in the literature, we hypothesize that firms’ abilities to coordinate their business relationships allow them to develop a holistic view of their relationship portfolio and facilitate the optimized use of the resources within these portfolios, hence:
**H8: A firm’s relationship-oriented behaviors positively affect its relationship portfolio effectiveness.**

### 3.4. The Role of Network-Oriented Behavior on Firm Performance

The existing literature has yet to provide evidence on whether firms’ networking efforts can produce certain desired outcomes. Ford et al. (2003) contend that firms’ attempts to change their network position cannot be linked directly to any intended outcomes, as the affected business interactions are dynamic and fluid as well as complex. However, although a firm’s network-oriented behaviors might not result in direct contributions to its financial performance, it is plausible to infer that a firm’s strategic activities within its network, which are its network-oriented behaviors, help the overall effectiveness of its relationship portfolio (Hoffmann, 2007). Particularly, resource mobilization across various relationships fosters the effectiveness of its relationship exchanges based on its ‘network horizon’ that is the firm’s vision through which it grasps the dynamics in the network (Holmen & Pedersen, 2003). Here, for a firm’s relationship portfolio to be effective, the sensing and seizing aspects of network-oriented behaviors allow the firm to effectively utilize the pooled resources that are embedded in this portfolio (Thornton et al., 2013). We therefore hypothesize:

**H9: A firm’s network-oriented behaviors positively affect its relationship portfolio effectiveness.**

It is widely recognized that the ability to manage business relationships effectively is a key driver of a superior firm performance (Morgan & Hunt, 1994; Palmatier, 2008; Palmatier et al., 2008). These business relationships provide a firm with unique access to information, resources and opportunities that are crucial for firm success (Burt, 2000; Zaefarian et al., 2011). This uniqueness of resources embedded within the specific constellation of a relationship portfolio facilitates leveraging and utilizing different
configurations of these resources (Zaheer & Bell, 2005). These competitive advantages created from a firm’s effective relationship portfolio lead to a higher likelihood for a firm to strategically succeed (Gulati et al., 2000). The next hypothesis is therefore:

\[ H10: A \text{ firm's relationship portfolio effectiveness positively affects its profitability.} \]

3.5. **Moderation Effects**

Based on the nomological model of Figure 1, certain moderating factors are included. However, we focus on the innovative aspects of the model, which are the effects of network-oriented behaviors (while other possible moderation effect, such as those affecting market, competitor, or relationship-oriented behaviors are not included). If a firm’s network-oriented behaviors can help generate effective relationship portfolio, the question arises as to under which conditions these network-oriented behaviors are more or less likely to be successful in facilitating an effective relationship portfolio. We hypothesize one contextual factor and one firm-specific factor to amplify the relationship of network-oriented behaviors on relational performance.

Network-oriented behaviors are said to be crucial in specific contexts, for example a highly volatile environment in relation to technological developments (Möller & Halinen, 1999; Mouzas & Naudé, 2007). When technologies change rapidly within a firm’s environment, its ability to sense these dynamics and seize the opportunities will better enable the firm to utilize its existing relationship portfolio, and possibly change the formation of the portfolio in order to effectively compete in such a dynamic environment (Hagedoorn et al., 2006). We hypothesize that:

\[ H11: \text{The higher the technological turbulence, the stronger the positive effect of network-oriented behaviors on relationship portfolio effectiveness.} \]
Firms operating in business markets are commonly not in direct contact with the end users of the end product/service offerings to which they contribute, as their offerings (e.g. a component) may be only one part of the final offering to the customer. Alternatively, in the case of equipment, their offerings might only help transform resources into a final offering. A firm could be very ‘far’ away from the end users, if it is located at a more upstream position. The difference in firm position has an important implication related to how much insight it can gather through networking from its direct business partners about aspects further afield in the network, such as final customer preferences (Rowley, 1997; Wu, 2008). This issue of ‘closeness’ to the final customer relates to how closely a firm is located in the network in relation to the end users of the offering on the one hand, but also to how much, or how easily a firm interacts with the end users. However, there exist instances where it is not possible for a firm to interact with the end users due to contractual constraints with its direct customer.

We postulate that when firms are able to interact with the end users of their offerings, or are close to the end users, their network-oriented behaviors will be more effective in affecting their relationship portfolio effectiveness. Under such conditions, firms are likely to utilize their network-oriented behaviors strategically to more effectively utilize the relationship portfolio, hence:

\[ H12: \text{The closer a firm is to its end users, the stronger the positive effect of network-oriented behaviors on relationship portfolio effectiveness.} \]

4. Research Design

We chose UK services and manufacturing firms as the research context to study their behaviors towards their network, their relationships, and their customers and competitors. Given the fact that these firms are facing intensifying global competition
from other developing countries, the ability to leverage and mobilize resources in their networks becomes critical (Achrol & Kotler, 1999). This context is therefore well suited to the present study. In the following sections, we will detail the process of data collection, data diagnostics, measurement instrument development, and the validation of the measurement model. Data analysis was carried out using a combination of SPSS (ver. 20.0) and Mplus (ver. 7.11).

4.1. Sampling and Data Collection

We conducted a web-based survey using Qualtrics, an integrated platform for survey design and data collection. A panel database of managers working across a wide range of industries in the UK was utilized as a sampling frame for this study. Research invitations were sent to the potential respondents in the sampling frame in four batches between July and August 2013. We purposefully utilized three filtering questions to select suitable respondents from the sampling frame. The respondents were allowed to participate in this study if (1) their companies operated predominately in business-to-business markets, (2) their self-rated knowledgeability about the business relationships of the companies they represent was more than 4 out of a scale of 1 (poor) to 7 (excellent), and (3) their companies are within either the services or manufacturing sectors. Out of 6,715 potential respondents contacted, a total of 1,379 possible respondents were eligible for taking part in this study. After deleting the screen-out and incomplete responses, the survey resulted in 413 completed responses, a response rate of 29.9%. However, to ensure the quality of the dataset, we further eliminated responses completed in less than 5 minutes, which yielded 354 valid responses for the subsequent analyses. The threshold of 5 minutes was decided as the cut-off point of a ‘valid’ response based on a pre-test which showed that faster results indicated ‘pattern responses’ (Fricker et al., 2005).
Table 1 summarizes the profile of the respondents and their organizations. A total of 68.4% of the 354 respondents come from service industries, while 31.6% of them work in the manufacturing sector. In terms of their organizational size, 29.1% and 27.7% of them, respectively, are classified as small and medium businesses, while large businesses account for 43.2%. With regard to respondent characteristics, almost half of the respondents are at a position of middle to top management (44.6%), followed by owner or joint-owner (18.9%), managing director (15.0%) and other top-level directors (13.3%). In addition, just over half of the respondents have more than 10 years of managerial experience (53.4%), while 20.6% and 26.0% of them have 0-5 years and 6-10 years experience, respectively.

<table>
<thead>
<tr>
<th>Firm profile</th>
<th>Frequency</th>
<th>Percentage (%)</th>
<th>Respondent profile</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td></td>
<td></td>
<td>Job position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>242</td>
<td>68.4</td>
<td>CEO</td>
<td>16</td>
<td>4.5</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>112</td>
<td>31.6</td>
<td>Owner or joint-owner</td>
<td>67</td>
<td>18.9</td>
</tr>
<tr>
<td>Number of employees</td>
<td></td>
<td></td>
<td>Managing director</td>
<td>53</td>
<td>15.0</td>
</tr>
<tr>
<td>1-49</td>
<td>103</td>
<td>29.1</td>
<td>Other top-level director</td>
<td>47</td>
<td>13.3</td>
</tr>
<tr>
<td>50-249</td>
<td>98</td>
<td>27.7</td>
<td>Middle/high level manager</td>
<td>158</td>
<td>44.6</td>
</tr>
<tr>
<td>250-999</td>
<td>58</td>
<td>16.4</td>
<td>Others</td>
<td>13</td>
<td>3.7</td>
</tr>
<tr>
<td>1,000 and above</td>
<td>95</td>
<td>26.8</td>
<td>Yr. of managerial experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yr. of establishment (market presence)</td>
<td></td>
<td></td>
<td>0-5</td>
<td>73</td>
<td>20.6</td>
</tr>
<tr>
<td>0-10</td>
<td>114</td>
<td>32.2</td>
<td>6-10</td>
<td>92</td>
<td>26.0</td>
</tr>
<tr>
<td>11-20</td>
<td>110</td>
<td>31.1</td>
<td>11-15</td>
<td>63</td>
<td>17.8</td>
</tr>
<tr>
<td>21-30</td>
<td>54</td>
<td>15.3</td>
<td>16-20</td>
<td>47</td>
<td>13.3</td>
</tr>
<tr>
<td>31-40</td>
<td>25</td>
<td>7.1</td>
<td>21 and above</td>
<td>79</td>
<td>22.3</td>
</tr>
<tr>
<td>41 and above</td>
<td>51</td>
<td>14.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2. Data Diagnoses

Normality is a fundamental assumption in any multivariate data analysis. A two-step approach was taken to assess the normality assumption of the data. First, a univariate normality test was undertaken by assessing the absolute values of skewedness and kurtosis of each indicator regarding the key constructs of the hypothesized structural model. The result shows that in most cases the absolute values range from 0.026 to
2.227, with the majority being below 1. Overall, the diagnosis of skewedness and kurtosis indicates that the data is moderately non-normal. In addition, both the Kolmogorov-Smirnov and Shapiro-Wilks tests show that all indicators for the key constructs have a distribution that significantly deviates from the normal distribution. Secondly, the multivariate normality test based on Mardia skewness and kurtosis coefficients indicates that the actual sample values are significantly different from the estimated value. This leads us to conclude that there is evidence to suspect the data is moderately non-normal. Nevertheless, the advancement of estimation methods ensures the robustness of assessing non-normal data. In line with the data diagnosis, the conventional estimation method, maximum likelihood, which is robust for normally distributed data, will not be used in the subsequent structural path tests. Instead, maximum likelihood parameter estimates with standard errors and a mean-adjusted chi-square (Satorra-Bentler chi-square) test statistics that are robust for non-normal data will be employed (Satorra & Bentler, 2001).

Homoscedasticity, a key assumption of equal levels of variance across variables, needs to be met when the data includes different groups of respondents. It ensures that “dependent variables exhibit equal levels of variance across the range of predictor variable(s)” (Hair et al., 2007, p. 83). As the data was collected from two key industry sectors, services and manufacturing, the Levene test was performed to assess the dispersion of variances in the key variables across these two groups. Non-significance of the Levene statistic for all constructs suggests that there are equal levels of variance across dependent and independent constructs.

We used an extrapolation method (e.g. comparing early and late responses) to assess possible non-response bias in the data (Armstrong & Overton, 1977). We use the first and the fourth quartiles based on the time between completion of the survey and the
time they were invited as early and late respondents. The late respondents are assumed to approximate non-respondents. Both key respondent profile variables (company size, job position and years in the current job position) and the main construct variables (network-oriented, customer-oriented, competitor-oriented and relationship-oriented behaviors) were compared across early and late response groups, using a series of independent t-tests to compare means of continuous variables and $\chi^2$ difference tests for categorical variables. The results of these tests show no significant difference across these two groups, which lead us to conclude that nonresponse bias is not a concern for our data.

