



Risto Seppänen

TRUST IN INTER-ORGANIZATIONAL RELATIONSHIPS

Thesis for the degree of Doctor of Science (Economics and Business Administration) to be presented with due permission for the public examination and criticism in the Auditorium of the Student Union House at Lappeenranta University of Technology, Lappeenranta, Finland on the 17th of December, 2008, at noon.

Acta Universitatis
Lappeenrantaensis
328

Supervisors Professor Kirsimarja Blomqvist
Knowledge Management / School of Business
Lappeenranta University of Technology
Finland

Professor Kaisu Puumalainen
Strategy Research / School of Business
Lappeenranta University of Technology
Finland

Reviewers Professor Sandro Castaldo
Department of Management,
University of Bocconi, Milan
Italy

Professor Jukka Vesalainen
Department of Management
University of Vaasa
Finland

Opponent Professor Jukka Vesalainen
Department of Management
University of Vaasa
Finland

ISBN 978-952-214-660-1
ISBN 978-952-214-661-8 (PDF)
ISSN 1456-4491
Lappeenrannan teknillinen yliopisto
Digipaino 2008

ABSTRACT

Risto Seppänen
Trust in inter-organizational relationships

Lappeenranta 2008
200 p.

Acta Universitatis Lappeenrantaensis 328
Diss. Lappeenranta University of Technology
ISBN 978-952-214-660-1, ISBN 978-952-214-661-8 (PDF), ISSN 1456-4491

Trust in inter-organizational collaborative relationships has attracted substantial research interest among academics and practitioners. Previous studies have concentrated on the benefits of trust to business outcomes and economic performance, as it is considered to be a source of competitive advantage. Despite this increased level of interest, there is no consensus, much less overall agreement, about how it should be conceptualized or about the number of dimensions it incorporates. On the inter-organizational level there is an obvious challenge in defining both the trusting party and the objects of trust. Thus, the notion of trust as an under-theorized and poorly understood phenomenon still holds. Hence, the motivation of this study was fuelled by the need to increase our knowledge and understanding of the role and nature of trust in inter-organizational collaborative relationships. It is posited that there is a call for more understanding about its antecedents and consequences, as well as about the very concept in inter-organizational collaborative relationships.

The study is divided into two parts. The first part gives a general overview, and the second part comprises four research publications. Both qualitative and quantitative research methodology is utilized. A multi-method research design was used because it provides different levels of data and different perspectives on the phenomenon. The results of this study reveal that trust incorporates three dimensions on both the individual and the organizational level: capability, goodwill, and self-reference. Trust develops from the reputation and behavior of the trusted party. It appears from this study that trust is clearly directed towards *both* individual boundary spanners *and* the counterpart company itself – i.e. not only to one or the other. The trusting party, on the other hand, is always an individual, and not the organization per se. Trust increases collaboration benefits and lowers collaboration drawbacks, thus having a positive effect on relationship performance.

The major contribution of this study lies in uncovering the critical points and drawbacks in prior research and thereby in responding to the highlighted challenges. The way in which these challenges were addressed offers contributions to three major issues in the emerging theory of trust in the inter-organizational context: *firstly*, this study clarifies the trustor-trustee discussion; *secondly*, it conceptualizes trust as existing on both individual and organizational levels; and *thirdly*, it provides more information about the antecedents of trust and the ways in which it affects relationship performance.

Keywords: Inter-organizational trust, collaborative relationships, trustor, trustee, relationship performance

UDC 65.012.65 : 005.94

ACKNOWLEDGEMENTS

To say I could not have accomplished this task without the help of various people is trite, but absolutely true. I am deeply grateful to you all.

First, I would like to thank my supervisors: Professor Kirsimarja Blomqvist introduced me to this research area, and offered me the chance to become a member of the research community; Professor Kaisu Puumalainen guided me in my methodological choices and helped in structuring the dissertation manuscript.

I would also like to express my thanks and gratitude to the pre-examiners of my thesis, Professor Jukka Vesalainen and Professor Sandro Castaldo, for their constructive comments and suggestions. They helped me to improve my manuscript at the final stage.

