MULTIPLE PERSPECTIVES ON NETWORKS
CONCEPTUAL DEVELOPMENT, APPLICATION AND INTEGRATION
IN AN ENTREPRENEURIAL CONTEXT

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Multiple Perspectives on Networks: Conceptual Development, Application and Integration in an Entrepreneurial Context

Key words: Business network, Social network, Entrepreneur, Process, Network Interaction, Network Structure, Network horizon, Mixed methods

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## TABLE OF CONTENTS

1 INTRODUCTION ..................................................................................................................1
   1.1. The research problem, purpose and contribution of the thesis ..................................1
   1.2. Positioning the study ..................................................................................................5
   1.3. Scope of the research ...............................................................................................7
   1.4. Core concepts ..........................................................................................................9
   1.5. How the research process developed .......................................................................12
   1.6. Structure of the thesis ............................................................................................17

2 CONCEPTUAL FRAMEWORK .........................................................................................20
   2.1. The business network approach .............................................................................23
   2.2. The social network approach ................................................................................25
   2.3. The network approach in entrepreneurship ............................................................27
   2.4. Comparing methodological approaches in the different network perspectives .......29
   2.5. Outline of research issues .......................................................................................32

3 RESEARCH DESIGN .........................................................................................................35
   3.1. Philosophical foundation of the study ...................................................................35
   3.2. Research strategy ...................................................................................................40
   3.3. Benefits of mixed methods ....................................................................................42
   3.4. Factors of importance in the two conceptual articles ..............................................44
   3.5. Methods of data collection in the two empirical studies .......................................45
   3.6. Methods of data analysis and interpretation in the two empirical studies ..........48
   3.7. Trustworthiness and authenticity of the study .......................................................51
   3.8. Reflections on the choice of methods ....................................................................54

4 FINDINGS AND CONTRIBUTION FROM THE ARTICLES ...........................................57
   4.1. Summary and contribution of Article 1 ..................................................................58
   4.2. Summary and contribution of Article 2 ..................................................................61
   4.3. Summary and contribution of Article 3 ..................................................................64
   4.4. Summary and contribution of Article 4 ..................................................................67

5 CONCLUDING DISCUSSION ...............................................................................................70
   5.1. Contributions and implications ..............................................................................70
   5.2. Managerial implications .........................................................................................73
5.3. Critical review of the research ................................................................. 74
5.4. Suggestions for further research ............................................................. 75

REFERENCES ............................................................................................. 78

FIGURES
Figure 1 Positioning the study ........................................................................ 6
Figure 2 Order and structure of the research process ...................................... 16
Figure 3 Overall structure of the thesis ............................................................ 18
Figure 4 Exploratory sequential design for the framework in Article 4 ........... 50

TABLES
Table 1 Overall structure of the articles ......................................................... 19
Table 2 Comparing the Three Perspectives of Network Research .................. 33
Table 3 Most common logic in the separate paradigms .................................. 37
Table 4 Comparisons of four paradigms used in social and behavioral sciences 39

APPENDICES
Appendix 1 .................................................................................................... 91
Appendix 2 .................................................................................................... 92
Appendix 3 .................................................................................................... 94
Appendix 4: .................................................................................................. 95
1 INTRODUCTION

Few phenomena in today’s business world have had the same breakthrough and impact as networks. Networks are reshaping the business world (Parkhe et al., 2006). Network research has become widely recognized in a variety of areas with different theoretical backgrounds. A network is a set of interacting actors (individuals or organizations) and the set of linkages between these actors. Network research has been conducted on several different levels, such as the individual (Granovetter, 1985; Jack, 2005) or dyadic level (Larson, 1992; Halinen et al., 1999), or on more aggregated levels like group (Chase, 1980; Haunschild and Beckman, 1998), organizational (Andersson, 1997), interorganizational (Johanson and Mattsson, 1987; Dyer and Singh, 1998; Gulati and Gargiulo, 1999) and industry (Powell et al., 1999).

Since network research is conducted in diverse settings, among a variety of actors and on many different levels, it is bound to embrace different concepts, principles and methods for collecting and analyzing data. This broadness provides advantages as well as disadvantages. It fruitfully allows for many angles of approach but also leaves many unsolved loose ends. Recently, Jack (2008) raised the issue that network research lacks clear conceptual considerations and is not effectively used as an analytical tool. Problems such as these are relevant and current. By becoming more unified, network research would also become more theoretically advanced. According to Parkhe et al. (2006), this can be achieved if researchers would agree on revisiting theoretical assumptions, reexamining construct definitions and improving the linking of concepts, real world problems and managerial issues with each other. Additionally, Parkhe et al. (2006) ask for greater focus on process issues and a better integration between other perspectives in management research. However, instead of directly moving on to other fields, one can start by looking at the various network research approaches that already exist. So far there has actually been little cross fertilization between the different existing network approaches. In developing the network field further, one possible avenue of development would be to combine alternative network approaches. Parkhe et al. (2006) believe that “… network theory development is at the cusp of an exciting new phase of advances”. I agree and therefore would like to contribute by doing research that integrates network perspectives from multiple fields and combines methodological approaches. Hopefully, this thesis can form part of that development process.

1.1. The research problem, purpose and contribution of the thesis

Network research has developed historically in very different contexts and on different continents. The three approaches used in this thesis are the business network approach, the social network approach and the network approach within entrepreneurship. These three have several common focal interests pertaining specifically to network processes, dynamics, learning and network management which they all try to capture in their own right. It is thus somewhat surprising that they have not learned from each other to any
greater extent. It is very hard to find discussions which include these different lines of network thinking. There are, however, welcome exceptions such as Powell and Smith-Doerr (1994) and Hoang and Antoncic (2003). Nevertheless, fruitful joint discussion would be worth developing further. This thesis is one effort to bridge the gap between theoretical, empirical and methodological perspectives that have developed within network research.

In the following section, the three relevant network approaches used in this thesis are briefly summarized in relation to the focus of the research. A more thorough discussion of the separate network approaches is presented in Chapter 2.

The **business network approach** focuses on the creation and maintenance of relationships. The view adopted here is based on the work of the IMP Group (Industrial Marketing and Purchasing Group). Their work is mainly on interorganizational relationships, hence the term ‘business networks’. The focus of IMP is on relationship formation and how relationships develop within the dyad and in the network (Håkansson and Snehota, 1995). The business network approach is based mainly on qualitative case studies, historically mostly dyads. Within the dyads the focus is on long-term interaction which can change both in content, importance and strength. This literature recognizes that relationships and networks are complex (Ford, 2002) and therefore challenging to define (Easton, 1992; Anderson et al., 1994). The business network perspective regards the network as constituting many different types of relationships. The development of a network is mainly viewed as an ongoing cumulative change process (Johanson and Mattsson, 1987) within dyads and how this dyadic change affects the rest of the network and vice versa.

The **social network approach** has traditionally focused on the individual level, as Padgett and Ansell (1993) did when comparing marriages and business families and also Granovetter (1995) when comparing job-seekers. Nowadays the approach involves more structural analyses of entire networks, both personal and business-related assessing network characteristics such as tie content, network size and density (Owen-Smith et al., 2002), network structure (Coleman, 1988 vs. Burt, 1992) or the position of actors in the network (Podolny, 2001). Some more recent studies have used advanced software technology to capture structural changes (Scott, 1991; Kilduff and Tsai, 2003). A large part of this research is based on quantitatively available longitudinal, large datasets among firms or organizations (Powell et al., 1999) and consequently the relationships are seen as transactions rather than interaction-based relationships per se. However, the strength lies in capturing structural changes at different points in time (tie formation and dissolution) and this type of research can thus examine which links change and when among different partners and how this affects the rest of the network, for example, regarding centrality.

The **network approach within entrepreneurship** studies networks at the individual level as well as firm level. In this approach it has been argued that it is close to impossible to separate informal and formal or social and business relationships as these are all intertwined especially for an entrepreneur (Johannisson, 1987). When investigating the creation and development of new ventures, networks have been used as they develop entrepreneurial effectiveness by providing contact to resources and competitive advantage (Birley, 1985; Aldrich and Zimmer, 1986). The development of a
network is seen as both evolutionary (Hite and Hesterly, 2001) and as a result of intentional management (Larson, 1992). Entrepreneurship research recognizes the complexity of changing ties and some studies have focused on which network ties matter at different stages of firm development (Hansen, 1995; Lechner and Dowling, 2003; Lechner et al., 2006).

The discussion of the respective network approaches is now broadened by pointing towards some addressed criticism on network research in general. Critique is formed as a natural consequence, since a large body of network research has been conducted over a long period of time. Network research has been criticized both among network researchers themselves and by representatives of other disciplines. Parkhe et al. (2006) note the following addressed criticism: firstly if focus has been on the individual, the research has been accused of a too atomistic view. Secondly, if causal factors have been in focus, the research has been criticized for being too deterministic and when relationships have been in focus it has been criticized for lacking coherence and underachievement. Thirdly, there are also concerns that networks are treated too statically, thus not capturing dynamics, or moreover that research focuses on structure at the expense of content and does not consider the environmental impact or that it simply lacks coherence (Powell and Smith-Doerr, 1994; Parkhe et al., 2006).

In their critique of network research in entrepreneurship, Hoang and Antoncic (2003) point out that even though substantial theoretical and empirical development has taken place a sound theory of network development is still needed. Many questions surrounding how network content, governance and structure emerge and develop remain unanswered. In order to address these questions, Hoang and Antoncic (2003) suggest more longitudinal research should be carried out and more qualitative methods used so as to provide new theoretical angles of approach. Coviello (2005) also addresses the problem of capturing the complex process of network development over time by presenting a bifocal or mixed method approach to research in the area. Criticism on the methodological aspects of (specifically) social network research points out that focus has mainly been on using networks more as a tool for analyzing than for understanding the organization (Salancik, 1995). However, networks are hard to capture methodologically as most linkages are unknown or invisible to an outsider. To capture networks is additionally hard as they are seldom based on rational behavior and boundaries are often arbitrary (Johannisson, 2000).

Criticism is however, often the driver of development and many of the above-mentioned issues have been dealt with in recent network research. For example, a case-based study by Hite (2005) touches upon both processes and dynamics by focusing on the transformation of network ties towards full relational embeddedness. The evolution towards relational embeddedness (meaning that maintaining the social relationship becomes more important than economic concerns) is seen to be influenced by three processes: network entry, social leverage and trust facilitation. Hite (2005) explains the various paths through which ties evolve and highlights the additive nature of ties whereby social relationships can develop towards business ties over time. This research is one of the few that examine change within ties and not only describes a dynamic, somewhat path-dependent process but also discusses the disadvantages of relational evolution. A recent study by Jack et al. (2008) also views networks over time and is
thereby able to capture patterns in network continuity and change. This study demonstrates that over time networks are subject to change, growth and development.

To summarize, a large body of network literature already exists, although mainly comprising separate fields of interest. Consequently, the general intent of this thesis is to enhance cross-fertilization between three different approaches to network research. **The ultimate purpose of this thesis is to develop a theoretical and empirical understanding of network development processes, in an entrepreneurial context.**

The novelty of this research lies in synthesizing three network approaches to network research. This synthesis is a mechanism to bridge different theoretical, empirical and methodological views. From the business network approach, the reasons behind how long-term relationships with shifting dyadic content are created and maintained will be accounted for. From the social network approach, the discussion of structural change and the tools for capturing structural patterns on the network level will be used. Finally, regarding entrepreneurship, the recognition of network complexity for entrepreneurs and the use of their network ties between different development stages will be taken into account.

Together, this multi-lens approach allowed me to address several dimensions of networks simultaneously (e.g. network structure and interaction; network development both within and between ties). To the best of my knowledge, this is unique to network research. Furthermore, qualitative data collection and analysis methods are used in the first empirical article while both qualitative and quantitative methods are applied to the second. This is consistent with my interest in cross-fertilization.

As the thesis consists of four articles, the purpose of each is found below. A more thorough presentation can be found in Chapter 4.

**Article 1:**

The purpose of the first article is to develop an initial empirical understanding of how social networks impact on the internationalization processes of small and medium-sized firms.

**Article 2:**

The purpose of the second article, a conceptual piece, is to review research conducted within the business network and social network traditions, to make conceptual distinctions and to clarify differences and similarities between these two approaches.
Article 3:
The purpose of the conceptual third article is to examine how entrepreneurship literature interprets and applies the concept of process when studying networks. Since networks have been studied outside entrepreneurship, the social network and business network approaches with entrepreneurship literature are compared in order to identify issues relevant to future research. To conclude, a theoretical framework is offered for conceptualizing and revising processes connected to network development.

Article 4:
The purpose of the fourth article is to empirically examine the networks of three different types of entrepreneurs (novice, serial and portfolio entrepreneurs). The focus is on comparing interactional and structural dimensions of their networks and to see whether the networks vary across phases of firm growth and how the firm and network develop.

Although all four articles address research problems of their own, they also address the overall intent of the research since they enhance cross-fertilization between the separate network perspectives. The two conceptual articles (Articles 2 and 3) expand the theoretical understanding of the different approaches by looking at what is similar and different and how they can learn from each other. In particular, Article 3 provides new insights into how the entrepreneurship approach can learn from the business and social network perspectives. Article 3 also presents issues specific to network development processes and how to better capture them in future research.

The first empirical article (Article 1) focuses on the impact of networks on internationalization, applying both the business and social network approaches. Article 4 focuses on network development and incorporates both the interactional and structural dimensions of networks.

1.2. Positioning the study

This study is positioned at the intersection of three network approaches, namely business networks, social networks and networks within entrepreneurship (see Figure 1). Networks among actors, specifically individuals and companies, are the focus in this thesis. The business network approach (BN), the social network approach (SN) or the network approach from an entrepreneurial perspective (EN) can be used partly or wholly as separate angles of approach. I argue that there is scope and opportunity for each research perspective to borrow ideas or methods from the other. Consequently, it is possible to develop a theoretical understanding of network development that is integrative across BN, SN and EN.
This research contributes to both theoretical and methodological advancement in the field of network research. There is a special emphasis on networks in the entrepreneurship field because this context is the newest for theoretical and empirical development. The audience for this thesis is network researchers from disciplines such as international business, marketing and sociology, but particularly those studying entrepreneurship. My aim is to encourage discipline specialists to learn from other network perspectives.

Figure 1  Positioning the study

The ultimate purpose of this thesis is to develop a theoretical and empirical understanding of network development processes, in an entrepreneurial context.
The contribution of the thesis as a whole can be divided into the three following areas:

**Theoretical contribution** of the entire thesis is attained by bringing different network approaches closer together and thus enhancing theoretical integration and understanding. Suggestions on how to further advance research by combining parts of the different approaches are provided. In particular, suggestions are presented on how to capture network development. For example, Article 3 presents a conceptual model for studying networks as a developmental outcome through the integration of multiple perspectives, levels of analysis and views on process.

**Empirical contribution** of Articles 1 and 4 lies in verifying the importance of networks. In the first article, social networks are seen to impact the internationalization process of two medium-sized firms. In the fourth article, important interactional and structural features of networks are captured in a time-sensitive manner. This illustrates the role of organizational development on the networks of different types of entrepreneurs.

**Methodological contribution** is mainly found in Article 4 where the ‘bifocal’ or mixed method from Coviello (2005) is applied in a new comparative context. This allows for further understanding of network structure among different types of entrepreneurs. Using a mixed method approach for analyzing data is still uncommon in network research. Therefore, using both a qualitative and quantitative or ‘bifocal’ approach is a methodological contribution in itself.

The research issues are further outlined in Section 2.5. and the final contributions and implications of this thesis are presented in Section 5.1.

**1.3. Scope of the research**

The theoretical scope of this research is based on network theory derived originally from sociology and later developed into three different network approaches: business, social and entrepreneurial. That is, although the original base is the same theoretical foundation that can be found in sociology (Swedberg, 1991; Johanson and Mattsson, 1994; Powell-Smith-Doerr, 1994), the theoretical scope can be seen as multidisciplinary as the network approaches have developed into separate albeit related disciplines such as international business, marketing, management and organizational growth. The theoretical discussion focuses on the interaction and structure of networks. This is significant as network research so far has not been able to capture both simultaneously (Hoang and Antoncic, 2003; Coviello, 2006). Since network interaction and structure are the focus of this thesis, it means concurrently excluding other important concepts from this research. For instance, the resources exchanged within the networks are only considered as part of the content of the relationships and thus not discussed as a separate
issue. The networks are studied in small and medium-sized ventures so networks in large companies are not captured here.

Other areas of network research are also not considered here because they do not pertain explicitly to a ‘business’ context. For example, a closely related area when discussing benefits of networks concerns literature on social capital. Network research already considers resources, intangible or tangible, within the network as one of the major benefits of networking. The relationships within the network impact significantly on the type and extent of resources obtained within it (Jack, 2005). Hence, for the purposes of this research, social capital is considered to be included as a natural part of networks and not addressed as a specific concept.

Certain network concepts discussed within business research are beyond the scope of this study. Specific examples include network management and learning through networking. These issues are already widely discussed in all three network approaches. For example, network management is the focus of a great deal of BN research including (e.g.) Möller and Halinen (1999) and Ritter (1999). It also has a rich history in SN research (e.g. Coleman, 1988; Burt, 1992) as well as EN research (e.g. Johannisson, 1988; 2000; Jack, 2005). Indeed research on network management is a substantial area in its own right. I argue that it is also distinguished from, although parallel to, this study’s particular interest in network development processes. Similar arguments are made for research focused on learning in networks.

At a conceptual level, few articles on entrepreneurship theorize about processes and/or dynamics in the context of networks with the exception of Larson and Starr (1993) who offer a network model of organizational formation. Another more recent exception is Hite and Hesterly’s (2001) discussion on how networks might change as the new firm moves from emergence to early growth. The focus here is also on network development and patterns of change, using views from social and business network literature applied to entrepreneurship, with particular conceptual focus on processes. Hence, the scope of this thesis is viewing network development as a process, including network structure and interaction, all requested by Hoang and Antoncic (2003).

Empirically, the context of this study is small and medium-sized firms in Finland, according to the EU definition. Since the empirical scope is limited to Finnish SMEs, making generalizations into other cultural contexts should be treated with care. Finland is, however, a good example of a small country with a developed economy in Northern Europe.

The units of analysis in this study are the dyadic relationships valuable to the firm (Article 1) or the egocentric network of the entrepreneur in focus (Article 4). In other words, this means ties of a positive character which are based on cooperation. Special relationships such as cooperation among competitors, for example, were excluded from this study. Therefore, other units of analyses common to network research such as groups or entire networks and markets or industries are beyond the scope of this

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1 A small and medium-sized enterprise consists of fewer than 250 employees, and has either an annual turnover not exceeding 50 million euro, or an annual balance sheet total not exceeding 43 million euro, according to the definition by the European Commission (1.1.2005)
research, so the results should be viewed only according to the level of analysis used here. The limitations of the separate articles and research design will be further discussed in the last chapter.

1.4. Core concepts

There exists key terminology within network research on a general level that is commonly used. Important terms, especially for this study, will be presented below. Alternative views on some of the major concepts will be discussed, followed by a specific definition for each term. The definitions discussed are specific to the context of the network approaches in question. The term ‘process’ is significant to this study but to avoid overlaps this term is not presented here below but instead discussed in Section 1.5 (research process) and described in Chapter 2 and Article 3 (network process).

Network

One would assume that since so much research has been carried out in a variety of contexts regarding networks, an overall accepted definition could be found. However, this is not the case at present (O’Donnell et al., 2001; Jack, 2008). Network remains a term which is applied in different contexts with different meanings.

A network can generally be said to include a set of actors connected by a set of two or more relations, also called ties (Cook and Emerson, 1978; Axelsson and Easton, 1992). Actors in a network can be a person, group or an organization (Johanson and Mattsson, 1986; 1994; Håkansson and Snehota, 1995). Relationships or ties connect different actors. When two actors are connected it is called a dyad (Wasserman and Faust, 1994). If several actors are connected they may constitute groups (Watts, 1999; Everett and Borgatti, 2005) or cliques (Burt, 1978) within a network. The flow within a tie can be directed (for example by giving advice to someone) or undirected (Watts, 1999). The ties are conduits for flows of a variety of resources such as information, advice, knowledge, help in the form of problem solving or financial resources (Uzzi, 1997; 1999). A tie can be dichotomous (present or absent, as in whether two firms cooperate for the moment or not). Ties can also be sleeping, as in not activated for the moment, although potentially presented when needed (Johanson and Mattsson, 1992). Relationships can be valued (measured on a scale, as in how valuable a partner is to another). The content of a relationship may vary (for example, a business or friendship), but it may also change over time just as its value may vary (Håkansson and Snehota, 1995). According to Borgatti and Foster (2003), different kinds of ties are assumed to function differently. It can be assumed that a relationship built on friendship is more mutual than a plain business tie. A structural measure like centrality, for example, which is often found important, may have different implications depending on whether a person is central in a network of successful organizations or friends or in a network.
transmitting a disease. *Ego* is when the focus is on a single actor and all ties going in or out from ego are referred to as the *ego network* or *egonet*. All network approaches do, however, agree that networks provide both opportunities and constraints.

Within business network research, a network consists of three dimensions, namely actors, activities and resources (Håkansson, 1987). All these can form own sub-networks within the business network. According to Håkansson and Snehota (1995), actors refer to individuals or organizations, and how they are related to each other. Activities on the other hand, refer to the flow of information, goods or services performed within these relations. Finally, resources refer to knowledge, social capital or monetary resources which are used by the actors in the network. Finally, a business network is viewed as a structure in which actors are related to each other and where they exchange resources through activities (Håkansson and Johanson, 1993). Easton and Araujo (1994) add to this view when they say that between actors, structure, connectedness and interdependence also need to exist.

According to Anderson, *et al.* (1994, 2), “a business network can be defined as a set of two or more connected business relationships, in which each exchange relationship is between business firms that are conceptualized as collective actors.” This definition is derived from Emerson (1981), and has been commonly used in the business network approach.

Within social networks Granovetter (1973) goes further in stating what characterizes a relationship. According to Granovetter the strength of a tie is viewed as a combination of the time, the emotional intensity and intimacy and the reciprocal services which characterize the tie. Powell (1990) sets out to find a set of factors that could distinguish a network from other organizational forms like markets and hierarchies. As a result, networks are identified as complex systems, where reciprocal relationships require great efforts to develop. The interaction simultaneously provides resources as well as constraints.

Within entrepreneurship literature Aldrich and Zimmer (1986, 21) have set the stage by defining a network as “the totality of all persons connected by a certain type of relationship, and is constructed by finding the ties between all persons in a population under study …”

In my opinion, the above definitions (Emerson, 1981; Aldrich and Zimmer, 1986) somewhat limit relationships to certain types of relations, and do not take into account that relationships evolve and change character over time. Thus, the definition of a network needs to be more comprehensive. According to Salancik’s (1995, 345) definition, “networks are constructed when individuals, whether organizations or humans, interact”, which is a nice way of saying how a network is created but not in fact what it consists of.

Therefore, the definition of a network used in this thesis is: a network is a set of interacting actors (individuals or organizations) and a set of linkages between these actors. The same type of definition is used by others, including Hoang and Antoncic (2003) and Håkansson and Ford (2000).
The problem with the term ‘network’ is not so much what to include in it, but rather where to draw the line between a network and its surroundings and if this is possible or even necessary, since network boundaries are often considered unclear or changing. Some assume the total number of actors in a network can be ‘seen’ and understood by all other actors within the network. This fits a network which has been planned and created for a certain reason or is very limited in size and scope. However, others assume a network to be more open and loosely coupled, and as such, is not easily overviewed. Therefore, the term ‘network horizon’ attempts to specify this.

**Network horizon**

Since business networks are based on the view that the network represents an entire market, the boundaries around networks are seen as arbitrary (Ford, 2002). The social network approach, on the other hand, uses a more distinct line between what is inside and outside a network, as networks are often defined according to contractual agreements (Uzzi, 1999; Podolny, 2001). Therefore, a rather useful term in network research, which has also been used in this thesis, is ‘network horizon’. Network horizon is defined as an actor’s view of how extended the network is (Anderson et al., 1994). In other words, a network reaches as far as the firm or individual is aware of (Emerson, 1981) and thereby the network is a part that can be accounted for, regardless of relevance (Holmen and Pedersen, 2003). This is naturally a subjective view and depends on the actor’s experience and the network structure itself. However, it is the definition of network horizon as per Anderson et al. (1994) which is applied in this thesis.

Within networks there are two major foundations that all network approaches are built upon, namely network structure and interaction, which will be discussed as follows.

**Network structure**

‘Network structure’ is defined in all three approaches as the pattern of relationships that form between actors. In the business network approach, the structure is considered to be the positions actors have through the relationships they have developed and maintained. The network structure is seen to change and to never remain stable for any long period of time, according to Håkansson and Snehota (1995). The social network approach highlights structure on different levels such as entire industries (Powell et al., 1996) for example, which is easy to capture with software programs. Social network researchers tend to focus on measures such as size, density, centrality or constraint, for example, as they all pertain to creating an efficient network structure (Kilduff and Tsai, 2003; Powell et al., 2005).

Entrepreneurship research has mainly adopted the concept of structure from the social network approach and views it as the patterns of relationships created within a network (Hoang and Antoncic, 2003). Hite and Hesterly (2001) argue that the structure of the network will change over time as density decreases. Network structure in this thesis is
in accordance with the social network approach and includes issues like network size, density and constraint, which are found in the fourth and last article of this thesis.

**Network interaction**

In the business network approach, the concept of ‘network interaction’ between parties implies a cumulative process of developing relationships to assure a strong network position and long-term relationships. Process is therefore not seen as action between independent firms or actors but is rather conceptualized as dyadic interaction (Ford and Håkansson, 2006). Relationship development and maintenance is believed to be dependent on the expectations of both parties regarding their future interactions (Håkansson and Ford, 2000). Hertz (1996) takes the discussion a step further when arguing that in order to have interaction, a certain degree of frequency, intensity and stability must exist. Relationships are commonly assumed to be reciprocal within the business network approach (Håkansson and Snehota, 1989; 2006), but this is also true for the two other approaches.

The concept of network interaction is very similar in entrepreneurship literature. For example, Aldrich and Zimmer (1986, 23) emphasize that relationships “carry with them a history of past dealings” and are based on trust. The interactions between two actors develop and change both in content, strength and dependency. In the social network approach, the concept of interaction has been set aside in favor of capturing structure instead. Powell et al. (1996) do however try to capture patterns of interaction among clusters. Neither structure nor interaction is a static concept. On the contrary, they are always subject to change. Network interaction is seen here as vital dyadic interaction, rather than as merely action between actors in a network.

1.5. **How the research process developed**

Before moving on to presenting the structure of this thesis, I would like to express how the process of research developed. This is achieved by first presenting a more personal overview, followed by a description of the order in which the different parts of the thesis were written (Figure 2).

The process was a long and at times difficult one for me. On the other hand, it provided me with insights not only about how research is carried out but also insights about myself that I could not have imagined at the beginning of this journey. Throughout the research process one can see that my research ambitions have grown and a capacity towards handling complex research problems has developed.

Since I feel this has been a true personal growth process, let me first explain my own development process as a doctoral student using Van de Ven’s (1992) meaning of process. The concept of process is fascinating since people tend to put different
meanings to it. Every doctoral student probably has very different experiences over time depending on at which age in life one carries out the thesis process. Van de Ven (1992) outlines three meanings of process: 1) when a process logic is used to explain a causal relationship 2) where concepts are operationalized as a process construct and measured to assess their change over time, and 3) where process is described using a developmental event sequence. Within the third meaning, Van de Ven and Poole (1995) illustrate four underlying theories of explanation, namely life cycle, teleological, dialectic and the evolutionary-based view, which in the following section will be explained relative to my own development process.

The first approach when viewing process as a developmental event sequence is the life cycle approach. The life cycle approach describes a linear and prescribed sequence of events. This is probably how the research process ought to be in theory; one thing leading to the next in a certain planned logical way. This is not however the way my development process occurred. In the very beginning I was confused whether I should focus on business ethics, international business or network research. As I felt there was so little written about business ethics and a vast amount about international business, I chose networks as my area of research since I found network literature fascinating. After first reading the network literature commonly used in the Nordic countries and later broadening my reading, I realized that there were also other network approaches in use. At the time my research process started however, it was very rare in Finland to be interested in what other network approaches could offer, since the business network approach had attained almost monopoly status in this part of the world. After becoming aware of these other network approaches, I could no longer follow what I had felt at the time was a prescribed path for my doctoral studies. In other words, carrying out network research using only the business network approach, as was customary in my part of the world, did not feel sufficient. Instead, I felt there was a need for me to broaden my network horizons and to become somewhat of a network ambassador who would argue for more angles to the concept or simply shed some new light on the world of networks.

The second approach, teleological, argues that an end-goal is obtained through a discontinuous and adaptive approach manifested in co-operation (Van de Ven, 1992). My moments of discontinuity have been countless, as “real life matters” have also needed significant attention during my years of writing. The entire task of completing the thesis has felt like a teleological approach to process, whereas the end goal, in other words this thesis, has developed through an adaptive approach while reading and reflecting on previous research and (re)developing my own goals. This has been to some extent achieved in cooperation with others in the form of co-authors, for example.

The third of Van de Ven’s (1992) approaches, the dialectic view, used as another way of explaining how I developed, argues that a discontinuous sequence is driven by ongoing conflict or contradiction that resolves itself by a balancing of power from opposing forces. I also argue that my entire research process has had a touch of the dialectic view, where some sequences have been in conflict at times. For instance, while reading comments from reviewers or supervisors, a feeling of opposition has sometimes been present. This has later been solved by the balancing of opposing forces; me trying to keep up a high quality in writing by rephrasing words or adding references in order to keep everyone satisfied, but which in the end naturally also improved the end result. I
am thus by no means dissatisfied; on the contrary, I am grateful for all the feedback which has pushed me in the right direction.

Finally, the fourth argument is evolution-based (Van de Ven, 1992) and suggests that development is a function of competitive survival, whereby change is environmentally-influenced and proceeds through a continuous cycle of variation, selection and retention. The entire period of becoming and surviving as a PhD student, especially at a later age, as in my case, has indeed mostly felt like an ongoing competition between the fittest, as in trying to get published and to receive research grants. But as Darwin states “It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.”

Now I will move on to introducing the order of the research process and the structure underlying it (see Figure 2). In hindsight, the four articles included in this thesis reflect to a great extent the results of a staged process of development, hopefully including noticeable progress. In starting the research process, relevant literature on business networks was initially reviewed and analyzed. This felt natural since this line of network research clearly dominates the discussion on networks in the Nordic countries. The review helped to identify an appropriate research method, namely interviews with key persons in charge of internationalization in the selected highly internationalized SMEs (Article 1). The review also covered how networks are taken into account in the lines of international business and entrepreneurship research. The literature gave increased awareness of the specific context. The article shows that among Finnish SMEs, it is necessary to have strong ties to partners, domestic or international, with previous international experience or strong ties to the new market when starting to internationalize. The article was my first attempt to dig deeper into network relationships of formal and informal character.

The first literature review, especially on international business research, broadened my view of networks and made me realize there are other network approaches used in other parts of the world. Thus, the next step was to explore this line of network thinking, namely the social network approach. This was very significant as it deepened my understanding of network research on different levels and presented other kinds of conceptual arguments and methods for data collection and analysis, extending beyond the ones mostly used in the Nordic countries. Simultaneously, it made me realize that much of the terminology is rather sprawling at times. Therefore, in the second article I set out to clarify the most common terminology used in network research and to compare the meanings put to it. This resulted in more awareness of how narrowly different network approaches are combined in network literature.

After reviewing the entrepreneurial network literature, still new dimensions appeared and thus deepened my understanding. In particular, my co-author and I added two concepts, which were often noted as relevant but still missing in detail from most network discussions. These were the concepts of ‘network dynamics’ and ‘network processes’. Therefore, the literature was reviewed to identify research tracking processes of network change throughout organizational development. This resulted in Article 3, where a model is introduced which provides a framework for dealing with the questions as to what, how and when a different part of a network changes and hence develops. The learning process was long but extremely helpful when writing this article.
The target was one of the top journals in entrepreneurship and eventually the paper was accepted. The revise and resubmit process meant revisiting the literature on networks several times, looking for different dimensions and foci. It also meant narrowing, refocusing and sharpening the conceptual arguments not only according to reviewers’ and editors’ comments, but according to our own increasing demands. From this article and the developed model, I moved on to the fourth article, which in turn empirically captures some of the dimensions in our conceptual model. This last article empirically follows the idea of a simultaneous co-evolving development of the organization and the network.

The entrepreneurship literature examining different ‘types’ of entrepreneurs provided me with yet another possibility to combine previous insights from network literature with that of entrepreneurship research. Also, there are large varieties in the different kinds of methods used in network research. However, the phenomenon of networks is very complex. Thus, qualitative methods in the form of in-depth interviews were selected as the proper data collection method. However, in order to capture both the interaction and structure of networks as in Article 4, it was insufficient to use one method. The quantitative method was applied when analyzing the data in the form of network software. Thus, the last article compares the interactions and structures of the networks of different types of entrepreneurs, using a mixed method approach in the data analysis.

Figure 2 shows the order and structure of the research process.
Review of business network literature

Review of social network literature. Conceptual comparison of the business and social network approaches

Review of entrepreneurship literature. Revisiting network literature on process and dynamics

Revisiting entrepreneurship literature on different types of entrepreneurs. Review of methods used to capture networks

Preparation and interpretation of interview data.

Interpretive reflection on empirical data in finalizing the analysis using mixed methods

Reflection on conceptual framework and empirical design.

Interviews with managers of international business regarding their networks prior to internationalization

Completion of Article 1 providing pre-understanding of the impact of networks on internationalization

Completion of Article 2 providing a deeper understanding of different aspects of network research

Completion of Article 3 providing a new framework for dealing with process issues within networks combining all three network approaches

Interviews with entrepreneurs regarding their networks

Second round of interviews with entrepreneurs regarding their networks

Completion of Article 4 on entrepreneurs and their networks

Completion of the overall summary, the kappa

Figure 2 Order and structure of the research process
1.6. Structure of the thesis

This thesis consists of two parts which are structured as follows. The first part consists of an introduction to the research, an overview of the conceptual framework, the research design, a summary of the contribution of the different articles and a final discussion, all divided into five chapters. More specifically, Chapter 1 begins with a general introduction followed by a presentation of the aim and structure of the thesis, followed by a clarification of the definitions of fundamental terminology used in all network research and throughout this thesis. Chapter 2 provides an overview of the conceptual framework of the study by presenting the three network approaches used and the research traditions within each network approach. Thereafter, a research outline is presented together with a summary table comparing the different network approaches. Chapter 3 includes a discussion of methodological issues including the research design of the entire thesis, conceptual arguments in the articles and details on data collection and methods for analyzing and interpreting the data in the empirical articles. Chapter 4 presents separate summaries of the four articles, the major contribution of each article and their share of the whole thesis. Chapter 5 offers a concluding discussion as well as a presentation of the study’s contributions and implications, managerial implications and critique of this research, followed by suggestions for further research.

The second part of the thesis consists of the four articles. The first article was the base article, which opened my eyes to different network approaches. The second article deepened my knowledge as I compared the social and business network approaches. After having completed the first two articles, I was appointed a thesis supervisor who evaluated the first two pieces and helped me further explore the field of entrepreneurship and move on to entrepreneurial networks. Thus, the third article highlights all three network perspectives. However, its main focus is on process issues because of the lack of any rich discussions on network processes in the entrepreneurship literature. The last article provides an empirical perspective of entrepreneurship where I applied a network perspective on comparing the networks of three different types of entrepreneurs.

Figure 3 shows the overall structure of the thesis.
The articles are presented in the same chronological order as they were written. The articles are included in their final form of publication or submittance. Articles 1 and 2 were published as book chapters, Article 3 has been accepted and will be published in 2009 in Entrepreneurship Theory and Practice and Article 4 has been submitted to the Journal of Small Business and Enterprise Development.

Table 1 shows the overall structure of the articles.
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<th><strong>Article 1</strong></th>
<th><strong>Article 2</strong></th>
<th><strong>Article 3</strong></th>
<th><strong>Article 4</strong></th>
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<tbody>
<tr>
<td><strong>Size of data set</strong></td>
<td>3 in-depth interviews in 3 different firms + secondary data</td>
<td>Literature review</td>
<td>Literature review</td>
<td>In-depth interviews in 6 case companies, including over 900 network ties</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>To explore the impact of social relations on the internationalization process of SMEs.</td>
<td>To make conceptual distinctions between the business network and social network approaches by discussing origin, and comparing certain terminology and applied methods.</td>
<td>To examine how entrepreneurship literature interprets and applies the concept of process to the study of networks. To offer a theoretical framework for conceptualizing and studying the various processes associated with network development.</td>
<td>To explore the nature of the networks across stages of firm growth among different types of entrepreneurs.</td>
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<tr>
<td><strong>Areas of research</strong></td>
<td>Business networks</td>
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<td>International business</td>
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<td>Entrepreneurship</td>
<td>Growth</td>
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<tr>
<td><strong>Method of data collection/analysis</strong></td>
<td>Qualitative in-depth interview data. Results from other researchers on the same theme used as secondary data.</td>
<td>Conceptual</td>
<td>Conceptual</td>
<td>Qualitative in-depth interview data, analyzed using both qualitative and quantitative (mixed) methods.</td>
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<td><strong>Author(s)</strong></td>
<td>Susanna Hinttu (Slotte-Kock) Maria Forsman Sören Kock</td>
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2 CONCEPTUAL FRAMEWORK

Many research issues pertaining to business studies may be examined from different angles of approach and on various levels, using different conceptual frameworks. This is particularly true for research on networks.

Within social network research there have been debates on “whether the network approach is a collection of methods, or whether it represents a distinctive theoretical perspective” (Kilduff and Tsai, 2003, 35). This question can also be applied to the other network approaches. The network field might appear as only holding a collection of methods or providing operational tools for important concepts and perhaps not enough for a theory. However, since a large body of literature has been produced, is being produced at this very moment and will most likely be in the future, I feel the question to be somewhat obsolete. It is true that network literature has borrowed from different disciplines, but it has also exported several important conceptual arguments together with new empirical methods to other disciplines. In the following, I will firstly discuss in general what a good theory should hold and what a network theory should particularly include. This is followed by a short description of how the theoretical bases for the networks have developed. Some paradoxes within network research will then be discussed.

Theory vs. Network Theory

What then actually constitutes a theory? Should it be judged on the basis of its predictive or descriptive validity? According to Whetten (1989), a complete theory must be able to answer the descriptive questions what and how together with the explanatory question why. It also ought to explain how the selected factors are related. Together, these questions represent the subject of the theory and provide a framework for interpreting certain patterns. In all, these factors provide the essential elements of a theory, namely description and explanation. Sutton and Staw (1995), in their description of what theory is not, call for developing stronger conceptual arguments since it is hard to find a study, which is strong regarding both theory and methods. In his comment on Sutton and Staw’s article, DiMaggio (1995) adds that good theory is hard to produce since goodness is multidimensional. He continues by stating that the best theories are hybrids which often combine various approaches to theorizing and hence compromise between different values. Since a good theory seems hard to come across, how then can we find something that passes as a good network theory?

According to Salancik (1995, 348), good distinctive network theories which “propose how structures of interactions enable coordinated interaction to achieve collective and individual interests” are still required. Kilduff and Tsai (2003) highlight and summarize three aspects of what a social network theory should consist of, regardless of type of actors or levels of analysis. The following elements included in their discussion can be applied to a general network theory, even though their context is social network theory.
Firstly, network theory needs to address the issue of tie formation and dissolution. Secondly, it has to clarify what constitutes a tie or relationship within a network. Thirdly, a network theory should include aspects of how certain network structures are formed and which outcomes these network positions will lead to. Additionally, I would like to address the need for some of the core concepts presented previously to be included in the theoretical discussion pertaining to good network theory. For instance, the concept of network horizon ought to be clarified. The question as to where to draw the line between a network and its environment is very complex and context-dependent, but should not be ignored. It is also crucial to not only acknowledge, but to actually include in the research the notion of networks as changing and dynamic systems.