4.3. Construct Measurements

We adapted most measures from the existing literature as prior studies provide satisfactory reliability and validity results. A seven-point Likert scale, labeled at the two endpoints, 1 = ‘completely disagree’ and 7 = ‘completely agree’, was used for most multi-item measures that reflect underlying constructs, unless otherwise stated. The full list of measures can be found in Appendix A.

Network-oriented behaviors is a second-order formative construct, measured by four reflective first-order constructs based on the empirical study of Thornton et al. (2014). The four key components are information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization, which are measured by four reflective indicators respectively. These four components with reflective indicators will be modeled to form the overarching organizational networking behaviors as a second order formative construct. Based on the empirical results of their study, the measurement model produces a good fit (RMSEA = 0.041, SRMR = 0.048, NFI = 0.98, CFI = 0.99, IFI = 0.99, GFI = 0.93, AGFI = 0.91) and shows that all four components (standardized coefficients are 0.29***, 0.28***, 0.42***, 0.18** respectively) are
significant contributors to the second-order formative construct through the validation process of a multiple indicators and multiple causes (MIMIC) model (Diamantopoulos & Winklhofer, 2001).

Customer-oriented behaviors and competitor-oriented behaviors are adapted from Narver and Slater (1990). These two constructs are part of their market orientation operationalization in relation to the two key counterparts in a focal firm’s network environment. The components of customer orientation and competitor orientation, plus a third aspect of inter-functional coordination, each measured by reflective indicators, are mostly used to reflect the market orientation construct. However, more recent literature has disputed this approach, claiming that the three components should be modeled to form market orientation (i.e. as a second order formative construct), because they are not interchangeable (Cadogan et al., 2008). While being aware of these discussions, in line with the evidence provided by Siguaw and Diamantopoulos (1995), we treat customer-oriented behaviors and competitor-oriented behaviors as two separate constructs that are measured reflectively by their respective three indicators.

Relationship-coordinating behaviors is measured with four items adapted from Walter et al. (2006). These indicators tap into the extent to which a focal firm coordinates resources and activities according to the match of resources and activities with each partner, which can be its customer or supplier.

We developed a new scale for one of the moderation variables, closeness to end user, based on two items measuring the extent to which a focal firm feels close to the end users of their offerings, with which it has only indirect relationships. In addition, we adapted constructs for technology turbulence, competitive intensity and market turbulence from Jaworski and Kohli (1993), each of which has three items.
There are two performance variables in the measurement model. The relational performance is measured by *relationship portfolio effectiveness*, which is adapted from Johnson *et al.* (2004). Three items are used to measure the effectiveness of a focal firm’s overall relationship portfolio. The financial performance is measured by *firm profitability* with three items adapted from Venkatraman (1989) that indicate a focal firm’s assessment of its profitability position in relation to competition.

We also employed a range of control variables. *Industry growth* is measured by a single item indicating the overall industry growth in the UK ranging from poor to excellent (7 point scale). *Market presence* is measured by a single item indicating the number of years that a firm has been established in the UK. *Firm size* is measured by number of employees (based on 10 categories).

### 4.4. Assessing the Measurement Model

The measurement model as a whole was assessed by a confirmatory factor analysis using Mplus (ver. 7.1) in order to establish the level of model fit. All 11 constructs are modeled as reflective measurements (including four first-order constructs that form the second-order formative construct of network-oriented behaviors) based on their respective theorized factors. The measurement model specification allows each construct to covariate with all others. The model fit indices are as follows; $\chi^2 (574) = 881.169 \text{ (} p < 0.000\text{)}$, comparative fit index (CFI) = 0.96, Tucker-Lewis index (TLI) = 0.95, root mean square error of approximation (RMSEA) = 0.039 and standardized root mean square residual (SRMR) = 0.036. A significant $\chi^2$ can be expected and still indicates a good model fit, when the sample size is more than 250 (sample size = 354 in our study) and the observed variables are more than 12 (number of items in the measurement model = 37) (Hair *et al.*, 2008). In addition, the ratio of $\chi^2 / \text{degree of}$
freedom at 1.54 (< 2), indicates a very good fit (Hair et al., 2008). We therefore conclude that these indices are in support of a good measurement model fit.

For assessing the convergent validity of all the constructs in the measurement model we closely follow a comprehensive procedure proposed by Hair et al. (2008). First, all the items have factor loadings above 0.7 (0.71-0.92) (see Appendix A), which is well above the cut-off point of 0.5. According to the results presented in Table 2, average variance extracted (AVE) by each factor (0.63-0.80) is well above the cut-off point of 0.5. All factors show very good levels of internal consistency, as their composite reliability (CR) is between 0.86-0.92, which is well above the suggested threshold of 0.6-0.7 as a minimum. Based on the above evaluation, we conclude that the measurement model has satisfied the criteria of convergent validity. In addition, correlations between any given two factors are substantially smaller than 1, and the AVE for any given two factors is greater than the squared correlation between these two factors (Fornell & Larcker, 1981). Therefore, all factors in the measurement model display adequate discriminant validity.

Table 2  Statistics for convergent and discriminant validity

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>AVE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information Acquisition</td>
<td>0.89</td>
<td>0.67</td>
<td><strong>0.67</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Opportunity Enabling</td>
<td>0.89</td>
<td>0.68</td>
<td>0.59</td>
<td><strong>0.68</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Strong-tie Resource Mobilization</td>
<td>0.89</td>
<td>0.68</td>
<td>0.49</td>
<td>0.47</td>
<td><strong>0.68</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Weak-tie-Resource Mobilization</td>
<td>0.87</td>
<td>0.63</td>
<td>0.57</td>
<td>0.57</td>
<td>0.48</td>
<td><strong>0.63</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Customer Orientation</td>
<td>0.90</td>
<td>0.75</td>
<td>0.35</td>
<td>0.43</td>
<td>0.40</td>
<td>0.27</td>
<td><strong>0.75</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Competitor Orientation</td>
<td>0.86</td>
<td>0.68</td>
<td>0.37</td>
<td>0.49</td>
<td>0.48</td>
<td>0.51</td>
<td>0.56</td>
<td><strong>0.68</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Relationship Coordination</td>
<td>0.92</td>
<td>0.74</td>
<td>0.53</td>
<td>0.58</td>
<td>0.38</td>
<td>0.50</td>
<td>0.65</td>
<td>0.57</td>
<td><strong>0.74</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Relationship Portfolio Effectiveness</td>
<td>0.91</td>
<td>0.77</td>
<td>0.41</td>
<td>0.43</td>
<td>0.42</td>
<td>0.29</td>
<td>0.50</td>
<td>0.42</td>
<td>0.53</td>
<td><strong>0.77</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Firm Profitability</td>
<td>0.92</td>
<td>0.80</td>
<td>0.25</td>
<td>0.21</td>
<td>0.27</td>
<td>0.21</td>
<td>0.17</td>
<td>0.28</td>
<td>0.22</td>
<td>0.45</td>
<td><strong>0.80</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Closeness to end users</td>
<td>0.88</td>
<td>0.79</td>
<td>0.32</td>
<td>0.31</td>
<td>0.18</td>
<td>0.23</td>
<td>0.28</td>
<td>0.35</td>
<td>0.37</td>
<td>0.38</td>
<td>0.18</td>
<td><strong>0.79</strong></td>
<td></td>
</tr>
<tr>
<td>11. Technological Turbulence</td>
<td>0.91</td>
<td>0.77</td>
<td>0.25</td>
<td>0.28</td>
<td>0.28</td>
<td>0.38</td>
<td>0.21</td>
<td>0.25</td>
<td>0.28</td>
<td>0.20</td>
<td>0.18</td>
<td>0.11</td>
<td><strong>0.77</strong></td>
</tr>
</tbody>
</table>

Notes: AVE in bold on the diagonal; squared correlations between constructs below the diagonal.

Common method bias is assessed next. The general consensus suggests that wherever possible a procedural prevention should be taken in the first place to mitigate the threat
of such bias derived from common methods, such as same source data (e.g. self-report survey). We have carefully designed certain aspects of the measurement instrument based on our assessment of the possible sources of method variances (Spector, 2006). For example, we intentionally randomized question order to break up the causal relationships of the substantive constructs under study (Podsakoff et al., 2003). We also used Likert as well as semantic scales interchangeably and appropriately without overloading respondents cognitive tasks by using 7-point rating scales throughout when applicable (Podsakoff et al., 2012). We employed a knowledgeability question at the beginning of the on-line questionnaire to ensure that only those respondents who are capable of answering the following questions will continue filling out the questionnaire (Spector, 2006).

The statistical assessment of common method bias involves two steps as part of the most widely used Harman’s single factor test using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). First, in the EFA all the items in the measurement model were entered and the result reveals that the first factor does not explain the majority of the variance (47%), considering the number of constructs are relatively great. Secondly in the CFA we compared the theorized multi-factor measurement model against a single-factor model with all indicators loaded on it. The single factor-solution produces a significantly inadequate fit ($\chi^2(665) = 3318.49 \ (p < 0.000)$, CFI= 0.66, TLI = 0.64, RMSEA = 0.110, SRMR = 0.083) compared to the multi-factor solution. The $\chi^2$-difference test (Satorra-Bentler scaled) shows that the hypothesized measurement model fits the data significantly better than the single-factor model ($p < 0.001$). Given the procedural remedies we have taken and the results of the above analyses, we reasonably conclude that common method bias is not cause for concern in the assessment of the hypothesized structural model.
5. Assessing Hypothesized Structural Model

We modeled the four components of network-oriented behaviors as formative indicators based on *a priori* theory (Thornton et al., 2014). One fundamental issue of any formative measurement is the extent of multicollinearity among the formative indicators, the presence of which will make it difficult to assess the unique contribution from each of them (Diamantopoulos & Winklhofer, 2001). To assess multicollinearity, four multiple regressions were performed. In each of them a formative indicator was regressed on the remaining three in order to obtain the variance inflation factors (VIF). The VIF ranges from 1.820 to 2.192, which is well below the suggested threshold of 10 (e.g. Hair et al., 2008), and within the more stringent cutoff point of 3 (Petter et al., 2007). Multicollinearity therefore does not pose a threat for modeling organizational networking behavior as a formative measurement, the disturbance term of which has been set to 0, in line with the specification of a formative measurement embedded in a structural model.