My co-author, Professor Sanna-Katriina Asikainen, showed me an effective and straightforward way of writing and finishing research reports, and I am grateful to her for that.

I have been fortunate enough to have many colleagues whose help I always can count on. Hanna-Kaisa Ellonen, Anssi Tarkiainen, and Mika Vanhala have given me sound advice on research and methodological issues. Professor Aino Kianto and Jianzhong Hong have commented on my work actively during the project. Furthermore, the stimulating discussions with various people in the LUT School of Business and the Technology Business Research Center (TBRC) gave me new insights and encouraged me to go on with my work.

I am proud of being a member of the Knowledge Management community: Riikka Ahteela, Leila Armila, Hanna-Kaisa Ellonen, Johanna Heikkinen, Kaisa Henttonen, Elina Hyrkäs, Miia Kosonen, Lassi Köppä, Heidi Olander, Paavo Ritala, Mia Salila, and Mika Vanhala are just as much friends as colleagues. We have had a lot of fun and many laughs together, both during and outside working hours. I have appreciated in particular our HBO Miia Kosonen's contribution to raising and keeping up our community spirit, and thus making it enjoyable to come to work every day. In addition to benefiting from our supportive and fruitful discussions on doing research, I have thoroughly enjoyed many friend-to-friend chats with Hanna-Kaisa Ellonen about all kinds of things to do with life in general. I am deeply grateful to her for sharing with me these relaxing moments.

The financial support received from the Academy of Finland, the Foundation for Economic Education (Liikesivistysrahasto), and Lappeenrannan teknillisen yliopiston tukisäätiö (Lauri ja Lahja Hotisen rahasto) is gratefully acknowledged.

I would also like to thank Joan Nordlund for her professional help in revising the language of my work.

Last but not least, I would like to express my gratitude to my friends and family for their patience and support during the whole of this long project.

Lappeenranta, November 2008

Risto Seppänen

TABLE OF CONTENTS

PART I: OVERVIEW OF THE DISSERTATION

1 INTRODUCTION.....	13
1.1 Background and motivation	13
1.2 Research objectives.....	15
1.3 Scope and limitations of the study.....	17
1.4 Outline of the study.....	18
2 THEORETICAL BACKGROUND	21
2.1 The multi-disciplinary nature of trust	21
2.2 Trust in an inter-organizational context	22
2.3 Theoretical approaches to inter-organizational trust	24
2.3.1 Economic frameworks.....	24
2.3.2 Socio-psychological frameworks.....	27
2.4. A synthesis of the theoretical foundations	32
2.4.1 A summary of the theoretical frameworks	32
2.4.2 Issues to be resolved in developing a theory of inter-organizational trust.....	33
3 EMPIRICAL STUDY	36
3.1 Research strategy and methodology	36
3.2 Data collection and analyses	37
3.2.1 Review and analysis of prior studies.....	37
3.2.2 Qualitative study	38
3.2.3 Quantitative study	39
4 SUMMARIES OF THE PUBLICATIONS AND A REVIEW OF THE RESULTS	43
4.1 Measuring inter-organizational trust – a critical review of the empirical research between 1990 and 2003	43
4.1.1 Overall objective	43
4.1.2 Results and main contribution	43
4.2 Who trusts who? Examining the nature of inter-organizational trust.....	44
4.2.1 Overall objective	44
4.2.2 Results and main contribution	45
4.3. Trust and its antecedents in inter-organizational relationships	46
4.3.1 Overall objective	46
4.3.2 Results and main contribution	48
4.4 The effects of trust on value creation in inter-organizational relationships	49
4.4.1 Overall objective	49
4.4.2 Results and main contribution	50
4.5. A summary of the results of the whole study	51
5 DISCUSSION AND CONCLUSIONS	54
5.1 Answering the research questions	54
5.2 Theoretical contribution and managerial implications	56
5.2.1 Clarifying the theoretical level	57
5.2.2 Introducing a three-dimensional definition of trust	57
5.2.3 Revealing the antecedents, consequences, and performance effects of trust	58
5.2.4. Managerial implications	59