To summarize this discussion, a good network theory needs to address tie formation and dissolution, to clarify what actually constitutes a tie, to capture how certain network structures are formed and to spell out the outcomes these will lead to.

The development of each network approach will be described later in detail. However, in the following section, some central factors will be highlighted, showing interaction between network research per se and other disciplines, which in turn has impacted the path taken by the different network approaches.

**Importing to and exporting from network research**

The network literature has started to import concepts from other disciplines, but it has also exported several important conceptual arguments together with new empirical methods to other disciplines (Kilduff and Tsai, 2003). Within the social network approach, Granovetter’s (1973; 1985) discussion on strong and weak ties and his argument on embeddedness (further developed by Uzzi, 1997; 1999) together with Burt’s (1992) discussion of structural holes, have developed the field along with other issues from organizational theory. Entrepreneurship literature has moreover adopted many of the same concepts over time. As described by Borgatti and Foster (2003), early network research tried to reach legitimacy as a new field, focusing for the most part on the consequences of networks. When an actor’s position and thereby the structure of networks became significant, consequence-based thinking was emphasized even more. However, over time the focus has changed and many studies have concentrated on network antecedents, for example. Recent studies have been concerned with network process and change, such as looking at inter-organizational networks and explaining how and why organizations form ties and select partners (Borgatti and Foster, 2003). Among the researchers using the business network approach, there were great differences in language, approaches and emphasis in the beginning. However, they still shared the basic beliefs of important concepts and assumptions. Over time, design and methodology were developed within the business network approach (IMP Group, 1982).

Having said that, the groundbreaking theoretical frameworks, from which all three chosen network approaches have emerged, are inter-organizational theory and new institutional economics (IMP Group, 1982; Powell and Smith-Doerr, 1994). Therefore issues like reciprocity, interdependence and power are widespread (Grabher, 1983),
although perhaps not using these exact terms. The discussion of basic frameworks is further developed in the sections discussing each approach separately.

Network research has not only imported concepts from other disciplines but has also started to reach into other disciplines where useful concepts and methods within network research have been recognized. Examples of network issues that have crossed over to other disciplines are resource dependency, transaction cost economics and the knowledge-based view of the firm (Kilduff and Tsai, 2003), for example. More specific examples are Baker (1990), who combines partner selection with resource dependence theory and Uzzi (1996), who modifies the transaction cost approach while simultaneously developing the discussion of embeddedness. Gulati et al. (2000) on the other hand, put forward a novel perspective for the resource-based view of the firm where networks are held as external sources of value creation, while Borgatti and Foster (2003) discuss the network paradigm in organizational research.

Criticism towards network research will be discussed later. The critique is more apparent within social network and entrepreneurship literature and will be discussed accordingly. However, network researchers themselves are also aware of paradoxes in the network discussion. In the following section, a discussion related to paradoxes within networks will be presented.

**Network paradoxes**

According to two of the developers of the business network approach, Håkansson and Ford (2000), at least three network paradoxes show the dual character of networks in offering both opportunities and constraints. The first paradox states that a network provides both opportunities and limitations. Acquired resources from network partners are crucial for the survival of many companies, but on the other hand network relations also tie a company to certain behaviors and restrict independent changes. Gulati et al. (2000) follow up on this point by arguing that networks have positive sides, as partners offer information, resources, markets and technologies to each other. On the other hand, dark sides are also demonstrated by unproductive relationships or lock-ins. The answer to this first paradox is to confront existing conditions or simply to conform to them (Ford, et al., 2002).

The second paradox says that a network provides not only a chance to influence but also to be influenced. These exist side by side. A company’s relations are its strategic outcome, while at the same time the company itself is the outcome of its relations. The risk of being influenced is especially true when one company in a network is larger than the rest. On the other hand, this therefore provides an opportunity for the smaller firms jointly to change the larger ones. According to Ford et al. (2002), the best way to deal with this second paradox is for a company to consolidate by strengthening its existing network position or create a new position within the network. Both old and new relationships can facilitate both consolidation and creation of a new position.

The third paradox says companies try to control the network in order to develop it. Concurrently however, if one company starts controlling the network, then innovation
and efficiency will disappear. In other words, firms do try to control their partners, but when the control increases it becomes destructive. Thus, the solution to the third paradox is a choice for the firm: when to coerce others and when to concede to others (Ford et al., 2002).

In the three following sections I will present the separate network approaches in depth and account for the history and studies of importance within each approach, ending with addressed criticism towards network research. This presentation will be followed by a discussion of the dominant methodology used in each approach. The chapter concludes with an introduction of the research issues outlined in this thesis.

2.1. The business network approach

The interaction approach was introduced in the early 1980’s as part of the so-called Uppsala School (Hammarkvist et al., 1982; Hägg and Johanson, 1982). The focus was on how industrial buyers and sellers created long-term relationships based on an assumption of homogeneity. The aim was to understand how dyadic relationships enabled organizations to access external resources needed in their production processes (Kock, 1991). The interaction approach also spread into international business. According to the internationalization model partly derived from the interaction approach, firms engaging in international activities follow certain patterns. These patterns include starting with international activities in countries culturally and/or geographically close to their own. After receiving increased knowledge through indirect exporting or agents, over time firms will increase their commitments in foreign markets and expand into more distant markets later on (Johanson and Vahlne, 1977; 1990).

The interaction approach emerged in the 1980s as part of the Industrial Marketing and Purchasing (IMP) research group. IMP research has focused particularly on channel relationships between buyers and sellers in a business-to-business context (Johanson and Mattsson, 1994; Håkansson and Snehota, 2000). A specific interest of IMP, and from now on referred to here as the business network approach (BN), involves understanding how to establish, build, and maintain stable relations and positions within a network in the context of industrial systems.

The BN approach encompasses research at both the dyadic and network levels. Although inter-organizational relationships have been emphasized, the business network approach has included also individuals and the surrounding context to some extent. The creation and maintenance of relationships has been a focus. This perspective also includes many different types of relationships and recognizes that relationships and consequently networks can be complex (Håkansson and Snehota, 2000). Bengtsson and Kock (2000) provide an example of the inclusion of various interactions within the same dyad when discussing relationships which are both cooperative and competitive in

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2 For further details on the BN perspective, see Axelsson and Easton (1992), Håkansson and Snehota (1995) and Ford (2002).
nature. Relationships are not restricted to the present, but also take into account the past and future (Johanson and Mattsson, 1992). The concept of ‘sleeping ties’, as found in the conceptual discussion by Johanson and Mattsson (1992, 185), is also acknowledged as part of the understanding of the history of network relationships. Sleeping ties, as they are termed within the business network approach refers to existing but latent reliable ties that can be reactivated. This concept is closely related to that of dormant ties used in the other two network approaches, where dormant ties are discussed in regard to their usefulness by for example Jack (2005) and Steier (2007). Sleeping or dormant ties are important as they are based on very trustworthy relations. However, since they are not kept continuously active they might be overlooked. To use them again, dormant ties need to be reactivated. These kinds of ties are also very efficient as they no longer need continuous maintenance; instead they are activated when needed. Recently, Levin et al. (2008) discovered dormant ties to be valuable while combining the benefits of weak ties (new and fast information) with that of strong ties (trust and understanding).

Johanson and Mattsson (1987) state that network development is a cumulative process whereby relationships are repeatedly established, maintained, developed and broken in order to provide satisfactory economic return or to create a position in the network. As a result, a firm cannot be ‘without connections’, because it is assumed that if the firm exists in the market, it has relationships with other parties, either directly or indirectly, as part of a network.

Research in the BN tradition: “…emphasizes dynamic, individual and interconnected exchange relationships within systems that contain interdependencies of both a complementary and a substitutive nature” (Johanson and Mattsson, 1994, 325). Accordingly, a position in a network structure is never stable, as reflected in Håkansson and Snehota’s (1995, 271) observation that: “…it is a structure with inherent dynamic features, characterized by a continuous organizing process”. Thus, even if the overall pattern of the network might appear to be stable, the BN perspective recognizes that existing relationships can vary in both content and strength. Relationship evolution increases each partner’s knowledge and helps them create realistic expectations of one another (Easton, 1992; Selnes and Sallis, 2003). Experiences from one relationship are transferred to another in the network, showing the interplay between dyads and the overall network.

To summarize, the BN perspective emphasizes network process in terms of how relationships develop (i.e. are created and maintained). The impact of dyads on the entire network and vice versa is considered important, and signals the connection between various levels of the network. An understanding of all potential relationships in networks is considered relevant (including their history), where relationships are understood to have a range of differentiating characteristics. Finally, process is not characterized by action, but rather interaction between actors; change both within relationships and the network is viewed as ongoing and evolutionary. Dynamics are seen in the changing nature of multiplex network relationships and in the interaction between partners at different levels over time. Overall, the BN perspective argues that the firm needs to direct its efforts towards understanding and managing the forces that form relationships and the network itself, and then shaping its development (Håkansson and Snehota, 2000). Network strength is understood to reside in the complementary
knowledge and routines that partners provide each other within the network; however, the analysis of the network structure is not paramount. Finally, the BN approach generally focuses on networks as the dependent variable in that interest is directed to how various processes influence network development.

2.2. The social network approach

According to Smith-Doerr and Powell (2005), the foundation of network analysis in social theory was provided by Simmel’s (1955) arguments regarding the importance of understanding group composition in order to understand social life. Later, the Harvard ‘breakthrough’ of the 1960s and 1970s (Scott, 1991) emphasized network structure (Swedberg, 1991), and over the years, certain concepts from social network research have been widely adopted in various forms of literature. Interestingly, although early arguments suggested that social network theory should include both the: 1) structure of the network and 2) interaction between the actors (Granovetter, 1985; Coleman, 1988; Powell, 1990; Burt, 1992), most social network research is derived from what has come to be known as the ‘new economic sociology’. In this context, the structural aspects of networks are emphasized. A variety of measures to assess relationship configurations and identifying similarities and differences across networks can be found (Smith-Doerr and Powell, 2005). Examples include studies on the strength of weak ties (Granovetter, 1973), tie embeddedness (Granovetter, 1985; Uzzi, 1997), network cohesion (Coleman, 1988) and the existence of structural holes in the network (Burt, 1992).

The discussion of strong and weak ties was initiated by Granovetter (1973) who highlights the advantages that develop from weak ties. The article argues that an analysis of social networks helps to bridge micro and macro levels of sociological theory and acknowledges that an examination of tie structure alone will neglect the understanding of tie content. Granovetter introduced the concept of embeddedness in 1985, which was further developed by Uzzi (1996; 1997). The embeddedness concept became very popular among organizational scholars (Borgatti and Foster, 2003). The embeddedness argument discusses how the role of personal relationships and structures (as opposed to institutional arrangements) increases trust and reduces malfeasance. Embedded ties have been found to impact on performance with suppliers (Uzzi, 1997), the choice of partners (Gulati and Gargiulo, 1999), the cost of capital (Uzzi, 1999), industry relations (Rowley et al., 2000), cooperative network (Gnyawali and Madhavan, 2001) price formation (Uzzi and Lancaster, 2003) and enhancing cooperation between competitors (Ingram and Roberts, 2000). Within the social network approach there are two different views on how to treat ties and their functions. According to Borgatti and Foster (2003), there are researchers who are more concerned with the structure of ties and those who focus more on the type of resources that flow through the ties. Coleman

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3 For useful overviews, see Wellman (1997), Kilduff and Tsai (2003), Brass et al. (2004) and Smith-Doerr and Powell (2005).
(1988) belongs to the first category focusing on structure and brings forward the importance of a cohesive network. This is challenged by Burt (1992), who advances the importance of structural holes. A cohesive network is argued to be important for the development of moral capital. It helps ensure that actors behave in a trustworthy manner, exchange reliable information and observe norms that further collective rather than individual interests (Coleman, 1988). In contrast, a central actor in a disconnected network gains additional advantages if those with whom s/he has direct and indirect relationships have no ties to one another, i.e. if the network is rich in structural holes (Burt, 1992). The second category focuses more on the types of resources flowing in the relationship and the benefits they provide. Dyer and Nobeoka (2000), for example, belong to this category when they look at knowledge sharing within car production.

Traditionally, networks have been studied at the level of the individual, especially among those assumed to share characteristics within a communication or contact network. Examples include research on ties between managers (Uzzi and Lancaster, 2003), job-seekers (Granovetter, 1995), career advancement (Podolny and Baron, 1997) and friendship (Seidel et al., 2000). These are also examples of research, which looks at the resource flows within networks and the benefits they provide. Increasing interest has been shown on inter-organizational networks, but such research focuses on transactions or contractual linkages, rather than interaction-based relationships per se. The approach involves structural analyses of networks, assessing characteristics such as tie content, network size, density, structural holes or the position of actors in the network.

Several longitudinal studies examine networks at different points in time to identify patterns of relationships at various network levels. One such study compares university-industry relations in the US and Europe (Owen-Smith et al., 2002). This investigation uses network visualization methods and large scale network analysis techniques to identify different collaborative systems. A particular strength of this study is that it isolates different national patterns and examines the impact of regional clusters on national networks. Other studies involving clusters and their patterns of interaction include Powell et al. (1996) and Powell (1998).

A second example is offered by Seabright et al. (1992), who use quantitative longitudinal data to explore how the nature of attachment between organizations impacts the dissolution of auditor-client dyads. The findings show that individual attachment positively impacts relationship development and has a stabilizing effect on tie dissolution, while organizational attachment is less influential. This study is relatively rare within this approach due to its focus on the dyadic level. Like most social network research however, it does not capture the processes underlying relationship dissolution and therefore network change.

Some aspects of social network research assess relationships at both the dyadic and network levels. For example, Uzzi (1999) discusses how embeddedness can influence which firms receive capital and at what cost by assessing: 1) the dyadic relationships between the entrepreneur and the loan managers at a bank, and 2) the network comprised of different firms and their banks. This study is unique, not only because of its assessment of multiple network levels, but also because it examines relationship quality and how the network configuration influences a firm’s ability to perform (i.e. access capital). The findings show that at the dyadic level, the entrepreneur will benefit
from having a social attachment to the lender, thereby increasing expectations of trust and reciprocity. At the network level, firms are more likely to benefit if their network is a balance of embedded and arms-length relationships.

More recent developments in social network literature focus specifically on the macro level of a network. For example, Powell et al. (2005) use longitudinal data to examine how the formation, dissolution and re-establishment of ties shape the network structure of the biotechnology industry. This approach is also seen in strategy literature which applies social network theory to study alliance formation, thus integrating the dyad and network levels of analysis (for example, Ring and Van de Ven (1994) and Gulati (1995)). According to Gulati and Gargiulo (1999), networks are formed not only through exogenous factors, but also through an endogenous evolutionary dynamic in terms of methods of partner selection. Exogenous factors capture how firms are inclined to enter into different relationships or alliances while endogenous factors capture how they choose their partners.

To summarize, the SN perspective emphasizes how the simple addition or deletion of a tie changes network structure. In other words, social network research examines which links change when among different partners, and how this influences the rest of the network rather than how the linkages change or the reasons why they do. This research emphasizes the entire network of ties (beyond that of the focal firm) and while studies of inter-organizational relationships are increasing, the traditional emphasis has been on networks of individuals. Researchers make extensive use of longitudinal (and large) datasets, allowing for network characteristics to be measured as they relate to patterns of structural evolution.

2.3. The network approach in entrepreneurship

Early entrepreneurship research focused on the characteristics of the single entrepreneur. Scholars then began to question: 1) why entrepreneurs were viewed in isolation, and 2) why the entrepreneurial process was separated from other social phenomena. This led to researchers examining “…the causes and consequences of embeddedness in the entrepreneurial process” (Hoang and Antoncic, 2003, 167). In particular, Birley (1985) recognized that networks play a catalytic role in organizational emergence, and Aldrich and Zimmer (1986, 17) proposed a perspective “…which views entrepreneurship as embedded in networks of continuing social relations”. From the time of these studies, networks have been embraced as an instrument for investigating the creation and development of new ventures (Larson, 1992; Johannisson and Mönsted, 1997; Jack et al., 2004) largely because they have been shown to improve entrepreneurial effectiveness by providing access to resources and competitive advantage without capital investment. The network view within entrepreneurship has mostly been influenced by the social network approach. Although networks have been part of entrepreneurial research for quite some time, there are few conceptual arguments that have been developed.
Larson and Starr (1993) provide one conceptual foundation by offering what is referred to as a network model of organizational formation. They depict the emergent process of an organizing firm by presenting three stages of entrepreneurial networking activity. In the first stage, essential dyads are created through a rational search for ties. In the second stage, the initial ties take on a combined socio-economic character and the mutuality of the dyads grows. Simultaneously, norms and procedures evolve, thus increasing the density and interdependence of the network. In the third stage, yet another layer of complexity is added with more business functions, activities and levels of exchange. As a result, the various dyads become more integrated and lead to formalized interactions. The network is characterized by the growing importance of inter-organizational ties that provide the firm with a better position from which to acquire resources.

Hite and Hesterly (2001) again present a set of theoretically-derived arguments on how networks change as the new firm moves from emergence to early growth. Over time, networks are expected to evolve from being identity-based to more calculative. As part of this evolution, the network shifts from being dominated by socially-embedded ties to having a balance of embedded and arms-length ties. The initially tightly integrated network is expected to shift to one that is loosely integrated and characterized by structural holes between actors. The network also shifts from being path-dependent to one that is more intentionally managed. The central argument is that new firms can benefit from networks that are cohesive (following Coleman, 1988) but also from networks full of structural holes (following Burt, 1992). As such, Hite and Hesterly (2001) suggest that one type of network will serve the firm at emergence and another will be more appropriate at early growth.

Drawing the above-mentioned conceptualizations together, Larson and Starr (1993) and Hite and Hesterly (2001) agree that entrepreneurial networks become more complex over time. They also see process as an evolutionary course of action, but base it on a rational action view whereby entrepreneurs are understood to create and manage their networks. A notable difference between the two conceptualizations is that Larson and Starr (1993) emphasize the relational dimensions of dyads and argue that the network becomes increasingly dense over time as the dyads integrate. In contrast, Hite and Hesterly (2001) emphasize the overall structure of the network and argue that networks decrease in density and cohesion over time. This difference however, can also be viewed as two complementary arguments, since together they provide a useful conceptual basis for understanding both dyadic relationships and the overall network.

Within the entrepreneurship literature, there are however several empirical studies of network issues. As summarized by Hoang and Antoncic (2003), the entrepreneurship literature emphasizes network content (the nature of relationships and the resource access they provide), network governance (how networks and resource flows coordinate) and network structure (the patterns of relationships within the network). Beyond this, Article 3 in this thesis identifies a number of studies published either after Hoang and Antoncic (2003) or excluded from that review. These can be categorized in two ways. The first group (Butler and Hansen, 1991; Jack and Anderson, 2002; Elfring and Hulsink, 2003; Greve and Salaff, 2003; Lechner and Dowling, 2003; Jack et al., 2004; Jack, 2005; Lechner et al., 2006) compares different stages of new venture creation and examines which networks or ties are used/needed at different points in
time. The primary conceptual advancement in this category is the discussion of the role of different ties in different stages of venture development. Jack et al. (2004) provide a good example of the combination of social networks and entrepreneurship examining the nature, content and process of strong ties and then claiming this certain type of tie, namely strong ties, as particularly important for enterprise performance if utilized correctly.

Within this first category there are three subgroups of articles. The first subgroup focuses on understanding how networks are developed and managed (Jack and Anderson, 2002; Greve and Salaff, 2003). A second subgroup of studies discusses how relationships and networks are characterized by continuous change as part of the entrepreneurial process (Lechner and Dowling, 2003). A third subgroup of studies examines how particular types of ties influence the firm (Butler and Hansen, 1991; Elfring and Hulsink, 2003).

The second category of articles (Larson, 1991; Johannisson, 1996; Steier and Greenwood, 2000; Schutjens and Stam, 2003; Hite, 2005) focuses on longitudinal studies of network change. The conceptual advancements lie in the dynamic perspective these articles provide by discussing changes within ties and how the development of one tie might influence the development or dissolution of another. These articles direct attention towards the complexity of network development. Furthermore, they highlight the need to consider network structure and relational interaction simultaneously.

These empirical studies together with the review of Hoang and Antoncic (2003) and the conceptual arguments of Larson and Starr (1993) and Hite and Hesterly (2001), highlight entrepreneurship research combined with a network view. These studies illustrate that entrepreneurship research sees network processes and dynamics as evolutionary and also that they can be intentionally-managed. Entrepreneurship research also recognizes the complexity of changing ties (social to economic or weak to strong and vice versa). In doing so, it views the network phenomenon at the level of the dyad and also as the firm's wider set of relationships. The increased complexity of the network is considered to be a positive influence on the firm, and results in dyadic learning between partners and within the network.

2.4. Comparing methodological approaches in the different network perspectives

Since three different theoretical network approaches have been used as a base for my research, in the following section I will go deeper into the most dominant ways of collecting and interpreting empirical data within each perspective.

The business network approach is commonly regarded as qualitatively-oriented. The Nordic, primarily Swedish, research tradition in which the business network approach is embedded is generally based on case research. When the interaction approach was
launched during the early 1980’s, most studies were carried out within one or several firms in the form of case studies. Since grasping the richness of network interaction requires detailed information, qualitative methods have been found most suitable (Møller and Wilson, 2001) and accordingly, detailed data has been collected. The strength of the business network approach lies in the focus on the content of the relationships and changes within them, able to be captured with rich data. Håkansson and Snehota (2000) point out the fact that since the business network approach includes many different types of relationships in a network, the network consequently becomes multifaceted, and therefore challenging to define. The authors continue that even though this may seem as a weakness in the business network approach, this is in fact its main strength. It is a strength to be able to capture flexible dynamic networks with floating boundaries developed around strong relationships.

The level of analysis in BN research has mainly focused on interaction between organizations; dyads or interorganizational networks. Informal relationships have also received attention. The focus has often been on values, knowledge generation and transfer, learning, adaptation, cooperation, network management and other issues within specific network relationships. Moreover, the fact that getting access to case sites has never been a problem in the Nordic countries and that large scale questionnaires commonly have received low response rates, have further impacted the use of qualitative methods. Since mainly a qualitative approach has been utilized in gathering and analyzing the data, it is understandable that fewer structural and measurable concepts have been in focus. During recent years, signs of the different approaches closing up on each other can be recognized. For example, the work of Hadjikhani and Seyed-Mohamed (2008) shows how the business network approach starts to apply issues from the social network approach. These authors include the concepts of weak ties and structural holes in the discussion of business networks, although using qualitative analysis.

**Within the social network approach**, quantitative methods have dominated. Hence, the focus on structural issues is easily understood. A majority of the research design is either on entire networks or on ego-networks (Carrington et al., 2005). It is therefore understandable that the ways of collecting empirical data have their emphasis on publicly available data. Data on large networks are easily reachable and can be used in order to visualize networks using new visualization methods and large scale network analysis techniques in order to identify different collaborative systems, for example Owen-Smith et al. (2002). However, it is also a question of access. In the United States, where the social network approach is mostly spread, it has been very hard to gain access to larger companies and their internal affairs. Gaining internal access and being able to carry out in depth interviews have almost been impossible. Therefore, researchers have had to rely on public data which they have been able to use for quantitative studies. Qualitative research within the social network approach in studies by Uzzi (1999), for example, is a rare exception. The focus of such studies has been different to those within the business network approach as Uzzi examines structural patterns in tie quality, differences between embedded and arms-length ties and how the design of network patterns influences a firm’s ability to perform. One of the weaknesses of the social network approach is that ties are treated in a rather simplex manner. On the other hand, as processes have been said to be important, they also need to be understood at the
broader network level and across stages of the firm’s evolution, which is best captured through structural measurements.

**Networks within entrepreneurship** research are characterized by several empirical studies (e.g. Birley, 1985; Aldrich and Zimmer, 1986; Coviello and Munro, 1995; Alsos and Kolvereid, 1998; Johannisson 2000; Johannisson et al., 2002; Jack et al., 2004). There are also some review articles suggesting new avenues for network research within entrepreneurship (Hoang and Antoncic, 2003; Jack, 2008) but only a few conceptual articles that develop theory (Larson and Starr, 1993; Hite and Hesterly, 2001). Network research within entrepreneurship has been viewed at the inter-organizational level and at the entrepreneur’s personal network level (Hoang and Antoncic, 2003). These have also been called formal and informal networks (Johannisson, 1986). The studies on inter-organizational networks have typically entailed small firms (O’Donnell et al., 2001). Research on ‘personal networks’ developed from the recognition that the traditional methods used did not capture the social context that entrepreneurs were embedded in (Aldrich and Zimmer, 1986). Methods of either qualitative or quantitative nature have been used. Entrepreneurship research on networks has been interested in both structure and process of networks. The reason for this is an awareness of the changing character of networks and a consciousness of the importance of the surrounding context. Johannisson (2000) states that a process perspective of networks needs to include the creation of ties, how they link to each other in a network (structure) and how the relationships are managed. He also identifies networks of entrepreneurs as irrational and opportunity driven; hence, methods capturing all this are needed. Since network process and structure have been emphasized, it is interesting that so few studies try to capture both concepts simultaneously, as Coviello (2006) for example. The focus has instead been on the impact of networks on entrepreneurial outcomes, especially new venture performance.

Few studies have used networks as the dependent variable and to support a better understanding of this the use of longitudinal studies and qualitative methods are needed (Hoang and Antoncic, 2003). Implicit in the argument for longitudinal research is the need to track change, thereby capturing how dyads are developed over time, for example. Hoang and Antoncic (2003) also emphasize the use of a multi-method approach, which could provide rich results and more dynamic theories. Even though network research within entrepreneurship has in fact been aware of the potential in viewing networks as dynamic systems, this has not yet been fully developed. Entrepreneurship research on networks could therefore benefit from both the business and the social network approach by integrating methodological approaches allowing both qualitative and quantitative issues to be captured simultaneously.
2.5. Outline of research issues

In the following section, the issues selected for investigation in this research are outlined. The research issues in this study have emerged from a thorough literature review of the three network approaches and how they each deal with important features of network research. These include the level and type of network, tie characteristics, change and process. The focus of this research is on networks and their importance for firm development. The level of analysis in the first article is on useful dyadic relationships to the focal firm, while in Article 4 it is on the ego network of the various entrepreneurs. Thus, the level of analysis dominating research conducted in the entrepreneurial network approach is applied. The conceptual discussions in the other two articles pertain to combining the strengths of the different network approaches to clarify current concepts and to enhance cross-fertilization between them.

The type of network discussed in the various approaches differs not only in content but also in where to draw the network boundary. In this research, the network includes ties of a business and/or social character. Network boundary applies the previously discussed concept of network horizon. The tie characteristics are captured for both interactional and structural dimensions featuring aspects from all three network approaches. The interactional dimension is assessed in terms of tie content, durability and direction, for example. The structural dimension includes network size, density and constraint. Tie characteristics are treated from a multiplex viewpoint, where they may include social, business or both aspects simultaneously. Network change and process are addressed in this study in the conceptual discussion developing a framework including the assessment of change and where the firm and network are seen to co-evolve.

Table 2 concludes the discussion of the conceptual frameworks used in this thesis, by summarizing the focus of the different network approaches.
Table 2  Comparing the Three Perspectives of Network Research (excerpt from Slotte-Kock and Coviello, 2009)

<table>
<thead>
<tr>
<th>Research Dimension</th>
<th>Business Network Research</th>
<th>Social Network Research</th>
<th>Entrepreneurial Network Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Level of Analysis</strong></td>
<td>Focuses on dyadic interaction (specific inter-organizational relationships within the broader network) but argues that it is possible and necessary to understand the mutuality of tie and network development.</td>
<td>Studies patterns of whole networks of individuals or organizations, occasionally including dyads.</td>
<td>Focuses on either dyads of the focal firm or the firm’s ego-net. Increasing recognition of the interface between the dyad and the network.</td>
</tr>
<tr>
<td><strong>Network Type</strong></td>
<td>Considers inter-organizational networks based on dyadic ties (both formal and informal); borderless.</td>
<td>Considers individual, intra- and inter-organizational networks; defined borders.</td>
<td>Considers individual entrepreneur or firm networks with defined borders. Often studies advice or discussion networks.</td>
</tr>
<tr>
<td><strong>Tie Characteristics</strong></td>
<td>Considers multiplex characteristics: tie content, tie intensity, tie reciprocity, positive and negative ties, tie duration, sleeping ties.</td>
<td>Emphasizes tie existence and tie strength. Distinguishes between social and economic ties.</td>
<td>Emphasizes mostly tie content (social vs. economic) and tie strength. Some appreciation of other characteristics, e.g. tie usefulness, durability, direction and dormancy.</td>
</tr>
<tr>
<td><strong>Network and Tie Change</strong></td>
<td>Follows relationship development in order to understand change within relationships as well as across relationships and the impact of change on the wider network.</td>
<td>Assesses how the addition or deletion of ties impacts network structure.</td>
<td>Provides descriptions of tie and network change but little assessment of how and why this occurs.</td>
</tr>
<tr>
<td><strong>Primary View of Process</strong></td>
<td>Process is viewed primarily as a developmental event sequence underpinned by teleological, dialectic and evolutionary theory.</td>
<td>Process is seen as a way to explain variance in the structure of networks over time, through causal influence of in- and output variables.</td>
<td>Studies tend to assess causation and change in variables, although the results are mostly placed in the context of a predictive sequence of stages often reflecting life cycle theory.</td>
</tr>
</tbody>
</table>

Having introduced the conceptual aspects of this thesis, I now turn towards the methodological aspects applied. The research design will be discussed in Chapter 3. However, I first present the research questions as a base for the research design. The research questions will address the research dimensions in Table 2. The research questions are outlined according to each article as a reminder of how each paper led into
the others as part of addressing the overall research problem and reflecting my personal learning process.

In examining how SMEs expand and develop their networks in order to internationalize (Article 1), I realized that the business and social network approaches had many dimensions in common but also that they specialized in different ways. Therefore, Article 2 set out to clarify these specializations. In Article 3, I moved on to network development within entrepreneurship research since the context of my later empirical work would be that of entrepreneurs, extending the general SME context of Article 1. In Article 3 a theoretical framework conceptualizing network development processes was presented as a result of integrating the three network approaches. The model functioned as a base for the last article (Article 4), which sets out to compare not only networks among different types of entrepreneurs but also network development across phases of firm growth.

**Article 1 includes an empirical research question:**

How do social networks impact on the internationalization processes of small and medium-sized firms, especially regarding business partner selection? Article 1 examines network development as a result of a decision to internationalize.

**Article 2 includes a conceptual research question:**

What are the conceptual distinctions and similarities between the business and social network approaches? Article 2 suggests how the two approaches could benefit from more cross-fertilization.

**Article 3 includes a conceptual research question:**

How does entrepreneurship literature interpret and apply the concept of process to the study of networks? Article 3 demonstrates how using a multi-lens perspective may enhance network research on network development processes.

**Article 4 includes an empirical research question:**

Do the interactional and structural dimensions in the networks of three different types of entrepreneurs (novice, serial and portfolio entrepreneurs) vary, and if so, then how? Article 4 portrays how network development proceeds in an entrepreneurial context.
3 RESEARCH DESIGN

Generally, there are many factors impacting on research design and how the research process develops. The most important factor is the link between theory and research (Bryman, 2002). There are several issues impacting this link. The most fundamental is whether theory is allowed to guide and influence the collection and analysis of data or will previous observations impact theory development itself? In other words, is data collected rather to test theory as in a deductive approach, or is it collected to construct theories as in an inductive approach? In order to address these underlying views of the world one needs to answer questions concerning ontology, epistemology and methodology, which are necessary to consider before and during a research process.

3.1. Philosophical foundation of the study

Guba and Lincoln (1994, 108) provide an explanation as to what these questions entail. Firstly, the ontological question asks “what is the nature of reality?” The epistemological question asks “what is the relationship between the knower and the known?” This question is thus constrained by the answer to the ontological question. The third methodological question asks “how can the researcher find the answers to whatever he or she thinks can be known?” The answers to the two first questions impact in turn the answer to this final question. The relevance of these questions to this thesis will be discussed later in this chapter. Creswell (1994; 2003) adds to this classic discussion by explaining that researchers not only make claims about what knowledge is, how we know it and the processes for studying it, but also include what values go into our knowledge claims (axiology) and how we write about it (rhetoric).

The questions addressed above should be answered according to the researchers view of the world, or in other words along the lines of a paradigm. A paradigm is defined according to Guba and Lincoln (1998, 195) as “the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways.” In the following four different paradigms will be discussed and compared.

According to Guba and Lincoln (1994), there are four competing paradigms in quantitative and qualitative research. However, in order to better reflect my own thoughts and angles of approach, I have chosen to discuss the various paradigms in the light of Tashakkori and Teddlie (1998), who rearrange these issues and include one paradigm which is different from Guba and Lincoln. Tashakkori and Teddlie (1998) state that there are four philosophical orientations that represent different stages in the paradigm debate; these are: positivism, postpositivism, constructivism and pragmatism. In the following section, these four paradigms and the most common methods and logic used within each paradigm will be presented and compared. At the end of this section is Table 4, which compares the different paradigms.
Since positivists believe there is one single reality, they also believe that a study can be performed free of values and that it is possible to make time- and context-free generalizations (Tashakkori and Teddlie, 1998). In other words, there is actually one truth that exists and which can be studied without influencing it. However, according to Bryman and Bell (2007), this is mainly a gathering of facts, even though it is one way of enhancing knowledge. In the 1950s and 1960s a great dissatisfaction with positivism began. This in turn gave birth to postpositivism. According to Tashakkori and Teddlie (1998), when following the postpositivistic line of thought, researchers agree that our understanding of reality is constructed and therefore research will be influenced by the values of the researchers. The researchers themselves are influenced by the theory or the framework they have chosen to use. Postpositivism stands for a deterministic philosophy, where causes most likely shape the results (Creswell, 2003). In other words, there are theories that control the world and these need to be tested for better understanding.

Positivistic and postpositivistic thinking represents a cause and effect thinking typical of the quantitative approach, where the role of research is seen as a way of testing theories which are reduced to certain variables whereby laws are developed. Positivism is about verifying hypotheses, while in postpositivism, it is more about falsifying hypotheses (Guba and Lincoln, 1994). The starting point for the deductive logic is developing a frame of reference, or in other words moving from the general to the particular (Patton, 1990). This is followed by generating hypotheses that are either accepted or rejected depending on the empirical findings. Thus, the deductive approach, where conclusions are based on theoretical reasoning and the movement is from theory to practice (Ghauri et al., 1995) is commonly used both in positivism and postpositivism reasoning (Bryman and Bell, 2007).

According to Creswell (2003), the constructivists are interested in the processes of interaction among individuals and the historical and cultural aspects of the specific context in which these individuals live. Following Lincoln and Guba’s (1985) discussion of what they call the naturalist paradigm, Tashakkori and Teddlie (1998) describe what they again call constructivism. The constructivists believe that there are multiple constructed realities and that it is therefore impossible to differentiate between causes and effects. Time- and context-free generalizations are not possible, since reality is constantly changing and research reflects the value of the researcher (Tashakkori and Teddlie, 1998). The researchers recognize that their own personal experience will shape their interpretation of the world, even though the intention is to make sense of the other’s interpretation of the surrounding world (Creswell, 2003). Inductive logic is mostly found in the constructivism paradigm commonly associated with qualitative research methods. An inductive logic starts from observations moving towards general patterns while allowing for these patterns to emerge without previous expectations (Patton, 1990). Hence, there is interaction between the investigator and the investigated object so that the findings are created as the research process develops (Guba and Lincoln, 1994). This data can later result in new theory or be compared to the existing theories in the specific area of research. Induction is in other words a linear movement from the empirical world towards the theoretical, which is often the case in qualitative studies. The linear movement implies that it is not a swinging pendulum going back and forth as in abductive logic. This is further explained in Table 3.
According to Tashakkori and Teddlie (1998), a debate has arisen about whether it is possible to combine views that are based on particular paradigms, since they differ concerning ontological assumptions (nature of the reality), epistemological assumptions (knowledge of that reality) and methodological assumptions (particular ways of knowing that reality). Consequently and not surprisingly, other researchers who try to mix methods are doomed to failure by some paradigm classicists, due to such inherent differences in the underlying philosophies (Tashakkori and Teddlie, 1998). Lincoln and Guba belong to those who are still fueling the debate as to the purity of paradigms. Others again state that these differences have been blown out of proportion (Tashakkori and Teddlie, 1998). For example, Datta (1994) presented the following practical reasons for accepting a co-existence of the quantitative and qualitative methods. For instance, both have been used for a long time and have thus influenced each other’s procedures and guidelines, and many researchers have urged using both. As an example Howe (1988) found both methods to be compatible. The trend today is slowly moving towards viewing the methods not as opposites but as qualitative versus quantitative. Instead, research practice is rather putting a continuum between them by stating that research tends to be either qualitative or quantitative in nature (Creswell, 2003).

The \textit{pragmatism} paradigm has been introduced more or less as a resolution to this debate. However, very recent discussions (Bergman, 2008a) argue for moving beyond this point, where pragmatism would be seen as the sole answer to the debate. This will be further discussed below. In the pragmatism paradigm, the problem is the most important aspect and researchers can use all kind of approaches to understand the problem. In other words, pragmatists have a freedom “to choose methods, techniques and procedures that best meet their needs and purposes” (Creswell, 2003, 12). Accordingly, pragmatists find \textit{qualitative and quantitative methods} compatible as they share enough of the same beliefs in fundamental values like reality being multiple and constructed (Tashakkori and Teddlie, 1998), for example. Therefore, the methods can be used as combined in order to better understand the research problem. As for axiology, pragmatists also believe values influence the inquiry and consequently the results and theory influence the facts, but they see no reason to be so concerned about these influences (Tashakkori and Teddlie, 1998). In a \textit{mixed method approach} the researcher bases his knowledge claims on pragmatic grounds indicating that he is consequence-oriented, problem-centered and pluralistic (Creswell, 2003). Therefore, the ontological assumptions within pragmatism accept an external reality, whereas

\begin{table}[h!]
\centering
\begin{tabular}{|l|}
\hline
\textbf{Deductive} logic commonly part of the (post-) positivism paradigm: \\
theory $\rightarrow$ observations / result \\
\hline
\textbf{Inductive} logic commonly part of the constructivism paradigm: \\
observations / result $\rightarrow$ theory \\
\hline
\textbf{Abductive} logic commonly part of the pragmatism paradigm: \\
observation $\leftrightarrow$ theory $\leftrightarrow$ observation $\leftrightarrow$ theory $\rightarrow$ result \\
\hline
\end{tabular}
\caption{Most common logic in the separate paradigms}
\end{table}
epistemology includes both subjective and objective points of view on the understanding of the world (Tashakkori and Teddlie, 1998). Furthermore, the ontology within pragmatism realizes that reality is multiple and constructed. Thus, it accepts reality for what it is and realizes that values do play a significant role in conducting research and thereafter in interpreting the research results (Tashakkori and Teddlie, 1998). Even if causal linkages are acknowledged within pragmatism, they are not pinpointed down to any greater extent. Therefore, different methods can be used as combined in order to better understand the research problem. This in turn implies collecting data in a way that best fits the research problem, often involving both numeric as well as textual information (Creswell, 2003). It also implies choosing explanations that best fit a desired outcome (Tashakkori and Teddlie, 1998). Consequently, this provides an opportunity to present findings both qualitatively and quantitatively. In other words, the focus is more on the research problem itself than on methods or discussions of complex philosophical issues (Creswell, 2003; Tashakkori and Teddlie, 2003a), or as Alvesson and Sköldberg (2000) explain it; pragmatists want to stick as close as possible to the practical empirical reality. Therefore, the logic within pragmatism may include both induction and deduction.