5.1. Main Effects

We test the structural equation model containing all the hypothesized direct effects using Mplus with adjusted maximum likelihood estimation as noted. The model provides a good fit: $\chi^2 (df = 185) = 377.633 \ (p < 0.000)$, CFI= 0.95, TLI = 0.94, RMSEA = 0.054, SRMR = 0.047). Almost all hypothesized paths are statistically significant and in the expected direction except one path related to the relationship of customer-oriented behaviors on firm profitability (see Table 3). First, as can be seen from Table 3 network-oriented behaviors positively affect customer-oriented ($\beta_1 = 0.68$, $p < 0.001$), competitor-oriented ($\beta_2 = 0.44$, $p < 0.001$) and relationship coordinating behaviors ($\beta_3 = 0.41$, $p < 0.001$), in support of H1, H2 and H3 that network-oriented behaviors are indeed a driver of other firm behaviors.
Secondly, customer-oriented behaviors have positive impact on relationship coordinating behaviors ($\beta_4 = 0.54, p < 0.001$), and competitor-oriented behaviors ($\beta_5 = 0.46, p < 0.001$) in support of H4 and H5. In contrast, we found no evidence to support H6 as customer-oriented behaviors have no significant effect on firm profitability ($\beta_6 = -0.18, p = 0.52$). We also found that competitor-oriented behaviors positively affect firm profitability ($\beta_7 = 0.21, p < 0.05$), in support of H7. Also, we found support for H8: relationship-coordinating behaviors positively affect portfolio effectiveness ($\beta_8 = 0.51, p < 0.001$).

Finally, we examine the role of network-oriented behaviors in relation to relationship portfolio effectiveness ($\beta_9 = 0.30, p < 0.001$), as well as the effect of the latter on firm profitability ($\beta_{10} = 0.47, p < 0.001$). The results support both H9 and H10.

Table 3  Hypothesis test: main effects

<table>
<thead>
<tr>
<th>Hypothesized path</th>
<th>Standardized coefficient</th>
<th>z-value</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effect of network-oriented</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network-oriented $\rightarrow$ customer-oriented</td>
<td>0.68</td>
<td>16.86***</td>
<td>H1</td>
</tr>
<tr>
<td>Network-oriented $\rightarrow$ competitor-oriented</td>
<td>0.44</td>
<td>5.99***</td>
<td>H2</td>
</tr>
<tr>
<td>Network-oriented $\rightarrow$ relationship coordinating</td>
<td>0.41</td>
<td>6.08***</td>
<td>H3</td>
</tr>
<tr>
<td><strong>Effect of market-oriented &amp; relationship-oriented</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer-oriented $\rightarrow$ relationship coordinating</td>
<td>0.54</td>
<td>8.24***</td>
<td>H4</td>
</tr>
<tr>
<td>Customer-oriented $\rightarrow$ competitor-oriented</td>
<td>0.46</td>
<td>5.81***</td>
<td>H5</td>
</tr>
<tr>
<td>Customer-oriented $\rightarrow$ profitability</td>
<td>-0.18</td>
<td>-1.61</td>
<td>H6</td>
</tr>
<tr>
<td>Competitor-oriented $\rightarrow$ profitability</td>
<td>0.21</td>
<td>2.16*</td>
<td>H7</td>
</tr>
<tr>
<td>Relationship coordinating $\rightarrow$ portfolio effectiveness</td>
<td>0.51</td>
<td>5.67***</td>
<td>H8</td>
</tr>
<tr>
<td><strong>Effect of network-oriented $\rightarrow$ firm performance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network-oriented $\rightarrow$ portfolio effectiveness</td>
<td>0.30</td>
<td>3.39***</td>
<td>H9</td>
</tr>
<tr>
<td>Portfolio effectiveness $\rightarrow$ profitability</td>
<td>0.47</td>
<td>5.49***</td>
<td>H10</td>
</tr>
<tr>
<td><strong>Control variables $\rightarrow$ firm performance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market presence $\rightarrow$ profitability</td>
<td>-0.03</td>
<td>-0.62</td>
<td></td>
</tr>
<tr>
<td>Industry growth $\rightarrow$ profitability</td>
<td>0.42</td>
<td>8.27***</td>
<td></td>
</tr>
</tbody>
</table>

Proportion of variance explained ($R^2$)  

<table>
<thead>
<tr>
<th></th>
<th>Proportion of variance explained ($R^2$)</th>
<th>Model fit index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer-oriented behaviors</td>
<td>46%</td>
<td>Pearson ($\chi^2$) = 377.63 (185) (p &lt; 0.000)</td>
</tr>
<tr>
<td>Competitor-oriented behaviors</td>
<td>67%</td>
<td>$\chi^2$/$df$  = 2.04</td>
</tr>
<tr>
<td>Relationship coordinating behaviors</td>
<td>77%</td>
<td>CFI  = 0.95</td>
</tr>
<tr>
<td>Network-oriented behaviors</td>
<td>n/a</td>
<td>TLI  = 0.94</td>
</tr>
<tr>
<td>Portfolio effectiveness</td>
<td>58%</td>
<td>RMSEA  = 0.054</td>
</tr>
<tr>
<td>Profitability</td>
<td>56%</td>
<td>SRMR  = 0.047</td>
</tr>
</tbody>
</table>

$z$-value is the standardized coefficient divided by its standard error (Byrne, 2012). A value of greater than 1.96 indicates the value is significantly different from zero based on a 95% confidence level.

* p < 0.05, ** p < 0.01, *** p < 0.001
In addition, we also test whether portfolio effectiveness mediates (1) the effect of network-oriented behaviors on firm profitability, and (2) the effect of relationship coordinating behaviors on firm performance. We test the mediation effect by using path analysis within the model with two further previously non-hypothesized direct relationships of (1) and (2). With regard to (1), the result shows that while network-oriented behaviors do not affect firm profitability directly, the full mediation effect of the relationship through portfolio effectiveness is positive and significant ($p < 0.05$). Similarly, given the direct relationship of (2) is non-significant, the test of the mediation effect corroborates that portfolio effectiveness fully mediates the impact of relationship coordinating behaviors on firm profitability ($p < 0.001$).

5.2. Moderation Effects

Although we do not expect the causal relationships in the overall structural model to differ under the influence of the contextual factors, we treat them as control variables and see whether the model holds for large as well as small firms, and for low and high levels of environmental volatility. To test changes in causal relationships across different groups, multi-group analyses were used. We utilize a composite variable from market turbulence, technological turbulence and competitive intensity (Jaworski & Kohli, 1993) to denote the level of volatility in a firm’s business environment. We take a median split to form two groups: lower ($n = 177$) and higher volatility ($n = 177$). After partial metric invariance was established (Hair et al., 2008), we specify a structural model allowing all path parameters to be freely estimated across two groups, against which a model is also specified with all path constrained across two groups. A $\chi^2$-difference test (Satorra-Bentler Scaled) between these two models ($\chi^2(df) = 13.26$ (10), $p = 0.21$) reveals that there is no difference in model fit, which means that the causal relationships do hold across lower and higher volatility groups.
The same procedure was carried out to assess whether the model holds across smaller and larger firms. Again we use a median split for 10 categories of firm size (measured by the number of employees) to form two groups: smaller firms with employees under 249 (n = 201) and larger firms with employees more than 250 (n = 153). A $\chi^2$-difference test (Satorra-Bentler scaled) between the freely estimated model and the constrained model ($\chi^2 (df) = 34.04 \ (10), p < 0.001$) indicates that the causal relationships in the structural model do not hold across smaller and larger firms. The most notable differences based on a loose multi-group comparison, using the same model estimated separately in the two groups, are the paths for customer-oriented and competitor-oriented behaviors on firm profitability. Strikingly, for smaller firms, competitor-oriented behaviors do not contribute to firm profitability ($\beta = 0.20, p = 0.071$), whereas for the larger firms, the same set of behaviors significantly and strongly affect firm profitability ($\beta = 0.52, p < 0.001$). Furthermore, customer-oriented behaviors have no impact on smaller firms’ profitability ($\beta = -0.15, p = 0.21$); whereas the same behaviors have a significant and negative impact on larger firms’ profitability ($\beta = -0.48, p < 0.001$). While this is an intriguing finding, we will refrain ourselves from further elaborating these results since it is out of the scope of this study.

In order to test the two hypothesized moderation effects, we employ a Latent Moderated Structural Equations approach (LMS) with adjusted maximum likelihood estimation specifically developed for dealing with “the distributional characteristics of the nonnormally distributed joint vector in a latent interaction model” (Klein & Moosbrugger, 2000, p. 473). LMS is a relatively robust method for assessing interaction effects embedded in a structural model (Little et al., 2009). We have also taken the decision to adopt this approach over a multi-group analysis on the basis that the latter does not allow us to assess multiple interaction effects; neither does it take into account
the measurement errors in the structural model. Since Mplus is used for testing the latent interaction effects, we closely follow Muthén (2012) and Muthén and Asparouhov (2003) for model specification and result interpretation.

Within the direct effect model we added the two moderation constructs, i.e. closeness to end users and technological turbulence, on which the dependent constructs, relationship portfolio effectiveness is regressed, according to H11 and H12. We specified two interaction terms, network-oriented behaviors and closeness to end users, and relationship portfolio effectiveness and technological turbulence, on which relationship portfolio effectiveness and firm profitability are regressed. Note that Mplus is capable of handling a structural equation model with multiple latent interactions, using the LMS approach. However, Mplus only provides unstandardized coefficients and very limited model fit output. Although it does not allow assessing the effect size (R^2), it does allow for testing the hypothesized multiple interaction effects in the direct effect model. The results show that the relationship of network-oriented behaviors on relationship portfolio effectiveness is strengthened by the degree of end user closeness (p < 0.01), but not by the level of technological turbulence. Therefore, H11 is supported, whereas H12 is not. The unstandardized coefficients of network-oriented behaviors (b = 0.107, p < 0.001), closeness to end users (b = -0.223, p = 0.117) and their interaction term (b = 0.030, p < 0.01) were used to calculate the predicted values of relationship portfolio effectiveness based on high and low values (+1 and -1 standard deviation) of the predictor and the moderator (Aiken & West, 1991; Dawson, 2013). The predicted values are depicted in Figure 2, which shows that the relationship of network-oriented behaviors on relationship portfolio effectiveness is strengthened by a high degree of end user closeness (the dotted line) compared to a low degree of end user closeness (the continuous line).
6. Discussion and Implications

We set out to understand, from a resource dependence perspective, whether a firm’s network-oriented behaviors in response to its network environment help it to perform better (Pfeffer & Salancik, 1978; Salancik, 1995). The consensus in the network literature suggests that firms that are better positioned in the network perform better than their counterparts that occupy worse positions. However, it is also evident that firms with a similar network position have different levels of performance (Zaheer & Bell, 2005). One explanation for this relates to the fact that the network position of a firm can be strategically changed through network-oriented behaviors by changing either the structure of the relationship portfolio or the patterns of interactions with interaction partners (Gulati, 1999; Robert, 1992). On the other hand, the actions by others in the network can also change a focal firm’s network position (Ford &
Håkansson, 2006). Network-oriented behaviors are therefore strategic acts that have the purpose of responding to the dynamics of the network and proactively creating ways of leveraging resources (Thornton et al., 2013).

Against this backdrop of a theoretical framework, we offer a conceptual model that outlines how a firm can utilize different organizational behaviors, specifically its network-oriented behaviors, to understand its customers and competitors, and coordinate with its important business partners within the network. This framework provides an explanation as to how firms’ strategic behaviors contribute to firm performance, either directly or indirectly. The following discussion of the results from our empirical analysis of this conceptual model is structured around the three themes underlying our nomological model, followed by managerial implications, limitations and future research directions.