5.2. Limitations.....	60
5.3 Suggestions for further research.....	61

REFERENCES

PART II: PUBLICATIONS

1. Seppänen, R., Blomqvist, K. and Sundqvist, S. (2007). **Measuring inter-organizational trust – a critical review of the empirical research between 1990 and 2003.** *Industrial Marketing Management*, 36, 249-265.
2. Seppänen, R. (2008). **Who trusts who? Examining the nature of inter-organizational trust.** *Communications of the IBIMA (CIBIMA) journal*, Volume 2, number 11, 2008, 75-84.
3. Seppänen, R. (2008). **Trust and its antecedents in inter-organizational relationships.** In the proceedings of the 10th International Business Information Management Conference (IBIMA) on Innovation and Knowledge Management in Business Globalization, 30.06. – 02.07.2008, Kuala Lumpur, Malaysia
4. Seppänen, R. (2008). **The effects of trust on value creation in inter-organizational relationships.** In the proceedings of the 3rd International Forum on Knowledge Asset Dynamics conference (IFKAD), 26.-27.06.2008, Matera, Italy.

The contribution of Risto Seppänen to the publications:

1. Made the research plan and coordinated the writing of the paper together with co-authors. Collected and analyzed the data together with co-authors. Wrote the paper together with co-authors.
2. Sole author.
3. Sole author.
4. Sole author.

PART I: OVERVIEW OF THE DISSERTATION

1 INTRODUCTION

1.1 Background and motivation

Globalization, the pace of change, and environmental uncertainty have fostered tightening competition between companies. At the same time, the knowledge-based economy and the ever-increasing amount of information has caused a situation in which companies can no longer produce and manage knowledge on their own. As a result, they are forced more and more to concentrate on developing their core competences and to seek flexibility through leveraging their strengths and competences in collaborative arrangements with other companies. Relying on collaboration with other companies is thus unavoidable, but it is also an opportunity for coping with the tough competition through the creation of value, and even competitive advantage, from the ability to share, absorb, and utilize diverse knowledge. (Inkpen 1996; Contractor & Lorange 2002; Norman 2002; Van de Ven & Ring 2006) The leveraging of external complementary knowledge through collaboration is a key asset in continuous innovation (Miles et al. 2000), and thus innovation could be considered a product of collaboration between companies (Van de Ven & Ring 2006).

Given the above it is not surprising that interest in both horizontal and vertical collaborative arrangements has increased significantly during the last few decades. The focus has changed from transactional and short-term-oriented relationships to closely integrated collaborative and longer-term relationships, which are seen as a means of increasing flexibility, agility, and value creation (Ganesan 1994; Anderson 1995; Coote et al. 2003). Consequently, the firm's capability to establish inter-organizational relationships such as partnerships and alliances has become a critical source of knowledge-based competitiveness.

Collaboration between companies is not always easy and successful, however. In fact, a considerable number of strategic alliances have turned out to be unsuccessful and have failed (e.g., Park & Ungson 2001; Kale et al. 2002). One crucial reason for these failures is a lack of trust between the parties involved (e.g., Ariño & de la Torre 1998). If there is no trust, the perceived risk of confronting opportunistic behavior may make decision-making under conditions of bounded rationality (Teece 1998) or radical uncertainty (Nooteboom 2002) untenable, and thus lead to withdrawal from the collaboration.