To this discussion I want to introduce a term, perhaps more common in Nordic research traditions (Alvesson and Sköldberg, 1994; Dubois and Gadde, 2002) than elsewhere, and this is the term *abduction*. Abduction, which is known as an interaction between theory and practice (Alvesson and Sköldberg, 1994), fits in very well with the pragmatic school. Abduction implies an overall goal within research society to reach an agreement between theory and practice as opposed to induction and deduction, which starts off either in practice or theory (Wigblad, 1995). The abductive logic implies going back and forth between theory and empirical findings. In other words, you mix your frame of reference with the results. Simply put, it is an ability to see patterns or reveal structures (Alvesson and Sköldberg, 2000). The starting point for the abductive approach is a pre-understanding based on a literature review, followed by a number of empirical observations generating new ideas, followed by a recheck of the literature resulting in new empirical observations, and so on. Theory and results thereby impact each other and the goal is to find a systematical connection between the theoretical level and the practical level (Alvesson and Sköldberg, 1994; Creswell, 2003). Questions like *why* and *how* suit the abductive approach. *Why* implies a form of causality and *how* indicates a sort of comprehensive analyses (Alvesson and Sköldberg, 1994; Creswell, 2003).
Table 4  Comparisons of four paradigms used in social and behavioral sciences  
(Tashakkori and Teddlie, 1998, 23)

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Positivism</th>
<th>Postpositivism</th>
<th>Constructivism</th>
<th>Pragmatism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methods</strong></td>
<td>Quantitative</td>
<td>Primarily quantitative</td>
<td>Qualitative</td>
<td>Quantitative + Qualitative</td>
</tr>
<tr>
<td><strong>Logic</strong></td>
<td>Deductive</td>
<td>Primarily deductive</td>
<td>Inductive</td>
<td>Deductive + Inductive = Abductive</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td>Objective point of view. Knower and known are dualism</td>
<td>Modified dualism. Findings probably true</td>
<td>Subjective point of view. Knower and known are inseparable</td>
<td>Both objective and subjective points of view</td>
</tr>
<tr>
<td><strong>Axiology</strong></td>
<td>Inquiry is value-free</td>
<td>Inquiry involves values, but they may be controlled</td>
<td>Inquiry is value-bound</td>
<td>Values play a large role in interpreting the results</td>
</tr>
<tr>
<td><strong>Ontology</strong></td>
<td>Naive realism</td>
<td>Critical or transcendental realism</td>
<td>Relativism</td>
<td>Accept external reality. Choose explanations that best produce desired outcomes</td>
</tr>
<tr>
<td><strong>Causal linkages</strong></td>
<td>Real causes temporally precedent to or simultaneous with effects</td>
<td>There are some lawful, reasonably stable relationships among social phenomena. These may be known imperfectly. Causes are identifiable in a probabilistic sense that changes over time</td>
<td>All entities simultaneously shaping each other. It is impossible to distinguish causes from effects.</td>
<td>There may be causal relationships, but we will never be able to pin them down</td>
</tr>
</tbody>
</table>

The aim of this introduction was to present four major philosophical paradigms and to clarify what they stand for and which methods and logic are commonly used within them. It must be acknowledged however, that in literature other types of paradigms have been presented which were not discussed here. In the following section I will link the discussion of paradigms, logic and methods and explain how these issues are applied in my research strategy. A more detailed section on mixed method design is also included.

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4 The order of the columns in the table has been rearranged to better fit the text flow. The pragmatist column has been updated.

5 For further discussion on different paradigms, see Guba and Lincoln, 1998, 2005.
3.2. Research strategy

I will now turn to explaining why the research design applied in this thesis was chosen. I will do so by answering the essential question posed by Guba and Lincoln (1994). Firstly, what is the nature of reality? The focus in this research is on networks. Therefore, reality is or can be viewed as complex, changing and evolving through interaction between the involved actors. As the phenomenon evolves through interaction, no single true reality exists, only that which is in the eyes of the involved actors. A researcher following a pragmatism paradigm accepts that the research in any case will be impacted by the researcher’s own world view and values.

Turning to the epistemological question: what is the relationship between the knower and the known? In this case when I, as a researcher and an outsider, look into the respondents’ world of networks, I will not be able to fully capture what is going on between different actors and what they in turn put into their relationships. My own previous knowledge about networks (based on literature reviews), my own personal networks and my personal values will partly affect what I see.

Finally, turning to the methodological question: how can the researcher find the answers to whatever he or she thinks can be known? A methodology can also be defined as how one will study a phenomenon. Just like theories, there are no true or false methodologies. According to Silverman (2000), a method is a specific research technique, which is neither true nor false; it is simply more or less useful in different contexts. Therefore, as a researcher, I can only try to understand how the actors feel about and experience their contextual reality. As in this case, relationships develop and networks change. As a researcher I can try to interpret what is going on and capture parts of it. I try to capture some of the interactional and structural dimensions by selecting appropriate research methods, but I need to be aware that the results will never be the whole truth. Some of the answers might be applicable to the constructivist approach as regards to multiple constructed realities. However, during my research process I have felt most comfortable looking at the world from a pragmatist point of view. Unlike the other paradigms positivism, postpositivism and constructivism, the pragmatist orientation allows for the use of both qualitative and quantitative methods as well as a combination of the two.

Pragmatism also felt natural to me since networks by their very existence imply multiple constructed realities. In trying to capture networks, one’s own knowledge and values will affect the way the research is carried out and how the results are interpreted. On the other hand, I do think all research in some way is influenced by the values of the researcher. Pragmatism does not find the impact from the researcher as particularly troublesome; on the contrary, it is just part of how research is done.
As Tashakkori and Teddlie (1998, 30) put it:

“Pragmatism is appealing

a) because it gives us a paradigm that philosophically embraces the use of mixed methods and mixed model designs

b) because it eschews the use of metaphysical concepts (truth, reality) that have caused much endless (and often useless) discussion and debate and

c) because it presents a very practical and applied research philosophy: Study what interests and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system.”

My research is mainly of an abductive nature. This statement covers the entire research process as well as the single articles. During the entire research process there have been movements back and forth between theory and practice not only in writing the different articles but also when finalizing the frame around them. When writing the conceptual articles, there were movements between previous literature, my own interpretations, re-reading and finally presenting theory in a new light. The empirical papers developed from reviewing extensive literature, gathering and analyzing data and comparing findings with previous results to finalizing my own conclusions.

Regarding the methodological choices that were made, they show that progress in using a variety of research methods was achieved during the research process. In other words, I moved on from using a single qualitative method in the first article to using a mixed method approach in the last empirical article. However, only qualitative methods were used to gather data. In the first article concerning networks and internationalization, in-depth interviews were selected in order to capture rich detailed data on the networks, as recommended amongst others by O’Donnell and Cummins (1999). The results were presented using quotes from the interviews.

In the second empirical article, I wanted to collect rich data and therefore I again selected in-depth interviews as the data collection method. This time I wanted to better capture the chronological events that would highlight the development of interaction and structure of the networks. I also wanted to describe the networks with various methods and make interpretations from several angles. Therefore, the combination of quantitative and qualitative methods felt necessary, as discussed by Coviello (2005).

In the following section, I will explain the benefits of a mixed method approach, partly because it is still rather a new methodological approach and partly because it needs to be integrated here, being the method I have chosen to use in my empirical research. Criticism of mixing methods is presented at the end of this discussion before moving on to the separate articles.
3.3. Benefits of mixed methods

Mixed methods research has become very popular in recent years (Bergman, 2008a). The movement towards using mixed methods in general has been guided by the introduction of new analytical tools like software technologies (Bazeley, 2003), for example. The benefit is the possibility to combine the more process-oriented approach used in qualitative research with the more result-oriented approach, i.e. testing and verification, of quantitative research (Ghauri et al., 1995). Powell and Smith-Doerr (1994) asked for an integration of quantitative and qualitative studies of networks. They also requested more process-oriented, case-based approaches which could show why ties are created and how they are maintained and what resources flow within them and across them. To meet their request, mixed methods are suitable. Moreover, mixed methods have been argued to increase the validity of the findings, as different viewpoints are taken into account which thus shed a broader light on the phenomena (Bryman, 1995; Hurmerinta-Peltomäki and Nummela, 2004). While some researchers welcome the opportunity to see new things, others argue that it is not possible to change from one paradigm to another. However as Patton (1990) states, to gather relevant data is more important than concerns about methodological purity.

In a very recent discussion, Bergman (2008b) tries to reaffirm the justification for mixed methods research by bringing new arguments to the discussion of specific ontological and epistemological issues within the paradigm debate. Bergman (2008b, 18) states that mixed methods “…no longer have to grapple with how to mix incompatible ontologies, epistemologies, and axiologies.” Bergman also finds it somehow too easy to put mixed methods directly into the pragmatism paradigm with the notion of “anything goes”. Instead Bergman (2008b) wants researchers using mixed methods to explain clearly what and how the different parts of the data have contributed to the results. Hence, it is no longer enough only to state that mixed methods provide a more comprehensive picture of the study or that mixed methods better answers the research question. Therefore, this study needs to clarify the following issues a) the purpose of the sample, b) the purpose of at first collecting qualitative data, c) and the reason for sequentially using additional quantitative analyzing methods, and d) how the results are combined. These issues are further clarified in Sections 3.4 and 3.5 discussing the data collection and analyzing methods used in Article 4.

Based on a discussion by Hammersley (1996), Bryman and Bell (2007) point out that a research strategy which is based on multiple methods can be carried out in three different ways. Firstly, one can use a quantitative viewpoint to confirm qualitative results and vice versa. Secondly, one method can be used as a more supportive method which supports the main method. Thirdly, both research strategies can function as complementary means for uniting different results or bringing forward different aspects in the research. According to Tashakkori and Teddlie (1998), based on Creswell’s (1995) discussion, mixed methods can be carried out sequentially (two separate phases after each other), simultaneously (the qualitative and the quantitative phase are executed at the same time) and with equivalent status (both methods are equally influential) or dominant status (one method is more dominant than the other). Additionally, one aspect of mixed method design may be applied, where the different types of methods are used...
at different levels of data aggregation. For example, the personal level is looked at sequentially, while the organizational level is studied simultaneously (Tashakkori and Teddlie, 1998).

As an example, mixed methods can be used in cases where the researcher wants to present two types of data; qualitative data to see how respondents experience their world and quantitative data on social structures in society in general at that time. In my case this was applied to networks. In this research, mixed methods were applied (in Article 4) with the qualitative approach as the dominant method, since data collection was only accomplished via interviews. However, in the analysis phase, both methods were used sequentially at first, as the qualitative findings were translated into quantitatively useful tables. Afterwards both types of data were analyzed simultaneously and treated as equally important. This is recommended by Hurmerinta-Peltomäki and Nummela (2006), who suggest that in order for the research to genuinely be mixed, the same researcher should be involved in both the qualitative and quantitative phases. The two methods complemented each other and facilitated the provision of results on different levels. Additionally, mixed methods also helped to fill gaps which would otherwise have not been captured by one single method. Moreover the use of mixed methods was experienced as an efficient way of discovering and combining static and dynamic aspects of changing environments such as networks (Bryman and Bell, 2007).

Critical voices against mixing methods have also been raised. Bryman and Bell (2007) state the following critique against using mixed methods: One argument is that qualitative and quantitative research should simply not be combined. This argument implies that qualitative and quantitative research belongs to different paradigms, which cannot or should not be united, as they represent different views on how social reality is constructed and should be studied. There may also be methodological concerns behind this argument, perhaps a misgiving that qualitative research will be degraded into becoming just a variation of quantitative research if they are combined. It is understandable that the use of mixed methods is increasing, as qualitative and quantitative methods have in fact shared aims and overlaps between them. It is especially interesting that the person who in fact introduced mixed methods as a research design in its own right, namely Alan Bryman, is also the one who is concerned with the current development of the use of mixed methods. It is not sufficient to see it as the best of two worlds. According to Bryman (2008), as the use of mixed methods has grown in popularity it has often caused it to be inadequately justified. Reasons for this are as follows. Firstly it is hard to explain what the different components were and how they acted in combination. Additionally, there is a lack of a standard terminology for mixed method research and until recently it has been unclear as to what is involved in bringing the two approaches together. The field is actually still lacking prescriptive details on how this research ought to be conducted. Nevertheless, these factors do not hinder the growth in the field of mixed method research.

To summarize the benefits of mixed methods, I suggest that despite critical voices they function very well as complementary means to one another. However, one should not be tempted to believe that mixed methods is a superior strategy to research applying a single method strategy. Mixed methods need to be under the same considerations as any other method or research strategy. Bryman and Bell (2007) remind us that mixed
methods, just like any other research methodology, must be properly designed, conducted, justified and applicable to the research questions in order to be useful. It is not simply a matter of being better because more methods are used.

A selected research strategy of any kind reflects not only the researcher’s view of the world but also needs to be in line with the research question at hand. As stated above, I identify myself best as a pragmatist. Tashakkori and Teddlie (2003b, 678) provide more evidence of this as they state that “a pragmatist selects topics that are of special interest to him or her but that quite often also involve aspects of social relevance.” During my time of studying networks I must admit, with the risk of being somewhat biased, that I now have a hard time defining anything that could even come close to being as socially relevant as networking. In the following section I will describe which factors are important to research design, firstly in the conceptual articles and later on in the empirical articles.

3.4. Factors of importance in the two conceptual articles

Throughout this research it has been of interest to try to understand the development of networks both conceptually, as in enhancing different network theories, and empirically, as in viewing networks in different phases of firm development.

The second and third articles are both conceptual. In evaluating conceptual papers, there are other factors to be considered than with empirical studies. According to Whetten (1989), there are seven different dimensions to keep in mind. Firstly, the paper needs to make a significant contribution to the current way of reasoning. The theory does not always need to be entirely new, but needs to modify or extend current theories. Secondly, the linkages to research need to be evident, as they may possibly change current practice in the area of study. Thirdly, the assumptions have to be explicit and the view of the authors credible. Fourthly, the paper needs to reflect a broad understanding of the field and preferably include multiple theoretical elements. As a fifth point, the paper needs to have a logical flow and access central ideas straightforwardly. Additionally, the discussion needs to be contemporary and further advance existing discussions. Finally, the topic needs to be of interest to the audience, whereby it is easier to understand and accept.

The second article is based on an extensive literature review regarding the business network and social network approaches, thus pointing towards a broad understanding of the area. The article aims at making conceptual distinctions by comparing similarities and differences in the two network approaches. The article also offers directions on how these approaches could be further advanced by a combination of the two. The research is developed from existing theories using logical reasoning, thus it follows more of a deductive logic. The last points made by Whetten (1989) concerning a logical flow and the need to be interesting to a broader public are harder to judge. The article was written early in the research process and made a contribution to the development of the
discussion, although it would probably be written in a different way today, since I have taken a few steps forward and matured as a researcher.

The third article’s main objective is to advance existing network theory regarding network processes. An extensive literature review was performed on how entrepreneurship literature on networks applies process as an independent or dependent variable. Social network theory and research on dyadic interactions in business networks was also examined to identify what these could contribute to the field of entrepreneurship and network research within it. The article concludes by offering a theoretical framework for conceptualizing and studying the various processes associated with network development. Enhancing theory based on identified gaps in existing theories implies that Whetten’s first, second and fourth requirements were met, thus making a significant contribution, having clear linkages to theory and showing a broad understanding of the field. The elements are combined in an innovative way, thus developing new ideas and a new model, which demonstrates the ability to make explicit assumptions (Whetten, 1989).

The important dimensions concerning my two conceptual articles have now been highlighted. The focus will now be transferred to important factors in designing, executing, analyzing and interpreting empirical research.

3.5. Methods of data collection in the two empirical studies

The use of case studies when collecting empirical findings has become more common because their richness and deepness give the researcher a good opportunity of creating theoretical constructs (Eisenhardt, 1989; Yin, 1989). Traditionally, in a Nordic research context, the use of case studies has not only been popular and frequently used in network research (Dubois and Gadde, 2002), but also in areas such as entrepreneurship, management, service marketing, etc. Cases rely mainly on qualitative data from sources such as personal interviews. According to Eisenhardt (1989), a central issue when developing theory from case studies is the replication of logic. Yin (1989) argues that cases are discrete experiments and that they serve as replications, contrasts and extensions of the theory under development. Eisenhardt and Graebner (2007, 25) underline that the reason for the popularity of cases as a basis for theory building is that they are “one of the best (if not the best) of the bridges from rich qualitative evidence to mainstream deductive research.” Even though Eisenhardt and Graebner (2007) focus on the benefits of inductive case research, they still provide a good foundation for using case research when more complex social structures need to be demonstrated or explained, as is the case in this study, particularly in Article 4. When presenting a single case, the story is important and should consist of narrative that includes quotations from key informants. In order to facilitate the evidence, tables and similar visual devices can be used. In general, the case study method is more valid for developing theories than for testing theories, although Woodside and Wilson (2003) claim that it is suitable in both cases. What is important is that the case study method allows the researcher to go
beyond static snapshots and see the deeper process behind changing environments. However, there are also negative aspects of using case studies. In Article 4 for example, one concern relates to capturing the network from only one perspective: the respondent’s. Additionally, data is based on the retrospective memory of single respondents. Such aspects will limit representativeness (Coviello, 2005).

The **first article** explores what kind of influence social relationships have on the internationalization process of SMEs. The presented data is derived from case studies that have been conducted and used in other research papers as well. However, in this article, mostly citations are used. It was of interest to see how SMEs establish their business activities in new markets, especially where there is an obvious lack of previous international knowledge and connections. The use of in-depth interviews enabled us to capture the impact of both business and social ties on the internationalization process. The research process started by going through existing literature in the area, thus providing us with a theoretical knowledge base. After the literature review, a semi-structured interview guide was designed for the interviews. The new empirical data was collected in a small scale by interviewing key persons in charge of international relations in each of the selected firms. The firms were chosen based on purposeful sampling, selecting cases rich in information (Patton, 1990). By using purposeful sampling, industrial firms that had successfully passed the first phases in their internationalization process were identified. In some cases, additional interviews were arranged with the CEO of the company in order to clarify certain details concerning the internationalization process of the firm. The questions focused on personal and organizational relationships that the respondent or the firm had previous to starting the internationalization process. The other data used was based on other researchers’ findings in industrial firms that also highlighted the importance of social networks in the internationalization process.

It is in writing the **fourth article** where most of my empirical work has been conducted. Semi-structured in-depth interviews were used to explore the interaction and structure of ties crucial to firm development and consequently network development. This generated a series of six case studies. The data collection and analysis procedures developed in Coviello (2005) and applied in Coviello (2006) were used. The purpose was to develop theory, not to test it. Thus, theoretical sampling provides a suitable opportunity to select appropriate cases (Strauss and Corbin, 1990; Eisenhardt and Graebner, 2007). Theoretical sampling is a way of enhancing the possibility of finding persons, histories and environments which will all provide an opportunity to deepen and clarify the conceptions in focus (Patton, 1990). In this study, theoretical sampling was used whereby I identified entrepreneurs belonging to the three different categories of novice, serial and portfolio entrepreneurs (as guided by the literature review) so that two entrepreneurs from each category were found. Theoretical sampling consists of two parts. Firstly, the differences between the groups are minimized and thereafter they are maximized (Alvesson and Sköldberg, 2000). The first part tries to find the basic categories and characteristics of them, as in this case identifying the three types of entrepreneurs. The second step is then to maximize differences when comparing the groups.

As discussed by Patton (1990), purposeful sampling was also used within each of the three categories of entrepreneurs in order to find rich cases suitable for in-depth
interviews. Furthermore, according to Yin (1989), multiple cases provide a strong base for theory building and questions of process, like “how” and “why” are best answered by case research. Hence, six cases were selected consisting of two entrepreneurs representing each of the three categories; novice, serial and portfolio entrepreneurs at the time of data gathering. It must be acknowledged that this categorization of the different types of entrepreneurs is by no means static. One entrepreneur can very well move between the different categories over time. In searching for the right type of entrepreneur, I actually encountered this problem. Some entrepreneurs I contacted did not fit their original description anymore; they had developed and become portfolio entrepreneurs instead of the novice entrepreneurs I had assumed they still were. Therefore, I could not use some of the first intended cases, but had to keep looking for the “right” kind of entrepreneur by utilizing my personal networks for advice and recommendations.

Each respondent was interviewed twice at their own business premises. The first round of interviews took place during fall 2006 and spring 2007 and the second round in the spring and summer of 2008. The interviews were carried out in the respondent’s own office so that he would feel as comfortable as possible, although the interviews were recorded.

Compared to questionnaires, personal interviews seem a rather natural way of collecting data. However, it needs to be kept in mind that an interview is also an interruption in the everyday life of the respondent (Bryman, 2002). Little is known about how respondents react to and feel about being interviewed. If a respondent would start to feel uncomfortable with the taping procedure, it was agreed that it would be stopped. This was never the case in practice. Even though the first interview with each respondent was very long, I sensed that all the respondents found pleasure in telling me their life stories. They were actually grateful that someone was genuinely interested in what had happened to them. Naturally, this resulted in occasional side-tracking from the main discussion. However, these parts of the interviews were left out from the actual analysis, but are mentioned as part of describing the entire interview situation. Even though all the respondents were pleased to have someone to talk to, they were still aware of the fact that they were engaged in an interview, not just in casual conversation. Also, as Patton (1990) explains, we cannot as researchers observe everything. This is especially applicable to examining networks which to an outsider are hard to capture. However, the interview is an attempt to come into the respondents’ world and try to find out what is on his mind.

The questions of “what, who, where, why, when and how” were used in the interviews, as recommended by Pettigrew et al. (2001) and also used in Coviello (2006). Furthermore, following the recommendation of my supervisor, no technical terms related to networks such as “tie” or “density” was allowed for me to use when asking the questions. This condition was set as part of the research protocol in order to minimize the risk of me imposing my own pre-understanding on the respondents. In fact, using known network terminology would have given me more self-confidence. On the other hand, I would then have used terms totally unfamiliar to the respondent. Not using any network vocabulary was actually somewhat of a challenge in the interview situation. Instead, I applied the terminology the respondent used throughout the interview.
Information was sought regarding who had been important to the respondent and his firm along the stages of firm development. The respondents were also invited to describe the history of these relationships, with special emphasis on their relevance for the entrepreneurial venture. The questions were asked in order to capture vital relationships which existed during the foundation of the firm and when the firm and thus the network were further developed. The interviews varied in duration from an hour up to three hours. The interviews in the second round were shorter, since they were used mostly to clarify issues and catch up on the latest developments. Supplementary information about the history and background of the entrepreneur and facts about the firm were also gathered from official internet databases, homepages and local newspapers following Denzin (1979).

In conclusion, the research strategy developed in the two empirical articles resulted from constantly going back and forth between theory and the empirical world; or in other words, using an abductive logic. Dubois and Gadde (2002, 556) call this *systematic combining*, and explain it as “a nonlinear path-dependent process of combining efforts with the ultimate objective of matching theory and reality.” Systematic combining is a way of systematically enhancing ones understanding of both empirical and theoretical phenomena through the entire research process, using abduction as a logical way to view the world.

### 3.6. Methods of data analysis and interpretation in the two empirical studies

**The first article** combines data from previous literature and from interviews carried out by myself and a colleague during our first year as PhD students in 2002. The interviews were transcribed verbatim from the tapes. The transcripts were searched manually for patterns in the respondents’ discussion regarding international relationships that existed prior to internationalizing or which they found through third party referrals. This procedure was performed manually simply because no software program was available to us at our business school or easily accessible at that time. The data found was then combined with empirical findings from other studies on related subjects, particularly the importance of networks. Excerpts from the interviews were translated into English. The translated quotations were then included in the article to illustrate how social networks impacted the internationalization process in the selected firms.

**The fourth article** encompasses the network as the unit of analysis. The questions focused on how networks developed with an emphasis on relevant relationships for firm growth and development. After thoroughly transcribing, reading and analyzing the interviews, the chronological order of events for each firm were clarified. Thereafter, the case transcripts were sorted and additionally organized into tables, one for each respondent. At this stage, the interviews (in both Finnish and Swedish) were translated into English, to the extent the information was transformed into tables. These are further discussed below.
It is worth noting that in the interviews, the respondents mentioned names of persons, such as family members, friends or business associates as well as names of companies important to their own firm throughout the growth process. When the information from the interviews was transformed into tables, each name was allocated a row of its own. Thus, both persons and organizations were coded in the same way; one row for each. In other words, persons and organizations were treated equally throughout the sample. This is important to notice as it impacts the results. I used this approach since I never found any examples of how to distinguish these levels.

Using Coviello (2005; 2006) as a guide, each table or chart was divided into columns pertaining to the interactional dimensions of each relationship. These divisions were achieved using content analysis to categorize each tie according to content, durability, direction and whether the relationship was known prior to venture conception or not. Each row described the name of the other partner (person or organization) and other valuable information about the relationship; for example, what was actually going on or transmitted within the relationship. The relationships were put in the same chronological order as they came up in the respondents’ story. If the same relationship came up several times it was noted by giving it a new row each time. However, the relationship was only counted once (the first time it appeared) in the total number of relationships for each column. The detailed charts were made to show the correct chronological order of the events that had taken place and to create a case history for each firm. From these charts, it was possible to capture more specific details about the ties; for example, what kind of a tie was in question, how did it come about, the direction of the tie, was it known prior to venture conception and so on. These charts were then manually summarized in tables showing the number of ties, their direction and length and so on, all as frequency counts and percentages. The stages of development were identified based on the respondents’ story of what happened at different time periods. The breakpoints were identified, based on Hite and Hesterly (2001), to those of emergence and growth. Statistical facts were taken from an official database to which firms have to report annually. In this way, the detailed numerical growth in profit and employees was verified. All relationships mentioned were included when active in a certain stage; otherwise they were excluded.

The order of all elements in the data collection and preparation phases was arranged sequentially, as shown in Figure 4. The nature of the interviews themselves was qualitative, as was the preliminary analyses of the interview content. Each column in the tables was counted. After this, the process of fully transforming qualitative data into numerical data began. The tables were then transformed into UCINET spreadsheets with the names of each actor in the dyad in both the rows and the columns. The software program UCINET, as described by the founder Steven Borgatti, is a comprehensive package specifically designed for the analysis of network data. Integrated with UCINET is a program for drawing pictures of networks called NetDraw, which was also used.
As Figure 4 shows, the qualitative and quantitative data is implemented in sequential phases and later connected. The observant reader may also notice that the first two circles including qualitative data and results are somewhat larger than the box including quantitative data. This is to indicate that the qualitative data has been given a more significant part in this research as data collection here was strictly qualitative. This is a common approach in an exploratory mixed method design (Creswell et al., 2008). According to Tashakkori and Teddlie (2003a), qualitative data transferred into a quantitative system such as numerical codes, was originally coined “quantitized” data by Miles and Huberman (1994). However, it needs to be noted here that just as Creswell et al. (2008) suggest, one can treat the different stages as overlapping in order to save time. Therefore, the analyses of the very final qualitative results were performed simultaneously with the early quantitative analysis. This was a learning process, which developed so that the interpretation of each stage guided the next, as discussed by O’Donnell and Cummins (1999).

Transforming qualitative date or coding qualitative data provides the researcher with a fresh view of what is there by re-contextualizing the data (Coffey and Atkinson, 1996). However, coding also includes negative aspects, as reported by Bryman (2002). The good part about coding is that it helps you find structure in the material. Cross case comparisons are also easier when dealing with sorted data. Coding involves not only trying to understand but also to judge the material regarding its meaning (Ryan and Bernard, 2000). There is no single correct method as to how you should code the data that has been collected. A common critique against coding is that the context is lost once the text has been transformed into codes, as in this case into numbers. However, coding always means reading, re-reading and then transforming the important parts into meaningful data. This provides new possibilities for exploring novel categories and concepts and finally interpreting them (Coffey and Atkinson, 1996). In my case, the focus was on the respondent’s valuable relationships, and these were still further analyzed after the coding had been done. The weakness in my data was that some events were quite old. Thus, the events might not have been remembered accurately by the respondent. Equally so, it is hard to evaluate present time, and it is not possible to say anything about new relationships and how valuable they will become over time. In that respect, a retrospective view was more suitable here.
As part of coding for UCINET, a number 1 was marked on the spreadsheet, where a relationship existed and a 0 if there was no relationship at all. All these relationships were somehow connected to the respondent but not necessarily to each other. It is worth noting here that relations that the respondent mentioned among others in his network were also coded, not only the ones going out from him.

Quantitative methods applicable in UCINET were used to analyze the structure of the network for each respondent by looking at size, density, and constraint. Thus, the structure at the network level was measured quantitatively by using a software program, whereas the interactional aspect was first assessed qualitatively and then transformed to quantifiable data forms from which numbers and percentages were counted. The two types of methods for analyzing the data were performed sequentially and provide complementary information.

My argument for using qualitative methods in the data collection phase and mixed methods during the analysis phase in the fourth study is the following: I wanted to capture the respondents’ detailed view of their own reality and how it had developed (in this case their networks). Moreover, I wanted to be able to explore certain issues on the network level (structure of the networks) which would allow me to generalize across different stages of firm development. This necessitated qualitative data to be collected. The use of mixed methods in the analyses was mainly theory-based since network research today demands more of both structure and interaction in networks. It was also methodologically-related since most studies on networks today have so far been conducted using a single method approach. Viewing networks as dynamic and changing entities has been sought-after in theory, but has not really been captured empirically. Consequently, a good way of capturing change was by using mixed methods; complementary in nature by offering several angles of approach and equally integrated complementary results. Using mixed analysis methods is an emerging way of dealing with the challenge of capturing a more nuanced picture of network development over time (see Coviello 2005; 2006). Additionally, a quantitative ‘later’ phase of the research functions as a complement (Tashakkori and Teddlie, 1998) or as a confirmatory method (Bazeley, 2003). In this study, the quantitative results provided a good tool for revealing the structures in the networks.

Some reflections on the methods will be presented later in this chapter, after the following discussion on important aspects of evaluating research.

3.7. Trustworthiness and authenticity of the study

Reliability and validity are considered the main objectives by quantitative researchers in establishing the quality of the research. Reliability concerns whether the research can be repeated by someone else, while validity concerns whether you are actually measuring what you set out to measure. Qualitative researchers have also tended to apply reliability and validity in similar ways (Bryman and Bell, 2007), although neither is directly
applicable in qualitative research. Therefore, according to Guba and Lincoln (1994), qualitative research should actually be evaluated from a viewpoint better applied specifically to qualitative concerns. Guba and Lincoln (1994) draw this distinction even further, and state that qualitative research within the constructivist paradigm could alternatively be judged according to two main criteria, namely trustworthiness and authenticity. Trustworthiness is made up of four criteria: credibility, transferability, dependability and confirmability (Guba and Lincoln, 1994). These four have their own equivalency in quantitative research, so that credibility parallels with internal validity, transferability with external validity, dependability with reliability and confirmability with objectivity (Guba and Lincoln, 1994). This is one way of improving the evaluation of qualitative research in its own right. Guba and Lincoln (1994) propose the above-mentioned criteria as part of the constructivist paradigm. As pragmatism is also focusing on qualitative methods as one form of gathering and analyzing data, these criteria can well be applied also here as they are all essential to qualitative concerns.

Guba and Lincoln (1994) are within their rights to be critical of the thought of one single reality which can be revealed. The first criterion credibility highlights the need to see multiple accounts within the social reality surrounding us. Credibility ensures that the study has been carried out according to good practice and that the subjects, who were studied, may confirm that the investigation actually reflects their own social world (Bryman and Bell, 2007).

Transferability focuses on the possibility of transferring results to another context. According to Guba and Lincoln (1994), whether or not the results will hold in another context or even in the same context at another time is only an empirical issue. Instead, detailed context related descriptions should ensure the possibility of transferring the results to another environment.

Dependability, which is closely related to reliability, means ensuring that the results can be the same if a study is repeated at another point in time (Guba and Lincoln, 1994). Therefore, it is crucial that records of the selection of respondents, interview tapes and transcripts, analyses and so on are kept at all stages of the research process so that anyone would have the possibility to establish if proper courses of action have been followed (Bryman and Bell, 2007).

Confirmability tries to ensure that the researcher has acted in good faith. This means in practice that he or she has not openly allowed personal values or opinions impact the results. At the same time it is recognized, however, that reaching a complete objectivity in research is impossible (Bryman and Bell, 2007).

Guba and Lincoln (1994) state that authenticity is the other main criterion according to which, qualitative research may be evaluated. Authenticity raises issues concerning a broader impact of matters on research and is divided into five subgroups: fairness and ontological, educative, catalytic and tactical authenticity (Guba and Lincoln, 1994). What these five subgroups stand for is explained in the following and according to the discussion by Bryman and Bell (2007). Fairness implies that different viewpoints among respondents need to be taken into account. Ontological authenticity questions whether the conducted research helps the respondents to reach a better understanding of their own situation. Educative authenticity speculates if the research will help the
respondents to better understand and respect the perspective of others in their social context. Catalytic authenticity considers whether the research have influenced respondents to try and change their situation. Tactical authenticity reflects on whether the research has given the respondents a will to engage in developing their own circumstances. All of these questions relate closely to whether the second one listed above, ontological authenticity, has succeeded in giving all respondents a better understanding of their own context. By first reaching a better understanding can they become more aware of some circumstances they might want to change and furthermore what their possibilities are to really make those changes. Becoming aware of one’s own context may also involve becoming more satisfied with one’s own conditions compared to others and perhaps an increasing understanding that others might be worse off than oneself. (Bryman and Bell, 2007)

This research has carefully tried to complete all the criteria related to trustworthiness. How this was accomplished is described as follows: Credibility was ensured in both studies (Article 1 and 4) as the interviews were performed according to good practice (e.g. interview protocol, verbatim transcription and analysis). For the purpose of collecting data for Article 4 there were two interview rounds. During the second interview round, the respondents were told how I had interpreted their network after the first round. They could then add aspects I needed more information on or ask for corrections to be made where I had misinterpreted their story. In so doing, the best picture possible according to their reality was achieved. Full descriptions are found in the interview transcripts and all the material was saved for further investigations to ensure dependability. Confirmability is hard to ensure, and in an interview situation it is difficult to be completely neutral. However, that has been my aim throughout the entire process. Some of the interviews for Article 1 were made together with colleagues. Being several interviewees helped trying to prevent from influencing the respondents. In doing the interviews for Article 4, I had more experience with interviewing and letting the respondents speak quite freely was one way of not influencing their thoughts. When analyzing the data for both empirical articles, I tried to step back and look at what the data told me without preconceived notions.

This research has also fulfilled parts of the concerns addressed through authenticity. Fairness is probably the one least fulfilled, due to the decision to only interview one focal actor in each organization describing his own network. On the other hand, the different viewpoints among the selected respondents were compared in both empirical studies. However, I am sure that by thorough discussion with the respondents and providing them with some network pictures of their own network, they reached a better understanding of their environment (ontological authenticity) and also how others might see them (educative authenticity). During the interview with an outsider such as myself, long-lasting relations and changes within and among these were identified by the respondents, thus making them more aware of their own situation and their will and possibilities to impact on it (catalytic and tactical authenticity). Thereby, different aspects of authenticity were ensured.
3.8. Reflections on the choice of methods

The purpose of the empirical part of this thesis is to develop an understanding of: 1) how networks impact on SMEs’ internationalization, and 2) compare network interaction and structure among different types of entrepreneurs. My pre-understanding of networks in general, and in particular my understanding of the different network approaches over time, influenced the research process. In particular, it influenced the selection of respondents and research methods used. This can be seen when I used only qualitative methods in the first study.

After learning more, I found it necessary to also include aspects of network structure. The program NetDraw was very helpful, which is included in UCINET. This program draws network pictures based on provided matrices. As journals are reluctant to publish very long articles, I did not include any network pictures in Article 4, even though they could have highlighted the structure of the networks. Instead some network pictures were included here in Appendix 3 and 4.

Since the questions “how” and “why” are explanatory to their character, they are also applicable to case studies (Yin, 1989). Yin also points out that case studies have at times been blamed for lacking rigor and accuracy and for not providing a base for generalizations. However, as discussed earlier, I do believe there is no single true reality and thus we can only work towards exploring a case from different angles, not actually capture all of it to the full. Network relationships are continuously changing and context-specific and should not therefore be generalized to any great extent. However, common patterns of interaction and structure can be found.

Looking back at the choice of methods used in this study, I still believe that when trying to capture complex evolving phenomena, as in this case networks, a mainly qualitative approach provides the best base. This does not apply if the focus is on structural issues of large networks. In this case, a quantitative approach, with defined measures analyzed through network software programs, would be more suitable. As my research process was a continuous movement between theory and the empirical world, the most suitable logic to apply was the abductive logic. However, it could be argued that the main logic used has been inductive as all data has been collected qualitatively, and the purpose has been to explore networks and find the meaning of the interaction and structure within these networks. As theoretical and purposeful sampling has been used in both empirical cases, this would also suggest a more inductive approach. However, since my thinking has not followed a continuous straight linear movement forward, as implied in the inductive logic, I do feel that abduction best describes my process of going back and forth between theory and practice.

There are several reasons for my choice of methods in this thesis. Firstly, I agree with Tashakkori and Teddlie (2003b), who state that mixed methods research may answer some of the research questions others cannot. I also feel that this holds, regardless of whether mixed method design entails a more dominant method of either qualitative or quantitative nature, or if these are treated equally important. Mixed methods also
provide tools for both interpreting and presenting ones result from a range of different views.

My aim was to capture both the interaction and structure of networks and their significance. Therefore, data was gathered through interviews in both studies. In Article 1, the interview data was augmented with also results from other studies. The interviews were semi-structured. Looking back, I could at times have been more focused during some interviews with exceptionally talkative respondents. This would have saved some transcription time. However, when a respondent spoke about things which were very important to him, it sometimes provided me with very significant information. I often felt that the entrepreneurs had a need for a good listener. As I took up their valuable time in asking questions, I felt I owed them to also listen to what they wanted to say, although it was beyond the scope of this research.

In the second empirical study (Article 4) a mixed method design was used in the analysis and interpretation of the data. The mixed methods were used in an iterative fashion during the analysis and interpretation. It could be discussed, whether using only a qualitative data collection method, combined with sequential qualitative and quantitative data analysis can truly be called a mixed method approach. However, this method is classified by Hurmerinta-Peltomäki and Nummela (2006) as mixed methods. Similar to Coviello (2005; 2006), they suggested this approach is very successful in providing more complete data and creating knowledge. The rationale for using a mixed method approach was not only to provide a more comprehensive picture of networks, it was also a way of firstly structuring large qualitative data and secondly to transform some of the qualitative data into quantified measures of network structure. This was necessary in order to be able to make cross case comparisons of both interaction and structure. As networks are complex systems, the need for detailed rich qualitative data was necessary. There was also the need for quantitative data, although transformed, in order to identify structural variables of the networks. When transforming the qualitative data into quantifiable matrices, some of the richness and original meanings may have been lost. However, I think applying this method gave a more holistic picture of the networks. Another possible way would have been to gather totally separate types of qualitative and quantitative data on the same network and then only later put them together. The combination of qualitative data analysis with network visualization and measurement tools provides further progress in building more complex development models. According to Lechner et al. (2006), this is needed in entrepreneurship research.

As suggested by Creswell et al. (2008), there are several potential strategies on how to address or overcome methodological problems pertaining to mixed method research. For instance, the qualitative part may very well be smaller and still provide an in-depth understanding, while the sample size of the quantitative part is larger in order to be able to make generalizations. However, in this study the cases were analyzed using the same data in both parts. The size of the networks among the different entrepreneurs varied. According to Holmen and Pedersen (2003), a small case firm will capture its network horizon easier if the absolute size of the firms’ network is smaller. I did not feel that the networks were too large for the entrepreneurs to grasp them. However, more relevant for the study was finding the three different types of entrepreneurs, which was a challenge in itself. It was also very challenging to keep in mind what the respondents meant with their statements and not lose the original meaning during the translation
process. As always with qualitative research, an interpretation of the respondents’ view of their reality was necessary.