6.1. Network-Oriented Behaviors as a Driver of Market- and Relationship-Oriented Behaviors

Network-oriented behaviors are hypothesized in this study as the driving force of a firm’s behaviors towards its direct customers and its competitors, and the relational interactions towards its important business partners. This is partly built on Day’s (1994) theory of a market driven firm, including the concept of market orientation. He argues that from a strategic management perspective, a market driven firm should be equipped with both ‘customer linking’ and ‘market sensing’ behaviors. He also suggests that a firm’s market orientation needs to be enhanced by its constant learning that brings about the development of necessary capabilities and competencies for sustaining its organizational success.

It is evident from our study that a firm’s network-oriented behaviors positively affect its customer-, competitor- and relationship-oriented behaviors, and explain a large
proportion of the variances of these constructs (46%, 68% and 77%, respectively). Our findings therefore provide empirical evidence for Day’s (1994) argument in that network-oriented behaviors as sensing and seizing activities, which are the configuration of four broad sets of goal-driven behaviors, namely information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization. Note that all of these four formative indicators significantly contribute to the overall network-oriented behaviors (standardized coefficients are 0.22, 0.44, 0.29, 0.21), which largely corroborates the result of Thornton et al. (2013).

6.2. The Effects of Market- and Relationship-Oriented Behaviors

Although assessing the effects of market- and relationship-oriented behaviors is not our main contribution, some relevant aspects regarding firm performance need to be mentioned. We deviate from the predominant approach of aggregating different components of market-oriented behaviors, and treat customer- and competitor-oriented behaviors as two separate constructs. The results show that customer-oriented behaviors have no direct influence on a firm’s financial performance, whereas competitor-oriented behaviors have a significantly positive impact. This is somewhat surprising against the backdrop of the extant literature suggesting that the core of market-oriented behaviors is a ‘customer focus’ with some even arguing that a customer orientation is analogous to a market orientation (Deshpandé & Farley, 1998; Deshpandé et al., 1993). It is evident from more recent studies that market orientation does not necessarily lead to a superior firm performance. Cadogan et al. (2009) show that the impact of market orientation on performance is an inverted U shape, which implies that being overly market-oriented can be detrimental to a firm’s success. Grewal and Tansuhaj (2001) conclude that a firm’s market orientation has a negative effect on firm performance after an economic
crisis. In addition, the effect is weakened by demand and technological uncertainty and is strengthened by competitive intensity.

The fact that a customer focus does not impact on a firm’s profitability can be due to the fact that being customer oriented has become a necessity, rather than a competitive advantage, which is in part echoing the argument provided by Kumar et al. (2011). Furthermore, we argue that a customer focus can have an impact on firm profitability only through adopting a competitor orientation. A post-hoc mediation effect analysis was carried out to ascertain this inference. Indeed, the result suggests that competitor-oriented behaviors mediate the positive impact of customer-oriented behaviors on firm profitability. This implies that being overly customer-oriented is detrimental to a firm’s profitability since it might require unnecessary capital investments in order to fulfill customer needs. This type of investment arguably would contribute to sales growth, but it is questionable as to whether it is profitable to do whatever customers require. It is only through becoming aware of competitors that a firm can count on its customer focus being a profit contributor. Therefore, our result does not imply that a firm should not be customer-oriented. Rather, being customer-oriented is necessary for developing a firm’s competitor-oriented behaviors, and it is the latter that allows firms to increase their profitability.

A multi-group analysis based on firm size reveals that for smaller firms customer-oriented behaviors have no impact on financial performance, whereas the same behaviors have a significant negative impact on larger firms’ profitability. For smaller firms being market-oriented or not is independent of how they perform, since they rely on the effective use of their relationship portfolio to sustain their financial performance. This may imply that due to the resource constraints of smaller firms, they need to leverage their counterparts’ resources in order to compete in the market place, in line
with the resource dependence theory (Pfeffer & Salancik, 1978). Larger firms, on the other hand, face a negative impact on their financial performance from being customer-oriented, whereas other organizational behaviors, such as understanding their major competition in the market and utilizing their relationship portfolio effectively, are both important in driving financial performance.

A firm’s relationship-oriented behaviors, such as its ability to coordinate with its important partners, positively affects the effectiveness of its overall relationship portfolio, which in turn serves as an influential factor that contributes to a firm’s financial performance. However, the multi-group analysis, again based on firm size, reveals that in the case of smaller firms competitor-oriented behaviors do not contribute to their financial performance ($\beta = 0.20, p = 0.071$), whereas for larger firms, the same set of behaviors significantly affect firm profitability ($\beta = 0.52, p < 0.001$).

In this context, our findings echo Kumar et al. (2011) that market oriented-behaviors have gradually become a prerequisite for any firm to compete in the market place, rather than a competitive advantage. Furthermore, being market-oriented could be a mere ‘self-portrait’ rather than a true representation of a market-centric approach (Deshpandé et al., 1993). Our finding is certainly not to suggest that firms should not be customer-focused, but rather that a customer focus is essential according to our research result particularly for firms to develop their competition awareness and foster coordination with important business partners in order to better utilize resources to fulfill customer needs.

6.3. The Role of Network-Oriented Behaviors on Firm Performance

The network-oriented behaviors are outward facing and can be seen as a constant evolving learning mechanism that represent a firm’s orientation towards its network context (Day, 2000; Thornton et al., 2013). This learning mechanism is not directly a
‘profit spinner’, i.e. a driver of firm profitability, but rather it serves as an enabling force of other organizational behaviors (market, competitor and relationship specific ones) (Day, 2000). However, besides these indirect effects, network-oriented behaviors also directly affect relationship portfolio effectiveness, which is in itself an important driver of firm profitability. Network-oriented behaviors serve to effectively impact the way in which a firm coordinates with its important partners. Through network-oriented sensing and seizing efforts firms are more likely to recognize the scarce resources in the network and how they can be mobilized by effective coordination with business partners (Cui & O'Connor, 2012; Mouzas & Naudé, 2007). These network-oriented behaviors have a bearing on the effectiveness of a firm’s relationship portfolio. Strong-tie resource mobilization fosters resource synergies within the existing relationship portfolio (Roseira et al., 2010), and prompts an understanding of redundant resources within the existing portfolio (Hagedoorn et al., 2006). The effectiveness of the overall relationship portfolio also benefits from introducing new relationships based on network-oriented behaviors. This approach fosters the use of novel resource combinations through weak-tie resource mobilization, which provides new opportunities for a firm (Burt, 2000; McEvily & Zaheer, 1999).

Our research results suggest that network-oriented behaviors do not affect a firm’s financial performance directly. However, their indirect impact on financial performance through relationship portfolio effectiveness on the one hand, and other organizational behaviors on the other, provides important theoretical contribution towards explaining firm performance in business networks. The effect of network-oriented behaviors on portfolio effectiveness is strengthened by a firm’s degree of end user closeness, but not by the technological turbulence, according to our latent interaction model results. First, this implies that regardless of the levels of technological turbulence, network-oriented
efforts are influential for a firm to increase the effective use of the existing relationships within its relationship portfolio. Secondly, when a firm is able to understand the end users of its offerings by being close to them, the sensing and seizing as part of network-oriented behaviors can be utilized to form a superior understanding of demand chain integration and thereby allows for an optimization of the effectiveness of the firm’s relationship portfolio (Jüttner et al., 2010).

6.4. Managerial Implications

Our study suggests that firms operating in business-to-business markets need to strategize in networks (Holmen & Pedersen, 2003), which means that they need to show behaviors beyond customer, competitor and relationship orientation. We offer three implications for the practitioner based on the research findings. First, firms need to take a configuration approach to the planning of their network-oriented behaviors as the four dimensions are complimentary to each other (Meyer et al., 1993; Vorhies & Morgan, 2003). As such, our study supports Thornton et al.’s (2013) suggestion that “firms need to carefully plan these different types of networking activities/routines/practices, using a portfolio approach, to maximize the utility their network context can afford” (p. 1163).

Secondly, the presence of a firm’s customer-oriented behaviors is not necessarily fostering a superior financial performance, but rather, firms need to beware of competition within the context of the network. Competitor-oriented behaviors can be better gaged and adjusted through assessing how competitor actions are likely to impact the existing use of resources for fulfilling current and future customer needs. Thirdly, rather than focusing on business partners in a dyadic sense, i.e. via individual relationship management activities, firms need to plan their interactions with each business partner, which include activity adjustment, knowledge exchange and resource
configuration, based on the overall picture of other direct as well as indirect relationships. This signifies that a relational portfolio approach within the context of the network is necessary. This will allow firms to plan their relationships with each important business partner accordingly, including the interactions between these relationships, which will in turn fosters a more effective use of relationship portfolio (Johnson et al., 2004; Roseira et al., 2010).

Lastly, firms may try to get to understand the end users of their offerings, although some firms might find it difficult even to identify them since the demand chain might be lengthy in some instances. Although empirical evidence regarding firms’ considerations of their indirect customers is limited, the understanding of possible value creation in the context of the wider demand network is an important managerial issue (Henneberg & Mouzas, 2008). Our findings show that when firms feel that they are close to their end users, their network-oriented behaviors are more effective in impacting on overall relationship portfolio effectiveness. This can be achieved through three means. First, a firm can gather relevant information about the end users of its offerings from its direct customers. This could be relatively effective if these relationships are well established, which allows effective transfer of valuable information (Uzzi, 1996). Secondly, a firm can gather insights directly from the end users of its offerings with the help of its direct customers, who can act as a go-between to provide a bridge for the interactions (Smith & Laage-Hellman, 1992). Thirdly, if the existing relationships do not allow such interactions, a two step-leverage can be employed to form new relationships with relevant parties in the network in order to be closer to the end users (Burt, 2000; Gargiulo, 1993).
6.5. **Limitations and Future Research Directions**

Any research study exhibits certain limitations, based on one’s research design choices. We would like to focus on two such limitations. First, industry specifics may have affected our findings in some way, based on our choice of the research setting. We chose both manufacturing and services sectors for our study based on the evidence of a measurement invariance test by Thornton *et al.* (2014). The results of their study show that there exist no significant differences in the way managers in these two sectors use network-oriented behaviors. We are mindful that differences could be significant even among different industries in the manufacturing or the services sector. However, the non-significant Levene statistics of the key variables suggest that there are equal levels of variance across these variables, which means that we can be confident in the assessment of the causal relationships among the constructs. Secondly, the use of Mplus as the main tool for assessing the latent interaction effects does not allow us to further evaluate the standardized coefficients and the effect size of the interactions. Because of this limitation, we can only state that the significant interaction effect suggests that the hypothesis is supported, but we cannot ascertain whether or not the interaction has a substantial effect on the outcome. Although we did provide the interaction plot to show the effect, this is only for interpretational purpose, rather than precisely assessing the strength of the interaction and how much variance of the outcome variable has been explained by the interaction term (Aiken & West, 1991; Dawson, 2013). The advancement of Mplus computational capabilities in relation to producing output for latent interaction will enhance future research’s ability to provide more precise estimation of such effect.