Consequently, trust in both horizontal and vertical inter-organizational collaborative relationships has attracted substantial research interest (e.g., Grey & Garsten 2001; Van de Ven & Ring 2006; Currall & Inkpen 2006; Poppo et al. 2008) among academics and practitioners. Previous studies in several disciplines have concentrated on the benefits of trust to business outcomes and economic performance (Zaheer & Harris 2006; McEvily & Zaheer 2006; Poppo et al. 2008), as it is considered to be an organizing principle and a means of coordinating relationships (Bachmann 2001; McEvily et al. 2003). It is also considered essential in coping with interdependence, uncertainties, and risk within and between organizations (Luhmann 1979; Sydow 2006), and thus even a source of competitive advantage (Barney & Hansen 1994; Mohr & Spekman 1994; Jarillo 1988). Furthermore, trust is assumed to have a positive effect even on the functioning and prosperity of larger social systems, nations, and national economies (Hosmer 1995; Fukuyama 1995). Some studies argue that it has straightforward positive effects, such as improved task performance (Carson et al. 2003) and higher return on investments (Luo 2002), while others take the view that it affects economic performance indirectly through certain mediating effects, which in turn evoke better relationship performance (Dirks & Ferrin 2001; Zaheer & Harris 2006, 169-190).

Despite this increased level of interest in trust and its acknowledged positive effects, no consensus has been reached about the nature and definition of the concept (e.g., Nooteboom 2006). Studies conducted so far take very different approaches depending on the researcher's theoretical background and the chosen empirical context (e.g., Blomqvist 1997). Consequently, prior research offers dozens of definitions of trust alone (e.g., Castaldo 2007). It is widely agreed that it is a multidimensional phenomenon, given the fact that no single dimension properly describes the whole concept (e.g., McAllister 1995; Lewicki et al. 1998; Das & Teng 2001). Neither is there any consensus, much less overall agreement, about how it should be conceptualized or about the number of dimensions it incorporates, and their nature (see e.g., Zaheer & Harris 2006). Further, given the apparent causal relationships between trust and related concepts, for example, there is no overall agreement about the factors that evoke it, or its consequences (for a detailed review of definitions of trust and its dimensions, antecedents, and consequences, see Castaldo 2007). On the organizational and, especially, inter-organizational levels there is an obvious challenge in defining both the trusting party and the objects of trust (Janowicz & Noorderhaven 2006). It is thus clear that Child's (2001) notion of trust as an under-theorized and poorly understood phenomenon still holds.

Given the lack of a commonly agreed and applied conceptualization of trust, the problems with empirical research are apparent. Solid measurement of constructs and hypothesis testing are, in any event, essential means of facilitating the development, generalization, and diffusion of knowledge (Churchill 1979; Bacharach 1989), and the rigorous testing of theories (Currall & Inkpen 2002).

All in all, research on trust in an inter-organizational context has progressed significantly in the last ten years or so, but there is still much confusion and ambiguity in conceptualizing, operationalizing, and measuring trust and its origins and effects on this level (e.g., Currall & Inkpen 2002; Zaheer & Harris 2006; Currall & Inkpen 2006; Poppo et al. 2008). Hence, the motivation of this study was fuelled by the need to increase our knowledge and understanding of the role and nature of trust in inter-organizational collaborative relationships. It is posited that there is a call for more understanding about its antecedents and consequences, as well as about the very concept. Systematic and rigorous empirical testing of the theories is needed in order to reach a more solid stage in the research process. Moreover, practitioners would clearly benefit from clarifying the connection between trust and its causes and effects: identifying the factors causing and developing trust between parties would obviously ease the targeting of efforts and investments. Similarly, solid and reliable measures would, for their part, be of substantial assistance to managers in terms of sensing possible threats in the company's collaborative relationships.¹

1.2 Research objectives

The objective of this study is to explore the role and nature of trust in inter-organizational relationships. Accordingly, the *main research question* is:

How is trust manifested in inter-organizational relationships?

¹ This topic is considered highly relevant in Finland, for example: the *Technology Industries of Finland* Association's *Trio* development project sponsored the *InnoSpring Access* research project (*Lappeenranta University of Technology*), of which this study is a part. The *Trio* development program concentrates on improving business know-how and developing shared networking methods among its c.a. 1200 member SMEs. *Technology Industries of Finland*, in turn, is an association comprising companies operating in the top industries (the technology industries represent 60% of the whole export, and 75% of all R&D investments in Finland).