Finally, the interpretation of the results and the contribution of each article were affected by my growing awareness and deepening knowledge of the research area. This was accomplished by constantly returning to the literature, keeping myself up to date with the latest research results and comparing current discussions and results to my own. My growing knowledge and awareness of the need to capture different aspects of networks over a longer time impacted on the chosen method in the fourth study. It also affected the interpretation of the results. It was in fact very challenging at times not to put myself above the respondents and only see what I would have liked to see, instead of what I actually did see. The integrity of the interpretation process demanded that I step back and focus on the differences between the entrepreneurs’ networks that were found and not let my expectations guide me to see more differences than there actually were. After a while I realized that the findings, which implied no greater differences among the networks of the different entrepreneurs, were in fact more fascinating than if I would have found what I had expected. My results showed instead that the extensive discussion of the differences between entrepreneurs on the individual and organizational level needs to be re-examined. Additionally, my results point towards a similar independent network development following firm growth instead of an entrepreneurial type.
4 FINDINGS AND CONTRIBUTION FROM THE ARTICLES

This section summarizes the objectives and findings of each article and how each relates to the overall research problem and how it contributes to the entire thesis. Furthermore, this section addresses how each article is positioned relative to earlier studies in the field. Possible deficiencies to the study are also explained. The articles are presented in the same chronological order as they were written as I prefer to retain the integrity of the developmental process of this research. The order also reflects how my thinking and overall scholarly development progressed over time.

Article 1 focuses on how the internationalization process can benefit from using social relations. The discussion is drawn from international business and a general network discussion with some insertions of empirical findings.

Article 2 is a conceptual result of my interest in going deeper into the differences as well as similarities between the business network and the social network approaches. I was fascinated by the fact that there are two different research approaches within networks that do not know very much about each other. At the same time, this gave me a possibility to search for avenues for future research that could combine the two in a fruitful manner.

In Article 3, some dimensions to my previous network discussions were added, as was the entrepreneurial network view. A concept missing in detail from most network discussions, i.e. network process, is the focus of this article. This resulted in a model which provides a framework for dealing with the questions “what”, “how” and “when” aspects of the network develop. These are complex questions in themselves and together they provide real challenges. On the other hand, they are all necessary when applying a dynamic or change-sensitive perspective on network processes. The article also identifies different opportunities for network research where entrepreneurship research may learn something from the business and social network approaches.

The theory in Article 4 is drawn from entrepreneurship research where there has been a focus on differentiating between types of entrepreneurs on either an individual or an organizational level. This study was designed to offer an additional view to the extant literature on entrepreneur types by comparing the interactional and structural dimensions of their networks. The fourth article is also an extension of Article 3 since it empirically examines certain dimensions of the conceptual model, with particular emphasis on a firm and network co-evolving.
4.1. Summary and contribution of Article 1

A Network Perspective of International Entrepreneurship

Susanna Hinttu (Slotte-Kock), Maria Forsman and Sören Kock

Published 2004 in Handbook of Research on International Entrepreneurship, Léo-Paul Dana (ed.), Edward Elgar, 715-731

Objectives

The objective of this study is to discuss how social networks impact the internationalization process of firms, with a special emphasis on how social relations influence international partner selection within small and medium-sized firms.

Findings

The data is based on semi-structured interviews with key persons dealing with international partners in selected firms. Some quotes are based on data from other studies. The empirical findings show that much of the decision making within the internationalization process is based on information and resources accessed through network relationships. Social relationships showed to be very important to the internationalization process by enhancing partner selection. Through the social relationships managers gained access to information, new customers and/or expanded their businesses to new markets. A model is developed depicting several dimensions of social relationships in internationalization. The study shows that an efficient network provides opportunities for successful internationalization and expansion.

Summary

The study integrates two theoretical frameworks, the internationalization process of firms combined with a network view. The internationalization process here follows the Uppsala model (Johanson and Vahlne, 1977) and is viewed as a series of stages driven by managerial learning, which increases commitment and investments in foreign markets. The network view is a blend of the business network and social network approaches. We acknowledge that networks consist of positive and negative relationships. Here, focus is placed on relationships of a more positive character, thus leaving out competitive relationships, for example.

The Uppsala model claims that firms move from psychically close markets to more distant ones. A later model from Johanson and Mattsson (1988), based on the firm and
the degree of internationalization of the market, shows that firms need different kinds of resources through various market conditions. Social relationships in turn, can provide new information and advice, referrals to new partners and bridges across to new markets (Granovetter, 1973; Kock, 1991; Holmlund and Kock, 1998; Agndal and Axelsson, 2002). Opportunities and threats can be easier recognized within a network, although unexpected external changes may occur, which will affect the entire network.

A conceptual model with structural network features (size and tie strength) is further developed showing that both number and strength of the relationships in one’s network impact the internationalization process. The “atomistic manager” with few relationships has problems in internationalizing the firm, as he has nobody to advise him and thus makes his own mistakes. The “collective manager” with numerous and weak relations can learn from them, thus minimizing the risk when dealing with international partners. He also needs to share his experiences with others. Weak ties are not as trustworthy as strong ties, which in turn where the “safe manager” places his trust. The “hub manager” is the most successful. He is in a central position among many strong relationships where the information is diverse and he can function as a bridge connecting partners. This position is time consuming. Therefore, a mixture of both strong and weak ties would be most advantageous in providing the manager with new information quickly. Nevertheless, deep long lasting relationships which develop both parties are also needed.

From the empirical findings a conceptual model was developed (based on Agndal and Axelsson, 2002), which depicts several dimensions of social relationships in internationalization. The first dimensions are significance and content. Significance is a structural component including strong or weak relations and centrality. It is based on the usefulness of the tie compared to the time spent on it. Content and significance develop all the time. The accessibility of the tie illustrates whether the relationship is ongoing, sleeping, a future potential tie or a ceased tie. The empirical findings show that it is common for managers to try to decrease the risk when entering new markets by reviving so-called sleeping relationships to old contacts abroad. The extent of the relationship shows whether it is on a local, national or international level. A new connection can be an opening to a new network or market. The more previous international connections there are, the easier it becomes to internationalize further. These attributes are closely related to the content of the relationship but lean more towards background factors, such as how the relation was formed in the first place and whether it is an old or new tie. These factors are dynamic and change over time.

**Positioning the article**

Article 1 deals with one of the first parts of the overall research problem, namely how network expansion proceeds in a certain context. This article expands the work on small firm internationalization (Bell, 1995), how a foreign market entry process develops (Johanson and Vahlne, 1992) and how networks may be used in developing a firm (Agndal and Axelsson, 2002). The article combines these to expand on how network ties can help in the internationalization process, following on from Björkman and Kock, (1995), Coviello and Munro (1997) and Ellis (2000).
A weakness found in earlier studies that is addressed with this article is the lack of detailed information on which kind of relationships are used when entering international markets. However, the article also acknowledges that informal network relationships can be hard to identify and study. A possible deficiency with this study is the lack of unsuccessful internationalization attempts, which might have been compared to the successful ones presented in this article.

The article contributes by further developing two conceptual models. Ultimately an efficient network provides opportunities for successful internationalization and expansion. Such a network includes not only several weak ties that provide new fast information, but also strong ties where long-lasting trusting and thus adaptive behavior is developed. Internationalization without networks therefore equals mission impossible.

This first article was the beginning of a long thesis process. Distinctions between various views on networks were however at this point, not yet crystal-clear to me. This led to Article 2.
4.2. Summary and contribution of Article 2

Bridging the Atlantic: A Comparison of the Business Network Approach and the Social Network Approach

Susanna Slotte-Kock

Published 2005 in Studies in Business Networks – Some Thoughts on IT and Internationalization. Peter Thilenius and Amjad Hadjikhani (eds.), Mälardalens högskola, Västerås, 13-37

Objectives

The objective of this article was to make conceptual distinctions between two network approaches, namely the business network and social network approaches. Both similarities and differences are depicted and some of the terminology used in the two traditions is clarified. Thus, the intent here, as opposed to the first article, was to further deepen the understanding of two strands of network research.

Findings and contribution

To better grasp different views on common phenomena, the study focuses on chosen terms that are discussed more extensively. The terms are tie, role of exchange, and markets and dynamics of networks. Methodological differences and criticism towards the approaches are also discussed. Bringing the approaches closer together would make researchers more aware of the different conceptual and methodological arguments used.

Summary

This article makes conceptual distinctions between the business network and social network approaches. This is done to take one step further in bringing these approaches closer together, thereby advancing future research which may use them as complementary means to better capture the dynamic nature of networks.

The article starts with how and where the two network approaches developed. It continues with a discussion of theoretical characteristics through chosen terminology and by comparing methodological differences. The business network mostly developed in Europe through research from the IMP group, which over the years has developed and now includes a vast amount of research focused largely on inter-organizational networks among firms. In contrast, the social network approach has its roots in
traditions like sociology, biology, mathematics and physics. Its main focus is to capture and analyze the structure and also the content of relationships in their various forms.

The business network approach focuses on the content of the relationships and what the role of the exchange is. The focus is on how relationships develop, implying a cumulative process of learning and commitment. The role of exchange within ties varies. Typical for long term relationships are reciprocity and adaptation. The level of research mostly focuses on dyads, although the networks are often viewed as borderless. The social network approach treats ties as something that either exists or not. Formal ties are in focus, but it is acknowledged that informal ties make a significant impact. The development within specific ties is not considered.

The business network approach perceives a market as consisting of interconnected exchange relationships, including positive and negative connectedness. The social network approach does not provide a clear-cut view on what a market is. One view in this perspective states that markets are recognized as collections of firms and cannot be reproduced without property rights, governance structures, rules of exchange and conceptions of control (Mizruchi, 2003). According to Zuckerman (2003), additional views see markets as an interface, where firms adjust and create niches for themselves in the production process. Yet another view includes networks as part of markets where exchanges are concentrated and patterned. A final view, probably the one closest to the business network approach, sees the network itself as the place for economic exchange based on previous social relations.

Neither network approach has captured the necessary process view of networks as dynamic changing environments, although both emphasize the importance of this. Changes seldom occur in any predictable pattern and can affect only a single dyad or eventually the entire network. Actors vary over time. The content of the relationships develops and adjusts in intensity. The greatest difference is that the business network approach provides a relatively stable picture of the network, while emphasizing changes within the relationships instead. Due to long term commitments, the change of actors in the network is not so fast. The social network approach observes the dynamics of dyads and how the changes in dyads affect the overall pattern of a network, where actors come and go. The change and development within a relationship is thus lost.

Methodological differences are discussed. The business network approach focuses on interorganizational networks in industrial settings. It is not only restricted to the present, but also takes history and future expectations into account. The social network approach is applied in many various settings among the public, private, and non-profit sector. Networks are studied over a period, although as structural snap-shots at a certain point in time and then compared to one another. Levels of analysis vary between the individual, dyadic, group and network levels.

Criticism towards the social network approach has been that in focusing on structure, the content of relationships is neglected. Both the business and social network approaches can also be criticized for not providing a process view on change. However, since this article appeared, this criticism has been addressed for example by Hite (2005) and Jack (2005), who both draw attention to the complexity of network development and highlight the need to consider both network structure and interaction.
Positioning the article

This article addresses the overall research problem of developing a theory on networks by comparing two of the existing network approaches, clarifying their historical development and the differences and similarities between them today. It fits very well in to or rather it fits in between, bridging extant literature that describes business network views (e.g. Easton, 1992; Håkansson and Snehota, 1995; 2000; Ford, 2002) and social network views (Granovetter, 1985; Coleman, 1988; Burt, 1992). However, few compare the BN and SN approaches, with the exception of Kilduff and Tsai (2003) and Smith-Doerr and Powell (2005), and to the best of my knowledge this article is the first to do so in conjunction with a review of entrepreneurship research on network processes.

Previous studies have not integrated network research by making them more aware of each other and pointing out how they can improve by learning from one another. This article exemplifies this. By learning from each other and combining the best parts of two worlds, future network research is enhanced.

This article is fundamental to the enhancement of theoretical discussion, since it clarifies the distinctions between two important network approaches. Simultaneously, this article lays the ground for Article 3, which refines arguments based in this article and adds yet another third network approach. In order to develop theory, it is always crucial not only to deeply clarify history and the present, but also to explain what is missing from the discussion. In this article, it is the process view of change. This issue is further developed in the next article.
4.3. Summary and contribution of Article 3

Entrepreneurship Research on Network Processes: A Review and Ways Forward

Susanna Slotte-Kock and Nicole Coviello

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Objectives

This article examines how entrepreneurship literature views the network concept and how it interprets and applies the concept of process when studying networks. One objective was to extend the important review article of Hoang and Antoncic (2003) by developing an understanding of network processes. To accomplish this, we draw on process definitions from Van de Ven (1992) and Van de Ven and Poole (1995). We also discuss the business and social network approaches with the approach to networks in entrepreneurship. This enabled the second objective, to provide a context for developing a research agenda and theoretical understanding of process issues in entrepreneurial networks.

Findings and contribution

Hoang and Antoncic (2003) stated that there should be a greater understanding of network processes in entrepreneurship research. Their review is extended by assessing other network process literature published later or not included in their review. The review shows a clear emphasis on research where the network is the independent rather than dependent variable. We suggest that future entrepreneurship researchers studying networks would benefit from: 1) using multiple theoretical perspectives regarding process, 2) integrating the social and business network approaches to investigate network structure on a macro-level and dyadic interaction on a micro-level and 3) shifting away from emphasizing networks as an independent variable to instead studying them as a developmental outcome. We contribute by developing a theoretical framework to capture the various processes associated with network development.

Summary

This article examines how the entrepreneurship literature views the network concept and how it interprets and applies the concept of process to the study of networks. Van de Ven and Poole’s (1995) definition of process is outlined in four underlying theories of explanation: the life cycle theory, the teleological approach, the dialectic view and
the evolution-based argument. These meanings are not necessarily independent and are thus often combined.

Importing knowledge from other network approaches helps support future entrepreneurship research. Hence, social network theory and research on dyadic interactions in business networks are assessed, to conceptualize and study networks and identify a number of research issues of importance to entrepreneurship research. Social network literature generally emphasizes the identification and measurement of tie and network characteristics in order to understand the influence of structural change. The business network perspective focuses on understanding how to establish, build, and maintain or change relationships to create a position within a network. It is focused on how relationships change and why change occurs, unlike social network research. Thus, compared with the methodologies prevalent in social network studies, those used in the business network perspective are generally more case-based and interpretive in nature. The focus of analysis is on the interaction between actors. The business network perspective also discusses the multi-directionality of change, not often considered in social network research.

The theoretical framework integrates multiple views of process, multiple levels of analysis and multiple perspectives on network development. In Part A we ask ‘what develops?’ Both the new venture and the new network are seen to develop in a predictable manner and the firm and network co-evolve. Moving to the question of how and why the network develops (Parts B and C), all of the activities in Part A are influenced by the focal firm or entrepreneur purposefully re-specifying goals where s/he initiates change in ties (and therefore the network) to either accommodate or enact the external environment. This strategic adaptation influences tie selection and retention and results in the development of management knowledge. In parallel with this, organizational development efforts create interactions between multiple entities or between the network and the environment. Further, the network needs to adjust to the cultural and social context as well as market conditions. Together, Parts B and C extend our view of network development from ‘what happens’ according to the life cycle argument to ‘how and why it happens’ from a teleological and dialectic perspective. Finally, we ask ‘what occurs over time?’ (Part D). Since the cycle repeats itself during an organizing episode, the evolutionary motor is evidenced with the passage of time through the variation, selection and retention of certain network configurations over others. Thus, over the longer run, short-term actions contribute to an evolutionary process, and what we see is an overall path of development that incorporates change with stability.

A strategic adaptation perspective is employed. The model allows for both exogenous and endogenous influences in network development. Although Weick (1979) puts decision-makers at the centre of organizational development, Aldrich (1999) generally argues that the entrepreneurial process takes on meaning only in the context of the broader social context (e.g. the network) and that environmental selection procedures are determinant. The model attempts to reconcile these two classic arguments in a manner that allows for both to co-exist. That is, we recognize that the tie co-evolves with its social context (the network) and that the organization and the network co-evolve. Further, both the organization and network co-evolve with the environment.
Positioning the article

This conceptual article emphasizes the latter part of the overall purpose of this thesis, namely focusing on network development as a process.

The article fits in to extant literature by incorporating Van de Ven and Poole’s (1995) classic definitions of process and by reviewing the entrepreneurship literature on how scholars assess process in networks. This was called for by Hoang and Antoncic (2003). This review identified six empirical articles which were focused on how entrepreneurial processes impact network development, while another eleven empirical articles pertain to how networks influence entrepreneurial processes. Only one conceptual argument is identified, namely that of Hite and Hesterly (2001). In addition to examining how these 18 articles apply the concept of process, the relevant review articles from Hoang and Antoncic (2003) were also examined and compared.

The contribution lies in pointing out that either or both the business and the social network approaches might be used to advance entrepreneurship research. This is something that has not to my knowledge been recognized in previous literature. For example, the business network approach can be used to inform research interested in relationships at the interorganizational level, while the social network approach brings forward aspects of the entire network. Drawing on the business network approach will allow entrepreneurship researchers to study not only the process of relationship development over time, but interactions within and between multiplex relationships. The inclusion of positive and negative tie influences as well as the sleeping tie (dormant) concept from the business network perspective presents further opportunities. Likewise, drawing on the social network perspective will allow for understanding of the dynamic patterns between relationships and within the overall network structure. It can also provide some guidance for capturing and measuring network change and the related issues of tie formation and dissolution.

This article develops entrepreneurship research by bringing in the previously discussed two network approaches. Here they are discussed further and compared with the entrepreneurship view of networks. This article also contributes an innovative theoretical model on how to conceptualize and study networks as a developmental outcome, which is related to the ultimate research problem in this thesis. Since entrepreneurship is included as a contextual dimension in this article, it provides the link to the fourth and final article.
4.4. Summary and contribution of Article 4

Exploring Network Characteristics of Different Types of Entrepreneurs

Susanna Slotte-Kock

Submitted Spring 2009 to the *Journal of Small Business and Enterprise Development*

**Objectives**

This article compares three different types of entrepreneurs (novice, serial and portfolio) and their networks. The objective is to compare the interactions and structure of these networks across phases of firm growth. This is achieved by combining qualitative and quantitative methods, by collecting the data qualitatively and using a mixed methods approach in the analysis.

**Findings and contributions**

The data consists of six case studies; two entrepreneurs from each of the three categories. The network was defined according to the respondent’s network horizon. The firms were all in a stage of growth and had therefore all passed a stage of emergence.

The interactional dimensions of the networks focused on tie content, direction, durability and existence previous to venture conception. Tie content was found to be mainly business-based, although social ties were generally highlighted in all cases and stages. However, tie direction and the use of old and new ties varied greatly among all the different entrepreneurs. Having mostly outward ties is natural in emergence since an entrepreneur has to actively build up his network. Novice entrepreneurs were helped by third party referrals in the first stage of development. This was particularly useful as a newcomer’s dilemma is often how to become trustworthy in the eyes of others. Having a third party supporting and promoting you makes it easier. Over time, tie direction showed a decrease in third party referrals for all. In half of the cases, one of each type of entrepreneur showed an increase in outgoing ties during the growth stage, while the others showed an increase in incoming ties. Regarding tie durability, all the entrepreneurs regardless of type had built up their networks based on long-lasting relationships. The networks were surprisingly similar in that they consisted of long lasting ties and that they expanded the number of business ties over time, which agrees with Coviello’s (2006) results.

Tie existence prior to venture conception, which is not discussed by Coviello (2006), varied in a way that both serial entrepreneurs had the greatest number of previously known ties in both stages of firm development together with one of the portfolio
entrepreneurs. The serial entrepreneurs, who started their second business in the same industry as their first, had old contacts to rely on. The reason for ending a business is an issue which affects future networking. If failure is the reason for ending a business, the entrepreneur has to put more effort in to expand the second firm and to recapture lost trust. This was the case for both serial entrepreneurs. In line with Westhead and Wright (1998), the serial entrepreneurs were in fact cautious and restrained when expanding their networks the second time. Four out of six entrepreneurs increased their number of not previously known ties over time.

Variance in the structure of the networks across stages of growth has been previously identified. The structural characteristics of the networks focused here on network size, density, constraint and growth rate. An expected pattern of an increase in size and decreasing level of constraint was found across all cases, whereas the level of density varied unexpectedly.

Summary

In comparing the interactions and structure of networks among three different types of entrepreneurs some differences are recognized. However, the differences pertain more to the interactional dimensions than on the structural side. Nevertheless, all networks, regardless of type of entrepreneur, show generally similar patterns of evolution. This result is unexpected, but fascinating. It suggests that network formation is more impacted by the development phases of firm growth than by type of entrepreneur. This puts earlier studies, arguing for distinct specific characteristics of types of entrepreneur, into a new light.

Positioning the article

Article 4 addresses the overall research problem of network development by over time, following both structure and interaction within phases of firm growth in an entrepreneurial context.

This article fills a gap in the entrepreneurship literature, which so far has focused on comparing types of entrepreneurs, their background and their firms (Kolvereid and Bullvåg, 1993; Westhead and Wright, 1998; 1999; Westhead et al., 2003). To my knowledge, this study is the first to use network analysis to compare different types of entrepreneurs’ networks. Even though Hite (2005) and Jack (2005) discuss aspects of how entrepreneurs and their networks impact each other, they do not compare different entrepreneurs’ networks and their development over time, as I have done.

This article combines the network theories discussed in the earlier articles and concentrates on the entrepreneurship research that differentiates certain types of entrepreneurs. It also acknowledges arguments in the previous literature, e.g. Article 3, that networks need to be studied in a time-sensitive manner. This study provides initial empirical support for the conceptual arguments provided in Article 3, where the firm
and the network are seen to co-evolve. This is proven by the results showing that network development is more related to the firm’s growth/development than it is to certain characteristics of the entrepreneur. This article also links to Article 3 by showing the need for integrating both network interaction and structure to better capture network development (i.e. using multiple perspectives).

The need for additional research in this area is supported by Jack (2008) pointing out that the literature still hasn’t shown how to grasp the network concept and its process and development has not been very clearly identified. Furthermore, the study provides an empirical example of how a research design using mixed methods can be performed (also suggested in Article 3). Jack (2008) identified that very few studies use methods both qualitative and quantitative in nature. Since the mixed method approach is still not widely accepted, one contribution here was to reinforce its use in network research, supporting Coviello (2005; 2006). Additionally, the results of this study show the value of integrating the qualitative and quantitative approaches when analyzing, viewing and presenting network data.
5 CONCLUDING DISCUSSION

In order to highlight the contribution and implications in this concluding chapter, I have chosen first to return to the overall research purpose of the thesis. After briefly revisiting the definitions of the term process, the contribution of the theoretical framework on network development process is presented. Furthermore, the contributions of the three network approaches to enhance theory are discussed in relation to the four articles. Thereafter, managerial implications are discussed, after which the conducted research is critically reviewed. Finally, the chapter ends with suggestions for further research.

5.1. Contributions and implications

Revisiting the research purpose stated in Chapter 1 is a natural way of establishing whether the purpose of this thesis has been fulfilled. The purpose was to enhance cross-fertilization between three different approaches to network research. The ultimate purpose was to develop a theoretical and empirical understanding of network development processes, in an entrepreneurial context.

Before discussing in further detail factors impacting the process of network development, it is appropriate to re-examine how the term ‘process’ is treated in previous literature. Namely, Van de Ven (1992) states that scholars tend to adopt different meanings of the term and therefore clarify the matter by describing three meanings of process. The first meaning explains process as a causal relationship between variables. In the second concepts are operationalized and measured to assess change over time, while the third meaning of process is described as a developmental sequence of events. This third meaning is further developed by Van de Ven and Poole (1995) as they outline four theories of explanation a) the life cycle theory, describing process as a prescribed sequence of events, b) the teleological approach, where the end goal is reached through a discontinuous and adaptive cooperation process, c) the dialectic view, implying development through discontinuous sequences driven by ongoing conflict, and finally d) the evolution-based argument suggesting development as proceeding through continuous cycles of variation, selection and retention. The life-cycle theory tends to dominate the literature. However, these four theories are not to be viewed as independent. On the contrary various combinations of them are more likely.

The theoretical contribution offered in this thesis is a framework describing the above processes associated with network development over time, including the acknowledgement of simultaneous change on different levels. This contribution fills an identified gap in network and entrepreneurship literature, since viewing network development as an ongoing process has been requested by amongst others, Hoang and
Antoncic (2003). To date, this phenomenon has not been fully discussed, simply because capturing network development in detail is very complex.

The theoretical framework offers multiple views on process and relates to networks as a developmental outcome. The framework suggests five conditions to be taken into account within network development research. First, the model asks for change to be captured both within and among relationships over time in the firm as well as in the network. As a result, research on network development requires the inclusion of both structure and interaction as change takes place in both simultaneously. Second, it also stresses the connection between the micro and macro levels. This means studying the entrepreneur or firm level with the entire network level, as the firm and the network are seen to co-evolve based on Larson and Starr (1993) and Hite and Hesterly (2001). Third, the surrounding environment impacts firm and network development and vice versa and consequently needs to be included. The environment may both enhance and limit entrepreneurial action (Van de Ven and Poole, 1995) and as a result the firm as well as the network will adjust over time. This allows for a somewhat neglected aspect within empirical network research, i.e. endogenous and exogenous changes (Halinen et al., 1999), to be incorporated. Fourth, it is necessary to view network development not only in terms of progression, but to include regression as an inevitable part process caused by endogenous or exogenous change. Finally, it needs to be considered that all activities over time repeat themselves. This implies allowing for both stability and change in depicting the network development process.

In the following section the contribution of the three network approaches is connected to the contribution and implications of each article.

This thesis set out to cross-fertilize between the strengths of three chosen network approaches. Generally, in order to identify the strengths, it is necessary for researchers to become more aware of both the different and similar conceptual and methodological arguments used in each approach. Only after that is it possible to combine the best parts in order to improve future research. Accordingly, it is suitable to now summarize what each network approach may contribute to the further development of a theoretical and empirical understanding of network process.

The business network approach may contribute in terms of how relationships are created and developed. Business networks are also concerned with how tie content changes within ties, not only between them. Articles 1 and 4 investigate tie creation and development. In Article 2, the business and social network approaches were found to differ in background, how they view ties, tie content, markets and how they treat network dynamics. Methodologically the two approaches differ regarding context, data collection and analysis techniques and levels of analysis. Suggestions are offered as to how the business and social network approaches can better be integrated. In Article 3, the network perspective on entrepreneurship is added and suggestions are provided as to how network research in entrepreneurship can be enhanced by learning from concepts of the other two approaches.

When comparing all three network approaches, they differ regarding the most common type of network they focus on, how they treat change within or among ties and finally how they view network as a process. The contribution of these comparisons (included in
Articles 2 and 3) is that presenting them may lead to an enhanced cross-fertilization between these network approaches, which in turn will develop the entire field of network research. In Article 4, network development is followed over time, including changes in both interaction and structure. In other words, following change both between ties and within ties. This is closely related to the business network approach.

The social network approach adds to the discussion by offering concepts of structural change on a network level. Examples of such concepts are capturing changes in network size and density, for example. In Articles 3 and 4, theoretical discussions of the concepts of structural change are offered. These are designed to provide tools for capturing structural patterns on the network level, which is typical for the social network approach. This is then applied and empirically examined in Article 4.

The network approach in entrepreneurship contributes by emphasizing network content, network governance and network structure as ways of understanding and capturing network process. Both the individual and firm levels are taken into account. This approach typically offers more detailed understanding of tie content, beyond what is captured within social network research, for example. Article 3 discusses how network research in entrepreneurship interprets process and how this approach may benefit from the two others. Article 4 addresses the need for structure and interaction and integrates both in an empirical manner. The empirical articles (Articles 1 and 4) treat the development of networks and changes within them as a process. This is consistent with the overall purpose and theme of this research.

Other theoretical contributions are found in Article 1, where a model of structural network features (size and tie strength) is developed showing that both impact the internationalization process. The other conceptual model is drawn as a cross-cut of a social relationship and presents five dimensions divided into 19 more detailed features of importance when studying network ties in depth.

In terms of research method, entrepreneurship scholars have identified the need for advancements in methodology to capture the complexity of networks (see Jack, 2008). Here, mixed methods, which provide an emergent way of capturing network development over time, were used in Article 4. Data was collected qualitatively and analyzed by qualitative and quantitative methods as suggested by Hurmerinta-Peltonäki and Nummela (2004; 2006) and Coviello (2005; 2006). The value of mixed methods lies in its capacity to provide insights and rich details of interaction as well as capture overall structural patterns within the networks.

The novel contextual contribution of Article 4 lies in combining previously defined types of entrepreneurs with network research. No previous literature was found examining or comparing different types of entrepreneurs and their networks as it was applied here. Article 4 is rare in that it highlights both interactional and structural dimensions of the network. Again, it is a question of holistically viewing network development in a new context. Previous research describes and compares different types of entrepreneurs but only regarding individual or firm characteristics (Kolvereid and Bullvåg, 1998; Westhead and Wright, 1998; 1999). Here, it is investigated whether the networks of different types of entrepreneurs (novice, serial, and portfolio) vary as the firm moves through stages of organizational development. Contrary to expectations, the
results provide little support for differences in the networks by type of entrepreneur. They show a generally consistent pattern along the structural dimensions. The interactional issues were found to be more process-related and did not change according to type of entrepreneur. They varied in general across all cases, making them unique to each firm. Therefore, the results of Article 4 demonstrate that network interaction and structure is not directly impacted by the type of entrepreneur involved. It indicates instead that network structure and interaction is more impacted by the growth and development of the firm. This in turn is in line with the theoretical implications, stating that the development of the network and the firm impacts each other, as they co-evolve.

Article 1 also contributes by showing the importance of networks for small and medium-sized enterprises’ internationalization. Specifically, international partner selection was enhanced mainly through informal contacts on the management level. The firms gained resources in the form of information, advice, knowledge, or in the form of different cooperative arrangements. This is crucial for managers to know, which leads us to the next section presenting managerial implications.

5.2. Managerial implications

This section addresses theoretical issues useful for managers or entrepreneurs to implement while managing within a network. The theoretical arguments suggest that while the entrepreneur engages in purposeful action in a network (Weick, 1979), external forces influence the venture and the network (Aldrich, 1999). These two views are both necessary and are consequently allowed to co-exist here. As the context and environment impact the network, normative suggestions or managerial implications applicable to all entrepreneurs or managers are hard to provide. However, based on the conceptual and empirical findings above the following suggestions are given.

First, the entrepreneur should be aware that he is managing within a network rather than the management of a network. This requires the entrepreneur to develop a) an understanding of the overall pattern of the network he operates in and b) insight into the complexity of tie interactions, since ties will differ in their content and durability over time. Second, it would be beneficial to appreciate that the network is a dynamic system, where ongoing change occurs at different levels; in dyads, across several actors and within the broader environment. In other words there are certain changes the entrepreneur will be able to initiate while other changes he only needs to be ready to handle when they appear. Third, and going more into detail, it is important for all new entrepreneurs to engage in different types of network relationships. Strong ties may feel more comfortable to use in the beginning but it is important to acknowledge that a mix of both strong and weak ties is useful as the entrepreneur moves on trying to maximize the benefits of the network. Entrepreneurs also need to be aware of their sleeping or dormant ties which can be useful in certain situations. Fourth, it is useful for the entrepreneur to realize how time consuming handling and maintaining network relationships may be. Therefore, at a later stage it becomes necessary to focus on fruitful
relations. Consequently it is necessary to leave others, which have not reached a desired level of mutuality, while simultaneously looking for new potential partners, for example, through time-saving third party referrals. For an entrepreneur, it is also necessary to accept that both progression and regression are natural parts of network development.

To conclude, a need to follow the development of network ties is important for any type of entrepreneur or manager from the very beginning when starting up a new business and later across phases of firm growth. Being aware of network structure, tie content and interaction and foremost the changes within and between them is essential.

5.3. Critical review of the research

Some critical reflections on the choices made regarding research design and specific issues related to the separate articles are presented here.

This research set out to provide a better understanding of networks theoretically but also within specific contexts. Building a solid base by first looking at previous theoretical development and empirical findings before moving onto my own research and later going back to previous findings in order to make comparisons, was a way of doing research which I found suitable for me. It shows that this process has been a long learning process for me, as I worked with literature reviews, theory development and data gathering simultaneously during the writing of the different articles, hence gaining insights that otherwise would not have been reached. This not only shows the very complexity of networks per se, but also and more especially the complexity of capturing network development.

Networks are very hard to capture, as most linkages are unknown or invisible to an outsider. They are also hard to capture because they are continuously changing. Therefore, they need to be studied over time. The limited time and resources within a thesis project provides few possibilities of following a phenomenon over a longer time period. Hence, the only possibility found suitable was, to look back on previous events. Other difficult issues when dealing with networks are the different levels of and contents within relationships. It is hard to spot differences between the relationships as they probably often coincide, but may at times also be contradictory.

Some procedural limitations also need to be discussed. A limitation regarding interviewing as a data collection methods is the somewhat non-objective approach to the study, since an interview situation is never totally neutral. The researcher posing questions will always impact the respondent depending on how the questions are addressed. Since the interviews were semi-structured they also turned out to be quite different depending on the respondent and his way of answering. This implies that the reproduction of this very research process is close to impossible, as someone else would
most likely have interpreted the data and results differently. However, the pros of using
interviews by far exceed the cons.

In the fourth article the data was collected qualitatively but analyzed using mixed
methods. The data was transformed in order to allow the use of quantitative methods in
the analyzing phase. The way the data was first grouped chronologically and then
transformed to suit the software programs could have been done differently. I focused
on including all the relationships in the correct stage, that of emergence or growth, and
then accordingly carried out the analyses. Some of the richness of the interview data
was unfortunately lost this way or not highlighted enough. Another possibility is that
the development phases of the firms might be defined differently by someone else.

Another possible limitation is that the networks were discussed in both empirical
articles according to the respondent’s own network horizon. As the discussion was
focused all the time on crucial relationships according to the entrepreneur, no absolute
truth could have been expected. Consequently, some of the events discussed happened
some time ago, albeit a minority. Thus, the respondent’s view of what actually
happened may have been twisted. The interviews were also carried out with only one
person within each firm. Thus, the view of the relationships from both ends, in other
words the dyadic perspective, was excluded. As it is acknowledged that a dyadic
relationship may mean different things to two partners, capturing only one side can be
seen as a limitation.

The respondents were all chosen according to theoretical and purposeful sampling.
Using such a method for finding suitable respondents is a limitation, as they are
dependent on the researcher’s own network and possible third party referrals within that
network. Looking at the research retrospectively, selecting entrepreneurs with smaller
networks the research would have been easier to conduct and analyze, but not as
rewarding. A context-related limitation is that the impact of the different industries on
the entrepreneurs’ networks was neglected and that the interviews were not carried out
in any specific order. It would have been easier to keep the focus on the different types
of entrepreneurs and their stories if they would have been conducted in a certain order.
It would also have been easier to compare the answers already during the interviews
themselves, while transcribing them verbatim and when performing the first intuitive
analysis of the data.

5.4. Suggestions for further research

As pointed out by Jack (2008), the changing nature of networks needs to be considered
more extensively in future network research. Future entrepreneurship research could
benefit from applying multiple theoretical perspectives regarding process, and shift
from emphasizing networks as an independent variable to studying them as a
developmental outcome. In particular, there is a need to understand how and why
relationships and networks change in a co-evolutional manner. By applying a process-
based way of thinking, network research may come closer to capturing more dynamic aspects of networks. Therefore, future researchers are invited to apply the theoretical framework presented in Article 3. The model provides a good base for further research, as it includes aspects not previously captured regarding network development as an ongoing process. More specifically the theoretical framework integrates multiple views of process, multiple levels of analysis and multiple perspectives on network development. Future network research needs to capture multiple levels by understanding changes both within dyadic relationships and the broader network (Powell et al., 2005; Jack, 2008). Examples of multiple perspectives to be included might be developing an understanding of how ties transform and how network complexity increases (Hite, 2005). As ties do change, develop and switch content over time, future research needs to take into account not only change among ties but also specific changes within ties, as suggested by Håkansson and Snehota (1995). Tie content can change from being business-related to more social or from being a cooperative partner to becoming a competitor. This type of content change within ties has not yet received any further attention and therefore needs to be further highlighted. Multiple perspectives may also be included by capturing dyads, by providing both parties’ view, would deepen the discussion of ties, including aspects such as tie content, reciprocity, intensity and so on.

By focusing on issues related to change future research may offer insights into how networks, as continuously changing dynamic entities, need to cope with changing environments. Findings by Butler and Hansen (1991) and Greve and Salaff (2003) highlight the fact that established entrepreneurs are able to reduce the size of their network and mainly focus on strategically important ties later on. Consequently, they may spend less but more focused time networking during the later stages of firm development. As this is contrary to the results in the last article included here, the issue of strategic network management is one future researchers may look into. This can be done by further relating it to future expectations of current and potential ties, which in turn impacts the entrepreneur’s behavior. Even though network management as such has been discussed, the “skills of networking” have not been fully recognized other than as a means to reach external resources resulting in different kinds of benefits. Networking in itself is not only performed naturally and spontaneously, but also at times with conscious intent. More efforts should therefore be put into dis-entangling what kinds of specific skills and competencies are required to successfully manage a network, which in the long run is built on different types of valuable relationships.

Negative aspects of networking have mostly been discussed in BN studies (e.g. Hertz, 1998) and in the SN approach (e.g. Uzzi, 1997). These could and should be investigated in the context of entrepreneurship given the risks inherent in the newer venture. Other concepts like that of adaptation in networks, for example, have only been discussed more extensively in business networks (Brennan and Turnbull, 1999; Brennan et al., 2003; Hagberg-Andersson, 2007). Therefore, both SN and EN researchers could integrate this aspect, thus enhancing cross-fertilization.

Some methodological suggestions are also appropriate. For those wanting to develop network research without mixing methods, longitudinal tracking of quantitative data can be used to assess how network structures change over time. For those investigating the interactional dimensions of the network, like relationship formation and change for
example, a more qualitative approach is probably still needed. However, Lechner et al. (2006) request further progress in building more complex development models in entrepreneurship research on networks. This could be done by further combining qualitative data analysis with network visualization and measurement tools. Future network research could easily then benefit from applying the system of drawing network pictures as an explanatory method used mostly in the social network approach (Powell et al., 2005) but applied also within entrepreneurship by Coviello (2005; 2006). Researchers, who want to enhance future network research by trying to capture network development through both structural and interactional patterns, need further to support the use of mixed methods.

Adding the network perspective more extensively among various types of entrepreneurs can be used as a fruitful tool in deepening and further developing network research within entrepreneurship. Future research can continue comparing different types of entrepreneurs and their networks over time using larger samples for generalizations. Another dimension would be to focus on one ego network at a time, and in doing so try to capture the dynamics of the dyads within that network. Networks may also be better understood relative to organizational life stages, thus allowing for research looking at processes within and between such stages in more depth and across more stages than those captured here.
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APPENDIX 1

Timetable for the interviews

First interview round

1. Interview with serial entrepreneur 2, November 10, 2006
2. Interview with portfolio entrepreneur 1, November 14, 2006
3. Interview with novice entrepreneur 1, November 15, 2006
4. Interview with novice entrepreneur 2, November 21, 2006
5. Interview with serial entrepreneur 1, December 5, 2006
6. Interview with portfolio entrepreneur 2, December 15, 2006

Second interview round

7. Interview with novice entrepreneur 1, July 10, 2007
8. Interview with serial entrepreneur 1, July 13, 2007
9. Interview with portfolio entrepreneur 2, August 2, 2007
10. Interview with serial entrepreneur 2, August 6, 2007
11. Interview with novice entrepreneur 2, September 2, 2008
12. Interview with portfolio entrepreneur 1, September 8, 2008
APPENDIX 2

Interview guide

- From where did you get the idea to start your own company?
- How do you as a person differ from those who plan to start their own business but never have the courage to do it?
- Who do/did you go to for advice?
- Who provides/provided you with financial resources?
- How do/did you find your employees?
- How do/did you find your suppliers?
- How do/did you find your customers?
- How do/did you find your partners?
- With whom do/did you discuss your business problems externally?
- Are your parents and/or sisters or brothers entrepreneurs or were they otherwise supportive?
- Are your friends also entrepreneurs, if so, do you discuss with them?
- Are you (or have you been) involved in other contexts which have helped you develop the company?
- Who are crucial contacts today?
- If the company has a board, how did you choose the board members?