In relation to the first limitation, we propose that future research could duplicate this study in different research settings, such as in a specific industry. Although there is no
evidence to suggest that technological turbulence affects the effectiveness of a firm’s network-oriented behaviors, a comparison of the specific configurations of the four different sub-dimensions of network-oriented behaviors between firms in a high-technology industry with much environmental turbulence and those firms in traditional industries with low-degree of turbulence in the network represent an interesting avenue for further research. Based on configuration theory, this would also mean that identifying different ‘recipes for success’, such as equifinal configurations of network-oriented behaviors within and across industries (Doty *et al.*, 1993; Meyer *et al.*, 1993; Vorhies & Morgan, 2003), could be a potentially fruitful research direction. A latent class analysis (McCutcheon, 1987) or a qualitative comparative analysis (Rihoux & Ragin, 2009) might serve as a tool to identify the underlying different configurational types of firms, which can be subsequently characterized based on company and industry characteristics. While firm size does not seem to affect the effectiveness of a firm’s network-oriented behaviors in our study, this may be due to the fact that we did not provide analyses based on specific industries. Therefore, future research should include the effect of firm size on the effectiveness of a firm’s network-oriented efforts within an industry since networking is often associated with small and medium size firms (e.g. Chetty & Campbell-Hunt, 2003; Ferris *et al.*, 2007; Semrau & Sigmund, 2010).

Our research focused on understanding a firm’s activities by the means of its network-oriented behaviors, which are aimed at changing its network position, such as changing relational portfolio characteristics. As such, we prejudice our perspective via the ‘action affects structure’ perspective. However, further research into the relationship between network structure and firm actions, such as a ‘structure affects actions’ perspective, needs to balance this view. Future research should incorporate these two perspectives to study firms’ network-oriented behaviors. For instance, by using network
measures, such as focusing on focal firms holding a position that is characterized with high centrality, coupled with a behavioral perspective of network-oriented behaviors, we can learn a great deal about the interactions between structure and firm actions. This could lead to questions such as: do the configurations of firms’ network-oriented behaviors differ under different network conditions, such as the egonet structure of a firm (density, transitivity, etc.)? Does a local cluster within the network foster different configurations of a focal firm’s network-oriented behaviors compared to those in a more open structured network? While we have attempted to use the construct ‘closeness to end users’ to initially tap into an aspect of a firm’s network structure in relation to its distance to the relevant end consumer, more precise measures are needed, e.g. by using the geodesic distance (a network measure representing the distance between two nodes with other nodes between them) between a focal firm and a predefined end user of its offerings.
References


### Appendix A Measurement items and factor loadings

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network-oriented Behaviors</strong></td>
<td></td>
</tr>
<tr>
<td>Information Acquisition ($\alpha = 0.89$)</td>
<td></td>
</tr>
<tr>
<td>IA1. We ask our business partners when we need information regarding any of the following: new business opportunities, competition or technology developments in the market.</td>
<td>0.82</td>
</tr>
<tr>
<td>IA2. Information provided by our business partners is helpful for us to make an informed decision.</td>
<td>0.88</td>
</tr>
<tr>
<td>IA3. By speaking to our business contacts, we are able to obtain the information that is crucial to us.</td>
<td>0.80</td>
</tr>
<tr>
<td>IA4. Information from our business contacts who work in a similar market can be useful for us.</td>
<td>0.77</td>
</tr>
<tr>
<td><strong>Opportunity Enabling ($\alpha = 0.89$)</strong></td>
<td></td>
</tr>
<tr>
<td>OE1. We make every effort to go out and network in order to increase our reputation in the market.</td>
<td>0.81</td>
</tr>
<tr>
<td>OE2. We recognize that the value of working well with our business partners adds to the reputation of our products or services.</td>
<td>0.71</td>
</tr>
<tr>
<td>OE3. We invest in building up our reputation in the market by networking with our business partners.</td>
<td>0.88</td>
</tr>
<tr>
<td>OE4. We work towards becoming an effective business partner for other companies in the market (e.g. potential customers or suppliers).</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Strong-tie Resource Mobilization ($\alpha = 0.89$)</strong></td>
<td></td>
</tr>
<tr>
<td>SRM1. Matching our suppliers’ capacity to the demands of our customers has been an important practice in our organization.</td>
<td>0.81</td>
</tr>
<tr>
<td>SRM2. Our suppliers’ ability is critical for us to satisfy our customers.</td>
<td>0.80</td>
</tr>
<tr>
<td>SRM3. Having good relationships with both suppliers and customers has enabled us to adapt to changes in the market place.</td>
<td>0.83</td>
</tr>
<tr>
<td>SRM4. Our customer-focused approach is communicated to suppliers, so that they are aware of how we serve our customers and can contribute to the success of delivering the offerings.</td>
<td>0.85</td>
</tr>
<tr>
<td><strong>Weak-tie Resource Mobilization ($\alpha = 0.87$)</strong></td>
<td></td>
</tr>
<tr>
<td>WRM1. We initiate relationships with new business partners to gain local knowledge in a new market.</td>
<td>0.79</td>
</tr>
<tr>
<td>WRM2. We interact with the customers of our customers.</td>
<td>0.75</td>
</tr>
<tr>
<td>WRM3. We work closely with influential parties who have relationships with our direct customers to stimulate demand.</td>
<td>0.83</td>
</tr>
<tr>
<td>WRM4. Identifying our competitors’ major customers helps us to getting to know the needs and requirements of potential customers.</td>
<td>0.81</td>
</tr>
<tr>
<td><strong>Market-oriented Behaviors</strong></td>
<td></td>
</tr>
<tr>
<td>Customer-oriented Behaviors ($\alpha = 0.90$)</td>
<td></td>
</tr>
<tr>
<td>CUS1. We closely monitor our level of commitment in serving customers’ needs.</td>
<td>0.87</td>
</tr>
<tr>
<td>CUS2. Our business strategies are driven by our goal to create greater value for our customers.</td>
<td>0.89</td>
</tr>
<tr>
<td>CUS3. Our strategy for competitive advantage is based on our understanding of customer needs.</td>
<td>0.85</td>
</tr>
<tr>
<td>Competitor-oriented Behaviors ($\alpha = 0.86$)</td>
<td></td>
</tr>
<tr>
<td>COM1. We rapidly respond to competitive actions that threaten us.</td>
<td>0.78</td>
</tr>
<tr>
<td>COM2. Top management regularly discusses competitors’ strategies.</td>
<td>0.84</td>
</tr>
<tr>
<td>COM3. We target customers where we have an opportunity for competitive advantage.</td>
<td>0.85</td>
</tr>
<tr>
<td><strong>Relationship-oriented Behaviors</strong></td>
<td></td>
</tr>
<tr>
<td>Relationship Coordinating Behaviors ($\alpha = 0.92$)</td>
<td></td>
</tr>
<tr>
<td>RC1. We analyze what we would like to achieve with different business partners.</td>
<td>0.85</td>
</tr>
<tr>
<td>RC2. We match the use of resources (e.g. know-how, information, people and assets) to the individual relationship.</td>
<td>0.82</td>
</tr>
<tr>
<td>RC3. We inform ourselves of our business partners’ goals, potentials and strategies.</td>
<td>0.88</td>
</tr>
<tr>
<td>RC4. We judge in advance which possible business partners to talk to about building up relationships.</td>
<td>0.88</td>
</tr>
</tbody>
</table>
### Appendix A Measurement items and factor loadings (continued)

#### Firm Performance

**Relationship Portfolio Effectiveness ($\alpha = 0.91$)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPE1.</td>
<td>For the most part, our business relationships are very effective.</td>
<td>0.87</td>
</tr>
<tr>
<td>RPE2.</td>
<td>Across the board, our business relationships operate well for us.</td>
<td>0.89</td>
</tr>
<tr>
<td>RPE3.</td>
<td>In general, we find our business relationships to be very productive and efficient.</td>
<td>0.88</td>
</tr>
</tbody>
</table>

**Firm Profitability ($\alpha = 0.92$)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO1.</td>
<td>Net profit relative to your major competition</td>
<td>0.91</td>
</tr>
<tr>
<td>PRO2.</td>
<td>ROI relative to your major competition</td>
<td>0.92</td>
</tr>
<tr>
<td>PRO3.</td>
<td>Financial liquidity position relative to your major competition</td>
<td>0.86</td>
</tr>
</tbody>
</table>

#### Moderators

**Closeness to end users ($\alpha = 0.88$)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEU1.</td>
<td>It is easy for us to interact with the end-users of our offerings.</td>
<td>0.84</td>
</tr>
<tr>
<td>CEU2.</td>
<td>We feel very close to the end users of our offerings.</td>
<td>0.94</td>
</tr>
</tbody>
</table>

**Technological Turbulence ($\alpha = 0.91$)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT1.</td>
<td>The technology in our industry is changing rapidly.</td>
<td>0.86</td>
</tr>
<tr>
<td>TT2.</td>
<td>Technological changes provide big opportunities in our industry.</td>
<td>0.92</td>
</tr>
<tr>
<td>TT3.</td>
<td>A large number of new product ideas have been made possible through technological breakthroughs in our industry.</td>
<td>0.86</td>
</tr>
</tbody>
</table>

#### Control Variables

**Industry Growth**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IG1.</td>
<td>Please evaluate the overall growth of your industry in the UK (poor…excellent).</td>
</tr>
</tbody>
</table>

**Market Presence**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP1.</td>
<td>Please specify, approximately, how many years your company has been established in the UK (open using drop down option)?</td>
</tr>
</tbody>
</table>

**Firm Size**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS1.</td>
<td>How many employees did your company have last financial year (10 categories)?</td>
</tr>
</tbody>
</table>
Chapter V Conclusion

This chapter concludes this PhD thesis with a discussion of the wider implications of the whole research program and possible future development following on from this project. This is followed by my own reflections on the journey to pursue my doctorate.

1. Implications and Future Perspectives

The three studies revolve around organizational networking behaviors, which have been recognized at a personal or a small business level as being a means to facilitate the effective use of resources and identification of opportunities (e.g. Chetty & Campbell-Hunt, 2003; Ferris et al., 2007; Semrau & Sigmund, 2010). At the organizational level, networking is the configurational use of anticipated goal-driven behaviors towards important counterparts in the network, which are information acquisition, opportunity enabling, strong-tie resource mobilization and weak-tie resource mobilization (Thornton et al., 2013; Tiwana, 2008). This set of behaviors, which are represented by a firm’s activities/routines/practices, take into consideration the interconnectedness of direct as well as indirect relationships. Not only can a firm mobilize the resources and information among direct relationships, but also those of indirect relationships via direct ones (Burt, 2007).

The research design includes the use of both qualitative and quantitative approaches. First, the exploratory qualitative research allows for a deeper understanding on the constituent elements of organizational networking behaviors. Second, the quantitative research approach further corroborates the qualitative results and ascertains which component(s) is (are) most important. All three studies share the same view that firms
need to *strategize in networks* through conscious interactions with various types of counterparts (Holmen & Pedersen, 2003).