Finding an answer to this question requires a systematic and critical analysis of prior research on trust in an inter-organizational context. In other words, the theoretical approaches, levels of analysis, research contexts, conceptualizations, operationalizations, and measurement issues should be examined. Assessment of the state, i.e. the advances and setbacks, of prior research is needed in order to clarify the research gap and to specify the necessary steps in the concept-measurement process. Consequently, the first sub-question to be answered is:

1) How has trust been empirically studied in inter-organizational research?

Further, there is a need to identify and investigate the actual trustors and trustees in an inter-organizational context. The goal is thus to establish whether the trusting and trusted parties, i.e. the subject and the object of trust, are on the individual or the organizational level, or both. As noted above, these are questions to which prior research gives contradictory answers. The second and third sub-questions are thus:

2) Who is the trusting party in inter-organizational settings?

3) Who is the trusted party in inter-organizational settings?

Although there is a consensus that trust is a multidimensional phenomenon, research so far lacks overall agreement about the conceptualization and the number and content of its dimensions. Therefore, a further goal of this study is to identify the dimensions of inter-organizational trust and thus to arrive at a conceptualization of trust in these settings. Accordingly, the fourth sub-question is:

4) How can inter-organizational trust be conceptualized?

There are also somewhat ambiguous and controversial interpretations of the linkages between inter-organizational trust and the factors that precede it. Again, there is an obvious challenge in conceptualizing the level of analysis. Furthermore, given the interrelationship between trust and its causes and effects, for example, the direction of causality seems to be an apparent problem. Accordingly, another aim of this study is to explore the factors that evoke trust in the other party, especially in an inter-organizational context. Thus, the fifth sub-question is:

5) What are the antecedents of inter-organizational trust?

Finally, the results of prior research offer contradictory interpretations about the effects of inter-organizational trust on relationship performance. Thus, the final goal of this study is to identify the effect of trust on the relationship and its performance. The aim is to examine, whether its effect on relationship performance is straightforward, or whether it is mediated by certain effects, which then evoke better performance. Consequently, the sixth sub-question to which this study seeks an answer is:

6) *What is the connection between trust and relationship performance?*

1.3 Scope and limitations of the study

There are certain deliberate limitations to the scope of this study. The focus is on relationships between organizations. Consequently, intra-organizational trust relations, such as superior-subordinate and subordinate-organizational systems, are left aside.

Furthermore, the study is targeted on companies functioning in business environments. Thus, governmental institutions, and public-utility, non-profit and charity organizations fall beyond its scope. The concept of an organization is understood here according to the assumptions of the positivist paradigm, in other words in an objective, real, and apprehensible view of reality (Guba & Lincoln 1994; Sobh & Perry 2006). It is thus conceptualized as a coalition of people, bound together with both legal and social ties. It is, in other words, a systematic and manageable entity with clear boundaries.

Inter-organizational relationships are considered here not as entirely arms-length, but as more close and, at least to a certain extent, collaborative. A variety of different types are covered: both vertical such as buyer-supplier, supplier-manufacturer and industrial-marketing relationships, and horizontal relationships such as partnerships, strategic alliances, joint ventures, and closer and longer-term R&D cooperation. Nevertheless, it is recognized that companies almost inevitably belong to different kinds of networks (Ford et al. 1998; Vesalainen 2002). This study concentrates especially on dyadic business relationships, however, i.e. on the interaction between two actors in a network.

The performance of an inter-organizational exchange relationship refers here to its perceived effectiveness and quality (Zaheer et al. 1998). It reflects, in other words, the extent and degree to which one party is satisfied with the business outcomes (Smith & Barclay 1997). Hence, relationship performance is defined in this study as the extent to which the parties involved perceive that the relationship has been effective in realizing performance objectives.

Finally, there are relevant context- and relationship-specific factors that obviously might affect perceived trust or the relationship performance. The decision to leave such factors beyond the scope of the study was made in order to simplify this complex phenomenon with its multifaceted connections. Hence, narrowing down the set of explanatory factors made the theoretical model manageable and understandable.