The interviews were semi-structured and open ended. Hence, the answers guided the questions and in which order they were presented. The interviews were conducted in Swedish or Finnish. The interview guide is to be seen as a translated list of general questions in no specific order that were answered in all interviews. The second interview round was to follow-up and clarify details not captured by the author during the first round.
• Are there any other relations of importance for the company and its development that you would like to add?

**Examples of follow-up questions to the questions above:**

• Did you know him/her from before?
• How have you known this person? From which context?
• How long have you known this person?
• Who made the contact?
• Whose idea was it?
• How and when did that happen?
• How did you get involved?
• Tell me more, please!

**Additional follow-up questions posed to the experienced entrepreneurs:**

• What is different/easier now compared to the first time?
• Did your old contacts help or come back easily?
• What have you learned so you can avoid the same mistake twice?
APPENDIX 3

Diagram of one of the novice\(^7\) entrepreneur’s network at emergence

\(^7\) A Novice Entrepreneur’s network was chosen, as it is simplistic and is thus suitable as an example. The others became very large and complex in Stage two.
APPENDIX 4:
Diagram of one of the novice entrepreneur’s network at growth
PART TWO

ARTICLE 1
ARTICLE 2
ARTICLE 3
ARTICLE 4
Article 1

A Network Perspective of International Entrepreneurship

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The purpose of this study is to develop the understanding of how social networks affect the internationalization processes of firms. Of particular interest is how social networks make a difference in terms of business partner selection. First we present a traditional theoretical framework to the internationalization process and focus more deeply on the network approach within the internationalization process. We continue by describing the social network approach and in more detail the impact of social networks on the internationalization of firms. Excerpts from empirical findings of different studies illustrate the theoretical discussion. Finally we conclude the discussion with implications and suggestions for further research.

Methods
When adopting a relationship approach some methodological difficulties need to be pointed out. An outsider may get a somewhat superficial comprehension of the relationship and the network the actor is involved in as a whole, since the actors may have different perceptions of the network. We do not consider networks as set structures but as subjectively perceived contexts more or less planned for activities having an impact on the internationalization process. Each actor has a network position in a specified network. Actors can be positively connected, implying a synergetic, cooperative relation, or negatively connected when they compete to develop exchange relationships with a third party (Bengtsson and Kock, 1999). Relationships are here assumed to be positive.

Our methodological approach is qualitative in the sense that we have conducted semi-structured interviews with key actors in selected firms. Some of the cases quoted are based on secondary data. The aim of the interviews was to try to pinpoint and describe the existing networks that the studied key actors are in. Since international integration is an important aspect of internationalization, strategic objectives to establish positive connections to other actors involve developing relationships with several different geographical regions (Hertz and Mattsson, 2002). Two dimensions of social networks may be recognized, actors embedded in a psychically closer
national network and actors in a more distant international network. However, we draw attention to the importance of the international social network, consisting of considerable significant relationships when deciding on the partner selection.

The internationalization process

The conception of firms expanding into international markets in an incremental stepwise manner is well documented. Johanson and Vahlne (1977) probably provide the most commonly cited conceptual and empirical base for this notion, known as the Uppsala model. Their research stresses that managerial learning takes place during the internationalization process and shows that a series of stages of internationalization occurs as commitment and investments in foreign markets increase. According to the model, firms are often predicted to start the internationalization process by moving to markets psychically close to the domestic market and entering more distant markets at a later stage. After the initial expansion with low risk, indirect exporting to similar markets, firms will improve their foreign market knowledge and gain more experience. This leads to a greater increase in foreign market commitment and to expansion into more distant markets over time. The model also shows how managerial learning drives internationalization (Coviello and Munro 1997).

Today, Firm C has agents in both Sweden and Australia, and also direct contacts established by the entrepreneur himself. In the future, the role of agents will be very limited. Direct contacts and probably also joint ventures will come in [to] the picture. The entrepreneur has become friends with other managers he has met at fairs abroad or via clients, from whom he has learned a lot, and vice versa. They know the business in the country concerned, and have operated for a long time there; the entrepreneur believes that, in the long run, they will act as godfathers, to help them to get into the markets. (Hurmerinta-Peltomaki, 2001)

Christensen and Lindmark (1993) claim that the present models of internationalization take into account only problems more characteristic of large firms and that these models do not consider the importance of the network context or the case of social networks. Findings suggesting that the model of internationalization is somewhat different for small firms from larger corporations, and thus results particularly interesting for this study, are presented by Lindqvist (1988) and Bell (1995). They suggest that the pattern of internationalization and the entry mode choice of small firms may be influenced by, among other factors, close relationships with customers (Lindqvist, 1988) and that inter-firm relationships (with clients, suppliers and so on) appear influential in both market selection and mode of entry for small firms (Bell 1995).
Johanson and Vahlne (1992) found foreign market entry to be a gradual process, resulting from interaction between parties that are developing and maintaining relationships over time. A sequential search process is likely to be undertaken, first by contacting actors the firm has direct relationships with and, later, actors with whom the firm has indirect relationships. Using the social network as an information source and also as a potential partner search area is common. Researchers within the area of internationalization have started to examine the important role of personal relationships in promoting business (Agndal and Axelsson, 2002) but so far research is modest when it comes to the development of business relationships. ‘The last few years we could have sold more boats than we can build. We haven’t had to do any marketing at all, with old contacts ... we have easily sold everything the firm has produced’ (personal interview with Marketing Director Johansson, Baltic Yachts); ‘Information about the competitors and new opportunities are obtained from personal relationships as well as from the customers, Internet and agents’ (personal interview with Managing Director Staffans, Baltic Yachts).

The conclusions from studies made by Holmlund and Kock (1998) is that firms are not able to increase their rate of international business beyond a certain level in accordance with the stage model. The authors, however, do not elaborate on the reason why some firms are able to extend their business abroad quite rapidly when others get stuck at one of the first stages in the stage model described.

The network perspective further develops the models of incremental internationalization by suggesting that a strategy of a firm emerges as a pattern of behaviour influenced by a variety of network relationships (Coviello and Munro, 1997).

Internationalization and the network model
Based on the degree of internationalization of the market and the firm, respectively, a model has been developed by Johanson and Mattsson (1988) (see Figure 39.1). As demonstrated by the model, firms have access to and need for different resources during different market conditions.

A firm with few international business relationships and whose competitors and suppliers are in the same position can be categorized as ‘The Early Starter’. The firm has little knowledge of foreign markets and has little opportunity to acquire knowledge from its relationships in the home market. An agent can, however, provide information about ways to enter a market abroad. Consequently, the agent will reduce the risk and costs. Early starters can be encouraged to internationalize by distributors or buyers abroad.

‘The Lonely International’ is a firm that is highly internationalized but
embedded in the domestic market with few international actors. Commonly it is the lonely international that alone has the possibility of internationalizing the domestic market. The firm has knowledge and experience from foreign markets; that is, it has been exposed to various ideas and experience which advance the firm’s knowledge development (Chetty and Blankenburg-Holm, 2000; Barkema and Vermeulen, 1998). The lonely international is a forerunner in the domestic market and thereby has a strategic advantage.

‘The Late Starter’ is embedded in relationships in a domestic market that is already highly internationalized. Through these direct or indirect relationships the firm will gain access to international actors. The firm will more or less be forced to internationalize. The late starter has been left behind and has a disadvantage as competitors have already entered foreign markets.

‘The International Among Others’ is a highly internationalized firm operating on an internationalized market. The firm has knowledge about international actors and markets and can commit itself to international activities. The firm also has easy access to the resources required both domestically and internationally.

However, the model has also been criticized for certain weaknesses. Chetty and Blankenburg-Holm (2000) found some irregularities where the model did not distinctively describe every matrix. In addition, they claim that no attempts were made to describe how firms move from one position to another, nor were different problems or i.e. the importance of decision
makers or firm characteristics, discussed. Despite a stimulus for internationalization, the manager might not respond out of fear of losing control over the firm, unwillingness to internationalize or on other personal grounds.

The nature of the relationships established between various parties will influence strategic decisions since the network involves resource exchange among its different members (Sharma, 1993). Through these network resources firms can gain a lot of useful new information at the right time. Information exchange takes place not only within the direct network. Also referrals through a third party can be useful in the long run. Burt (1992) states that the above-mentioned information benefits are maximized in a large diverse network of trusted contacts. Thus firms operate in networks where the relationships function as bridges to unfamiliar markets; the opportunities and motivation for internationalization are obtained through these bridges (Sharma and Johanson, 1987).

Sometimes the internationalization may also follow a somewhat unpredictable pattern, related to the opportunities and threats of the external environment (Benito and Welch, 1994). Opportunities and threats may be presented to the firm by partners in the same network, as in our example below, and may therefore influence the firm’s future actions. These external ties may drive, ease or prevent firms’ choice of actions in their international process (Coviello and Munro, 1997).

Having this Swedish client is very important for us; because of them we find out what happens outside the borders, what is the price level and how our competitors are acting. It gives us a totally different picture than if we were operating only in Finland, alone. (Hurmerinta-Peltomaki, 2001)

The social network perspective
Galaskiewicz and Zaheer (1999) point out that missing from the discussions of organizational fields are the social networks which exist among natural persons. These people have contacts, which extend far beyond the walls of the organizations they are working in. Networks by definition are constantly evolving and changing. The critical elements in a firm’s strategic success are the ability of the firms in the network to influence these changes over time and thus create and maintain the most advantageous membership. The composition of the network and the degree to which the actors of the network are rich in information, skills, referrals and other resources a firm needs are significantly important for the firm’s future success (ibid.).

It doesn’t matter if people around here would start producing identical boats as us tomorrow. They would not be able to sell one single boat. They would be too expensive. It’s all built on social relations with the company after many, many
years in the business . . . we have a lot of personal relationships out there which we can use and are using . . . We are much more known internationally than we are on the domestic market, our exports are a hundred per cent. (Personal interview with Marketing Director Johansson, Baltic Yachts)

In spite of the fact that there is a growing consensus that networks do matter, a debate has arisen over whether it is the closed network with many strong ties or the more open network with the brokerage opportunities that is the more important. Clarifying the implications of cohesive versus disconnected networks for various organizational outcomes is therefore of great importance. A cohesive network, as explained by Coleman (1988), is important for the development of social capital. It ensures that actors behave in a trustworthy manner because it allows proliferation of obligations and expectations. It is also the source, where reliable information is exchanged and where norms that put collective interests ahead of individual self-interest can be observed. Some benefits of the cohesive network can only be captured by those who invest in them (ibid.).

By employing Chinese persons from the industry in question – often from organizations with which they had been negotiating – the export company obtained employees in China with guanxi to buyers and/or governmental organizations. The highly specialized educational system in China also resulted in extensive social networks among those who had worked together. These persons occupied central positions and had quite strong ties with centrally placed actors in the social networks that often were found within an industry. (Bjorkman and Kock, 1995)

A central actor in a disconnected network, as Burt (1992) explains it, gains additional advantages such as more valuable information received early and, through more referrals, serving as a positive force for future opportunities. The disconnected network works most efficiently if those with whom the central actor has direct and indirect relationships have no direct or indirect ties to one another; that is, the network is rich in structural holes (Burt, 1992).

Granovetter (1973) states that relationships based on weak ties are of greater importance when considering distribution of new information flowing in the network, since people moving in circles distant from our own will have access to different information. It is suggested that close relationships reflect the concept of embeddedness. These relationships are distinguished by the personal nature of the business relationship and their effect on economic processes.

Strong ties are even more emphasized by Uzzi (1997), stating that embedded relationships have three main components that regulate the expectations and behaviour of the exchange partners: trust, fine-grained information
transfer and joint problem-solving arrangements. The relationships are managed by trust, which promotes access to privileged resources and extra efforts. Furthermore, the information transfer in the embedded network is more fine-grained, tacit and holistic compared to pure price exchange data of market relations. Finally the joint problem-solving arrangements deepen the relationship and promote useful learning and innovation.

Several respondents noted that the development of personal trust was more important in China than in other locations where they had been working. The trust that exists between actors in a social network was seen as particularly important concerning transactions which involved illegal elements such as ‘extra commissions’ paid to foreign bank accounts or lavish gifts. (Bjorkman and Kock, 1995)

Figure 39.2 presents the various dimensions of social relationships. The *atomistic* manager has few and weak social relationships. The manager can be considered as lonely and is often left outside. In an international context this type of manager has problems as every new decision follows a trial-and-error pattern.

The *collective* manager aims at collecting information from different sources in order to minimize the risk involved when taking decisions concerning international business. The major drawback is that, since the information comes from weak ties, its trustworthiness can sometimes be questioned. If the collective manager does not give information back, the others will soon regard him as a ‘black hole’, consuming information and giving nothing back.

<table>
<thead>
<tr>
<th>Strength of social relationships</th>
<th>Number of social relationships</th>
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<tbody>
<tr>
<td>Weak</td>
<td>Atomistic</td>
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<tr>
<td>Strong</td>
<td>Safe</td>
</tr>
<tr>
<td></td>
<td>Collective</td>
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<td></td>
<td>Hub</td>
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*Figure 39.2  Dimensions of social relationships*
The safe manager uses few but strong relationships in his decision process in international business. That the relationships are strong indicates that he can trust the information received and has developed a more comprehensive contract, which might also include problem solving. A disadvantage is that the other individuals have the same norms and the information is therefore very similar and can become a burden in some cases, as mentioned earlier. This manager deals with long-lasting social relationships.

The hub manager has gained a very strong and central position as he has many strong relationships. He is connected to different networks and can consequently receive a lot of new information at an early stage, which he can use for connecting different parties and creating new opportunities. His major problem is that the time invested in all the relationships needs to be reduced and therefore he only keeps in touch with the most central actors in each cluster in his network.

**The influence of social networks on the internationalization process of SMEs**

Much of the small firm network research focuses on general network influences on firm behaviour, but certain studies, as mentioned before, have highlighted the potential role of networks in small firm internationalization (Lindqvist, 1988; Bell, 1995). However, these studies have not looked specifically at social networks, formal as well as informal, and their impact on the internationalization process. Coviello and Munro (1997) state that literature on the potential influence of network relationships on the internationalization process is increasing, but that research providing detailed information about specific network and relationship influence is non-existent. Their findings indicate that, in small software firms, the internationalization decisions and growth patterns are very much shaped by their network of formal and informal relationships.

Having experienced market success, each firm also began to desire greater control in the network and looked forward to furthering their international expansion through development of additional relationships (ibid.). Just as skilled managers are important to the growth of the firm (Penrose, 1959), they are significant in internationalization.

Agndal and Axelsson (2002) point out that a new person in a firm will always bring with him a personal network consisting of family, friends and earlier business relationships, which they call the ‘relationship sediment’. These contacts can be used for either company or private purposes, depending on that particular person’s willingness to share and ability to use them.

Galaskiewicz and Zaheer (1999) claim that several aspects of interpersonal ties distinguish them from interorganizational ties. The contents of
interpersonal ties may often be either expressive or emotional, but do also usually include an instrumental aspect. They are also generally invested with meaning, which makes them central to a person’s identity. They can also be inherently positive or negative, meaning that a person may enjoy or dislike engaging in relationships with others. These ties can play an important part in a firm’s strategy to gain control over its environment. The social networks between individuals are largely invisible and mostly unknown to others outside the network, which gives the firms involved a competitive advantage. Certain problems may, however, occur, according to Galaskiewicz and Zaheer (1999) on different levels such as the micro behavioural level, the relational level and the field level.

The first problem on the micro behavioural level is the expression problem. As interpersonal ties are likely to present a more salient expressive aspect and contain more emotions than interorganizational ties, the reaction of employees to certain features can be emotional, and consequently perhaps not serve the interest of the employer. The second problem is the hierarchy problem. A direct proportional impact has been established between the results of personal ties on interorganizational strategy and the status of the individuals involved (Zaheer, Lofstrom and George, 1998, cited in Galaskiewicz and Zaheer, 1999). An organization is divided into different hierarchical levels, and the social networks of actors at different levels are likely to bring different benefits to the organization. Owing to the homogeneity of social networks, actors further up in the hierarchy have more useful network contacts and consequently the power to effect changes in the organization to a greater extent. The third problem on the micro level is the agency problem: ‘individual members of the organization are likely to pursue their own interests at the expense of the organization’ (Jensen and Meckling, 1976, cited in Galaskiewicz and Zaheer, 1999).

On the relational level the problem appears if a firm becomes too dependent on a specific network tie and thus vulnerable. Negative sides of having too strong relationships are identified in the extract below. Uzzi (1997) also warns of the problem that firms situated in a network of strong personal relationships run the risk of adapting too slowly to changes. As investments are made in long-term relationships, particularly where personal relations and organizational relationships are mixed, it becomes harder to take an unemotional and coldly calculating view of the members in the network (Galaskiewicz and Zaheer, 1999).

And we must admit that long-term relationships have their drawbacks, if the social bonds become too strong. When this happens the persons involved will put security and friendship before a good deal. Hence, we are convinced that relationships are beneficial as long as they do not go too far [down] the line and become more important than the business. (Kock, 1991)
At the third level, the field level, social networks can more easily be used to cement collaborative relationships and have a limitless competitive potential when the number of connected others is low. Under conditions of uncertainty, the trustworthy information received from your close network becomes very attractive and therefore the investment in social relationships is never a waste (Galaskiewicz and Zaheer, 1999).

As there are not so many different hierarchy levels in smaller firms, one can assume that different personal ties in a small firm can have a greater impact than in larger companies. According to Holmlund and Kock (1998), and as the selected example below shows, individuals in small and medium-sized firm have a substantial impact on the internationalization process as close social relationships with other individuals affect the motivation to start internationalizing. In the Finnish SMEs studied by Holmlund and Kock (ibid.) the social networks of the management in the home country as well as abroad affect the internationalization process significantly. Coviello and Munro’s (1997) findings indicate that small firms show a pattern externalizing their international market development activities through investment in network relationships.

In 1964 the CEO of the company received the first order from the U.S.A. The order was placed by an agent in New York City interested in importing abrasive paper to the U.S.A. The contact was established through a social relationship between the CEO of the agency and a lady living in Helsinki. The agent wanted to work on commission. The order gave boost to the company’s turnover but resulted in a considerable loss. In 1967 the new CEO, who had studied in New York City, decided to try again to enter the market in the U.S.A. He approached one of the buyers he knew from the earlier attempt. Later on the single largest buyer in the U.S.A. was reached through a social relationship between one of the company’s salesmen and the owner of the buying company. (Grahn, 1996, translation by the authors)

Benassi (1993) draws research attention to the role of personal ties in making formalized relationships possible, since his sample shows that personal relationships were the starting point for several strategic alliances. Bjorkman and Kock (1995) state that it may be difficult empirically to distinguish between social, information and business exchanges when actors interact. Studies using the network approach have commonly treated social networks as an outcome of business networks. Consequently, a business network consists of three dimensions: activities, resources and actors (Hakansson and Johanson, 1992). The actor dimension makes up the social network in the business network. Which comes first, the social or the business relationship, is difficult to decide as it varies according to the context. An important question is when a business relationship develops to also include a social dimension, and vice versa. In international business it is
common for a manager to activate ‘sleeping’ social relationships when entering a new market in order to decrease the involved risk.

I called my friend in Sweden and said that I’d established a firm that produces moulds. Then he just said, ‘Okay, send me one’. And I did. There wasn’t any bargaining. He just bought a mould. (Hurmerinta-Peltomaki, 2001)

Also the position of an actor in a network is of great importance, whether the actor is in a central position or not. The centrality can be divided into a global and local centrality. A position is locally central if it has a great number of connections in its immediate environment (Nieminen, 1974) while it is globally central if it is strategically significant in the overall structure of the network (Freeman, 1979). A central position indicates that an individual has access to more information through stronger relationships with key decision makers and informants. In other terms, investments in social relationships to centrally positioned individuals are extremely important.

The general perception was, however, that if you manage to develop a good personal relationship with the central decision maker you have a good chance of winning business deals controlled by this person. (Bjorkman and Kock, 1995)

Many interactions in predominantly social relationships may have an impact on business relations regardless of whether monetary values are exchanged or not. It might also be the other way around, that strong business relations deepen into becoming also personal relations. Bjorkman and Kock (ibid.) and Salmi and Backman (1999) come to the conclusion that in some markets, such as the Chinese and Russian markets, social bonds typically precede business bonds. In China, social relations are of high significance both in order to obtain important information but also to influence Chinese decision makers (Bjorkman and Kock, 1995).

. . . that’s a long story. It takes you several years to really build up a good relationship with them. In the beginning you have to pay visits there, and you can invite them to your office. And gradually you know who is the decision maker. Then you build up a very good relationship with them. You should know what they like, what kind of topic they like to talk about, what is their background, even what kind of food they like. (Bjorkman and Kock, 1995)

Burt (1992) argues that firms as well as individuals purposefully work towards structuring their networks in order to receive higher rates of return on their investments. The more non-redundant contacts you have, the more efficient your network is, providing you with more benefits, such as information and control. Hakansson and Johanson (1993) on the other hand comment that networks are cognitive constructions, and individuals within
an organization may have different perceptions about the membership of the network, its structure and modalities governing various transactions. In accordance with the findings of Uzzi (1997), we also believe that the most efficient network would be one consisting of several weak ties providing the focal actor with new information, but also of strong ties, which consist of a deeper long-lasting cooperation where parties can develop and jointly solve problems.

Freeman (1979) adds yet another concept of centrality, which he terms ‘the betweenness’. Betweenness measures the extent to which a particular actor lies ‘between’ other actors in a network and to what extent this actor or firm can play the part of a ‘broker’ or ‘gatekeeper’ in a network. In our example below, the Swedish firm has an intermediary role as a ‘gatekeeper’ and therefore becomes very central to the network because of the potential control the firm has over others.

A French firm, a supplier of abrasive papers to RENAULT and specialized in delivering both small and large quantities in different sizes of the product at short notice. The firms have been involved in a long-term relationship for about 15 years. The French firm employs a Swedish company producing abrasives as a supplier. Some years ago the owner of the French firm bought a major share of the Swedish company. After the takeover the Swedish company implemented outsourcing as an important part of their strategy. In 1999 the Swedes had to decide if they should invest in a new production line for a special quality of abrasive paper needed to supply RENAULT’s after-sales products. Instead the Swedish firm got in contact with a Finnish competitor, knowing that the Finnish company had recently invested in a new production line and had at this point an overcapacity. The Finnish firm had for a long time been interested in supplying abrasive paper to RENAULT but had noticed that the relationship between the French supplier and RENAULT consisted of very strong ties. The cooperation that started between the Swedish and the Finnish firms made it possible for the Finns to indirectly come into contact with a new and important buyer, RENAULT, which in the long run can be seen as a potential very fruitful investment in a new customer relationship. (Personal interview with Klaus Erbismann, Non-label Manager at KWH/Mirka)

Andersen and Buvik (2002) describe the assessment of potential international exchange partners as a screening process, which involves gathering information about potential partners. A useful information source when seeking potential partners is the social network of the focal firm. The process is likely to go on, after first using actors that the firm has direct relations with, to indirect ties of the firm (cf. Blankenburg et al., 1999).

Conclusions
From the theoretical discussion and the illustrative cases we can conclude that social relationships are very important in the internationalization
process. The social relationships of the managers in the SMEs have helped them to gain access to information and new customers, and to expand their business.

In Figure 39.3, the factors that have an impact on the social relationship in internationalization are depicted. The figure is inspired by Agndal and Axelsson (2002) but is here further developed and improved. The five main factors are classified into a first category consisting of significance and content and a secondary category of accessibility, extent and attributes.

As regards the first category, the *significance* of the relationship depends on the usefulness of the connection compared to the time spent on nurturing the relationship. It is often hard to ensure the potential of every link and different types of connections are therefore of great importance. In order
to get information about, for example, potential partners or foreign buyers, the manager needs to make use of both strong and weak relationships. From the strong relationships the manager will receive more trustworthy information. From the weak relationships the manager gets more new information faster, but this information has not necessarily passed through the same norm filter as that of strong relationships. It is, however, difficult to determine whether a strong cohesive network or a more open network with weak relationships is more significant. We argue that, in the internationalization process, both are crucial. The strong relationships are, however, more essential as they can act as a context for problem solving and innovations and thus bring more quality into the relationship for the partners involved. In certain geographical areas, access to specific relationships are even a question of staying in business or not.

Other important issues concern how central and valuable the actors are in their present social network. A central actor with the right information sees new opportunities sooner and will be able to coordinate action between different partners when needed. A central actor is also attractive as a new network contact for others and will thus easily be able to expand his own network.

The content of the relationship is a question of how the relationship between the actors in the social relationship functions. The expectations and behaviour are regulated by fine-grained information transfer, joint problem-solving arrangements and trust. The information of strong relationships is more tacit and holistic. Trust is the basis for mutual social relationships and gives the actors access to privileged resources when unforeseen extra efforts are put into the relationship. Finally, joint problem solving based on a high degree of trust will strengthen the social relationship and simultaneously promote useful learning and innovation.

The second category of our dimensions of the social relationship consists of the availability, reach and type of relationship. The accessibility of the relationship indicates whether it is a continuing relationship, a sleeping, terminated or maybe a future relationship. The continuing relationship is an active social relationship based on mutuality, no matter if it is a strong or weak relationship. The stronger the relationship, the more intense it will be. Sleeping relationships are former relationships that are now put on hold. These relationships can, with some effort, be activated when needed. Terminated relationships are difficult to activate, since they usually are no longer mutual or, even worse, lack the trust that once was there. Future relationships are perhaps still undiscovered or might be in the initial screening phase, representing a potential for coming opportunities.

The extent of the relationship is national and/or international, depending on the focal actor. Nowadays customers, suppliers and partners are
usually spread over a wide geographical area. An actor who has worked or studied abroad has a deeper international knowledge. The actor’s national and international experience can be compared with the internationalization process of the firm elaborated earlier on in this chapter. Strong international social connections are an advantage for actors in their international business activities. The reach of the link can be divided into two additional categories, network reach or general reach. This is dependant on whether the relationship is part of a larger network or can be seen as just a momentary general connection.

We have divided the attributes of the relationship into two sub-groups, namely professional, friendship or family, on one hand, and long-lasting or new, on the other. The borderlines between the ones in the first group might be fuzzy, as relationships that are based on friendship can also be used for business purposes and therefore develop into a relationship consisting of both types. The relationship can also begin with business but later on deepen into including both friendship and business. All categories in the first group can also be divided, depending on whether the relationship has just started or is one that has lasted for a long time.

Suggestions for further research
Figure 39.3 can be seen as a source for many different directions of research in this field. The impact of social relationships on the internationalization process is important. A problematic question is the extent to which they do have an impact. Some of our cases illustrate that it is not possible to complete the mission of internationalization without the use of social relationships. An aim for further research would consequently be to analyse the interaction between the impact of social relationships and goal-oriented actions undertaken by the managers in the internationalization process. To what extent can social relationships of the manager support him in achieving the strategic goals of the internationalization?

In order to better understand the social networks and how they evolve and are used over time, longitudinal studies are needed. In such studies the dynamics of social networks would become more visible.

Perhaps the most important research challenge, however, is to develop a deeper understanding of the ways in which strong and weak relationships differ in the internationalization process. Which combination of strong and weak relationships would be the most fruitful, and which kind of relationship should be developed with whom? These are key questions in SMEs with often limited resources, which need to be used in the most efficient way. Should the manager of the SME go for strong or weak relationships in his attempts to build social relationships that can be useful in his business performance?
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A network perspective


Personal communications

Erbismann, Klaus, Non-label Manager at KWH/Mirka, Finland, 27.7.2002, 10.00–11.30, conducted by Susanna Hinttu and Soren Kock.

Johansson, Per-Goran, Marketing Director at Baltic Yachts, Bosund, Finland, 23.4.2002, 9.00–10.15, conducted by Maria Forsman.

Staffans, Lisbeth, Managing Director at Baltic Yachts, Bosund, Finland, 25.4.2002, 9.15–11.00, conducted by Maria Forsman.
Article 2

Bridging the Atlantic: A Comparison of the Business Network Approach and the Social Network Approach

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Chapter 2

Bridging the Atlantic: A Comparison of the Business Network Approach and the Social Network Approach

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This article discusses the research conducted within the business network and the social network tradition. The purpose is to make conceptual distinctions between the two approaches and to describe their similarities. By combining the strengths of each approach in a complementary fashion, it is anticipated that a more effective approach will be developed than either taken alone. Certain terms are important when trying to distinguish between the business network approach and the social network approach. The terms discussed here are: ‘tie’ (or relationship); ‘role of exchange’; ‘markets’; and ‘dynamics’. Although they share much in common, there has been little cross-fertilization between them. However, both assert that networks can provide opportunities and advantages to the parties involved. Much would be gained by more work on ‘bridging the Atlantic’ and bringing the two approaches closer together.

Keywords:

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1. Introduction

This article discusses the research conducted within the business network tradition and the social network tradition. The purpose is not only to make conceptual distinctions between the two approaches, but also to describe their similarities. In
doing so, an attempt will be made to bridge a gap that now exists across the Atlantic—between the research traditions of Europe, especially Scandinavia (which have tended to concentrate on business networks) and those of the USA (which have concentrated on the social network tradition). The business network approach and the social network approach have not previously been utilised in a complementary fashion in network research. By combining the strengths of each approach in such a complementary fashion, it is anticipated that a more effective approach will be developed than either taken alone. A cursory consideration of these two concepts might conclude that a quantitative approach is used in the USA and a more qualitative approach is used in Scandinavia. However, this is simplistic and it is essential to discuss the conceptual points of comparison and difference in more detail.

2. The History of the Different Network Research Traditions

2.1. Business Networks

The business network approach that emerged in the 1980s was based on earlier research in Sweden, also known as part of the ‘Uppsala tradition’. According to two leading researchers in the development of this approach, Johanson and Mattsson (1994), there are three different strands to the development of the ‘Uppsala tradition’—(i) distribution costs and systems; (ii) industrial structural change; and (iii) internationalization. All three share a strong empirical orientation. They also have a shared theoretical background—based upon microeconomic theory, marketing theory, and organization theory.

The business network approach has been frequently used to study distribution-channel dynamics. If both parties are active, it is assumed that both parties influence the structure of the network. Studies have therefore been made of the management of the structures and the relationships. From a strategic point of view, the focus has been on how to establish, build, and maintain stable relations and positions within the network. The network approach stimulated new research initiatives within studies of the internationalization process—as entry into new markets was also considered to be entry into new networks (Johanson & Mattsson 1994).

According to Johanson & Mattson (1994) the interaction approach was developed in Håkansson & Snehota (1976) “which contended that industrial marketing is primarily an organizational problem that must be seen in an interorganizational perspective”. The interaction approach was based on social exchange theory (cf. Blau...
1964, Homans 1950) and “yielded an understanding of how long-lasting business relationships are established and developed” (Johanson & Mattsson 1994). The interaction approach became more developed in a European project, the so-called ‘IMP project’. In developing the IMP project several new countries in joined in, and the sample sizes upon which the research was based grew rapidly. To examine the interaction approach in more detail, some factors need to be pointed out. According to IMP group (1982) the interaction approach assumes:

- that buyers and sellers are both active participants in the market;
- that the relationship is long term and close, and that it involves a complex pattern of interaction between companies (and within each company);
- that the links become institutionalized into a set of roles, which each party is expected to perform; and
- that close relationships are often considered in the context of continuous supplies of raw materials and components.

The four basic elements of the interaction approach are: (i) the interaction process; (ii) the participants in the process; (iii) the environment in which it takes place; and (iv) the atmosphere affecting and affected by the interaction (IMP Group 1982).

The IMP project was also influenced by interorganizational theory and the emerging transaction-cost approach. Interorganizational theory focuses on relationships among organizations mainly in distribution channels rather than on relationships within a single organization. Three sub-categories on the basis of differences in the relationships between the organization and its environment can be found as suggested by Van de Ven, Emmit, and Koenig (1975) in IMP Group (1982) — (i) organization-based studies; (ii) studies based on several organizations; and (iii) studies putting the organization in a societal context. This approach clearly emphasizes analysis of the exchange process, whereas the organizational-system approach emphasizes the technology employed to execute the exchange process. The transaction-cost approach (cf. Williamson 1975, 1985) argues that the option of selecting partners in the market is free to everyone, but that it is still not a viable alternative due to the transaction costs inherent in the choices made. Transactions are not taking place in a neutral environment; rather, transactions modify (and become modified) by exchange relationships. (IMP Group 1982)

Even if the later IMP approach has taken influence to some extent from the transaction cost approach, the advocates of the interaction approach did not
incorporate ideas from the transaction-cost approach into their view; rather, they have argued against it (cf. Johanson & Mattsson 1987). Just like the advocates of the social network approach have done (cf.Granovetter 1985).

A diagrammatic representation of these historical matters, which merged in what is here called the business network approach is presented in Appendix 1.

2.2. Social Networks

In the past, networking concepts have been utilized in various fields—including physics, biology, linguistics, sociology, and anthropology. Because the social network approach has been used in so many varied settings, it is difficult to provide a succinct explanation of how it has attained its current importance.

Social exchange theory (cf. Blau 1964, Homans 1950) has also been essential to the social network approach. Most of today’s research in social networks is derived from what has come to be known as the ‘new economic sociology’. Simmel (1955), who argued for the importance of group composition to understand social life, has provided the classic foundation in social theory for network analysis (Smith-Doerr & Powell forthcoming). According to Swedberg (1991) the major intellectual innovations in economic sociology during the 1980s “have been centered around three major themes: (a) the role of networks in the economy (especially in markets), (b) the structure of different economic organizations, and (c) the role of culture in economic life” (Swedberg 1991).

The categorization of research on the social network idea presented by Kilduff & Tsai (2003) provides a convenient framework for presenting different contributions to this tradition.

The first category includes ‘imported theories’—whereby social network theory has borrowed from other disciplines, especially mathematics (from which network theory borrowed graph theory) and social psychology (from which it borrowed balance theory). The Harvard ‘breakthrough’ of the 1960s and 1970s introduced block-modelling and multidimensional scaling—which emphasized the structure of a network. Harrison White became one of the main persons behind these ideas followed by his scholars e.g. Wellman, Berkowitz and Eccles all using the network approach in different ways. There was no clear unified theory in their approaches, but they were united in their fascination with the methodologies (Scott 1994). (Swedberg 1991, Granovetter & Swedberg 1992)
The second category—‘home-grown or indigenous social network theories’—includes the concept of heterophily theory (strength of weak ties and structural holes) and structural-role theory (equivalence, cohesion). The idea about the strength of weak ties was developed from the Harvard school by Mark Granovetter (1973), also a student of White. Granovetter (1985) also introduced the concept of embeddedness and argued for the use of networks in analyses of the economy in an article immediately recognised by both economists as well as sociologists, which made him one of the leading figures in economic sociology (Swedberg 1991). A student of Granovetter, Uzzi (1996, 1997) developed the embeddedness argument. The idea of structural equivalence was developed also in 1970s by Harrison White. The idea implies that actors occupy equal positions in a network by having structurally comparable ties (Lorrain & White 1971). Coleman (1988) brought forward the importance of cohesive networks but was opposed by his own student Ronald Burt (1992) in bringing forward the importance of structural holes. Burt (1992) argues that firms as well as individuals purposefully work toward structuring or composing their networks through patterns of network use. The discussion about structural holes implies that a central actor in a disconnected network, having a brokerage position gains additional advantages for instance through new and fast information. Contacts are seen as “ports of access to clusters of people beyond in order to reach more diverse social worlds of network benefits” (Burt 1992).

The third category is the ‘exportation’ of network ideas into existing organizational theories. This involves taking organization theories, criticizing them from a social network perspective, and then synthesizing them with network theory (Kilduff & Tsai 2003). In a famous article, Powell (1990) argued that the network form of organizations is clearly identifiable as a possible form of economic exchange that is capable of displacing earlier forms of markets and hierarchies: “In network modes of resource allocation, transactions occur neither through discrete exchanges nor by administrative fiat, but through networks of individuals engaged in reciprocal, preferential, mutually supportive actions”. He also noted that each contact can either be a source of conflict or harmony in a relationship. The communication flowing in a network is very complex, and it is a natural context for learning (Powell 1990). These ideas fit naturally with the business network perspective of how things are related and developed.

According to Scott (1994) there are three main threads in the complex history of various research strands in this subject area. They are sociometric analysis, the exploration of patterns of interpersonal relations (Harvard) and Manchester anthropologists building on both of the earlier strands. A picture of this early history
related specifically to these three strands in social network analysis according to Scott (1994) is presented in Appendix 2.

Can social network theory be considered a theory in itself, or is it a collection of methods from different areas? Despite the fact that there is a growing consensus that networks do matter, there have been debates with respect to conceptual differences. These include debates on network relationships (strong ties vs weak ties), network prominence (centrality and status), network contagion (equivalence vs cohesion), network brokerage (autonomy vs closure), and network dynamics (formation, change, and dissolution). According to Zuckerman (2003) there is no such thing as a social network theory or social network analysis. Instead they are “a set of frameworks and tools for analyzing social structure in its various forms.” Nevertheless, network theory has had (and still has) a significant influence on such disciplines as strategy, organization theory, sociology, and economics. The terms network theory and network approach are here used interchangeably.

3. Theoretical Distinctions between the Business Network Approach and the Social Network Approach

The network approach, as such, broadens the picture by moving the unit of analysis from a single business unit (or actor) to relations and interactions among several actors. Opinions vary on how to view the ties among the actors, but it is agreed that the ties provide different network configurations. Whether one studies parts of a network or a whole network, a broader analysis is required than that envisaged in earlier approaches. The total contribution of the actors in a network goes beyond the contribution coming from any single actor acting alone. In this sense, actors—whether they be individuals or organizations—are forced to see themselves in a wider perspective in which dependency on others is a natural part of being part of a network. The central elements in the network are the actors or ‘nodes’, and the relationships (or ties) among them. Both the structure of the network and the content of the relationships can vary a great deal, and networks are therefore dynamic systems.

The formation and development of a network seldom follows a definite pattern. In some cases, it can develop very quickly due to a particular need. In other cases, exchange relationships develop gradually into a network form of organization (Powell 1990).
The network story is a complex one of contingent development, tempered by an adjustment to the social and economic conditions of the time ... The reduction of uncertainty, fast access to information, reliability, and responsiveness are among the paramount concerns that motivate the participants in exchange networks. (Powell 1990)

As previously noted, the business network approach focuses on the organization and its ties to other organizations and the surrounding environment. Organizations are dependent on the resources, knowledge, and experience that exist in the network in which they operate. According to Håkansson & Johanson (1993), social networks are dominated by actors and their social relations, whereas the activities they are engaged in, and the resources used, are seen as only secondary attributes. In the business network approach, the emphasis is on all three—actors, activities, and resources—putting activities and resources in one dimension, and actors in the other (Håkansson & Johanson 1993).