Drawing on the results from Study 1 and Study 2, firms employ all four types of networking behaviors, which are aimed to acquire information, enable opportunities, mobilize strong-tie resources and mobilize weak-tie resources. However, the results also indicate that when it comes to the detailed form of interactions (called sub-types in Study 1) under each type of networking behaviors, there is some variation across the different cases (UK manufacturing firms). The variation lies in the number of sub-types identified in each case. This has an important implication for practitioners operating in business markets. Although the actual outcomes of firms’ networking efforts based on their anticipated goals cannot be completely predicted (Ford & Mouzas, 2013), the planning of their interactions with different counterparts is still critically important.

This argument is supported by Study 2, which suggests that the four types of networking behaviors are a valid way of configuring the interactions with various types of counterparts. Particularly, strong-tie resource mobilization is the most important component among the four, which is in line with previous understanding about the importance of developing long-term relationships with important partners (Cui, 2013; Hagedoorn & Duysters, 2002; Johnson *et al.*, 2004). This echoes the idea of the strategic net of a firm (Möller & Rajala, 2007; Möller & Svahn, 2003). A strategic net refers to the “*intentionally created business networks*”, which comprises a finite number of relationships that a firm intentionally forms and nurtures (Möller & Rajala, 2007, p. 895). A firm’s strategic nets are part of the borderless business network that is formed by numerous other organizations embedded in direct as well as indirect relationships. These strategically important established relationships play a pivotal role
for a firm to exchange information and leverage resources efficiently and effectively through their mutual understanding.

However, this is not to suggest that other elements of networking have minor roles to play. From a qualitative perspective, Study 1 has suggested, for instance, that sustainable information acquisition is essential for any business, since the information helps firms to understand the dynamics in the network and is therefore useful for formulating effective interactions with relevant counterparts (Baum et al., 2013). Opportunity enabling, on the other hand, relates to the identification of opportunities, which involves a continuous process of a focal firm shaping its network identity through interacting with relevant counterparts, e.g. potential customers or influential organizations (Anderson et al., 1994; Håkansson & Johanson, 1988). Weak-tie resource mobilization has been recognized as the source of novel information and resources and could potentially bring about the breakthroughs that enable firms to maneuver towards an enhanced strategic competitive position (Granovetter, 2005; McEvily & Zaheer, 1999; Zaheer & Bell, 2005).

The results of Study 2 suggest that all four components make a significant contribution to the overall portfolio of networking behaviors and therefore, a configuration approach to these four components is suggested. This also implies that relationship-specific investment has to be placed in the context of the whole portfolio of relationships since the resource mobilization often relates to resource pooling, transferring and configuring (Ahuja, 2000; Eisenhardt & Schoonhoven, 1996; Hoffmann, 2007). When a firm decides that the frequency of the interactions with a specific partner need to be altered, the interactions with other partners in the network would be affected, since interactions take time and resources (Ford et al., 2003; Håkansson & Ford, 2002). This can be exemplified by the case of the heating and
plumbing equipment manufacturer introduced in Chapter I. Thus, adopting a configuration approach (Meyer et al., 1993; Vorhies & Morgan, 2003) to these four types of networking behaviors identified and verified by Study 1 and Study 2 is the key practical implication. The four types of networking behaviors have also been further corroborated by Study 3.

Study 3 examines the implications of organizational networking in relation to market-oriented and relationship-oriented behaviors as well as firm performance. The four key findings provide practical implications to firms operating in business markets. First, it is evident from Study 3 that organizational networking increases a firm’s ability to understand its customers and competitors, and helps it to plan its interactions with important partners. The establishment of these causal relationships provides an alternative way to map the logical development of organizational learning of important capabilities, such as market-oriented and relationship-oriented behaviors. Firms operating in business markets should make themselves aware of the fact that these important behaviors that allow them to fulfill customer needs, to understand competitors, and to coordinate with important partners, are not completely organically developed by themselves (Day, 2000; Teece et al., 1997). Instead, both the sensing and seizing aspects of networking allow firms to develop these important sets of behaviors towards important counterparts in the network.

Secondly, the results of Study 3 show that being customer-oriented does not necessarily drive firms’ financial performance (Grewal & Tansuhaj, 2001), while a competitor orientation does contribute to performance. This echoes the mixed results of market orientation-performance relationship in the literature (e.g. Cadogan et al., 2009; Grewal & Tansuhaj, 2001). In addition, customer-oriented behaviors allow firms to better assess and understand competitors, and at the same time increase a firm’s ability
to coordinate with important business partners. This implies that although being customer-oriented is necessary for a firm to understand customers’ current and future needs, it is not a direct contributor to firm’s performance (Kumar et al., 2011). However, a customer focus helps firms to become competitor-oriented and allows them to coordinate with important partners based on their understanding about customer needs in a wider network context.

Thirdly, the way in which a firm utilizes its network context facilitates the planning of its interactions with each important partner, since the firm is able to adjust activities, exchange knowledge and configure resources. This is because the understanding of the overall network dynamics allows a firm to plan and adjust the resource utilization with each partner (Håkansson & Ford, 2002; Mouzas & Naudé, 2007). The appropriate adjustment and coordination of relationship-specific investments with each partner contributes to the effectiveness of the relationship portfolio management of a firm (Hoffmann, 2007; Johnson et al., 2004). Each relationship has its own role in relation to what a firm wants to achieve through the use of resources among all the relationships in the portfolio (Hoffmann, 2007). The effectiveness of the relationship portfolio is shown to contribute significantly to a firm’s financial performance when compared to a customer-orientation and competitor-orientation (Wuyts et al., 2004).

Lastly, the closeness to end-users for firms in business markets has an important role to play with regard to the impact that a firm’s networking efforts have on relationship portfolio effectiveness (Henneberg & Mouzas, 2008). Even more so, technological turbulence especially shows no significant strengthening/weakening effect on the relationship of network-oriented behaviors on portfolio effectiveness. This implies that when a firm feels that they are close to the end users of their offerings, the firm is probably more effectively utilizing its networking efforts to create a better relationship.
portfolio. The reason for this is that the firm understands better how its direct customers are serving their customers, which can be seen as being indirect customers to the focal firm. The understanding helps the firm to fulfill its customers’ needs better, based on the insights drawn from further downstream within the demand network, albeit indirectly linked to the focal firm (Burt, 2000; Gargiulo, 1993). On the other hand, it is sometimes impossible for a firm to go beyond its direct customers in order to interact with the end users. For instance, it can be understood from the field work of Study 1 that a manufacturer of compressed steel bars based in the UK should not approach the end users of their offerings since the application of the compressed steel bars is so widespread that they cannot possibly identify such customers and approach them effectively and exhaustively. Since this firm is located relatively upstream in the network and is close to the raw materials, it is very difficult for the firm to simultaneously be close to the end users. Even if the firm tries to do so, it would not be effective, given the limited resources available for this type of interactions. However, it is still possible for them to ‘feel’ close to the end users if the firm tries to gather information from various counterparts in the network that might hold relevant information about the end users (Henneberg & Mouzas, 2008). Only through interacting with them strategically, can the firm acquire necessary insights about them.

Building on this research program, there is still much work to be done in order to develop a deeper and more holistic understanding of the configurational aspects of organizational networking. The networking typology developed through Study 1 and Study 2 provides the key ingredients of possible different configurations under different contexts. Although strong-tie resource mobilization seems to be the most important component, the combination of other three networking types might hold the insights to differences in firm performance. The configurations coupled with firm characteristics,
such as firm size or levels of technology usage, might provide a way to identify the underlying different configurational types of firms, using a latent class analysis (McCutcheon, 1987) or a qualitative comparative analysis (Rihoux & Ragin, 2009).

One possibility of a future research project might be to consider both social actors’ cognitive process in formulating networking behaviors and network measures that represent the characteristics and structure of the networks. (Kilduff & Krackhardt, 1994; Salancik, 1995). Salancik (1995) argues that the interactions between social actors need to be taken into consideration when assessing whether network structure plays a role in firm performance. If one can incorporate both network structure and behavioral perspectives, it may be that the causal relationship between network structure and firm performance could be better understood. However, this poses challenges methodologically when considering both the network characteristics and actors’ cognitive process particularly in business-to-business research. For a project like this to produce substantial impact on theory building and practical insights, it requires the access to an appropriate dataset and funding to support the collection of the data and subsequent analysis.

2. Reflections on the PhD Journey

Doing research is about daring to dream, as well as nurturing and crafting the process to realize that dream.

I am not a big fan of using quotes from famous others, particularly for the purpose of reflecting on my own journey on completing my doctorate. My journey can be quite simply summed up by the opening sentence, which sprung to my mind a couple of weeks ago. It has been an enduring test of persistence and determination. As I am looking back on the journey, I can honestly say that there is nothing I would have done
differently. I never live to regret. The trials and tribulations always make me embrace the way I am. For me, there is always something you can do differently next time when you have the chance to do it again, but arguably the same context never happens again. What I realize is that I might have learnt new things, which allow me to do things differently in the future. I am still as stubborn as before, which I suspect will never change. This trait of mine has really pushed me to pursue something ambitious and out of my comfort zone. I tend to push myself to the limit and sometimes past the limit. Through the process I failed numerous times, but I bounced back somehow through many emotional rollercoasters and struggles. Yet, would I have done it differently? This is not a valid question to me since no one can go back in time, so what is the point of even thinking about this question? Instead, I look forward. I tend to think about what I should do when a similar situation arises in the future. My focus is always ahead of the present time, which has caused me to worry endlessly, but it allows me to progress into a better version of myself and possibly one day moving toward the best version of myself.

I structure this section into my reflection on the learning of epistemology and theoretical perspectives, methodologies, writing, and then networking with managers and academics alike.

2.1. Epistemology and Theoretical Perspectives

My PhD journey started with the learning of three theoretical perspectives under the guidance of my supervisors. Transaction Cost Economics (Williamson, 1985), Resource Dependence Theory (Pfeffer & Salancik, 1978; 2003) and Social Exchange Theory (Emerson, 1976; Thibaut & Kelley, 1959) were prescribed for me to understand different perspectives used for examining business relationships. Each of these theories has its underlying assumptions that underpin their ontological and epistemological
stances. I was taught in our PhD training program that one should have a clear epistemological position before embarking on a research project. I was very unclear as to what this meant at the time. I now realize that the learning of epistemology is not a short-lived training as part of the doctoral program. It is instead a continuous learning process that allows one to discover the core of any theoretical perspective.

My journey of discovering the relationship between epistemology and research began with Crotty (1998). He suggests that epistemology, theoretical perspectives, methodology and methods follow a sequential order. The epistemological stance determines the theoretical perspective of a research, which subsequently informs appropriate methodology (research process or design). Finally, specific methods (techniques or procedures) could be employed based on the chosen methodology. Therefore, epistemology is the driving force of any piece of research, which needs to be justified by a researcher through research framing and determining the underlying ontological assumptions about the phenomenon under study. Therefore, the formulation of research questions, the ways they are answered, and the justification of research results are all subject to a researcher’s presuppositions, which can be understood as a researcher’s epistemological position.