1.4 Outline of the study

The study is divided into two parts. The first part gives a general overview, and the second part comprises four research publications. The outline of the study is depicted in Figure 1 below.

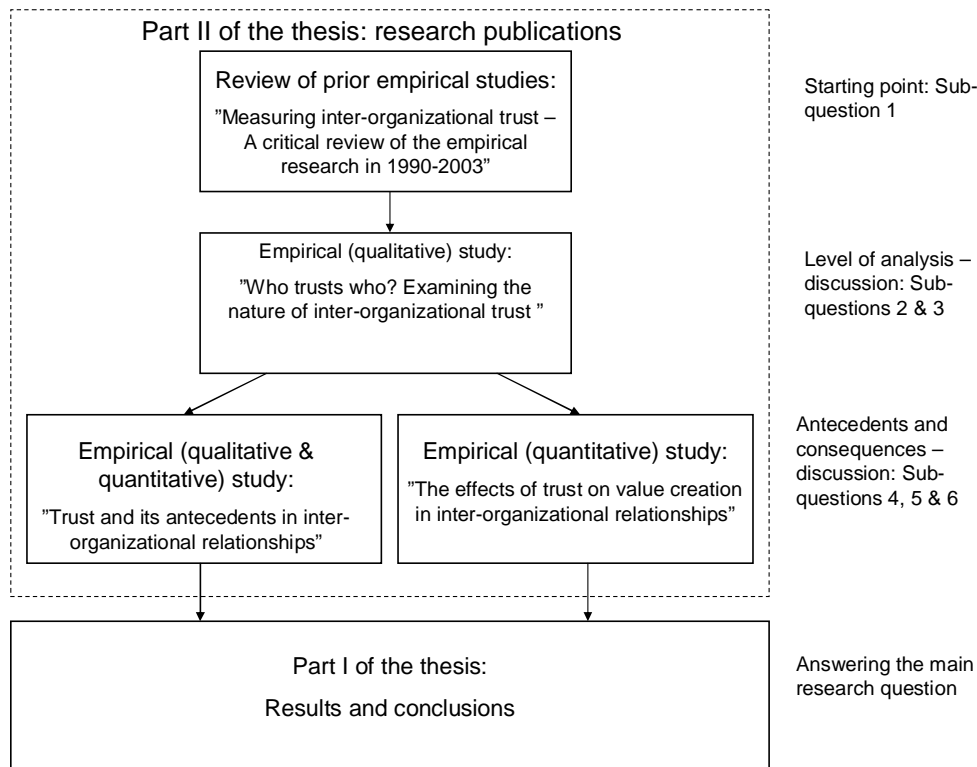


Figure 1. The outline of the study

Part I consists of five chapters. The first chapter covers the background, motivation, objectives, scope, and outline of the study, and the second gives the theoretical background. Chapter three describes the research strategy, methodology, and data sampling used, while Chapter four gives summaries of the publications and reviews the results. The fifth chapter introduces the conclusions and the contributions of the study, and discusses its limitations and further research suggestions.

The second part of the study comprises four research publications. The first is a review and analysis of prior quantitatively-oriented empirical research on trust. The second describes a qualitative study, focusing on the level of analysis: in other words, it contributes to the discussion on trust concerning whether the trustor and the trustee exist on the collective, organizational level. A model of trust and its antecedents in inter-organizational settings is developed and quantitatively tested in the third publication, and the fourth introduces a study

examining the effect of trust through several mediating factors in the performance of a relationship between two organizations.

2 THEORETICAL BACKGROUND

This chapter introduces the broader theoretical foundations of the study. The first section describes the multi-disciplinary nature of the trust concept, and the second discusses studies on trust in the context of this study, i.e. inter-organizational relationships. The two theoretical approaches most commonly used in explaining trust, i.e. the economic and the socio-psychological approaches, are then reviewed. The chapter ends with a summary and a synthesis of the theoretical foundations.