The social network approach has grown in popularity—because it enables the researcher to study not only actors, but also the relationships among these actors. The interactions among different actors constitute a framework that can be studied in its own right, rather than looking only at the behavior or attitudes of individuals. This separates social network analysis from other approaches (Wasserman & Galaskiewicz 1994). The social network approach focuses especially on relations among actors rather than on attributes of the actors and, at its best, is able to address multi-level issues. It can integrate different methods of quantitative, qualitative, and graphical data (Kilduff & Tsai 2003). According to Smith-Doerr & Powell (forthcoming) the empirical areas covered in the literature of economic sociology is very broad, “including the following analyses of how networks influence economic activity (i) networks represent informal relationships in the workplace and labor market, (ii) networks are formal exchanges, (iii) networks are a relational form of governance in which authority is broadly dispersed”. Attention is drawn to “location within the larger context in which information and resources flow” and finally the assumption is made that “there are increasing returns to investments in relationships and position” (Smith-Doerr & Powell forthcoming). Orienting ideas within the social network approach include among others; networks as sources of information and power (cf. Granovetter 1973, Burt 1992, Powell 1996, Uzzi 1996, 1997), networks as indicators of status (cf. Baker & Faulkner 1991, Podolny 1993, 2001), large scale networks (cf. Barabasi 2001) and network evolution and dynamics (cf. Powell et al. 1996, 2003).
3.1 Characteristics of the Two Network Approaches

The business network approach and the social network approach have developed independently and received different kinds of recognition on two continents even though common sources of origin and inspiration exist. As a result it is only natural that the terminology has developed far apart. Certain terms are important when trying to distinguish between the business network approach and the social network approach. The terms discussed here are: (i) ‘tie’ (or relationship); (ii) ‘role of exchange’; (iii) ‘markets’; and (iv) ‘dynamics’. The first two terms tie or relationship and the role of exchange provide the building stones for a network and are consequently important variables to be clarified in order to discuss and study networks. The term market is an old basic term, in fact not so much discussed. Dynamics on the other hand is a very much discussed fashionable term of today. They are both viewed somewhat differently in the two approaches and are thus considered to be of importance here in the comparison of the two network approaches.

3.1.1. Tie

Social networks and business networks are noticeably different in assessing when a ‘tie’ (or, in business network terms, a ‘relationship’) actually exists. The business network literature has much to say about what constitutes a ‘relationship’, but there is little said about when a relationship actually exists between two companies. A definition of a network given by Håkanson & Johanson (1993) as “sets of connected exchange relations among actors performing industrial activities” does not yet answer the question when. Relationships are maintained by developing production and market assets that fit the needs of the network. The relationships change all the time through interaction, which implies a ‘cumulative process’ of developing relationships that assure a good network position and long-term relationships. The position in the network is seen as a market asset. The relationships between the firms can consist of various kinds such as “technical, planning, knowledge, socioeconomic and legal bonds” (Johanson & Mattsson 1987)

Håkansson & Snehota (1995) have stated that “a relationship is a mutually oriented interaction between two reciprocally committed parties”. The strength of the business network approach is its detailed description of how these relationships are established, how they develop, how they expand over time, and how they decline and dissolve. ‘Sleeping’ relationships, which can be utilized when needed is also included (Hinttu, Forsman & Kock 2004). However, there is no clear definition of when a relationship actually begins and ends. This might be due to the emphasis on
qualitative methods in gathering empirical data. Many of the studies have used the existence of a business exchange as a way of operationalizing the research. However, for comparative studies, the existence of a relationship needs to be defined more precisely.

Within the business network approach, three different layers are used to analyse the content of a business network, namely actors, resources, and activities (Håkansson & Snehota 1995). To carry out activities, resources and actors are needed. All three layers can form their own sub-networks.

In contrast, social networks have a distinctive notion of when ties exist. According to social network theory, at least insofar as it is used in a business context, before a ‘tie’ can be said to exist there needs to be a formal agreement (in the form of a contract) between two companies. The contract also functions as a clear indicator of when a ‘tie’ will end. From a research perspective—in which official records are typically used in gathering secondary data—such formal agreements are used to indicate the existence of a ‘tie’. ‘Sleeping’ ties are therefore excluded from this discussion. However, social networks do acknowledge that formal ties are usually a result of previous ongoing informal ties between two companies—albeit at the individual level (Granovetter 1985).

The social network approach has, thus far, neglected questions about who initiated the tie, who received it, whether it was mutual, or whether the contract means the same thing to both parties. It is unclear whether researchers have been uninterested in these questions or whether they have not had access to data on these matters. Whatever the explanation, these are matters about which most researchers tend to rely on assumptions. They are also willing to make these assumptions in order to get fairly comparable data. In the world of social networks there are no negative ties or even partial ties. The ties either exist or they do not. This significantly simplifies data collection and quantitative analysis. Yet according to Smith-Doerr & Powell (forthcoming) one of the challenges for network research “is to explain their emergence, activation, and durability.”

This might explain why social networks use so much graph theory and focus on drawing various kinds of networks—measuring tie strength, centrality, structural holes, and so on. The greatest weakness of the social network approach is that it overlooks the content of the tie, how the tie develops over time, and how the meaning of the tie changes. Social networks are too much focused on technical models and statistics, and neglect the connection between the micro-level and the macro-level (Kilduff & Tsai 2003).
Rather than using the terms ‘social and business relationships’ or ‘ties’ in speaking of interorganizational business relationships, an old distinction should be reactivated by using the terms ‘informal relationship’ and ‘formal relationship’—thus connecting them with the terminology of personal networks. Just to give an example: “Two experts from two different companies having coffee is a social contact between the experts and an informal contact between the companies. A contract based on those informal and social contacts is a formal relationship between the companies”.

3.1.2. Role of Exchange

In the business network approach exchange takes place through interaction between individual actors mutually active in the process. Relationships between two actors connect their activity structures with each other.

_In the network approach, the role of exchange is to coordinate the activities and resources controlled by one actor with the activities and resources controlled by another actor […] Instead of focusing on the allocation of resources, the network approach is interested in the creation and coordination of resources through interaction in network relationships._ (Johanson & Mattsson 1994)

The number and type of activity links in a relationship vary. Interdependence and prior experience are both important in the two network paradigms (Johanson & Mattsson 1994; Håkansson & Snehota 1995). The role of exchange in a business network can be considered a process, whereby the firms learn over time (through the exchange process and through social interaction) to cooperate and coordinate their interests (Blankenburg Holm, Eriksson & Johanson 1996).

People have different social roles in their interactions with others within a business relationship. The trust and commitment among people are of great importance for the development of a business relationship. Håkansson and Snehota (1995) stated that actors often meet in different arenas, and consequently play various roles. Depending on the context, the private and business roles might be complementary or contradictory. However, as people meet each other more often in different arenas, they learn more about each other. These experiences might not always be positive, but they are still of importance for the development of the business relationship. Every person has a social network of his or her own, which is built up for different reasons and can be used in various ways to improve a business relationship (Håkansson & Snehota 1995)

According to Powell (1990), networks are very useful in cases in which the exchange involves properties that are difficult to value. He gives examples of things such as
‘know-how’, technical skills, a certain production approach, or innovation—which are all difficult to put ‘price tags’ on. Reciprocity is therefore central to the network discussion, and is prominent in both network disciplines for this reason. However, the business network does not totally agree with Powell (1990) in his assertion that a network perspective is more useful when values are difficult to measure. The central thought is that the whole market is a network in itself—in which various market prices are part of the picture. The concept of reciprocity is important in both network traditions. However, for the business network, reciprocity is more of a relational attribute. Both parties in a relationship (or all members in a network) need to feel that they get some value added by being part of a network—both at the organizational level and at the individual level. By creating mutual understanding, the parties involved are more adept at jointly solving problems when these occur (Uzzi 1997).

### 3.1.3. Markets

According to Swedberg (1994), in both economic theory and sociological theory surprisingly little has been said about the market itself. However, sociologists have recently made attempts to show that markets do not consist only of buyers and sellers entering into exchange with one another. Rather, markets are distinct networks of interaction. Weber (1922) has suggested in Swedberg (1994) that a fuller understanding of the market requires two elements to be taken into account—exchange and competition. “More precisely, social action in the market begins according to Weber as competition but ends up as exchange” (Swedberg 1994).

The business network approach perceives a market as consisting of interconnected exchange relationships—including both positive and negative connectedness. This means that interaction between two parties cannot be analyzed in isolation. Rather, it must be seen in a broader network context including producers, sellers and buyers and their direct or indirect relationships. Hence both complementarities and substitutes are part of the network. This approach has a conception of the whole market as a network and accordingly has also been called “the-market-as-network approach”. It differs significantly from the social network approach in that there cannot be any ‘isolates’ in a network or in a market. Most relationships are long term due to specific adaptations made and involve multiple relationships (both between companies and internally). Significant resources are put into maintaining these relationships, and the links become institutionalized over time, taking the history of the relationship into account. These relationships can be positive and negative—that is, they include both competition and cooperation. (Bengtsson & Kock 1999, Hertz & Mattsson (forthcoming), IMP group 1982).
The market can be seen as a connectivity structure, which is reconfigured due to strategic actions to change the market structure. ... Markets are not objectively given structures but subjectively perceived and dynamic contexts for economic action. (Hertz & Mattsson, forthcoming)

Mizruchi (2003) declares that with the publications of Architecture of Markets by Neil Fligstein (2001) and Markets from Networks by Harrison White (2002) there now exist two major statements serving as a basis for sociology of markets. In the first book, Fligstein points out that markets are socially constructed and reflect a historical process. Markets are recognized collections of firms and the market cannot reproduce itself without property rights, governance structures, rules of exchange, and conceptions of control (Mizruchi 2003). In the second book the main idea White has is “that firms who are the main producers in a potential market signal one another their intentions about how much to produce and at what quality”. Markets are “interfaces”, where firms create a niche for themselves in adjusting themselves and finding a place in the production process where others do not operate. According to White a production market is composed of firms, which deal with uncertainty by producing what White calls “role structure”. (Greif 2003, Mizruchi 2003, Fligstein 2003).

According to Zuckerman (2003) one approach to view the market through a network lens is to see the ties as market exchanges and assign importance to the network, because opposed to expectations by “orthodox market models”, it is more concentrated and patterned. Another view is to regard networks as economic interactions shaped by pre-existing social relationships. A third view, where market dynamics are probably least relevant, is to view the relationships between two firms as different in type and strength but as a base for mutual orientation. While both economists and sociologists identify the occurrence of concentrated market exchange and agree that network studies may shed light on outcomes, they do not seem to agree on its implications. (Zuckerman 2003)

The social network perspective takes mainly positive ties into account including ‘isolates’ and neglects negative ties. Even customers are not always considered as part of the market. Neglecting customers or buyers and including only positive ties is contradictory to the business network view of a market. Thorelli (1986) also includes negative ties in his concept of a network: “networks may also comprise competitors, even in antitrust-conscious America”. Baker et al. (1998) have combined dynamics with market relationships in asserting that these are a function of three forces—competition, power, and institutional forces.
3.1.4. *Dynamics of Networks*

The business network approach emphasizes the dynamic nature of a relationship. How the exchange relationships are established, how they develop, and how they are preserved are all important features. According to this tradition, all three provide a base for future exchange. As Johanson and Mattsson (1994) observed: “It emphasizes dynamic, individual and interconnected exchange relationships within systems that contain interdependencies of both a complementary and a substitutive nature”. Transactions take place within the relationship and, over time, there is mutual adaptation of different dimensions between the firms. Adaptations are important because they strengthen the ties between the firms and make them more endurable as well as indicate a span for change within the relationships (Johanson & Mattsson 1987).

The relationships define the position of the actor in the network—which reflects a stable view of a network (Anderson et al. 1998). Even if the total pattern of the business network seems to be stable, the existing relationships can vary in both content and strength (Håkansson & Snehota 1995). Stability received some emphasis in the earlier work of the business network tradition, but the emphasis has now moved towards a more changing environment. Due to the connectedness of the various business relationships within a business network, changes in one part of the network will produce change throughout the whole network. Change and stability might appear to be contradictory concepts, but they actually coexist. This means that both stability and change are important factors when discussing network dynamics from a business network perspective (Johanson & Mattsson 1987). Stability might be dominant at one time whereas dramatic changes take place at other times (Håkanson & Johanson 1993). There is never a stable network structure. As Håkansson and Snehota (1995) observed: “It is a structure with inherent dynamic features, characterized by a continuous organizing process”. Network governance is inherently dynamic, which makes network governance seem somewhat unstable because power struggles produce a restructuring of the dynamics (Håkansson & Johanson 1993). In accordance with this tradition, Anderson et al. (1998) argued that dynamics can be understood in terms of the interplay among the positions and roles of the actors. According to this view, dynamics are a consequence of how actors understand their own roles and give them meaning.

Sometimes a lot of effort, invisible to outsiders, is put in to maintaining status quo in a relationship. In business network terms, dynamics can mean change and development within a relationship. Adaptation may not only take place among external ties, but within an existing relationship, and therefore the relationship is
continuously changing. As observed by (Ford et al. 1998) change describes a shifting meaning in the relationship. A varying set of resources among partners, or perhaps a changing set of dependencies are part of the development process within a relationship. This is a very different view from how social networks view dynamics.

According to Thorelli (1986), an understanding of network dynamics involves entering into a network and positioning the actor among the other network members. A new entrant might also cause the existing members of the network to adjust and be re-positioned. The social network approach has made some progress in looking at dynamics within dyads. However, until recently, less attention has been given to the evolution of entire networks. Gulati and Gargiulo (1999), in analyzing dyads, demonstrated that networks are formed not only through exogenous factors (such as interdependence), but also through an endogenous evolutionary dynamic in terms of methods of partner selection. As Gulati and Gargiulo (1999) observed: “Actors not only react to conditions of their own making but in the process reproduce and change those very conditions”. New research is also being done on the question of dynamics within an entire network, such as research among biotech firms. (Powell et al. 2002). However, dynamics in this setting have to do only with the formation and dissolution of ties and with the appearance and ‘death’ of nodes. This is very much in accordance with Thorelli’s (1986) arguments—in contrast to the business network approach. The emphasis is not on the development within a tie, but how it changes among different partners. By looking only at the existence or non-existence of ties, there might be an apparent change in a network picture over time. But the formal ties might well have developed a different set of meanings during this time—as compared with their meanings when they were first established. This development and change of meaning will be missing entirely from the picture.

3.2. Methodological Points of Interest

3.2.1. Context

Research using the business network approach has so far been conducted only in industrial settings. However, it has included a range of institutional actors. Networks among small entrepreneurial firms have been covered, as have networks involving large industries—including the selling of both products and services. The business network approach is not restricted to the present, but also takes into account the past and future of relationships (Johanson & Mattsson 1992). Interpretations by the actors are influenced by memories of the past and expectations about the future. There are no set boundaries for a network, and the whole market is seen as a network. This is,
however, a limitation when looking at when a relationship begins and ends. This is also why ‘isolates’ are not possible—as was discussed above.

Research on social networks makes clear distinctions about what can be part of a network in various settings. Even if informal relations are considered to be important they are seldom part of the picture. Mostly anything apart from a formal contract is left out of the picture, Research has been conducted in various settings—within and among the public, private, and non-profit sectors. Networks have been studied over time, but only by taking snapshots for each year. The development of the content of the tie has as a result been overlooked and is thus included in the addressed criticism towards network research.

3.2.2. Level of Analysis
Within the business network research, analysis has focused mainly on the interactions among and within organizations—on focal firms or egocentric networks, dyads, or parts of networks. The personal level has not yet received as much attention. Because a qualitative approach has usually been utilized in gathering and analyzing the data, it is understandable that fewer measurable concepts have been used.

In the social network approach, a wider range has been studied—including relationships among individual actors, dyads, and entire network structures. Using social networks in a business context, dyads and whole networks have most commonly been studied—but ‘isolates’ have also received attention. Important concepts at the level of the whole network include density, centrality, and reachability of actors in the network—and the extent to which network relations are balanced. Important concepts at the level of the individual tie include tie strength, reciprocity, and multiplexity of ties. Measurable concepts, which clearly rise above the qualitative aspects, are possible in this approach—by using secondary data and having access to large datasets. (Kilduff & Tsai 2003)

3.3. Addressed Criticism
In their fascination with striking sophisticated visual software programs that produce attractive pictures of networks, many researchers in the field of social networks have forgotten about the content of the ties. In their assessments, positive ties exist—but without any assessment of their substance. In this sense, the picture provided is clearly inadequate. According to Smith-Doerr & Powell (forthcoming), may the overemphasis on structure lead to considering all ties as comparable thereby totally neglecting content and context. Smith-Doerr & Powell are well aware of the
criticism addressed and thus point out that quantitative and qualitative studies of networks need to be more integrated.

Smith-Doerr & Powell (forthcoming) are also building a foundation for a bridge across the Atlantic by referring to the market-as-network approach (here called the business network approach) as an answer to a more process-oriented and case-based approaches needed for addressing detailed answers to the question of the content of the tie. A necessary limitation to these studies is that they have been conducted mainly on dyads or single focal firms. This it at least a step in bringing the network approaches closer to each other. Another criticism addressed towards networks studies is that the networks are often of a static character, but solutions are now being provided by analysing dynamics in dyads and in looking at the evolution of entire networks. A third point of critique is that social network studies of relationships do not take into account larger concerns with politics and institutions (cf. Fligstein 2001). As an answer to this Smith-Doerr & Powell refer to the core insight of Simmel (1955) that “networks are webs of cross-cutting affiliations” they are not segregated into distinct spheres. (Smith-Doerr & Powell forthcoming) Still much needs to be done in the world of network research in order to rise above the addressed critique.

4. Possible Connections and Future Research

Although the two approaches share much in common, there has been little cross-fertilization between them. However, both approaches assert that networks can provide opportunities and advantages to the parties involved. Much would be gained by more work on ‘bridging the Atlantic’ and bringing the two approaches closer together. They both recognize that networks are to be seen in a social context. Reciprocity, embeddedness, and the roles played by the actors are important notions in both approaches. The most suitable meeting arena would probably be within economic sociology, where most of the original ideas were taken. Powell and Smith-Doerr (1994) stated that: “The remedy for the apparent primacy of method over substance in network research is to bring the content of ties, rather than merely the structure formed by these ties, back in”. This comment can be validly applied to a comparison of the two approaches.

The notion of dynamics could be a useful way of connecting the two approaches—thus enabling each to gain benefits from the other and simultaneously overcoming the critique of static networks. Another dimension worthy of exploration in seeking connection between the two approaches is in their methodology. Qualitative work dominates the business network approach, whereas quantitative work dominates the
social network approach (even if there is some qualitative work in the latter). In accordance to the request from Smith-Doerr and Powell (forthcoming), the whole picture would become more complete if researchers used multiple methods of gathering and analyzing data. This is likely to become the case in the future, even if most academic journals still tend to use only one method or the other. As Powell and Smith-Doerr (1994) so wisely noted: “Systematic, transferable methods for studying both the form and the content of linkages are needed”. This comment is as valid today as it was a decade ago.

5. References


Appendix 1

History of the business network approach

- Micro-economic theory
- Modelling theory
- Organisation theory

- Distribution costs and systems
- Industrial structural change
- Internationalisation

UPPSALA TRADITION

Social exchange theory \(\rightarrow\) INTERACTION APPROACH

- Interorganisational theory
- IMP PROJECT
- Transaction cost approach
Appendix 2

The lineage of social network analysis according to Scott (1994)
Entrepreneurship Research on Network Processes: A Review and Ways Forward

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Although entrepreneurship research on networks has studied issues pertaining to network content, governance and structure, we believe it requires a greater understanding of network processes. In this paper, we review how the entrepreneurship literature interprets and applies the concept of process to the study of networks. This allows us to identify areas for future investigation. Our work is also informed by social network theory and research on dyadic interactions in business networks. The paper concludes by presenting a theoretical framework for conceptualizing and studying the various processes associated with network development.

Introduction

In recent years, an interest in networks has permeated entrepreneurship research. A review of network research by Hoang and Antoncic (2003) demonstrates that the entrepreneurship literature emphasizes network content (the nature of relationships and the resource access they provide), network governance (how networks and resource flows are coordinated) and network structure (the patterns of relationships within the network). In their discussion, studies are categorized as either: (1) focusing on how networks impact the entrepreneurial process; or (2) focusing on how entrepreneurial processes impact network development. This categorization is consistent with Borgatti and Foster’s (2003, p. 1000) observation that a “fundamental dimension distinguishing among network studies is whether the studies are about the causes of network structure or their consequences.” In this article, we build on Hoang and Antoncic to examine how the entrepreneurship literature views networks and how it interprets and applies the concept of process to the study of networks. We also assess other approaches to conceptualizing and studying networks and use this comparison to identify a number of issues for entrepreneurship research. Finally, we develop a theoretical framework to capture the various processes associated with network development. The background to this research and our specific research objectives are outlined in the next section.
Background

A primary contribution of Hoang and Antoncic (2003) is their timely and rich critique of the network literature in entrepreneurship that culminates in directions for further inquiry on network process issues. This stimulated our thinking for the current research for three reasons. First, we note that in the relatively short period of time since Hoang and Antoncic, a number of studies focused on network processes have appeared; studies that could be examined with the sole purpose of understanding process-related issues. Related to this, we are aware of other, earlier, studies that escaped Hoang and Antoncic’s attention; studies that could also provide insight.

Second, we note that while Hoang and Antoncic (2003) imply the need for research that addresses the concept of process, it is not clear how they interpret this concept nor how process may have been defined in past entrepreneurship network literature. For example, while Hoang and Antoncic seem to consider process as involving general sequential activity, Van de Ven (1992) explains that a developmental sequence of events can be explained by four different abstract ideal theories. He also suggests that the developmental view of process is the least understood with researchers more likely to adopt other meanings of the concept. That is, where process is viewed as a logic to explain causation between variables or alternatively, variables are measured over time to capture change. This complexity around the “meaning of process” provides another opportunity for our study since we believe it is important to understand the various meanings used to guide the theoretical arguments and empirical investigations of networks in entrepreneurship.

Third, as a result of conducting our own research we are aware of the range of scholarly areas interested in network phenomena. Thus, while we agree with Hoang and Antoncic’s (2003) approach to their review, we see the opportunity for an extension that would: (1) focus on process-related network literature in entrepreneurship, but also, (2) import knowledge from other approaches to help inform future entrepreneurship research.

Following from this, we have a number of specific objectives for this study. First, we extend Hoang and Antoncic (2003) by assessing other network process literature published since their review or not included in their original arguments. This allows us to develop a greater understanding of network processes and to identify areas worthy of further attention. Second, we combine the research from our review with that discussed by Hoang and Antoncic to assess which meaning(s) of process are applied by entrepreneurship scholars as they study networks. This provides insight as to how our understanding of network phenomena reflects the interpretation of process we use. Third, since networks have been studied outside entrepreneurship, scholars can likely benefit from being familiar with different perspectives on the topic (Berry et al., 2004; Zahra, 2007). Consequently, we compare two particular approaches with the entrepreneurship literature in order to identify issues relevant to future research. One has its roots in sociology and focuses on measuring the structure of networks. The other is commonly found in the industrial marketing literature, and emphasizes dyadic interactions within the network. As an outcome of addressing these objectives, we identify the need to more fully conceptualize network development processes. Accordingly, we advance a theoretical argument on this issue. This effort integrates multiple views of process, multiple levels of analysis, and multiple perspectives on network development. We now begin by reviewing the conclusions of Hoang and Antoncic and the meaning of “process.”
Early entrepreneurship research focused on the characteristics of the single entrepreneur. Scholars then began to question: (1) why entrepreneurs were viewed in isolation, and (2) why the entrepreneurial process was separated from other social phenomena. This led to research examining “the causes and consequences of embeddedness in the entrepreneurial process” (Hoang & Antoncic, 2003, p. 167). In particular, Birley (1985) recognized that networks play a catalytic role in organizational emergence, and Aldrich and Zimmer (1986, p. 17) proposed a perspective “which views entrepreneurship as embedded in networks of continuing social relations.” Since these studies, networks have been embraced as an instrument for investigating the creation and development of new ventures. This is largely because networks have been shown to improve entrepreneurial effectiveness by providing access to resources and competitive advantage without capital investment.

In a detailed review of network research in entrepreneurship, Hoang and Antoncic (2003) assess the then-extant literature and define two categories of research. The first positions the network as an independent variable by trying to understand how networks affect the entrepreneurial process and outcomes. The second positions the network as a dependent variable by focusing on how entrepreneurial processes influence network development. Contributions from each category are identified as they relate to understanding the content of network relationships, network governance, and network structures. From this base, a set of recommendations are offered. For example, Hoang and Antoncic identify the need to improve our understanding of networks as an independent variable by using longitudinal research to examine how the network shapes the opportunities being pursued or how different governance characteristics affect entrepreneurial outcomes. Recommendations for research where the network is positioned as the dependent variable include understanding the influence of the entrepreneur on the network and examining how interorganizational relationships are developed at the dyadic level. Underpinning all these ideas for research is a conceptualization of process that is characterized by change. For example, implicit in the argument for longitudinal research is the need to track change. Similarly, understanding how dyads are developed or how the network shapes an opportunity implies a need for process research that reflects changes over time.

Beyond change, however, what is actually meant by the term “process”? As argued by Van de Ven (1992), scholars tend to adopt different meanings for this concept; meanings which then influence the questions, methods, and contributions of their research. In an effort to reduce confusion in the strategy literature, Van de Ven delineates three meanings of process: (1) when a process logic is used to explain a causal relationship between variables, (2) where concepts are operationalized as a process construct and measured to assess their change over time, and (3) where process is depicted or described using a developmental event sequence.

Within the latter meaning, Van de Ven and Poole (1995) outline four underlying theories of explanation. First, one might apply life cycle theory to describe a linear and prescribed sequence of events. Second, one might adopt a teleological approach by arguing that an end goal is obtained through a discontinuous and adaptive approach manifest in cooperation. Third, a dialectic view would argue that a discontinuous sequence is driven by ongoing conflict or contradiction that resolves itself by balancing power from opposing forces in the development of the entity in question. Fourth, the evolution-based argument would suggest that development is a function of competitive survival whereby change is environmentally influenced and proceeds through a continuous cycle of variation, selection, and retention.
Distinguishing the meanings of process does not however, suggest they are independent. Indeed, Van de Ven and Poole (1995) note it is logical to assume that theories can be combined. One example is Greiner’s (1972) model of organizational development depicting a progression of stages for the entrepreneurial firm where each stage and development within it is triggered by conflict and synthesis. This model is argued by Van de Ven and Poole to reflect a combination of the life cycle and dialectic theories within the general meaning of process that refers to a developmental event sequence.

Having summarized Hoang and Antoncic’s (2003) arguments and clarified how the concept of process might be interpreted, we turn to a discussion of the entrepreneurship literature pertaining to network processes.

**Reviewing the Network Process Literature**

In this section, we first consider conceptual arguments and then turn to empirical studies. Our focus is on research published post-Hoang and Antoncic (2003) or not included in their original review. We then discuss which meaning(s) of process seem to be applied in the extant literature and how this influences our understanding of network phenomena. Finally, we examine how other areas of scholarly inquiry view networks and issues of process. To maintain focus in our review, we restrict our efforts to understanding the contributions of those studies focused on either how networks affect the entrepreneurial process and outcomes, or how the entrepreneurial process and outcomes influence the network. Accordingly, we do not address literature at the network/entrepreneurship interface specific to (for example) immigrant entrepreneurs, social capital, or internationalization. While such research is important, each represents a significant body of literature in its own right and as such, their examination is beyond the scope of this article.

**Contributions to Our Understanding of Network Processes**

Hoang and Antoncic (2003) specifically call for further research on network development processes and our search to extend their work identified six empirical articles focused on this topic. The other eleven articles pertain to how networks influence entrepreneurial processes. Beyond these seventeen studies, only one conceptual argument is identified (Hite & Hesterly, 2001). We note this because Hoang and Antoncic also identify a single theoretical contribution: Larson and Starr’s (1993) model of organizational formation. This dearth of conceptual work appears to support the concerns of Busenitz, West, Shepherd, Nelson, and Zacharakis (2003) and Zahra (2007) that theory building is a challenge for entrepreneurship researchers. This is perhaps because process-variables are “...messy and difficult to capture” (Zahra, p. 448).

If we consider Larson and Starr (1993) relative to Hite and Hesterly (2001), the former discusses how the entrepreneurial firm’s network develops through three stages. Within each stage, there is a process of exploring, selecting, and using dyadic ties. This process is driven by the entrepreneur or firm, and actions are shaped by the actor’s social context. Larson and Starr argue that over time, the network reflects increasing density, complexity, and interdependence of actors, leading to the creation of an organization. In comparison, Hite and Hesterly argue that networks change from being identity-based to more calculative and the network shifts from being dominated by socially embedded ties to having a balance of embedded and arm’s-length ties. As the firm develops, the initially cohesive network is expected to shift to one that is sparse or loosely integrated, and characterized
by structural holes. The network also shifts from being path-dependent (reliant on history and chance) to one that is more proactively or intentionally managed by the entrepreneur. Hite and Hesterly’s concluding argument is that new firms can benefit from networks that are cohesive (following Coleman, 1988) but also networks that emphasize structural holes (following Burt, 1992). As such, they suggest that one type of network will serve the firm at emergence and another will be more appropriate at early growth. The network and organization are seen to co-develop and are understood relative to the environmental influences or challenges of resource availability, access, and uncertainty.

Drawing these two conceptual arguments together, we see that Larson and Starr (1993) and Hite and Hesterly (2001) both agree that networks become more complex over time. Both also portray process as a developmental course of activity and base their arguments on a rational-action view whereby entrepreneurs create and manage their networks; networks that are adapted and aligned to gain resources. Interestingly, while both contributions focus on describing network development, the Larson and Starr model is one of “organizational formation” and Hite and Hesterly (p. 275) develop arguments to explain which kinds of networks are “more conducive to the success of new firms.” Thus, the intent of both arguments can be placed in Category 1 where the network is an independent variable, although each can straddle both categories identified by Hoang and Antoncic (2003).

A notable point of difference in the two conceptualizations is that Larson and Starr (1993) emphasize the relational dimensions of dyads and argue that with time, the network becomes increasingly dense. In contrast, Hite and Hesterly (2001) emphasize the structure of the overall network and argue that network density and cohesion will decrease. We suggest that this “difference” might be more usefully considered as complementary, since the broader arguments provide a conceptual basis for understanding both dyadic relationships and the overall network and allows for the network to be viewed as either a dependent or independent variable (or both).

Turning to the empirical literature addressing network process issues, our review identified 17 articles either published since Hoang and Antoncic (2003) or not analyzed by them. Each of these articles can be placed within Hoang and Antoncic’s two categories for analysis. We begin with Table 1, which summarizes the empirical studies we identify with Hoang and Antoncic’s Category 1 (where the network is positioned as an independent variable). One group of studies emphasizes analysis at the level of the dyad. For example, Elfring and Hulsink’s (2003) case research shows that a mix of strong and weak ties influences how the start-up discovers opportunities, secures resources, or obtains legitimacy. They also highlight the context of radical innovation, where strong ties are emphasized for securing resources and weak ties help obtain legitimacy. This adds to Hoang and Antoncic’s discussion about when strong and weak ties impact entrepreneurial processes.

The various ethnographic studies by Jack also expand our understanding of tie strength and in particular, Jack, Drakopoulou Dodd, and Anderson (2004) demonstrate the need to move from the dichotomy of strong vs. weak ties toward a more multiplex perspective. That is, where ties are differentiated not only by intensity, but also the content of the relationship. This is extended by Jack (2005) who argues for an appreciation of information requirements, tie usefulness, and trust. She also notes the existence of dormant ties; ties which may awaken or be re-activated later in time. Interestingly, the

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1. Tables 1 and 2 include a summary of both: (1) the studies identified in the current research, and (2) those discussed in Hoang and Antoncic (2003). This facilitates the later discussion on how process is interpreted in the extant literature but the current section is focused on the literature not included in Hoang and Antoncic.
Table 1

Empirical Studies on “Networks as an Independent Variable” Assessed by Van de Ven’s (1992) Meanings of Process

<table>
<thead>
<tr>
<th>Hoang and Antonic (2003) Category</th>
<th>Source</th>
<th>Authors</th>
<th>Process as a logic to explain causation</th>
<th>Process as a category of concepts to be measured for change</th>
<th>Process as a developmental sequence underpinned by</th>
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<tbody>
<tr>
<td></td>
<td>Donckels and Lambrecht (1995)</td>
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<td></td>
<td>Littunen (2000)</td>
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<td>Havnes and Semenst (2001)</td>
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<td></td>
<td>Jack and Anderson (2002)</td>
<td>✔</td>
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<td></td>
<td>Elfring and Hulsink (2003)</td>
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<tr>
<td></td>
<td>Lechner and Dowling (2003)</td>
<td>✔</td>
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<td></td>
<td>Jack et al. (2004)</td>
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<td></td>
<td>Jack (2005)</td>
<td>✔</td>
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<td>🍀</td>
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<td></td>
<td>Lechner, Dowling, &amp; Welpe (2006)</td>
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<td></td>
<td>Watson (2007)</td>
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<td></td>
<td>Birley (1985)</td>
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<td></td>
<td>Zimmer and Aldrich (1987)</td>
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<td></td>
<td>Greve (1995)</td>
<td>✔</td>
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<tr>
<td></td>
<td>Hansen (1995)</td>
<td>✔</td>
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<tr>
<td></td>
<td>Zhao and Aram (1995)</td>
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<td></td>
<td>Uzzi (1996)</td>
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<td>Human and Provan (1997)</td>
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<td>Uzzi (1997)</td>
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<td></td>
<td>Brüderl and Preisendorfer (1998)</td>
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<tr>
<td></td>
<td>Baum, Calabrese, &amp; Silverman (2000)</td>
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<td></td>
<td>Davidson and Honig (2003)</td>
<td>✔</td>
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</tbody>
</table>

✔ — primary meaning attached to “process.”
维奇 — context or framework within which study is conducted and results presented.
◆ — concluding view (model or argument) regarding process.

Life cycle  | Teleology  | Dialectics  | Evolution  
--- | --- | --- | ---
various studies by Jack show little evidence of weak ties in venture development. Her results do, however, indicate that strong ties provide both opportunities and constraints to the new venture, thus supporting Elfring and Hulsink’s (2003) observations on the risks of overembeddedness.

Consistent across all of Jack’s work is her argument that a process of embedding is necessary. That is, rather than simply developing ties, the new venture must actively become part of and maintain its network, a view consistent with Larson and Starr (1993) and Hite and Hesterly (2001) and the general literature that argues networks are embedded in economic and social relationships (e.g., Granovetter, 1985). Jack and Anderson (2002) also emphasize the need to understand the broader environment in terms of its social and spatial context, since the entrepreneur draws from his/her local environment and contributes to it. Equally, they note the endogenous influence of the founder’s motives on (for example) locational decisions. Jack (2005, p. 1253) also implies the need to examine relational issues at two levels: (1) the dyad; and (2) the broader network, observing that: “the nature of networks is about the links and bonds that form the foundations of the network and shape its structure.”

Notable in Category 1 are the studies we found that are interested in the influence of network change on venture development; a focus not apparent in Hoang and Antoncic’s (2003) review. For example, Butler and Hansen (1991) use longitudinal qualitative data to identify how social, business, or strategic networks are used through stages of venture development. They focus on the purposeful development of action sets and note these supplement the social role sets of the actor. While the role of strategic networks is confirmed in the final stage of network development (“ongoing business”), social networks play a significant role in all phases of organizational development. Important in this study is the impact of the environmental context in terms of industry influences and demand patterns.

Taking a slightly different approach, Lechner and Dowling (2003) and Lechner et al. (2006) focus not on the type of network (in the sense of social vs. business) but the benefits it offers in different stages of venture development. For example, Lechner and Dowling’s case research shows that social and reputational networks decrease in importance over time, while the importance of co-operative networks increases. These results are summarized in a staged model of organizational development for high growth firms as it relates to network composition. Then, Lechner et al.’s follow-up survey research provides insight as to which ties forming different types of networks, matter when. At start-up, for example, cooperative technology networks negatively impact performance, since they signal that the firm is not yet ready to exploit opportunities. In contrast, marketing information networks positively impact sales after start-up.

The work of Lechner et al. (2006) is notable in its efforts to include performance as an outcome variable, an area of weakness in the literature identified by Hoang and Antoncic (2003). Other research taking this approach includes Donckels and Lambrecht’s (1995) study of the impact of network characteristics on small-business growth, Littunen’s (2000) study of how network characteristics influence the start-up vs. operational phases of growth, Havnes and Senneseth’s (2001) panel study examining the impact of network size on performance at different points in time, and Watson’s (2007) efforts to model the impact of certain advice network characteristics on survival, growth, and ROE. This suggests that although research linking networks to performance is needed, we do have some data as to how network characteristics must be understood and managed for the benefits they provide to the venture over time and at specific stages of development.
Generally common to the research placed in Category 1 is the use of cross-sectional data to compare variables across defined stages. While this is a practical approach to data collection, it highlights Hoang and Antoncic’s (2003) concern regarding the methodologies used in network process research since cross-sectional studies do not capture the dynamics of change. Even those studies using historical data (Havnes & Senneseth, 2001; Littunen, 2000; Watson, 2007) only capture surface-level patterns of change because their focus is on testing causal relationships.

We now turn to Category 2, where networks are considered to be the outcome of an entrepreneurial process, i.e., a dependent variable. As seen in Table 2, we identify six new studies beyond Hoang and Antoncic (2003).2 One of these (Greve & Salaff, 2003) offers a (rare) international comparison of how different phases of establishment impact the network. In an approach reminiscent of Butler and Hansen (1991), this study uses cross-sectional survey data from the United States, Italy, Sweden, and Norway to assess how advice networks differ across the development phases of motivation, planning, and establishment. Rather than finding network stability, Greve and Salaff show that the smallest networks are used in the first phase of development. These grow in the second phase, but then decrease and become more focused in the third phase.

Of the remaining five studies, three provide a retrospective analysis (Hite, 2005; Larson, 1991; Lorenzoni & Ornati, 1988) and two offer a longitudinal perspective to understanding networks (Schutjens & Stam, 2003; Steier & Greenwood, 2000). A notable pattern across Category 2 studies is therefore the use of methodological designs that provide time-sensitive insight and fine-grained data regarding network development issues—designs argued by Hoang and Antoncic (2003) to be lacking in the entrepreneurship literature.

The most recent example of a Category 2 type of investigation is from Hite (2005). She employs case research to understand how the entrepreneurial firm transforms network ties toward full relational embeddedness. Her results show that the shift is influenced by network entry, social leverage, and trust facilitation, and she describes a dynamic and strategic picture of transformation. Hite also discusses the disadvantages and risks of relationships. For example, continuous change in social components may increase the need for formal governance mechanisms. Her results suggest a switch in character within relationships rather than a switch between relationships. This is consistent with Lechner and Dowling (2003), who conclude that weak ties must be transformed into strong ties for value exploitation, although firms differ in their relational and combinative capabilities and absorptive capacity.

Like Larson and Starr (1993), Hite (2005) highlights the additive nature of ties whereby social relationships can develop toward business ties in a path-dependent pattern. However, Hite also suggests that firms can control social leveraging by being proactive. This is consistent with the early work of Lorenzoni and Ornati (1988), who use case data to portray the growth patterns of entrepreneurial networks as shifting from unplanned (loose) to planned (efficient) to structured (effective). Similar patterns are seen in Larson’s (1991) case research. She shows that network relationships are not formed by chance, but reflect predicted exchange patterns based on a company’s changing needs in a context

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2. In reviewing the articles discussed by Hoang and Antoncic (2003), it became evident that certain studies presented by them as Category 2 were better placed in Category 1 (e.g., Birley, 1985; Greve, 1995). These were re-classified accordingly. As a result, only Hara and Kanai (1994) remain in Category 2. Further, those studies discussing network process in a tangential manner or outside the context of entrepreneurship were excluded from our review (e.g., Gimeno, Folta, Cooper, & Woo, 1997; Ibarra, 1992). We also excluded conference proceedings unless they have since appeared in a journal (e.g., Davidsson & Honig, 2003).
### Table 2

Empirical Studies on “Networks as a Dependent Variable” Assessed by Van de Ven’s (1992) Meanings of Process

<table>
<thead>
<tr>
<th>Hoang and Antoncic (2003) Category</th>
<th>Source</th>
<th>Authors</th>
<th>Process as a logic to explain causation</th>
<th>Process as a category of concepts to be measured for change</th>
<th>Process as a developmental sequence underpinned by</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Larson (1991)</td>
<td>✓</td>
<td></td>
<td>Teleology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steier and Greenwood (2000)</td>
<td>✓</td>
<td></td>
<td>Dialectics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Greve and Salaff (2003)</td>
<td>✓</td>
<td></td>
<td>Evolution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schuqijens and Stam (2003)</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Hite (2005)</td>
<td>✓</td>
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</tr>
</tbody>
</table>

✓—primary meaning attached to “process.”