There are two fundamental overarching approaches to epistemology: positivist and interpretivist approaches. The central tenet of a positivist approach is that there is truth out there, and the only way to get to the truth is by objectively approaching it (Fay, 1996). The production of knowledge is based on empirical observations through scientific methods. The aim in this approach is to produce knowledge that can be generalized universally. On the other hand, an interpretivist approach presupposes the opposite of the positivist’s ontological belief about truth. Particularly, there is no regularity in social world, hence no universal rules can be established for explaining
social phenomena (Neuman, 2006). What one perceives as social reality is merely created by social actors’ “consciousness and cognitions” (Johnson & Duberley, 2000, p. 67). This implies that the reality is socially constructed, and that “the sociology of knowledge must analyze the process” (Berger & Luckmann, 1966, p. 13). In this context, ontology and epistemology go hand in hand in that one informs the other. This seems logical in that I can be reassured of my epistemological stance by ascertaining my ontological view of the world. However, the social sciences are different from the natural sciences in that human actors’ behaviors are laden with meanings, which might not manifest themselves (Winch, 1958).

The purpose of management research is to explore and explain the business world in order to inform business practice (Starkey & Madan, 2001). Therefore, there is always an element of subjectivity involved. This subjectivity could stem from the researchers or the subjects (i.e. people are studied), which promotes and ensures the practicality of the research. The ‘value-laden’ and ‘practicality-laden’ status of management research has been the downfall for it to be criticized regarding its scientific status (Whitley, 1984b). The inherent contextual characteristics in management studies have made it “generate rather fragmented and highly differentiated forms of knowledge” (Whitley, 1984b, p. 337). This then prompts the epistemological pluralism in the field of management research in order to produce different types of knowledge scenically based on appropriate epistemological stances (Whitley, 1984a).

There are several main epistemological streams used in management research, such as positivism, realism, critical theory, pragmatism, conventionism and postmodernism (Johnson & Duberley, 2000). With so many different epistemological stances, how does one come to a conclusion as to which one to adopt? Are researchers born to inherit a specific epistemological position? Can one learn to shift from one position to the other
based on the chosen types of knowledge produced? To some extent, Johnson and Duberley (2000) offer a framework that allowed me to think about these questions more systematically. They use two axes representing the assumption of ontology and epistemology, ranged from objective to subjective, to form a four-quadrant matrix in which different epistemological stances to management studies can be located as Figure 1.

![Figure 1 The map of different epistemological positions](image)

By pondering these questions with the aid of the above matrix I recognized that I believe there is (some) truth even in a social world, and the way to approach the truth is by objectively assessing it. The social complexity that I am interested in can be seen as “an evolving process, concrete in nature, but ever-changing in detailed form” in that “everything interacts with everything else” (Morgan & Smircich, 1980, p. 495). Under this relatively objectivist view of the social world, the research questions, the research
methods and conclusions are formulated throughout my quest to understanding organizational networking behaviors in this research program.

Following a positivist approach and the nature of the research questions, I used a combination of theories that allow me to determine what the research is and what it is not. I was very skeptical about using a combination of different theories/approaches in framing my research since this is likely to receive criticisms regarding the coherence of the framing. The worries gradually diminished as I learnt more about the theories and the continuous development in those theories, which allowed me to identify where they overlap. For instance, the industrial network approach that I employed in Study 1 seemed incommensurable with the RDT. The former seems to adopt an interpretivist approach that focuses on meanings, while the latter has the spirit of a positivist approach that emphasizes on causal mechanisms. The RDT puts much emphasis on the control of resources and the pursuit of a competitive advantage from an organization’s perspective. On the contrary, the INA takes a more passive view of an organization that engages in a continuous process of interactions with others in order to cope with the dynamics in the business networks. This implies that the competitive advantage or a superior performance has never been the key focus of the INA. This has posed some doubts in my mind as to whether they can be placed together in harmony, although the INA is partly based on the RDT. As I discovered later, the INA has been used in some studies coupled with a resource-based view (e.g. Ritter, 1999; Ritter & Gemünden, 2003) and the dynamics capabilities view (e.g. Mitrega et al., 2012; Möller & Svahn, 2003; Möller & Törrönen, 2003), this gives me some confidence in using this approach in Study 1. In the republication of The External Control of Organizations, the RDT acknowledges a network view of the open system and the interactions between interconnected firms, which become two unspoken implicit assumptions in the theory
These observations have given me even more confidence in using them in combination. It seems to me that theories evolve and without further questing the deeper meaning of them and monitoring these evolutions one cannot take full advantage of them.

2.2. Methodological Challenges

Quantitative research methods have been one of my favorite subjects during my postgraduate studies (MSc in Fashion Marketing and MRes in Business and Management). My main interests lie in quantitative research, which is to do with ‘numbers’ as some might say. This reflects my background as a student and as a market analyst for a global leading marketing consultancy company. In short, I believe in numbers. This has been changed in an immeasurable way (annoyingly) through the process of Study 1, which was an exploratory qualitative research, taking a positivist approach. The difficulty I had at the very beginning was to find enough managers in top management as my interviewees. On top of that, the positivist approach means that a repetitive logic had to be followed by recruiting at least two interviewees from each company to ensure construct validity (Yin, 2009). I managed these challenges reasonably well, and that allowed me to collect a sufficient amount of data for the purpose of categorizing different types of organizational networking behaviors. Although qualitative research always has an element of interpretation, I tried to keep the subjective interpretation to the minimum, hence the adoption of a positivist approach. However, through the process of coding and categorizing the interview data using NVivo, I quickly learnt that a researcher’s interpretation would influence the direction of the research and the resulting conclusion. The key was to be consistent with the coding throughout the process, which means that a framework would help me as the researcher to keep my mind in tune without drifting too far away from the scope of the
research. I feel that at least I have learnt to do qualitative research, the design of which
is suited to my own philosophical stance about the business world and the way I
approach data analysis. I also learnt that I may not become an interpretivist any time
soon.

When I started Study 2, I was full of confidence and enthusiasm towards this study,
simply because this is the type of research that always draws my attention. However,
the painstaking process of developing measurement items from the typology developed
in Study 1 made me realize that there is nothing I can take for granted in research, even
if I know exactly what I need to do. It seemed to me that a researcher cannot be ever
pedantic enough or pay too much attention to the refinement of the measurement items.
As stubborn and persistent as I am, I even felt the strain of the process being endlessly
overwhelming. Little did I know that the even more overwhelming difficulties that
came along when I felt there was nothing stopping me from analyzing the data. I
thought I had considered every single element and possibility of the data analysis before
I sent the questionnaire out. Obviously, I did not completely account for the
conceptualization of the measurement model. Admittedly, I did make a mistake by not
considering on the possibility of the construct being a formative measurement model
rather than a reflective one. A formative measurement model cannot be used in a
structural model freely, and it can only be used as an exogenous variable
(Diamantopoulos, 2011). This means that a formative construct can only be used as an
independent variable in a structural model, unlike its reflective counterpart
(Diamantopoulos, 2011). This consideration was compounded with my inability to
assess such a measurement model. The mistake was then made because of the
insufficient consideration.
This made undertaking the data analysis a one-way street where there is no way back, but doing it the way I knew the best following a conventional reflective measurement model validation process. Although the results made sense and seemed reasonable, the dissemination of this study during EMAC 2013 brought about many criticisms and suggestions. The feedback became such a strong driving force that pushed me and enabled me to rethink any possibilities to analyze the collected data based on its supposed conceptual measurement model. This was a huge turning point of this study, which saw the changing of the conceptual structure of the measurement model. Given there was a very tight schedule for me to complete Study 2, I quickly identified the analytical techniques required for assessing a second-order formative measurement (Diamantopoulos et al., 2008; MacKenzie et al., 2005), and predominately self-taught myself those techniques coupled with some help from a few experts. This process has made me realize that what other people have been talking about does make sense: *doing a PhD is a lonely journey.* It is an enduring challenge of overcoming those helpless moments and moving forwards through seeking help and support from others. I eventually managed to finish the data analysis and write up the paper, which to me has become a much better paper in the sense that it has the theoretical underpinnings and also has the empirical evidence to back them up.

Again, just when I thought there should be no more drama in the last study of my PhD thesis, I faced the biggest struggle of all. I decided that I should change the software for the data analysis from Lisrel, which I was familiar with, to something that was new to me, Mplus. The decision was made on the basis that the latter allows more flexible statistical modeling. In addition, it has a much more intuitive syntax language when specifying the model. The biggest advantage that incentivized me to switch so late on in my PhD program is that Mplus can do more advanced analyses, namely latent
interaction and latent class analysis (latent profile analysis when using continuous data). The former would allow me to test the moderation effect at the latent construct level, which has become increasingly noticed due to the fact that it is more robust and produces more parsimonious models (Little et al., 2009). Multi-group analysis has been a popular choice, when one considers testing a moderation effect using a categorical variable. The main drawbacks of this approach are that moderation effects can only be done post hoc, and only one moderation effect can be considered in each analysis. The latent interaction approach, on the contrary, overcomes these two drawbacks and it also allows the use of both continuous and categorical variables in the overall structural model. Provided the analytical tool is capable of dealing with such an analysis, I do believe that when a structural model is specified, the moderation effects should be included in the model. This provides much stronger support when one infers the moderation effect within the model since the effect is assessed along with the main structural model simultaneously (and possible other moderators).

This belief had driven me toward the use of Mplus for Study 3. Learning to master new software is an energy- and brain-draining business. With some dated memories of the Mplus training I took at the CCSR (a research method center at the University of Manchester), I became a self-taught Mplus user. It has been quite a journey since I was deeply frustrated by the level of help I could get from the Mplus forum that was set up to help all Mplus users out there. The funders of Mplus hold a strong view that they should never give information that is not relevant to the programming of the software. That means that they would never attempt to teach anyone statistics, which is understandable, given they are supporting the programming issues of Mplus. While I appreciate their stance as the founders of the software, there are times when the programming cannot be separated from the statistics. There were numerous times where
I would start with a programming issue, which then ended up becoming a statistical issue. When this happened, the experts would stop the conversations, and asked me to seek help from a statistics expert. I was extremely frustrated by the fact that there is no total solution to my statistical modeling issues. However, this taught me to continuously further advance my own analytical skills and the understanding of statistics.

Common method variances (CMV) are a serious threat to theory testing using respondent self-reported survey data (Lindell & Whitney, 2001; Podsakoff et al., 2003; Podsakoff & Organ, 1986). The presence of CMV has critical implications for quantitative research, which aims to establish causal relationships of structural models. If CMV is indeed a threat, the results of the causal relationships cannot be trusted.