2.1 The multi-disciplinary nature of trust

The roots of research on trust lie in the individual, and hence the first studies were conducted in the disciplines of psychology and sociology in the context of human behavior and interpersonal, i.e. social, relationships (e.g., Deutsch 1960; Blau 1964; Rotter 1967; Erikson 1968; Luhmann 1979; Lewis & Weigert 1985; Lewicki & Bunker 1995). The focus in the studies was on “basic trust”, i.e. on parent and child relationships, and the nature and development of trust between relatives and friends (see e.g., Misztal 1996, 160). Trust in these studies is viewed mostly in terms of bowing voluntarily in a vulnerable position and in the goodwill of the trusted person (Blomqvist 2002). Trust has also aroused interest in the discipline of philosophy, in which it is seen as an unconscious and non-rational option (Baier 1986; Herzberg 1988; Lagerspetz 1992).

It was not long before interest in trust and its benefits on the group and organizational levels (e.g., Argyris 1962; Gambetta 1988; Hosmer 1995, Kramer & Tyler 1996) extended to the field of organization and management, e.g., organizational psychology, organizational behavior, and behavioral economics (Tyler 2003). It has been argued that trust is a central factor in understanding organizational dynamics (*ibid.*) and functioning (Kramer 1999; Dirks and Ferrin 2001), linking the individual and inter-personal aspects to economic transactions and organizational performance (Hosmer 1995). Accordingly, trust is considered important in a variety of areas: communication and information sharing (Giffin 1967; Boss 1980; O’Reilly 1978); management, leadership, and organizational citizenship behavior (McAllister 1995; Konovsky & Pugh 1994; Davis et al. 2000); psychological contracts between employees and the employer (Robinson 1996); and unit performance (Dirks 2000). For a comprehensive

review of the literature on trust in organizational settings, see Dirks and Ferrin (2001), and Bijlsma and Koopman (2003) for common conceptualizations of the topic. Later the literature also focused on trust between employees and their organizations as an institutionalized entity (McCauley & Kuhnert 1992; Costigan et al. 1998)².

Given the above, it is obvious that trust has also attracted increasing attention in areas of research on inter-organizational relationships such as marketing and strategic management (e.g., Sako 1992; Ring and Van de Ven 1992, 1994; Lane and Bachmann 1998; Child and Faulkner 1998; see also Zaheer & Harris 2006): it is argued to enhance the “coordination of economic activities” (Zaheer et al., 1998; 141) on the inter-firm level, and to be an essential factor in economic exchange (Arrow 1974; Granovetter 1985). In the context of economics, when it is recognized it is considered important in terms of its effect on performance (e.g., Axelrod 1984; Chiles & McMackin 1996; see also Nooteboom 2002). Its function as a lubricant facilitating interaction and collaboration is stressed (Arrow 1974; Gambetta 1988). One of the major arguments in the literature on inter-organizational trust is that it reduces transaction costs (e.g., Gulati & Singh 1998; Young-Ybarra & Wiersema 1999; Dyer & Chu 2003; see also Zaheer & Harris 2006), and improves performance (Zaheer et al. 1998; see also McEvily & Zaheer 2006). On an even broader scale, it is considered to affect the prosperity of regions and even nations (Fukuyama 1995; Hosmer 1995), “general trust” being an essential precondition for social relations (Möllering 2006; Kautonen 2005b). In recent years, economists have studied the role of trust in the transitional phase of former socialist economies into market economies.

2.2 Trust in an inter-organizational context

In the context of inter-organizational relationships, the areas in which trust most often features include organization studies, strategic management, and marketing.

Organization and management studies concern, in addition to intra-organizational issues, the benefits of trust in managing, coordinating, and governing inter-organizational collaborative relationships such as strategic alliances, partnerships, and joint ventures. Trust in these studies

² The term *institutional trust* has been introduced as an organizational member’s trust in the efficiency and fairness of the structures and organizational systems (such as the strategy, HR policies, and technology) of his/her organization (McCauley & Kuhnert 1992; Costigan et al. 1998).

has been linked to reducing transaction costs (e.g., Gulati & Singh 1998; Dyer & Chu 2003; McEvily et al. 2003), cooperation and satisfaction (Anderson & Narus 1990), partnership success (Mohr & Spekman 1994), risk in a relationship (Nooteboom et al. 1997), performance (Sako 1998), social control (Fryxell et al. 2002), as well as the clan culture and organizational traits (Perrone et al. 2003).