☑—context or framework within which study is conducted and results presented.

◆—concluding view (model or argument) regarding process.
influenced by competitive forces. Of additional interest is her conclusion that relationships between network partners develop in parallel with the firm itself; i.e., codevelopment occurs.

Turning to longitudinal work at the network level, Steier and Greenwood’s (2000) case study suggests that to overcome the liability of newness and competitive pressures, the entrepreneur should develop a network that is diverse rather than uniform, and extensive rather than limited in size. Consistent with many of the other studies, Steier and Greenwood conclude that the network requires strong rather than weak ties. Like Jack (2005) and Hite (2005), they note the benefit of dormant ties, and redundant ties were found to be advantageous if the tie provided (for example) future potential.

The other longitudinal study is from Schutjens and Stam (2003), who extend Butler and Hansen (1991) with an examination of the major contacts of 313 new firms. They find that as the firm develops, upstream contacts (i.e., with suppliers) become more commercial, while downstream contacts (i.e., sales relationships) change from being business-focused to include both business and social relationships. In clarifying which ties become more commercial and which become more social, Schutjens and Stam provide a bridge to Larson and Starr’s (1993) discussion on tie complexity and whether the network changes to become more social or business-oriented. Although Schutjens and Stam find that firms become more selective with customer relationships over time, they provide little evidence of how and why changes take place, i.e., how interorganizational relationships and their resultant networks develop. Larson (1991) and Steier and Greenwood (2000) provide some insight into this issue, with the former suggesting that networks evolve in a goal-oriented rather than reactive manner. The latter provides a rich description of how a network develops by continuously constructing and reconstructing ties that become more multiplex and robust, with network reconfiguration characterized by pivotal years or punctuation points. An appreciation of “how and why” networks develop is also offered by Lorenzoni and Ornati (1988) and Hite (2005). This contrasts with the studies discussed by Hoang and Antoncic (2003), many of which use comparative data to test for differences in the networks developed by (for example) male vs. female entrepreneurs rather than developing rich insight to the development process per se.

Summarizing this, it seems that by extending Hoang and Antoncic (2003) to focus on research inadvertently excluded or published since their review, we are able to identify a small group of studies that further our understanding of network development issues. Nevertheless, it is clear that, as noted by Hoang and Antoncic, our understanding of this topic is relatively limited. This conclusion is supported by the patterns of Tables 1 and 2, which show a clear emphasis on research where the network is the independent rather than dependent variable. Beyond the question of where research is focused, a further question arises. That is, in categorizing networks as either an independent or dependent variable, it might be suggested that entrepreneurship scholars view networks through a positivistic lens; a lens that is causal and explanatory in nature. Is this appropriate given the concept under discussion is that of “process”? To help understand this, we now assess how the concept of process appears to have been applied or interpreted in both: (1) the studies in our review; and (2) those reviewed by Hoang and Antoncic.

Interpretations of Process

As summarized in Table 1, all 22 studies in Category 1 seem to interpret process using Van de Ven’s (1992) first definition. That is, process is a form of logic used to explain a cause-and-effect relationship. In contrast, the seven studies in Category 2 (Table 2) demonstrate a primary view of process that reflects either Van de Ven’s second meaning (four
studies interpret it as a concept that can be measured and tracked for change over time), or his third meaning (three studies depict process as reflecting a developmental sequence).

Taking this analysis further, we see in Tables 1 and 2 that eight studies use what Van de Ven and Poole (1995) refer to as a single-motor, i.e., a single interpretation of process to focus their work. Using Van de Ven and Poole’s terminology, four studies incorporate a triple-motor perspective (Davidsson & Honig, 2003; Lechner & Dowling, 2003; Littunen, 2000). Most common, therefore, are investigations with a dual-motor (17 of the 29 studies). This pattern is consistent with Van de Ven and Poole’s observations that most arguments related to organizational development and change are composites of two or more ideal-type motors. What is notable here, however, is that the composite approach integrates not only theories pertaining to process as a developmental sequence but also the other, separate meanings of process that focus on causation or measurement of variable change. Further, the rich perspective made possible by viewing process as a developmental sequence, argued by Van de Ven (1992) to be the least understood approach, is limited to a secondary role in most of the research reviewed here. This is particularly evident in Table 1.

If we focus on how the “developmental sequence” meaning of process is characterized in our literature, prescriptive life-cycle theories dominate. Beyond this emphasis, three points are noteworthy. First, while teleological views of process are somewhat in evidence (most notably with Larson, 1991, or Hara & Kanai, 1994), they tend to be used in a summary format to portray an unpredictable or divergent view of process that has been measured in other ways (see Elfring & Hulsink, 2003; Hite, 2005; Jack, 2005; Schutjens & Stam, 2003). Second, although Greiner (1972) depicts venture development as a dialectic process, only Hara and Kanai move in this direction. Even then, this is only when summarizing the nature of interactions during tie formation, and they do not take a dialectic perspective in their main discussion. Third, although most studies use the term “evolution” interchangeably with “process,” only three examine networks in a manner that reflects Van de Ven’s (1992) definition of evolutionary theory (Hite; Lechner & Dowling, 2003; Steier & Greenwood, 2000). Of these, only Steier and Greenwood view their entire study through an evolutionary lens by describing the network in terms of a progression of variation, retention, and selection.

Again, however, most of the investigations in Tables 1 and 2 seem to interpret process using a meaning other than “developmental sequence of events” and as a result, track change in either a causal or descriptive manner. While this might facilitate the conduct of a focused investigation with a relatively straightforward approach to data collection and analysis, it also leads to a somewhat predictive view of process. This is further reinforced by the fact that most of the developmental process arguments tend to apply life cycle theory, possibly to enable retrospective analysis. Life cycle theory is by its nature, however, prescriptive. This may explain the rather positivistic references to the network as either a dependent or independent variable, but we caution that one consequence of this approach is a lack of depth in understanding the “how and why” of network processes. It also implies that network processes are clear-cut, predictive, and involving a single entity. We suggest this misrepresents reality and believe that the studies offering the richest understanding of this are the empirical articles underpinned by teleological theory (Larson, 1991) and evolutionary theory (Steier & Greenwood, 2000). The former shows that network processes can be viewed as constructive rather than prescribed, and the latter highlights the need to accommodate multiple entities and multiple levels of analysis (in comparison to the single entity approach of the life cycle argument).

At this point, we have addressed our first two research objectives. Our third objective is guided by the suggestion that entrepreneurship research on network processes may
benefit from being informed by different perspectives on the topic. Accordingly, we now review two other approaches to network research.

**Other Views on Networks**

By distinguishing between studies that position the network as either an independent or dependent variable, Hoang and Antoncic (2003) imply there are different ways to study network processes. To represent the school of thought that generally examines the impact of the network on the social group or organization (e.g., where the network is an independent variable), we discuss social network (SN) research. In contrast, the business network (BN)\(^3\) approach emphasizes an understanding of the interactions that create dyadic relationships and consequently, the wider network. It therefore represents the second category: networks as a dependent variable.

**The Social Network Perspective**

The SN literature has a foundation in Simmel’s (1955) arguments regarding the importance of understanding group composition in order to understand social life (Smith-Doerr & Powell, 2005). Later efforts emphasized network structure and over the years, concepts from SN research have been widely adopted in various literatures including entrepreneurship. Indeed, the studies summarized in Table 1 draw heavily on the SN literature. Within this perspective, the structural aspects of networks are generally emphasized with a reliance on mathematical models of the motion of change (Kilduff & Tsai, 2003). These models apply a variety of measures to assess tie configurations and identify similarities or differences across networks (Smith-Doerr & Powell). Theoretical arguments include Coleman’s (1988) explanation of the importance of a cohesive network, Burt’s (1992) argument for structural holes, and the extensive discussion of strong and weak ties (Granovetter, 1973).

Importantly, the SN literature provides a rich discussion of the concept of embeddedness (Granovetter, 1985; Uzzi, 1996) and argues that economic behavior is embedded in a social context or in a network of relationships. The SN research also considers political, cultural, economic, and technological development as exogenous influences on both individual and interorganizational levels of cooperation. In this perspective, a specific environment is understood to “constitute an opportunity structure containing a resource pool uniquely suited to organizational forms that adapt to it or help shape it” (Aldrich & Zimmer, 1986, p. 10). Arguments pertaining to this concept of a resource niche are found through the SN literature and are consistent with Aldrich (1999) in positioning the environment, be it the social context or others, as determinant. At the same time, SN research recognizes endogenous influences such as efforts by the focal firm to access resources by structuring relationships in an efficient manner. Koka, Madhavan, and Prescott (2006) refer to this as purposeful network action.

Of particular interest in the SN tradition are studies on the networks of individuals. Examples include research on the impact of social ties in job-seeking (Granovetter, 1995) and career advancement (Podolny & Baron, 1997). In such studies, the SN approach uses the formation and dissolution of ties (i.e., the appearance and “death” of nodes) to

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3. Much of the literature in this tradition has been contributed by the Industrial Marketing and Purchasing (IMP) group. They refer to it as the Business Network approach.
measure network change, and analysis is focused on structural characteristics such as network size, density, or the position of actors in the network. This enables an understanding of (for example) the potential for innovation or the identification of power bases for information control and brokerage (see Ahuja, 2000, for an empirical example).

Another feature of SN research is the common use of longitudinal studies of large datasets to examine networks (often interorganizational) at different points in time to identify aggregate tie patterns. For instance, Owen-Smith, Riccaboni, Pammolli, and Powell (2002) compare university–industry relations in the United States and Europe. They analyze 12 years of data consisting of 1,026 linkages and use network visualization methods and large scale network analysis techniques to identify different collaborative systems. Other work involving clusters and their patterns of interaction includes Powell, Koput, and Smith-Doerr (1996) while Seabright, Levinthal, and Fichman (1992) explore how the nature of attachment between organizations impacts the dissolution of auditor–client dyads. This study is relatively rare within the SN approach since it provides some insight as to the impetus for severing a tie. As with much SN research, however, it does not capture the actions and explanations underlying tie dissolution and network change, although Kim, Oh, and Swaminathan (2006) recently argued for research on implementing network change within existing relationships.

If we shift our focus to consider levels of analysis, Ibarra, Kilduff, and Tsai (2005) argue that little attempt has been made to link individuals and their networks with larger network systems. However, Liebeskind, Oliver, Zucker, and Brewer (1996) study the biotechnology industry to understand how individual and firm-level networks impact organizational learning and flexibility. Oliver and Liebeskind (1997) then draw on this data to argue, like Ibarra et al., that networks must be understood at both the individual and organizational level, as well as within and across organizations. Some SN studies also consider both dyadic ties and the broader network. For example, in addition to Seabright et al. (1992), Powell, White, Koput, and Owen-Smith (2005) examine how the formation, dissolution, and reestablishment of ties by 482 firms over a 12-year period shaped the network structure of the biotechnology industry. Uzzi (1999) combines ethnographic research (used to understand the difference between embedded and arm’s-length ties) with a survey of 2,300 U.S. firms to examine how embeddedness can influence which firms access financial capital and at what cost. In doing so, he assesses: (1) the dyadic ties between the entrepreneur and the loan managers at a bank, and (2) the ego network of direct ties between a firm and all its banks. This study is similar to other works by Uzzi (e.g., Uzzi, 1996) and his approach is somewhat unique in SN research because he examines tie quality and how network configuration influences a firm’s ability to perform. In crossing different levels of analysis, these studies represent arguments in the SN literature regarding the need to develop a multilevel understanding of interorganizational networks (Contractor, Wasserman, & Faust, 2006; Hagedoorn, 2006).

Overall, the SN literature generally emphasizes the identification and measurement of tie and network characteristics to understand the influence of structural change. This means that if we apply Van de Ven (1992), a common interpretation of process in this type of research is one that examines how variables change over time. The SN literature also tends to view process as a logic to explain causation. Importantly, even the stream of research that connects the dyad with the network tends to focus on structural analysis with a positivist lens. For example, although Uzzi (1996) considers how ties become embedded in the apparel industry, his primary interest is to assess the impact of ties on economic performance. Further, his general approach to research considers only one actor in the dyad and is cross-sectional rather than longitudinal. This leads us to an alternative approach to understanding networks: the business network perspective.
The Business Network Perspective

A particular characteristic of BN research is that it accounts for both actors in a dyad and investigates how and why relationships change over time. This perspective argues that a change in the dyad results from: (1) actors learning about how to utilize new combinations of resources, (2) the contrasting perceptions of actors in relationships, and (3) actors continually looking for opportunities to improve their position towards important partners (Håkansson & Snehota, 1995). Following from this, BN research suggests that network development is cumulative in that relationships are continually established, maintained, developed, and broken to provide satisfactory economic return or to create a position in the network. This implies change is driven by factors endogenous to the firm. The BN approach also argues that neither a hierarchy nor a single central actor is in charge of organizing the network per se. Instead, networks are seen as multiplex adaptive systems, where actors are simultaneously involved in ongoing network management (Ritter, Wilkinson, & Johnston, 2004). Thus, change is also endogenous to the network. This is reflected in Freytag and Ritter’s (2005, p. 644) statement that it is not a question of managing a network but managing in networks and thus, it is “more appropriate to talk about networking, influencing and interacting, i.e., processes instead of outcomes.”

At the most macro level, the BN perspective argues that exogenous influences such as economic conditions or technological advancement will be transformed into or combined with endogenous factors such as confrontation between actors. Thus, changes originate in the dyad (Halinen, Salmi, & Havila, 1999) in a manner that can be positive or negative (Ritter, 1999), and any change in one part of the network will produce change throughout the whole network. Any dyad causing network change will also receive and transmit change (Håkansson & Snehota, 1995; Halinen et al.; Hertz, 1996); change that can be proactive or reactive as the nature of any relationship shifts. This is exemplified in Hertz’s (1998) longitudinal case research on how change in one relationship explains sequential consecutive change in others.

This focus on connected change allows for BN researchers to study transformation within networks. They do so by investigating the concept of “interaction” between parties, where relationship development is conceptualized as interaction (rather than action) between independent firms or actors (Ford & Håkansson, 2006). Relationship development and transformation are therefore believed to be reciprocal and dependent on the expectations of both parties regarding their future interactions (Håkansson & Snehota, 2006). Further, relationship development increases each actor’s knowledge and helps them create realistic expectations of one another (Selnes & Sallis, 2003). In this sense, the network is understood to coevolve with the relationships that form it, and experiences from one relationship are transferred to another in the network (Håkansson, Havila, & Pedersen, 1999). This highlights the interplay between dyads and the overall network.

As Johanson and Mattsson (1994, p. 325) note, research in the BN tradition “emphasizes dynamic, individual and interconnected exchange relationships within systems that contain interdependencies of both a complementary and a substitutive nature.” Accordingly, BN research takes the position that the network structure is never stable. That is, “it is a structure with inherent dynamic features, characterized by a continuous organizing process” (Håkansson & Snehota, 1995, p. 271). Even if network patterns appear static, the BN perspective recognizes that existing relationships can change their content and strength. That is, change occurs within relationships.

BN research also regards the network as being comprised of different types of relationships. At one level, it recognizes they may be positive or negative and allows for both cooperation and competition. Going deeper, Hertz (1996) distinguishes between...
one-way, passive, infrequent, or temporary relationships and argues that in order to have interactions, a certain degree of frequency, intensity, and stability must exist. This is connected to the fact that the BN perspective is not restricted to the present, but takes into account the past and future of relationships. As part of understanding network history for example, BN research acknowledges the concept of “sleeping ties,” referring to existing but dormant relationships that can be reactivated (Johanson & Mattsson, 1992).

To summarize, the BN perspective focuses on understanding how to establish, build, and maintain or change relationships to create a position within a network. This signals the connection between various levels of the network. Further, the BN approach is focused on how relationships change and why change occurs (unlike SN research). Thus, compared with the methodologies prevalent in SN studies, those in the BN tradition are generally more case-based and interpretivist in nature. While analysis of network structure is not paramount, an understanding of all potential relationships is considered relevant (including their history and role), and the focus of analysis is on the interaction between actors. Accordingly, if we apply Van de Ven (1992), BN researchers tend to assess how variables change over time but do so using “process as development” theories that portray interaction as being: (1) purposeful and adaptive but not necessarily sequential, (2) characterized by opposing forces that can lead to the status quo or change, or (3) involving a course of action characterized by continuous variation, selection, and retention. Thus, they are teleological, dialectic, or evolutionary in nature, or possibly a combination of these, rather than based on life cycle theory. The BN perspective also discusses the multi-directionality of change, not often considered by SN research.

Informing the Entrepreneurship Literature

Up to this point, we have reviewed the entrepreneurship network literature for recent contributions and interpretations of the term “process.” We have also discussed two other approaches to network research. We now integrate this information to identify potentially fruitful areas of inquiry for entrepreneurship scholars. To facilitate this, Table 3 summarizes what is currently understood from the entrepreneurship, SN, and BN literatures.

We begin by assessing the most common level of analysis in network research. Relatively little research in entrepreneurship provides a link between multiple levels in the network. This is in spite of an appreciation in the SN and particularly, BN literatures that it is important to understand how the dyad and network are interrelated. Of interest here for example, is understanding how observed changes within or across specific relationships impacts the entire network and in turn, how change at the network level influences identified relationships. This could be as simple as applying the SN perspective to consider how the addition or deletion of ties changes the network. It could also involve using the BN approach to explore how different dyads perceive trust and mutuality and how this benefits the broader network. Alternatively, one could examine how information sharing across the network allows for learning and other cognitive benefits at the level of the dyad.

As regards the type of network studied, the entrepreneurship literature tends to focus on networks with the horizon or boundary defined by the focal firm. This differs markedly from the BN perspective, which views networks as borderless and the SN approach which considers networks to have clear membership boundaries. Both the BN and SN approaches also tend to examine the broader network, including all potential relationships connecting all the actors. At the same time, the lens applied by each view is different. For example, SN scholars tend to be interested in the wider system of ties and their various characteristics. Consequently, the full network is relevant. In contrast, BN researchers
Table 3

Comparing the Three Perspectives of Network Research

<table>
<thead>
<tr>
<th>Research dimension</th>
<th>Entrepreneurial network research</th>
<th>Social network research</th>
<th>Business network research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary level of analysis</strong></td>
<td>Focuses on either dyads of the focal firm or the firm’s egonet. Increasing recognition of the interface between the dyad and the network.</td>
<td>Studies patterns of whole networks of individuals or organizations, occasionally including dyads.</td>
<td>Focuses on dyadic interaction (specific inter-organizational relationships within the broader network) but argues it is possible and necessary to understand the mutuality of tie and network development.</td>
</tr>
<tr>
<td><strong>Network type</strong></td>
<td>Considers individual entrepreneur or firm networks with defined borders. Often studies advice or discussion networks.</td>
<td>Considers individual, intra- and inter-organizational networks; defined borders.</td>
<td>Considers inter-organizational networks based on dyadic ties (both formal and informal); borderless.</td>
</tr>
<tr>
<td><strong>Network management</strong></td>
<td>Generally argues the network must (and can) be understood and managed.</td>
<td>Considers tie and network formation as calculative, thus assuming some ability to intentionally manage the network within the constraints of the environment.</td>
<td>Considers networks as non-hierarchical multiplex adaptive systems, where actors are simultaneously involved in on-going network management.</td>
</tr>
<tr>
<td><strong>Endogenous and exogenous influences</strong></td>
<td>The entrepreneur and firm are positioned as central to decision-making (as primary endogenous influences) although influenced by numerous external factors.</td>
<td>Exogenous influences or external intervention can impact network structure but actors seek to form a beneficial network.</td>
<td>Distinguishes between three levels where the network is exogenous to the entrepreneur or firm and the enacted context is exogenous to the network. Endogenous influences occur at the level of the firm and network, and are always present.</td>
</tr>
<tr>
<td><strong>Tie characteristics</strong></td>
<td>Emphasizes mostly tie content (social vs. economic) and tie strength. Some appreciation of other characteristics, e.g., tie usefulness, durability, direction, and dormancy.</td>
<td>Emphasizes tie existence and tie strength. Distinguishes between social and economic ties.</td>
<td>Considers multiplex characteristics: tie content, tie intensity, tie reciprocity, positive and negative ties, tie duration, sleeping ties.</td>
</tr>
<tr>
<td><strong>Network and tie change</strong></td>
<td>Provides descriptions of tie and network change but little assessment of how and why this occurs.</td>
<td>Assesses how the addition or deletion of ties impacts network structure.</td>
<td>Follows relationship development to understand change within relationships as well as across relationships and the impact of change on the wider network. Appraises positive and negative aspects of ties with regards to firm and network development. Longer-term ties considered essential and efficient for the firm and stabilizing for the network.</td>
</tr>
<tr>
<td><strong>Assessment of tie or network influence on performance</strong></td>
<td>Provides some understanding of the impact of the network on performance and offers some understanding of which types of tie matter when.</td>
<td>Assesses network structure for efficiency, with insight on how the network impacts firm growth and other outcomes.</td>
<td></td>
</tr>
<tr>
<td><strong>Primary view of process</strong></td>
<td>Studies tend to assess causation and change in variables, although the results are mostly placed in the context of a predictive sequence of stages often reflecting life cycle theory.</td>
<td>Process is seen as a way to explain variance in the structure of networks over time, through causal influence of in- and output variables.</td>
<td>Process is viewed primarily as a developmental event sequence underpinned by teleological, dialectic, and evolutionary theory.</td>
</tr>
</tbody>
</table>
tend to study the interplay within and between dyads as they relate to the broader context of an inter-organizational network and the external influences that shape it. Thus, the fluidity of a borderless network is appropriate as is viewing all relationships as part of the same network. This differs from some entrepreneurship research where functionally different networks are considered (e.g., Lechner et al., 2006). Entrepreneurship research also tends to focus on network processes as they pertain to a particular venture and consequently, the defined egonet is most relevant. We suggest, however, that all three perspectives may be useful in entrepreneurship research. For example, to understand a venture’s position in the network, it would be appropriate to adopt the SN approach of examining (for example) centrality in the full network rather than the egonet. Similarly, analysis of the egonet or full network often identifies dyads of particular interest and brings forth questions regarding the endogenous or exogenous influences on the entrepreneurial network. The theoretical arguments and methodological approaches to examine such issues can be found in BN research.

This leads us to consider the issue of network management. The entrepreneurship literature generally portrays network development as being controlled by the focal firm or entrepreneur as per Weick (1979). The SN literature also sees network formation as calculative but often reflects Aldrich’s (1999) view that the driver of change is the context rather than the entrepreneur. An alternative view (typical of the BN literature) is that the entrepreneur both engages in purposeful action and is externally controlled (Johannisson, 1988; Koka et al., 2006). That is, rather than behaving as a reactive economic actor (as per Aldrich & Zimmer, 1986), the entrepreneur enacts their organizing context (network) to managing within the broader set of environmental influences. As noted in the BN literature, this involves managing in a network rather than management of a network. We suggest that by adopting the BN approach, entrepreneurship scholars might expand their understanding of the role of the entrepreneur relative to the environment in different contexts and over time.

Related to the discussion on network management is the question of how the different approaches view exogenous and endogenous influences. Generally speaking, the entrepreneurship literature tends to emphasize the endogenous influence of the firm or entrepreneur on the network and the SN literature studies the exogenous influences of the environment. Further, the concept of embeddedness is present in both the entrepreneurship and SN literatures, with the BN perspective noting that since the firm is dependent on other organizations in a network, it needs to be in constant interaction with this context. We suggest however that embeddedness needs to be understood beyond the social contexts influence on the focal firm, entrepreneur, or specific tie. Rather, both these levels are influenced by a broader set of environmental factors (Hagedoorn, 2006). This view is consistent with the BN literature and suggests that it would be appropriate for entrepreneurship scholars to distinguish between: (1) the focal firm and entrepreneur that are endogenous to the network and broader system, (2) the network or social context that is exogenous to the focal firm or entrepreneur and also endogenous to the broader system, and (3) the macro environment or context that is exogenous to the network, focal firm, and entrepreneur (e.g., sector influences, market, economic, or legislated conditions, technological or cultural change). Taking this approach would provide specific parameters for study and the potential to compare multiple levels of analysis.

Turning from the network to characteristics of the ties that form it, we see in Table 3 that the SN approach tends to emphasize tie existence or tie strength, and recognizes that ties can be both social and economic. In contrast, entrepreneurship research has begun to take a broader outlook by incorporating (for example) tie usefulness, trust, and information requirements. Certain entrepreneurship scholars also note the existence of dormant
ties, but to this point, the array of tie characteristics is not yet well explored in this literature. This, however, is where the BN perspective is useful since the richness of tie characteristics is perhaps best captured by this approach. For example, BN researchers recognize that relational content can and will change in intensity, length, and depth, and can include contradicting (positive and negative) dimensions. Interestingly, while the SN literature views constraint as a negative concept, the BN perspective views it as offering a positive trigger for tie development or change. The notion of “reciprocity” from the BN perspective is also relevant since it is not self-evident that a relationship means the same thing to both partners. As such, it would be appropriate for entrepreneurship research interested in tie and network development or the influence of ties on firm growth, to understand both actors in a dyad and the process of change within dyads.

In terms of measuring change at the level of the dyad or network, Table 2 suggests that empirical efforts to track how a network develops are relatively rare in entrepreneurship. This is in spite of the foundation arguments offered by Larson and Starr (1993) and Hite and Hesterly (2001). We suggest this provides an opportunity to integrate these two complementary yet competing theoretical views on network process phenomena. Doing so would also offer an understanding of change across levels given Larson and Starr’s focus on the dyad while Hite and Hesterly emphasize the network. Further, in spite of recognizing that a network is comprised of component ties, the entrepreneurship literature has only just begun to investigate how relationships are developed and transformed. More specifically, the entrepreneurship literature lacks a rich understanding of when, how, and why ties shift from weak to strong, social to economic, or short-term to long-term (or vice versa). It is the BN approach that could be helpful here, in terms of following development and change within relationships to identify how actors adapt and learn over time, or how changes in dyads affect the network and vice versa. For those interested in assessing specific tie characteristics and their impact on the organization, Uzzi’s (1996) approach to integrating depth interviews with either an egonet or full network analysis could be helpful. We also suggest it is important to extend beyond descriptions of “how” and “when” the network or ties change to more fully understand “who” drives the change. Longitudinal case research in the BN style would be useful here, but so too could the SN approach to structural analysis if actor power and position were examined as part of measuring network change over time.

Finally, some entrepreneurship network research has begun to identify what kinds of ties are needed at different stages of firm development. Other research examines the influence of network characteristics on entrepreneurial outcomes. This approach to studying how the network affects performance is consistent with the SN literature, as is discussion on the risks of “overembeddedness.” Lacking, however, is rich investigation along the lines of Hite (2005), including macro level research that helps us understand either the general effects of ties on the network or at a more micro level, ties on other ties. That is, are such effects useful and constructive or are they deleterious? These types of questions would be best addressed with the BN approach, which has a tradition of studying the positive and negative aspects of relational change in a time-sensitive manner. We also suggest it is important to understand both the connection between network interactions (i.e., ties), network structure, and performance outcomes, and the dynamics of how these change over time. Entrepreneurship research in this area would be aided by integrating the SN approach by first assessing how interactions lead to network structure and then linking structural changes in (for example) network density or actor centrality to organizational performance. This approach accommodates both the causes of the network and the effects. As such, it takes the holistic view that entrepreneurial and network processes are intertwined with entrepreneurial and network outcomes.
Discussion

In reflecting on the issues raised in the previous section, we suggest that future entrepreneurship research on networks would benefit from: (1) applying multiple theoretical perspectives regarding process, (2) integrating the SN and BN approaches to investigate both the macro level of network structure and the micro level of dyadic interactions, and (3) shifting away from the emphasis on networks as an independent variable to studying them as a dependent variable or perhaps more appropriately stated, a developmental outcome. We expand on this later.

If we refer to the interpretation of process summarized in Table 3, it appears that entrepreneurship researchers have been strongly influenced by the language and tenor of the SN approach. Accordingly, they tend to set research questions necessitating the development of hypotheses where process is viewed as a logic to explain causation or, requiring variable change to be measured. In contrast, the BN approach generally depicts a developmental sequence of events. There is, however, evidence from Tables 1 and 2 of a dual-motor perspective in entrepreneurship and we suggest this hybrid view has the potential to accommodate the complexity of process. What concerns us however is that the entrepreneurship literature lacks the richness that is offered when a study is grounded in teleological, dialectic, or evolutionary theory. We suggest this is a result of not assessing the wider context and forces within which relationships are initiated, developed, and transformed over time, as is more common in BN research. Entrepreneurship research also tends to take a fairly clinical and positivistic approach to understanding network process (similar to SN research) and lacks the realism of the interpretive approach common to BN studies. This emphasis on the structuralist approach is perhaps not surprising if we consider the entrepreneurship field to be relatively young and seeking legitimacy. Similar arguments are made by Borgatti and Foster (2003) as regards network research in general.

One consequence of this is that we tend to view networks through a lens of progression. Reality suggests, however, that relationships and networks involve both progression (forward growth and advancement) and regression (backward movement and deterioration). Another influence on network development is randomness. Unpredictable incidents may occur exogenous to the network in the form of (for example) regulation encouraging (or prohibiting) a certain alliance. Another random incident may be (for example) one firm going bankrupt thus destabilizing a tie and consequently, the network. As a result, it is important to allow for such occurrences when investigating, interpreting, and depicting network process. This might best be captured in a spiral of development that incorporates progression, regression, increases and decreases in network size, as well as change within relationships. Again, this requires theory that recognizes and incorporates teleological, dialectic, or evolutionary arguments.

Turning to the lens through which we view network research, early arguments suggest that theory should include both the structure of the network and the interactions between actors (Burt, 1992; Coleman, 1988; Granovetter, 1985). In spite of this, most studies in entrepreneurship consider either aggregate network patterns (structure) or the ties (interactions) forming the network. To some extent, this dichotomy is captured by the SN and BN literatures. That is, the former focuses on the construction of an efficient and effective network and thus allows for research on the structural dimensions of networks and their impact on firm growth and other outcomes. In contrast, the focus of the BN approach is on understanding development and change within relationships as well as between and across relationships. In some ways therefore, the SN and BN perspectives offer opposing views for network scholars. If, however, we consider these approaches integratively, they offer a useful “bifocal” lens for the entrepreneurship researcher interested in issues of
network process. Stated most simply, adopting the BN approach can offer a deep understanding of specific relationships, particularly in terms of assessing interactions and change within a tie, while a macrolevel understanding of structural change and influence in the network can be aided by the SN literature.

Finally, if we are to conceptualize and study networks as a developmental outcome in entrepreneurship, what is the theoretical foundation for moving forward? We agree with Hoang and Antoncic (2003) that entrepreneurship research could benefit from examining Larson and Starr (1993) in a longitudinal study. As we note previously, however, that model is complemented by the more recent efforts of Hite and Hesterly (2001). Accordingly, a first step would be to combine these two arguments into a framework that incorporates both the dyad and network as units of analysis. Additional steps include augmenting this framework with: (1) insight from the empirical findings on network processes, and (2) an understanding of the different ways the meaning of process has been (and might be) applied to network research. Furthermore, a theoretical foundation should apply a combination of the SN and BN perspectives since as noted by Hoang and Antoncic, we need to be able to explain not only the effect of networks but how and why they form and may be managed over time.

This leads us to the theoretical arguments in Figure 1 where the network is positioned as a developmental outcome of a new venture’s entrepreneurial process. In Part A, we ask the question “what develops?” and integrate the arguments of Larson and Starr (1993) with Hite and Hesterly (2001). Here, we see that both the new venture and the network develop in a predictive manner that follows a life cycle approach and indeed, the firm and network codevelop (Hite & Hesterly). Of note, network development moves through a life cycle of: (1) variation (new ties emerging blindly or intentionally), (2) selection (ties contributing something and therefore being selected), and then (3) retention (the embedding and transformation of ties discussed by Hite, 2005). This process of tie variation,

Figure 1

Conceptualizing Network Development

![Diagram of network development with four parts: A, B, C, and D.](image-url)
selection, and retention parallels the arguments of Larson and Starr, and occurs within and through the organizational stages discussed by Hite and Hesterly. Of note, however, we refer to these as “states” in Figure 1, allowing for the possibility of both progression and regression. This is consistent with Hite’s finding of the “lack of evolution and presence of de-evolution” (p. 138). We also note that while we portray the V-S-R phases as sequential, they occur simultaneously in practice (Aldrich, 1999) and are influenced by the phases of organizational development.

Moving to the question of “how and why does the network develop?” (Parts B and C), all of the activities in Part A are influenced by the focal firm or entrepreneur purposefully respecifying goals where s/he initiates change in ties (and therefore the network) to either accommodate or enact the external environment (Hite, 2005; Larson, 1991; Schutjens & Stam, 2003; Steier & Greenwood, 2000). Although the environment may limit entrepreneurial action (Van de Ven & Poole, 1995) and unexpected events may occur (Larson), this strategic adaptation influences tie selection and retention and results in the development of management knowledge. It also reflects the constructive process that is teleology (Part B).

In parallel with this, organizational development efforts will create interactions between multiple entities (e.g., two actors in a dyad or a number of actors in a network) or between the network and the environment. Over time, network members will come and go (Greve & Salaff, 2003; Lorenzoni & Ornati, 1988) and may cause a dialectic opposition between thesis (current path) and antithesis (new entrant) that results in synthesis (Part C). Further, the network will adjust to the cultural and social context as well as market conditions. Another form of dialectic resolution may occur in the interactions between actors to overcome (for example) conflict in goals or implementation strategies. Overall, we see the new venture conform with or deviate from the environment in terms of (for example) the social or economic context in which it operates. Like Part B, this dialectic perspective is constructive rather than prescriptive. Together, Parts B and C extend our view of network development from “what happens” vis a vis the life cycle argument to “how and why it happens” from a teleological and dialectic perspective.

Finally, we ask “what occurs over time?” (Part D). Since the cycle repeats itself during an organizing episode, the evolutionary motor is evidenced with the passage of time through the variation, selection, and retention of certain network configurations over others. Here, the immediate influence of organizing is driven through a life cycle motor as noted by Larson and Starr (1993). It is, however, also influenced by a teleological motor of participant’s choices of adaptations and a dialectic motor of interaction and synthesis. For example, selection activities seek to align the network with the environment over time, but these are punctuated at points where the focal firm shifts direction as a result of purposeful enactment (e.g., entering a new market). This is similar to what is described in Steier and Greenwood (2000) as part of the overall development of the network. Thus, over the longer run, short-term actions contribute to an evolutionary process and what we see is an overall path of development that incorporates change with stability. This is consistent with arguments in the BN perspective and also Aldrich’s (1999) view that evolutionary theory comprises a metatheory. That is, it borrows selectively from the other (related) process theories.

In relation to Figure 1, we argue that network change occurs over space and time for the new venture. This implies that several motors can come into play with no single one offering a complete and sufficient explanation of process (Van de Ven & Poole, 1995). We therefore accommodate multiple motors and levels of analysis. The life cycle and evolutionary motors (common to SN research) pertain to the network as a whole, while the teleology and dialectic motors (found in BN studies) pertain to the actions of actors within
the network and their dyads. Thus, we connect the macro (SN) and micro (BN) levels that are pertinent to network studies. Since there has been a tendency in the entrepreneurship literature to rely primarily on life cycle theory and to a lesser extent, teleological arguments (both of which focus on single rather than multiple entities), our inclusion of dialectic and evolutionary theory helps balance the overall argument. It also allows us to better appreciate how and why the network develops. The notion of balance is further reflected in the observation that if a theoretical model is overly prescriptive (i.e., it follows the life cycle argument in particular, but also the evolutionary view), it does not allow for sufficient innovation. Similarly, an overemphasis on teleology or the dialectic argument would create too much variety. Consequently, in light of the BN perspective’s stance regarding the inherent balance between stability and change in the network, our model accommodates both predictive and constructive views of process.

Inherent in this model is the argument that the essence of entrepreneurship is the entrepreneur (Bygrave, 1993) and human volition. Similar arguments are made by Stevenson and Harmeling (1990) so while we allow for the influence of the environment, change can be made with conscious intent (Weick, 1979). Thus, a strategic adaptation perspective is employed, consistent with Larson and Starr (1993) and Hite and Hesterly (2001). The model also allows for both exogenous and endogenous influences in network development. Although Weick (1979) puts decision makers at the center of organizational development, Aldrich (1999) generally argues that the entrepreneurial process takes on meaning only in the context of the broader social context (e.g., the network) and that environmental selection procedures are determinant. Our model attempts to reconcile these two classic arguments in a manner that allows for both to co-exist. That is, we recognize that the tie coevolves with its social context (the network), and the organization and the network coevolve. Further, both the organization and network coevolve with the environment.

**Conclusion**

With this article, we have attempted to contribute to the entrepreneurship literature in four ways. First, we extend one aspect of Hoang and Antoncic (2003) to offer a summary of the current state of entrepreneurship knowledge specific to network process issues. Second, we assess this literature to understand which meaning(s) of process are applied by entrepreneurship scholars and to identify how this influences our understanding of network phenomena. A particularly notable finding is the continued dearth of studies focused on the processes associated with network development. Third, we examine how the social and business network literatures view networks and then use this to generate a number of considerations for research. Finally, we offer a theoretical foundation for conceptualizing and studying networks as a developmental outcome. In doing so, we integrate multiple perspectives, levels of analysis, and views of process.

In moving forward we acknowledge certain limitations in our work. As explained early in the paper, we confine our discussion to issues of network process. We also note that our review of studies outside entrepreneurship is limited to the social and business network literatures. We consider these to be particularly informative to our research, but acknowledge that both literatures are richer than what we could capture here. Further, we limit our conceptualization to one that describes process as a developmental event sequence. This, however, complements the extant literature where attention has focused on capturing network processes through causal research or studies measuring variable change.
As presented, Figure 1 incorporates a set of questions to guide researchers. These are reflected in the four components of the model: (Part A) “what develops?”, (Parts B and C) “how and why does the network develop?”, and (Part D) “what occurs over time?” In combination or as a collective, these components offer a purposefully broad and integrative overview of the ways in which network development can be understood. Consequently, testing it within a single research study would present a considerable undertaking. Indeed, it is not our intent to position this model as one which is testable in its entirety. Rather, we position it as a means to an end. That is, we feel there is clear opportunity for developing a range of more precise models that fall within the umbrella of our general conceptualization. For example, some researchers will be interested in how patterns of tie variation, selection and retention change through the stage of network and new venture codevelopment. Other researchers may investigate why such patterns emerge by studying the degree and nature of purposeful enactment or dialectic tension (or both) as perceived by multiple actors over time. Yet others may focus on understanding how the entrepreneur’s actions influence tie creation or dissolution and thus, how the network develops in a teleological manner. Researchers might also assess the evolutionary development of a network by deconstructing it to identify (for example) specific exogenous influences that created a disruption or change in the network. Overall, we suggest that future research should examine parts of our “general” model. They should also treat such parts as pieces of an emerging puzzle whereby adding one piece at a time helps to reveal the nature of the bigger process in question.

Turning to managerial implications, our theoretical arguments suggest that while the entrepreneur engages in purposeful action, these actions are influenced by forces external to the venture or to the network. Further, while the entrepreneur’s horizon might be egocentric, their venture operates within a broader system of ties. Following from these points, the entrepreneur should be aware that they are involved with managing in a network rather than management of a network. This requires the entrepreneur to build insight as to the complexity of tie interactions since ties will differ in (for example) their intensity, reciprocity, or impact over time. Similarly, entrepreneurs require an understanding of the overall pattern of the network they operate in. They will also benefit from an appreciation that the network is a dynamic system where ongoing change occurs at different levels: in dyads, across several actors, and within the broader environment.