There are two ways suggested in the literature of dealing with CMV: the procedural approach and the statistical approach (Podsakoff et al., 2003). The consensus in the literature is that researchers should tackle this issue from the outset with a procedural approach by taking proactive preventive measures in research design. Podsakoff et al. (2003) suggest five techniques for controlling CMV as procedural remedies: (1) collecting measures of independent and dependent variables from different sources; (2) creating separation between data collection of independent and dependent variables, such as using a time lag (i.e. longitudinal data) and differing scale styles; (3) providing respondents ease of completing the survey and anonymity; (4) breaking the hypothesized causal order of the measures; and (5) improving measures. However, these techniques do not guarantee to mitigate CMV effectively as every technique has its own drawbacks. Every effort was taken in Study 3 to mitigate possible CMV based on the above suggestions, while the integrity of the questionnaire was taken into consideration.
"We have carefully designed certain aspects of the measurement instrument based on our assessment of the possible sources of method variances (Spector, 2006). For example, we intentionally randomized the question order to break up the causal relationships of the substantive constructs under study (Podsakoff et al., 2003). We also used Likert as well as semantic scales interchangeably and appropriately without overloading respondents’ cognitive tasks by using 7-point rating scales throughout when applicable (Podsakoff et al., 2012). We employed a knowledgeability question at the beginning of the on-line questionnaire to ensure that only those respondents who are capable of answering the following questions will continue filling out the questionnaire (Spector, 2006)."

Although obtaining objective performance measures is one way of controlling for CMV, so is longitudinal data collection, these are often time- and cost-consuming and sometimes not feasible due to data access constraint. Rindfleisch et al. (2008) argue that longitudinal data is not always superior to cross-sectional data. They provide empirical evidence, suggesting that “cross-sectional data are most appropriate for studies that examine concrete and externally oriented constructs, sample highly educated respondents, employ a diverse array of measurement formats and scales, and are strongly rooted in theory” (p. 276). Their finding echoes the aforementioned five techniques provided by Podsakoff et al. (2003). Therefore, this guideline will continue to provide me with a checklist when I undertake cross-sectional data collection in the future.

The statistical approach can be used to assess the presence and the magnitude of CMV. However, there is a diverse range of techniques under this approach, and the development of new techniques is ongoing. While Harman’s single factor using both EFA and CFA was employed, this technique has its limitations, and it has been regarded
as a less advanced method (Podsakoff *et al.*, 2003). First, it does not actually control for the CMV since it merely assesses how much variance is accounted for by one single factor. Secondly, there is no specific guideline as to what proportion of variance should be accounted for by the single factor. Thirdly, as the number of factors in a measurement model increases, it is more likely to obtain more than one factor, and therefore, the result becomes less convincing. All in all, this is the most widely used method for assessing CMV in the literature, but this may not be the best one to precisely assess the presence and magnitude of CMV.

To date I still have not managed to assess the common method variances (CMV) in Study 3 in the way I intended, using Williams, Hartman and Cavazotte’s (2010) CFA marker approach. The CFA marker approach is relatively rigorous since it provides an indicator-level assessment and indicates whether CMV affects all measures in a model (Podsakoff *et al.*, 2012). This approach utilizes the specifications of several nested models, which are compared based on the model fit. The comparison allows the assessment of the presence of CMV and the effects of CMV on the hypothesized model. I ran into difficulties when I attempted to specify a series of required models in the CFA marker approach. I consulted a Mplus expert in the first instance, but in the end the discussion concluded that the issue seems to relate to the way the model is specified, and there was nothing that could be done to rectify the issue. I was advised to speak to the authors who suggest this approach, which I did. However, to date, I have not been able to obtain a response from the lead author of the paper. The email was sent to Professor Larry Williams:

“*Dear Professor Williams,*

*I am writing to you to enquire about your paper Organizational Research Methods paper, "Method Variance and Marker Variables: A Review and Comprehensive CFA*
Marker Technique.". I am closely following the instruction to assess the presence and the extent of CMV/UMV in my data/model. I am able to specify all the models in Phase I, but the Model R, where the inter-factor covariances of the substantive constructs are constrained to those values obtained from the baseline model, while the method construct still has a zero relationship with the substantive constructs. I somehow could not get the Model R to converge. I am using Mplus, and have sought advice from Linda Muthen, who told me that the constraints on the inter-factor relationships cause the problem of not being converged. She could not comment further as to how to solve the problem. Could I explore further with you regarding this issue?

In my Model R:

1. The factor loadings and residuals of the indicators of the method factor remained constrained to those values obtained from the CFA model (the very first model in Phase I).
2. The method factor remains zero relationship with the substantive factors.
3. The inter-factor covariances of the substantive constructs are constrained to those values obtained from the baseline model.

I believe these constraints are correctly specified as per your paper. However, the model does not converge. I have also tried to increase its iterations and even tried to specify the Model R on a different (smaller) CFA model, but to no avail. I am wondering whether it is software-related problem as I am using Mplus. I can also use Lisrel, but decided to use Mplus for this particular paper. Could you give me some directions?
I look forward to hearing from you. Thanks in advance for your help.

Yours faithfully,

Sabrina"

2.3. Writing Inability

Around three years ago I submitted my assignment for a module to my supervisor, Professor Naudé, for his feedback. “What are South Africans renowned for?” asked my South African supervisor, when we met to discuss what he thought of my assignment. Despite being completely puzzled, I replied to him, “wild life?” “No, we are straight to the point,” he firmly replied. “Your writing is not,” he continued, “This is crap.” I thought to myself: you don’t get any straighter to the point than that. My supervisor made me grasp a deeper understanding of a Chinese saying, “see blood with one (prick of the) needle”. I was devastated, and thought to myself: will I ever be able to write up my PhD thesis with such a writing skill?

As it turned out, this has been the most useful feedback I have ever received regarding my academic writing skill. This is not a sarcastic comment, and I am certainly not saying this for the sake of making my supervisor feel good. Rather, this is my honest thought about the criticism. I cannot even express how grateful I am to have someone telling me the painful truth (at the time) about my writing. More importantly, there has been a guiding force that pushes me to write better along the way. Ever since then, slowly but surely my writing has improved, at least, it is now hopefully better than being “crap”. I have learnt to write to express my thought process in a much clearer way. I even think that writing helps me to think in a more logical way, and it leads my thoughts in some unexpected directions at times. Writing and thinking are an interactive process, where I immerse myself in the dialogue between the writer self and the thinker.
It is through writing that I realize my ideas. There are times when I just cannot make any sense of my own writing. There is sometimes no logical flow, no meaning and no enjoyment. There are also times, when I am able to intuitively write in an unexpectedly pleasant way. I often wonder: if my supervisor did not dare to say the blunt truth about my writing to me, how would I write now? I have no answer, but I feel hugely humbled by the way he booted me to be pedantic and to write better.

I am very grateful to be writing a number of peer-reviewed research papers with my two supervisors, who have been relentlessly helping me to improve my writing skill. I must also give an enormous credit to my German supervisor, Professor Henneberg. He often gives me loads of “bubbles” (as he calls the comments in a word document) with critical comments and suggestions that really help me to think in a more critical way, although I am still a long way away from being the master of critical thinking. The real test came when we tried to get my very first journal paper published in *Industrial Marketing Management* during the end of 2012 and mid-2013. That was when I realized the importance of two criteria of any good academic writings, clarity and specificity (presuming the content is ensured). They don’t always go hand in hand, and it is sometimes about getting the balance right. My two supervisors guided me through the process of getting the paper up to the standard for the first submission, replying to the reviewers (twice) and my nervy couple of months without knowing whether the paper would be accepted or not. I think they would agree that the hardest part was to deal with their extremely nervy PhD student!

2.4. *Networking*

The study of organizational networking behaviors was partly driven by my personal preference in networking. I firmly believe that through interacting with others one can learn a great deal. It is so true that networking can allow one access to desired and novel
information and to mobilize resources that are not in the direct reach of an individual. I have benefited a great deal through networking with both practitioners and academics. Through Study 1 I was fortunate enough to have the opportunity to speak to 31 executives, from whom I have learnt how they approached their own business agenda. This helped me to think practically in my research by always trying to provide implications through my research that have a real impact on practices. The encounters with these managers have been true inspirations for me to drive the research program forwards. Without their insights the subsequent Study 2 and Study 3 would have been impossible. I went back to visit five of them for Study 2, which ensured the validity of the constructs under study. I will surely contact them to share with them my research findings in due course and catch up with them to see whether they have business issues that can become my inspirations for my next research projects.

I went to several conferences throughout my PhD programs, which have provided a fertile ground for networking with academics. The fact that I am connected with two very well regarded academics (my supervisors) in the circuit has helped me to get to know others more effectively later towards the end of my PhD program. However, recalling my memories of the first few conferences where I simply had no idea what I should be saying to people there, and I took a rather passive approach to networking. I gradually became more proactive as I progressed as a researcher, which allows me to seek information I need for specific purposes. In some instances, I was able to ask a few senior academics as my friendly reviewers to give feedback on my work, which has been immensely helpful for further refining my research. It was (and still is) a daunting aspect when asking a favor from some prominent figures in the field. However, my experience tells me that generally they understand the difficulties facing a PhD student or an early career researcher, and they are more than happy to help in most instances. I
have contacted a few academics with ‘cold’ emails, and rather surprisingly most of them replied to my emails fairly quickly and shared their experiences with me. At the beginning of my PhD study, I contacted Professor James Anderson regarding one of his papers (Anderson et al., 1994) that has been read by me numerous times. It gave me some research ideas, one of which being to conceptualize and operationalize a construct that captures the embedded context of a focal firm. I received his reply highlighting the challenges of doing such a research in business-to-business context. He also kindly gave me words of encouragement.

“Sabrina,

Greetings from Evanston! Thank you for your email. Hakan, Janne and I never did follow up our article with empirical research to test the constructs and proposed measures. I am not certain why but perhaps we were exhausted from the effort on getting the 2004 article published! We began that work in 1990, when I was a visiting research professor at Uppsala University and Stockholm School of Economics. So, it took quite some time to get that research finished and the manuscript through the review process.

I think doing empirical research to test the constructs and proposed measures would be a great dissertation, provided you can find the right research context. I am finding it difficult to get managers to participate in research, especially research of a more theoretical nature. Gaining sufficient sample size to do the structural equation modeling would be a challenge.

Hope this gives you some perspective. Best wishes on your doctoral studies.

To better days ahead!

JCA”
I have received very extreme comments about my PhD research. Some said that this project is not valuable and they saw no merit in it. On the contrary, I received very encouraging words from others. It is extremely satisfying and rewarding to hear “I like what you are doing.” Although criticisms are hard to take at times, they spur me on and prompt me to progress in my research. This is the spirit I would take forward in my continuing academic journey.
References


Appendix I  Approval for alternative format thesis

This form is issued by the Faculty of Humanities and should be submitted when a student wishes to submit a thesis in an alternative format, as described in the Policy on the Presentation of Theses (2009).

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Sabrina Thornton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
<td>PhD</td>
</tr>
<tr>
<td>ID Number</td>
<td>7498974</td>
</tr>
<tr>
<td>Discipline</td>
<td>Marketing</td>
</tr>
</tbody>
</table>

I strongly recommend the acceptance of this thesis in alternative format:

<table>
<thead>
<tr>
<th>Supervisor’s Name</th>
<th>Professor Peter Naudé</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor’s Signature</td>
<td>Peter Naudé by email</td>
</tr>
<tr>
<td>Date of Signature</td>
<td>2 Jan 2014</td>
</tr>
</tbody>
</table>

Approval Granted by School (name and position)  
Prof. Stuart Hyde  
Director PGR

Approval Granted by School (signature)  
[Signature]

Date of Signature  
3.1.14

This completed form should be returned to your School Postgraduate Research Office.