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Article 4

Exploring Network Characteristics of Different Types of Entrepreneurs

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EXPLORING NETWORK CHARACTERISTICS OF DIFFERENT TYPES OF ENTREPRENEURS

Abstract

Purpose – The purpose is to compare the structure and interaction of networks across phases of firm growth among different types of entrepreneurs (novice, serial and portfolio entrepreneurs).

Design/methodology/approach – The study captures details of interaction as well as overall changes in network structure. This is done by a research design combining the strengths of qualitative and quantitative methods in a mixed method approach.

Findings – The results, based on six case studies, show that network interaction varies more according to the type of entrepreneur than do the structural patterns. The results indicate that network development is more impacted by the development phases of the firm than by type of entrepreneur.

Originality/value – This study combines and compares three different types of entrepreneurs and their networks. It also includes both network interaction and structure in a mixed-method analysis.

Classification: Research paper

Keywords: Network, interaction, structure, entrepreneur, mixed method, case study
Exploring Network Characteristics of Different Types of Entrepreneurs

1 Introduction

Research in entrepreneurship started to embrace networks decades ago (Aldrich and Zimmer, 1986; Birley, 1985). Recent interest within this field has given networks increasing attention (Coviello, 2006; Elfring and Hulsink, 2003; Hite and Hesterly, 2001; Hoang and Antoncic, 2003; Jack, 2005, 2008). We now understand the entrepreneur utilizes networks to access resources which are useful not only at start-up and during firm expansion, but also later in developing subsequent ventures. Attention has also been turned towards understanding the differences between various types of entrepreneurs. According to Westhead and Wright (1998), the following definitions are useful: Individuals with no prior business ownership experience, who currently own a business, are called novice entrepreneurs. Portfolio entrepreneurs own multiple businesses simultaneously, while serial entrepreneurs own multiple businesses sequentially.

Some studies within entrepreneurship research compare different types of entrepreneurs on an individual level (Davidsson and Honig, 2003), on an organizational level (Ucbasaran et al., 2003a; Westhead and Wright, 2003) or as a combination of both levels (Alsos and Kolvereid, 1998; Westhead and Wright, 1999). Another line of research focuses on how networks are used in the various development stages of entrepreneurial firms (Drakopoulou Dodd et al., 2002; Greve, 1995; Hansen, 1995; Johannisson, 2000). This study is positioned between and complements the two above-mentioned lines of entrepreneurship research; namely, it combines types of entrepreneur with networks in the context of firm development. The purpose of this study is to explore the network characteristics of different types of entrepreneurs across stages of venture development. In doing so, the study identifies if and how such networks differ, contributing to the theory and understanding of different types of entrepreneurs as well as to network research.

The research responds to Westhead and Wright’s (1998) call for an examination of different processes used by different entrepreneurs in searching for, entering and growing their ventures. More specifically, it addresses Kolvereid and Bullvåg (1993) by learning more about the use and creation of networks among entrepreneurs. This is accomplished by extending Coviello’s (2005, 2006) studies of network development across stages of firm growth with a comparison of three types of entrepreneur. By conducting case research and carrying out a ‘bifocal’ or combined method analysis as per Coviello (2005), this research examines how a network is formed from the perspective of the entrepreneur, and also considers overall changes in network structure. This is consistent with Jack’s (2008) recent recommendations for network research in entrepreneurship.

This paper begins with a review of different types of entrepreneur. These are novice, serial and portfolio entrepreneurs. The paper then discusses the concepts of network structure and interaction, and how they relate to the networks of such entrepreneurs. After discussing research design, the empirical results of this study are presented and discussed. The article ends with a discussion of contributions, limitations and suggestions for further research.
2 Types of entrepreneurs

Various types of entrepreneurs are acknowledged in the entrepreneurship literature. A **novice entrepreneur** is an individual with no prior business ownership experience who currently owns an independent business that is new, purchased or inherited (Westhead *et al*., 2003). An entrepreneur who has prior business ownership experience as a founder, inheritor or purchaser of an independent business is called a **habitual entrepreneur** (Scott and Rosa, 1996). Habitual entrepreneurs can be classified in different ways (Ucbasaran *et al*., 2003a). Beresford (1996) divides them into portfolio and serial entrepreneurs, which is also the definition used here. A **portfolio entrepreneur** owns multiple businesses simultaneously. In other words he sets up or acquires new businesses while still running an established one. A **serial entrepreneur** owns multiple businesses sequentially as he establishes, purchases or inherits a new firm if the first fails or is sold. In this study, two entrepreneurs from each category of novice, serial and portfolio entrepreneurs are included.

Entrepreneurs possess different capabilities and develop competitive advantages in various ways. Novice, serial and portfolio entrepreneurs are compared on the individual level in studies by Birley and Westhead (1993), Kolvereid and Bullvåg (1993) and Westhead and Wright (1998). These studies examine, for example, differences in personal background, education, work experience, motivation for establishing a business and attitudes towards entrepreneurship. On the organizational level, financial resources, firm performance and size, growth objectives as well as organizational capabilities have been compared by Rosa (1998), Westhead *et al.* (2003) and Westhead *et al.* (2005). Therefore, as both individual and organizational level characteristics have been thoroughly studied before, they are considered to be outside the scope of this study.

After examining literature comparing different entrepreneurs, only one study, Ucbasaran *et al.* (2003a) was identified that considers human capital, an issue associated with networks. The study compares two types of habitual entrepreneur, namely habitual starters and habitual acquirers, and focuses on the relationship between an entrepreneur's human capital and his behaviour. Using longitudinal case studies Ucbasaran *et al.* (2003a) found that an entrepreneur's human capital, as in personal skills and capabilities, is crucial in identifying business opportunities and accessing social, financial, physical and organizational resources. Ucbasaran *et al.* (2003a) reported that both types of habitual entrepreneur used networks to initiate a subsequent venture, and both also used their networks to attract business opportunities.

Important here is that Ucbasaran *et al.* (2003a) explore the habitual entrepreneur’s use of networks. In contrast, the current research seeks to understand if and how there are differences in the network development patterns and characteristics across novice, serial and portfolio entrepreneurs. Both studies, however, share the notion of network change. The two key concepts in this paper are network structure and interaction as they are relevant to capturing network change. The following section reflects on the

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1 Habitual entrepreneur here means both serial and portfolio entrepreneurs and are not to be seen as a fourth type of entrepreneur. However, most studies only mention habitual and do not distinguish between serial and portfolio entrepreneurs, and little research has compared them.

2 It is acknowledged that an entrepreneur may also be female. Since this data includes solely male entrepreneurs the term he is used here as a synonym for entrepreneur.
importance of network structure and interaction and how these have been treated in previous research.

3 Network structure and interaction

The concept of network structure was first highlighted and modified through classic discussions regarding social networks. Structural issues include the strength of ties (Granovetter, 1973), cohesive networks (Coleman, 1988) and structural holes (Burt, 1992). In the entrepreneurship literature, changes in network structure across stages of growth have typically been discussed at a conceptual level. For example both Larson and Starr (1993) and Hite and Hesterly (2001) argue that networks become more complex over time. In particular, Hite and Hesterly (2001) emphasize the structure of the overall network and argue that network density and cohesion will decrease over time.

Understanding network structure is, however, insufficient. It is only by capturing the interactional dimensions as well that we can try to understand what occurs in the relationships that form the structure. Larson and Starr's (1993) model highlights the network organizing process by focusing on dyadic relations and how these change character and evolve with the emerging firm. Recently, Jack (2008) emphasizes the need to search deeper in order to properly capture network interaction. Along the same line, Smith-Doerr and Powell (2005) stress that more process-based research on interaction is needed to answer why ties are created, how they develop, what specific resources flow within the relationships and the consequences of this. Hite (2003) is one of the few who has depicted interaction on a detailed level. Her theoretical contribution presents a wide classification typology of relational embeddedness based on type and intensity of relationships.

Lechner and Dowling (2003) and Lechner et al. (2006) take a slightly different approach by assessing network size and tie content when they focus on the benefits different networks offer in different stages of high-growth IT-venture development. Lechner and Dowling's (2003) case research show that network content is more important than size. More specifically, social and reputational networks decrease in importance over time, while the importance of co-operative networks increases. These results are summarized through stages of organizational development. Lechner et al. (2006) provide insight into which kinds of ties matter at which stage of development. At start-up for example, cooperative technology networks impact negatively on performance, as they are seen to signal that the firm is not yet ready to exploit opportunities. Marketing and information networks, on the other hand, are found to impact positively on sales after start-up.

If we consider research that addresses both network interaction and structure, Hoang and Antoncic (2003) and Jack (2008) argue that to best understand networks, researchers need to augment analysis of structure with the study of interactions. Additionally, they agree that more longitudinal qualitative research or multi-method work would enhance future research trying to capture the complexity of network development over time. Johannisson (2000) also highlights the need for investigations of both network content and structure. In line with both Jack (2008) and Hoang and Antoncic (2003), he brings forward the need for a process-based perspective on networks.

To date however, only Coviello (2005, 2006) provides empirical work which explicitly combines structural and interactional patterns of networks across stages of firm
growth. Coviello (2006) found that network structure develops in a linear pattern of evolution in her three case firms. However, the interactional dimensions did not follow the same clear pattern and were more idiosyncratic. Her study is not focused on a particular type of entrepreneur, but concentrates instead on network formation among start-ups. Coviello (2006) suggests future research should investigate the network dynamics of different individual entrepreneurs based on their previous experiences. The present study follows that suggestion by recognizing that different types of entrepreneurs may well have different types of network structure and interactional patterns.

4 Interaction and structure in networks among various types of entrepreneurs

Do networks vary among novice, serial and portfolio entrepreneurs in terms of interactional and structural patterns? If the networks do differ, then how are they different? No comparison has yet been made which answers these questions. Since the literature clearly distinguishes between entrepreneurial types, such distinctions imply that their networks should also be different. This in turn suggests that entrepreneurial networks may be characterized and develop according to the type of entrepreneur (i.e. novice vs. serial vs. portfolio). To pursue this, the following section discusses what is known regarding network interaction and structure by type of entrepreneur, as well as how networks change relative to organizational development. Since Hite and Hesterly (2001) suggest that one type of network will serve the firm at emergence and another will be more appropriate at early growth, the discussion will be based on these two stages. As this is an exploratory study, propositions based on a synthesis of the literature will be developed to guide the research. The first four propositions highlight issues related to network interaction, and the next three relate to network structure.

According to Greve (1995) and Johannisson (2000), social relationships are important in business networks, especially for an entrepreneur. Coviello and Munro (1997) and later Jack and Anderson (2002), point out the importance of social ties in starting up a new business. Hite and Hesterly (2001) imply that social ties are important at emergence but will decrease in importance later on. Novice entrepreneurs often draw on their existing networks, consisting of mostly social ties at start-up (Westhead et al., 2003) since they lack previous business experience. Serial entrepreneurs have experienced both founding and ending a business, while portfolio entrepreneurs have gathered experience and networking skills through founding several firms. The differences in previous business experience and thus contacts, suggest that there will be variations in the nature or content of ties for the novice entrepreneurs compared to serial and portfolio entrepreneurs.

P1: Novice entrepreneurs have a higher proportion of social ties at the emergence stage than do serial and portfolio entrepreneurs.

As serial and portfolio entrepreneurs have many previous ties to e.g. suppliers and customers, they are more likely to be approached by outside actors than are novice entrepreneurs who are still unknown. Since novice entrepreneurs have to overcome problems of newness, their existing ties are not always enough. For this reason, novice
entrepreneurs lacking connections will have to actively develop new ties from the very start.

P2: Novice entrepreneurs have more outward-directed ties in the emergence stage than do serial and portfolio entrepreneurs.

Johannisson (2000) argues that networks of serial and portfolio entrepreneurs are especially developed for further use in subsequent ventures. Hence, long-term relationships should be seen as a means of enhancing future businesses. However, Coviello (2006) found tie durability to vary. In later stages of firm development, long-term ties dominated in one case, while two cases showed a balance between long- and short-term ties. Nevertheless, long-term ties bring advantages in the form of trust and learning and moreover in the form of reciprocity (Håkansson and Snehota, 2006). Long-term ties are also a sign of stability in the network and they make problem-solving easier (Uzzi, 1997). Therefore, long-term ties are expected to be equally important for all types of entrepreneurs.

P3: Long term ties dominate all networks, particularly during growth, with no difference by type of entrepreneur.

A serial entrepreneur cannot rely exclusively on earlier network relationships when starting up a subsequent business, since the new venture may not derive the same benefits from relationships belonging to the earlier venture (Ucbasaran et al., 2003a). In particular, serial entrepreneurs who fail and the next time depend only on previous networks have difficulties getting financial support (Ucbasaran et al., 2003a). Wisdom through experience is not valued. Some serial entrepreneurs focus from the start on exiting the firm at a certain point in order to start or acquire another venture later (Westhead and Wright, 1998). This will impact their willingness to adapt in existing networks but especially on partners’ commitment towards them. Some former relationships are, however, undoubtedly useful in the future for a serial entrepreneur. As a result, portfolio entrepreneurs are expected to have the most previously known ties at emergence, followed by serial entrepreneurs. Due to lack of experience, novice entrepreneurs are expected to use the least previously known ties at emergence.

P4: Portfolio entrepreneurs have most previously known ties in their network at emergence, followed by serial entrepreneurs, while novice entrepreneurs have the least.

Every entrepreneur needs to be able to identify the type of relationships or resources needed in a particular situation (Lechner and Dowling, 2003). Steier and Greenwood (2000) suggest that to overcome the liability of newness, entrepreneurs should develop networks that are diverse and extensive, hence getting a broad network from which to prioritize later. Entrepreneurs thereby advance their ability to discover and exploit opportunities. Schutjens and Stam (2003) and Coviello (2006) found networks consistently increase in size, which is expected here too. The size and diversity of the network impact entrepreneurial opportunity recognition (Aldrich and Zimmer, 1986). However, since both serial and portfolio entrepreneurs have experience with network development, they are likely to possess considerably larger networks than the novice entrepreneurs do at the emergence stage. According to Van de Ven et al. (1984), high performing entrepreneurs are more externally oriented and maintain wide and complex networks. In particular, habitual entrepreneurs (i.e. serial and portfolio) accumulated
wide networks by embedding themselves in diverse sets of trustworthy relationships and extensively interacting with the external environment (Ucbasaran et al., 2003b; Westhead et al., 2005). Therefore, they are also expected to grow their networks more between emergence and growth than will the less experienced, i.e. novice entrepreneurs.

P5: The size of serial and portfolio entrepreneurs’ networks will grow more than the networks of novice entrepreneurs between emergence and growth.

Network density refers to how closely connected actors are to each other. Low density implies that the actors (alters) in the ego-network, do not know each other since they are only connected through ego. Larson and Starr (1993) propose that networks over time become denser when ties become more multidimensional. On the other hand, Hite and Hesterly (2001) argue for a decrease in network density from emergence to early growth. This is supported by Coviello (2006). There are however, differences behind the two conceptual assumptions. Larson and Starr (1993) consider networks to be manageable at the start, while Hite and Hesterly (2001) assume intentional network management in later stages of growth when fewer close relationships are present. If entrepreneurs grow their networks and realize the benefits of keeping actors apart, as suggested by Burt (1992), density can be expected to decrease regardless of type of entrepreneur.

P6: Network density will decrease between emergence and growth for all networks.

Network constraint measures whether a network is directly or indirectly concentrated in a single contact (Burt, 1992, 2001). Therefore, constraint is higher in small networks of close contacts and lower in larger networks of disconnected contacts. Thus, constraint may correlate positively with density but negatively with network size, as in Coviello’s (2006) results. All networks are expected to grow between emergence and growth, and as a result, this will bring about a decrease in network constraint.

P7: Network constraint will decrease between emergence and growth for all networks.

In the following section, interaction and structure are compared according to the six cases included in this study. However, the research methods and design are first presented.

5 Method

The nature of this study is exploratory as it examines network characteristics of different types of entrepreneurs and identifies if and how these networks differ. To capture network processes over time, the chosen method needs to allow for structural patterns to evolve as well as dyadic data that captures network interaction. Using mixed methods is therefore a relevant way of gaining more insight by using multiple perspectives (Onwuegbuzie and Johnson, 2006). The value of this mixed method research design lies in its capacity to provide insights and rich details as well as overall
structural patterns. Mixed methods can be used in data collection and/or analysis (Tashakkori and Teddlie, 1998, 2009) and can be applied sequentially or concurrently (Johnson and Onwuegbuzie, 2004). Here, mixed methods are used sequentially in preparing the data and concurrently when analyzing the data. Thus, the data found in one phase informs the other. The method may give qualitative or quantitative issues a more dominant status or treat them as equally important (Hurmerinta-Peltomäki and Nummela, 2004). Here, qualitative methods are used in data collection and analysis, while quantitative methods are only used in the analyzing phase. Qualitative methods have thus been given a more dominant status.

5.1 Data collection and preparation

Semi-structured interviews were used to explore networks crucial to firm development. All the data was collected in Finland. The data collection and analysis procedures developed in Coviello (2005) and applied in Coviello (2006) were used. As one purpose of this study is to expand theory, theoretical sampling providing an opportunity to select suitable cases was deemed appropriate (Eisenhardt and Graebner, 2007). Multiple cases provides a strong base for theory building and questions of process, like “how” and “why” are best answered by case studies (Yin, 1989). Hence six cases were selected through theoretical sampling, consisting of two entrepreneurs from each of the three categories: novice, serial or portfolio entrepreneurs. Table 1 presents background information on the specific cases.

Table 1 Background information about the entrepreneur and the firm in focus

<table>
<thead>
<tr>
<th>Parental background</th>
<th>Novice entrepreneurs</th>
<th>Serial entrepreneurs</th>
<th>Portfolio entrepreneurs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NE 1</td>
<td>NE 2</td>
<td>SE 1</td>
</tr>
<tr>
<td>Education at start-up</td>
<td>Entrepreneur</td>
<td>Not entrepreneur</td>
<td>Technician/ engineer</td>
</tr>
<tr>
<td>Number of previously owned firms</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Number of currently owned firms</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Line of industry</td>
<td>Metal</td>
<td>Metal</td>
<td>Boat</td>
</tr>
<tr>
<td>Number of employees</td>
<td>14</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Turnover 2006* or 2007 (1000€)</td>
<td>1638</td>
<td>3795</td>
<td>2345</td>
</tr>
</tbody>
</table>

The unit of analysis is the network. The network is defined according to the entrepreneur’s network horizon; in other words how he pursues his network (Anderson et al., 1994). An ego network (or egonet) often includes ties to or from the respondent

3 The data is from the time of data collection (except turnover which is separately marked)
To provide a more comprehensive picture of each entrepreneur’s egonet, the linkages between the other actors (alters) known to the respondent were included, as discussed by Carrington et al. (2005). Though there are only six cases in this study, it should be acknowledged that the total number of ties amounts to over 900.

The respondents were first or second time founders, or multiple founders and owners of their firms. The serial and portfolio entrepreneurs differed from the novice entrepreneurs in that they had started several firms sequentially or simultaneously. The firms represented different manufacturing industries: boat building, construction and the metal industry. Each respondent was interviewed twice at their business premises. The interview rounds were carried out in the winter 2006, summer 2007 and fall 2008. The interviews were recorded and the questions as to ‘what, who, where, why, when and how’ were used as recommended by Pettigrew et al. (2001). The questions focused on how networks developed with an emphasis on relevant relationships for firm growth. Respondents also described the history of these relationships, with emphasis on their relevance and role for the entrepreneurial venture. The duration of the interviews varied from an hour to three hours. The interviews in the second round were used to clarify matters not captured during the first round. Supplementary information about the history of the firm and the background of the entrepreneur was gathered from secondary sources.

The interviews were first transcribed and then the case transcripts were organized into tables, one for each respondent. The tables show the chronological order of each event. From these tables, the interactional dimensions of each network were captured. The tables were then transformed into Excel matrices, with separate spreadsheets corresponding to the different development stages of each firm. An active tie in a particular stage was coded 1 and if not active then coded 0. The matrices were transformed into symmetric UCINET\(^4\) matrices for analysis of the structural characteristics of each network.

5.2 Data analysis

In analysing the data, the stages in which the firms were during data collection were depicted. The variety of life cycle stages\(^5\) is acknowledged but here limited to emergence and growth. According to Hite and Hesterly (2001), the emergent stage begins when a firm is founded and moves thereafter onto early growth. All firms in this sample had reached the second stage; that of growth.

Using mixed methods is an emergent way of capturing network development over time (Johnson and Onwuegbuzie, 2004). The tables of each entrepreneur show the interactional dimensions of the network, following Coviello (2005, 2006). These include tie content, direction, durability as well as tie existence. Tie content is dynamic and varies over time. Here, content is described according to whether a specific tie started out as a business tie, a social tie or if it included both interactional and structural characteristics. Thus, the ties were identified as ‘business,’ ‘social’ or ‘both’. Ties included comprise the firm’s external ties to other actors and ties internal to the

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\(^4\) UCINET is a menu-driven Windows software program especially developed by Borgatti et al. in 1999 to perform social network analysis. The software is continuously developed and upgraded. The versions used in this study are UCINET 6.2 and 6.205. As the tables were later transformed into symmetric matrices the inclusion of tie direction was lost.

\(^5\) For a further discussion of different life cycle stages see Kazanjian (1988) or Van de Ven and Poole (1995)
organization, which were crucial for firm development. Each tie is assessed for tie direction. Who initiates a tie is relevant because it shows who is actively developing new ties, and further, purposely managing the network. Tie direction was coded ‘out’ if initiated by the respondent and ‘in’ if someone else made the contact with the respondent. Third party referrals are bridges to new contacts, as pointed out by Burt (1992). Thus, included here as ‘third party’ are ties that originated from such a source. Tie duration was coded ‘short’ for relationships described as one-off, ‘medium’ if the tie existed for some time but not any longer and ‘long’ if the tie was still active. Tie duration indicates network stability. Finally, tie existence highlights whether the tie was known to the respondent or not prior to venture conception. This dimension captures how many ties are new or if they derive from previous contexts. These four interactional dimensions were compared within and across cases.

The structural dimensions include general network measures and a structural holes measure. The total number of ties across all firms was 954. Therefore, quantitative analysis is possible on this sample. The general network measures include size, density and constraint to which growth rate is also added. Entrepreneurs commonly need to complement their own resources (Greve and Salaff, 2003). Network size is commonly related to how efficiently and successfully resources are found. Growth rate shows whether the expanded networks had a common pattern of increase or if some networks expanded more than others. Low density can be seen as having access to new information (Burt 1992), while high density is seen to provide trustworthy information (Coleman 1988). Burt’s (1992) constraint measure shows the extent to which the entrepreneur (ego) is invested in people who are invested in other actors (alters) in the entrepreneur’s network. This implies that in a network low in density and constraint, the entrepreneur has more power and control.

6 Results

Network interaction will firstly be presented according to the results on tie content, tie direction, durability and existence. Secondly, the structural characteristics, size, density and constraint will be discussed together with growth rate. When turning qualitatively collected data into material that is interpreted both qualitatively and quantitatively, there is a risk that the richness of the qualitative data is partly lost. To overcome this problem, several quotes⁶ are provided to highlight the results from the interviews. To differentiate between types of entrepreneurs and among the separate groups, the following names (also in Table 1-2) are used from here on: NE1 or NE2 for novice entrepreneurs, SE1 or SE2 for serial entrepreneurs and PE1 or PE2 for portfolio entrepreneurs.

In this sample tie content includes mainly business ties, regardless of type of entrepreneur or stage. Therefore, P1: Novice entrepreneurs have more social ties at the emergence stage than serial and portfolio entrepreneurs do is not supported. As seen in Table 2, the social ties hardly emerge. This is in spite of the six entrepreneurs acknowledging the importance of social ties, which here, are also included in the proportion of ties named ‘both’. For example, the interviews with the portfolio entrepreneurs highlight their involvement in networks outside their direct business. From these connections, they emphasize getting resources, especially in the form of information. This is regardless of whether the external relationships are to individuals

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⁶ The translation of the quotes into English has been done by the author.
or firms in the same industry, to national or regional organizations in the same line of business, or if the ties are to organizations or contexts entirely outside the business. Both the portfolio entrepreneurs expressed the following, which is in line with Lechner and Dowling’s (2003) result: “It is not so much about how many you know, but whom you know”. However, between the portfolio entrepreneurs there is a significant difference. PE2 focuses his networks on organizations within his own line of business. PE1 networks externally. He describes the networks and the importance of social ties as follows:

"I have been active all my life in different associations and non-profit organizations. I started in the local sports association and have been the chairman of the board of directors for many years. Then I joined the youth association, where I was chairman of the board of directors for 5 years. I then joined the political life and was chairman of the municipal executive board and thereafter of the municipal council for a long time. I was a member of the board of the regional Chamber of Commerce, the local Federation of Enterprises and in a network for the wood industry. At one time I was simultaneously a board member on 14 different boards. This was 10 boards too many. But I was young and strong then and needed little sleep.”

Ties characterized as being both social and business were found rather important during emergence for NE1 and PE2 and for both serial entrepreneurs. As the business ties increased, the ties including both a business and social side decreased accordingly.

Table 2 Results in % of all ties of the interactional dimensions in the networks

<table>
<thead>
<tr>
<th>Actors</th>
<th>Tie content</th>
<th>Tie direction</th>
<th>Tie durability</th>
<th>Tie existence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bus</td>
<td>Soc</td>
<td>Both</td>
<td>In</td>
</tr>
<tr>
<td>NE 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>81</td>
<td>0</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Stage 2</td>
<td>94</td>
<td>0</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>NE 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>85</td>
<td>9</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Stage 2</td>
<td>92</td>
<td>4</td>
<td>4</td>
<td>85</td>
</tr>
<tr>
<td>SE 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
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<td>14</td>
<td>19</td>
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<tr>
<td>Stage 2</td>
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<td>SE 2</td>
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</tr>
<tr>
<td>Stage 1</td>
<td>81</td>
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<td>17</td>
<td>17</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>93</td>
</tr>
<tr>
<td>PE 1</td>
<td></td>
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<td></td>
<td></td>
</tr>
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<td>11.2</td>
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<td>PE 2</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
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<td>30</td>
<td>37</td>
</tr>
<tr>
<td>Stage 2</td>
<td>95</td>
<td>0</td>
<td>5</td>
<td>45</td>
</tr>
</tbody>
</table>

Tie direction on the other hand, varied both according to stages and type of entrepreneur. For the novice and portfolio entrepreneurs, the majority of ties (56-78 %) were outward-directed during the emergence stage. Therefore, P2: Novice entrepreneurs have more outward-directed ties in the emergence stage than do serial and portfolio entrepreneurs was only partly supported. Serial entrepreneurs differed in that they mostly had third party referrals at the emergence stage. For them, it helped to
use old ties to get in touch with new partners, which made it easier to restructure their network. During the growth stage, the outward-directed ties varied, so that one of each type of entrepreneur (NE1, SE1 and PE1) had an increase of these ties, while the other entrepreneurs’ outward-directed ties decreased.

As the entrepreneur becomes more known and the firm and network develop over time, an increase in inward-directed ties is to be expected. Surprisingly in this sample, only three out of the six entrepreneurs (NE1, SE1 and PE1) succeeded in receiving more inward-directed ties than outward in the second stage. As can be noticed from the data and exemplified in the following quote, these three succeeded in becoming trustworthy partners early on, which shows a change in tie direction with an increase in inward-directed ties. Utilizing existing network ties for developing the business and finding new relationships was particularly emphasized by PE1 when he stated:

“Firstly, you need to believe in your product, then get others to believe. Secondly, it is all about knowing and foremost about trusting people surrounding you. It helped me tremendously (when expanding and founding new businesses), as I knew these guys from before, and they helped me move on.”

Especially for the two experienced entrepreneurs, this was possible as they continued in or expanded the same line of business.

To successfully build networks presupposes long-lasting trustworthy ties (Håkansson and Snehota, 1995; Jack et al., 2004). Long-term ties are necessary for trust to develop, which again impacts on further commitment and adaptation. Long tie durability is a sign of stability in a network over time. Each relationship was coded according to its length as short, medium or long term. The results show that all six networks include long lasting ties regardless of entrepreneurial type. As expected, a majority of all ties were long term in both stages of development. In the growth phase especially, all entrepreneurs reported that 84-100% of their ties were long term. Thus, P3: Long term ties dominate all networks, particularly during growth, with no difference by type of entrepreneur found support. Across the stages of emergence and growth, the number of short term ties decreased for half of the entrepreneurs, namely for NE2 and both serial entrepreneurs. These ventures were all focused on getting fewer but more long-term ties to (e.g.) partners and suppliers. For both portfolio entrepreneurs and NE1, the short term ties showed a slight increase. An increase in the short term ties can be seen as temporary while the ventures search for new partners, and consequently only select the most suitable partners, with whom heterogeneous resources can be strategically combined. Medium ties were nonexistent, probably due to the fact that respondents were reluctant to discuss already ended relationships. Supporting the argument of both long and short term ties is SE2 explaining it the following way:

“It is mostly about old ties, to partners with whom you grow close. However, sometimes you have to select among new ones since you notice a partner, for instance a supplier, that cannot keep up the desired level. Then you search and test until you find a suitable one.”

Finally, the novice entrepreneurs had few prior relations to depend on since a majority of their ties were new. Consequently, they had to actively go and find new partners. However, PE1 (with the largest network) also follows this pattern. Therefore, P4: Portfolio entrepreneurs have most previously known ties in their network at emergence, followed by serial entrepreneurs, while novice entrepreneurs have the least is supported regarding the novice entrepreneurs but not for the rest. Most old contacts were found among the serial entrepreneurs although it appeared very challenging for them to make use of old contacts, other than as referrals, when starting
over. Some of the serial entrepreneurs’ old contacts simply refused to do business with them, due to previous bankruptcy. Other previous contacts simply failed to acknowledge the serial entrepreneurs’ existence, as both SE1 and SE2 describe the feeling: “I was a nobody”. But with those old partners who accepted previous failure as a valuable experience, an even stronger relationship was built, due to solid mutual trust. As one serial entrepreneur put it:

“I had lots of help from my previous trustworthy contacts when I started the second time. I knew almost everyone in the boat industry in the Nordic countries. I could easily sell the new boats based only on drawings without having produced a single boat yet. I could never have done that being totally new in this business.”

However, during the growth stage, the networks of the serial entrepreneurs expanded differently from each other. SE2 mostly had new ties, while SE1 mainly used previously known ties. Similarly, the portfolio entrepreneurs differed. PE1 used mainly new ties (over 90%) during both emergence and growth. PE2 on the other hand used previously known ties during emergence and equally many of both old and new in growth. Third party referrals were important in the emergence phase, but decreased during the growth stage for all six entrepreneurs.

To summarize the interactional dimensions on the network level, both differences and similarities were found. Tie content and tie durability followed similar patterns across all types of entrepreneur, while tie direction and previous existence varied. For all six firms, tie content included mainly business-based ties, although social ties were also recognized on a general level. Tie direction split the sample in two, where half of the entrepreneurs had an increase in outward-directed ties and the other half in inward-directed ties. The decreasing level of third party referrals was common for all, although serial entrepreneurs had the highest amount of third party referrals. All six entrepreneurs built their networks on long-lasting relationships. Tie durability was in other words similar across cases. Ties known prior to venture conception varied among the entrepreneurs, so that the experienced entrepreneurs had a higher amount of previously known ties compared to the novice. Importantly, no specific pattern was able to be identified that consistently differentiated the three types of entrepreneur.

The structural dimensions will now be analyzed. A summary of the results are found in Table 3. The three measures used namely size, density and constraint, are suitable measures for ego-networks. Moreover, growth rate has been added. The size of the network describes the number of actors that the ego, or here the single entrepreneur, is directly connected to. The novice entrepreneurs had the smallest networks at emergence, but the difference was small compared to the networks of the serial entrepreneurs. The networks followed the same growth pattern across stages of firm development. Regardless of number of ties at emergence, all six networks doubled or even more than tripled in size between emergence and growth. The exception was a novice entrepreneur (NE2), whose network also grew but slightly less than the others. The explanation for this can be found in the quote from him below:

“There are not only advantages with having many customers. It is actually the opposite. Having fewer customers is easier, since all customers are different, with various needs.”

Also, NE1’s network grew in fact faster than those of the two serial entrepreneurs. P5: The size of serial and portfolio entrepreneurs’ networks will grow more than the

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7 UCINET counts size as the number of actors that ego (here the entrepreneur) is directly connected to.
networks of novice entrepreneurs between emergence and growth is therefore, only partially supported.

<table>
<thead>
<tr>
<th>Structural characteristics for the networks of novice entrepreneurs</th>
<th>Novice 1</th>
<th>Novice 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Stage 1</td>
<td>Stage 2</td>
</tr>
<tr>
<td>Size</td>
<td>16</td>
<td>48</td>
</tr>
<tr>
<td>Growth factor</td>
<td>3.0</td>
<td>1.79</td>
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<tr>
<td>Ego network density</td>
<td>7.92</td>
<td>13.83</td>
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<td>Constraint level</td>
<td>0.138</td>
<td>0.057</td>
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<table>
<thead>
<tr>
<th>Structural characteristics for the networks of serial entrepreneurs</th>
<th>Serial 1</th>
<th>Serial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Stage 1</td>
<td>Stage 2</td>
</tr>
<tr>
<td>Size</td>
<td>21</td>
<td>47</td>
</tr>
<tr>
<td>Growth factor</td>
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<td>2.70</td>
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<td>Ego network density</td>
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<td>Constraint level</td>
<td>0.137</td>
<td>0.061</td>
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<table>
<thead>
<tr>
<th>Structural characteristics for the networks of portfolio entrepreneurs</th>
<th>Portfolio 1</th>
<th>Portfolio 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Stage 1</td>
<td>Stage 2</td>
</tr>
<tr>
<td>Size</td>
<td>139</td>
<td>492</td>
</tr>
<tr>
<td>Growth factor</td>
<td>3.54</td>
<td>3.35</td>
</tr>
<tr>
<td>Ego network density</td>
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<td>0.82</td>
</tr>
<tr>
<td>Constraint level</td>
<td>0.16</td>
<td>0.003</td>
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</table>

Ego network density increased in four cases. An explanation for this is that the ties included internal relations, added in the form of new employees. Thus, as employees eventually form relationships among each other, density will increase. P6: Network density will decrease between emergence and growth for all networks is partially supported, although a decrease in density was found only in two cases, for SE1 and PE1. Both of these entrepreneurs were exceptionally good at expanding their external networks in new directions and therefore their network density dropped over time.

When a network becomes larger, the constraint level will drop as redundant actors cannot impact on each other. In other words, this gives the entrepreneur (ego) an opportunity to act as a broker or bridge between the otherwise unconnected actors. The decreasing constraint level is shown across all cases regardless of type of entrepreneur. P7: Network constraint will decrease between emergence and growth for all networks is hence supported.

To summarize the overall pattern of the structural characteristics, generally similar patterns of network structure appear across all six entrepreneurs. Specifically, the size of all networks increased while the level of constraint decreased. While density varied (it increased in four cases and decreased in two), these differences did not appear related to type of entrepreneur.

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8 UCINET counts ego network density as the number of ties divided by the total number of potential ties, times 100
Concluding this discussion of results, we recognize that differences do occur in network interaction and structure. Importantly however, we are unable to identify clear differences in network structure or interaction in terms of the three types of entrepreneurs in question.

**7 Discussion**

Contrary to expectations, this study suggests that network interactions and structures are not impacted by the type of entrepreneur. The results do include both differences and similarities but not per type of entrepreneur. Instead, all six networks were rather alike and developed more or less in the same direction. The results are in line with Coviello (2006) in that a more general pattern was found along the structural dimensions. The interactional issues are more process-related and did not in fact change according to the type of entrepreneur, but varied in general across all cases, therefore unique to each firm. This contrasts with the prevailing literature (Westhead et al., 2005, 2003; Westhead and Wright, 1999; Alsos and Kolvereid, 1998; Kolvereid and Bullvåg, 1993) all of which distinguish between types of entrepreneurs.

In this study, the results also fail to support Hite and Hesterly’s (2001) argument, that networks change from being dominated by socially-embedded ties to having a balance of embedded and arms-length ties. Instead, the results for tie content, direction and use of previous vs. new ties are consistent with Coviello (2006). The use of outward-directed ties is perhaps a natural occurrence as the company grows and the entrepreneur actively builds up his network. In this study, we also saw third party referrals help novice entrepreneurs in the first stage of development. Part of a newcomer’s dilemma is to become trustworthy in the eyes of others and having someone supporting and promoting you makes network development easier.

The largest difference by type of entrepreneur and network was the size of each network. As expected, based on the discussion by Westhead and Wright (1998), the experienced entrepreneurs had the largest networks from emergence. However, while actual size varied at emergence, all networks grew extensively regardless of type of entrepreneur. This was in line with Coviello’s (2006) findings of a linear pattern of growth. Since none of these firms had reached any later stage of development than growth, a possible later decrease in network size was not captured as suggested by Greve and Salaff (2003).

Hite and Hesterly (2001) suggest that as a network grows, it shifts from cohesive relations to relations at arm’s-length. In other words, density will decrease. This is in line with Burt (1992), where he suggests that ego may obtain more power and control in a network with low density and constraint. Coleman (1988) on the other hand, stresses cohesive or high density networks, full of close relationships where trustworthy information and advice is exchanged. This view is supported by Larson and Starr (1993) who propose an increase in density over time. In this study however, density varied since both a decrease and increase were found. In contrast, constraint levels decreased across all cases, giving all entrepreneurs an option to act as brokers within the network. If the opportunity is recognized, low constraint will provide the entrepreneur with more control and hence power.
8 Conclusions and Implications

Before considering this study's conclusions and implications, certain limitations to the study need to be noted. Firstly, it was restricted to one geographical area, Finland. Secondly, the six cases were selected to generate variation and depth in data rather than large scale generalized comparisons. However, a large number of network relationships were still captured. Thirdly, as the focus was on entrepreneurs who had already started and run one or several businesses, nascent entrepreneurs were left out of the sample. Fourthly, the focus was on the ego-networks defined by each respondent. Thus, it needs to be acknowledged that a relationship can mean separate things to two partners. Here, only one view has been presented, since looking at each dyad in a network from two angles present practical challenges. Finally, the potential influence of the type of business was left outside the discussion.

In spite of these limitations, all the networks studied here show a similar pattern of evolution, regardless of type of entrepreneur. This result is unexpected, but nevertheless fascinating. It implies that network formation as such is a strong phenomenon which will develop along stages of firm growth regardless of the type of entrepreneur enacting organizational development. This suggests that the individual characteristics of entrepreneurs impact more on the ways of and motives for starting a business, risk willingness and so on, than on network development per se. Consequently, it appears that the development phase of the firm impacts network structure and interactions and over time, the development of the firm and the network impact each other.

Overall, the findings place earlier studies arguing for distinct characteristics of types of entrepreneur in a new light. They also suggest, as argued by Aldrich (1999), the entrepreneurial process takes on meaning only in the context of the broader social environment. Thus, perhaps studies comparing different types of entrepreneurs need to integrate contextual matters such as networks, more fully.

The findings by Greve and Salaff (2003) and Butler and Hansen (1991) highlight that established entrepreneurs may be able to reduce the size of their network and mainly focus on strategically important ties. Consequently, they may spend less but more focused time networking at later stages of firm development. This data shows however, that the experienced entrepreneurs continuously grow their networks. Therefore future research would benefit by looking into this relevant strategic dimension of networking, whether to deepen existing relations, find new ones or perhaps both, and compare this among different types of entrepreneurs.

Tie content was treated here as a static concept; in other words, including the same content from which it started out. However, ties do change, develop and switch content over time. Therefore, future research needs to take into account that changes also take place within ties, as suggested by Håkansson and Snehota (1995). Tie content can change from business-related to more social or from being a cooperative partner to becoming a competitor. This type of content change within ties has not received any significant attention. Thus, changes of all kinds within ties need to be better understood.
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