The research on strategic management emphasizes trust as a means of improving financial performance, thus being a source of competitive advantage (e.g., Barney & Hansen 1994; Hosmer 1994; Mohr & Spekman 1994; Lane et al. 2001; Poppo & Zenger 2002). Here, trust is related to the choice of governance form, and is considered a substitute for control and governance mechanisms such as contracts, or a complement of other governance mechanisms as such (e.g., Ring & Van de Ven 1992; Zaheer & Venkatraman 1995; Kale et al. 2000; Poppo & Zenger 2002; Luo 2002; see also Castaldo 2007, 73-77). In these approaches it is related to reputation (Dollinger et al. 1997; Weigelt & Camerer 1988; Roberts & Dowling 2002), for example, and is acknowledged to be a source of relational capital (e.g., Kale et al. 2000), commitment (Hosmer 1994), and joint action (Zaheer & Venkatraman 1995), leading to learning and know-how transfer (Kale et al. 2000; Lane et al. 2001).

Inter-organizational trust has a notable role in the field of marketing, especially in the literature on relationship marketing (e.g., Dwyer et al. 1987; Morgan & Hunt 1994; Doney & Cannon 1987; Smith & Barclay 1997; Coote et al. 2003; Andersen & Kumar 2006; see also Castaldo 2007, 84-85). The so-called *interaction approach*, and later especially the *industrial network approach* developed by the IMP group, deal with trust in industrial buyer-supplier relationships (Halinen 1994; Svahn 2004; Castaldo 2007, 7) and conceptualize it as a means for coping with uncertainty, and as a prerequisite for relationship commitment (Ford et al. 1998; Gadde & Håkansson 2001; see also Äyväri 2006). It is thereby viewed as a source of great benefit for companies (Naude & Buttle 2000; Gadde & Snehota 2000; Batt & Purchase 2004) in that it enables longer-term-oriented cooperation. The interaction and industrial-network approaches emphasize social interaction, which is considered the primary driving force of trust development (Gadde & Håkansson 2001, 107).

2.3 Theoretical approaches to inter-organizational trust

In the context of this study, i.e. inter-organizational relationships, trust is usually theorized in terms of either economics or social psychology, or both (see e.g., Castaldo 2007). Theories of economics, such as the *Transaction cost approach* (Williamson 1975, 1985; 1993) and *Rational choice theory* (see e.g., Elster 1983; Sugden 1991), are often applied in studies of trust on the organizational and inter-organizational levels. On the socio-psychological side, the most relevant approaches for understanding trust in inter-organizational exchange are the *Social capital approach* (e.g., Coleman 1972; 1988; Nahapiet & Ghoshal 1998) and *Social exchange theory* (e.g., Homans 1958, 1974).

2.3.1 Economic frameworks

Transaction cost economics

A dominant economic framework explaining the effects of trust in inter-organizational-relationship performance is *transaction costs economics* (TCE). The original work of Ronald Coase (1937) was developed by Williamson (1975, 1985, 1991) for analyzing the costs of economic exchange. The TCE framework is based on the transaction characteristics, not on the relationship itself, in the analysis of interaction between organizations (Nooteboom 2002). Its basic premises are in analyzing the boundaries of the organization, i.e. in make-or-buy decision-making (Robertson 1996; Vesalainen 2002; Kohtamäki et al. 2006). The costs of transactions and economic exchange are, according to TCE, attributable to governing and coordinating the exchange, i.e. negotiating, contracting, monitoring, and controlling (Gulati 1995; Kautonen 2005a). The most substantial transaction costs in inter-organizational relationships result from the threat, or at least the possibility, of opportunistic behavior by the other party (Williamson 1975, 1985; Gulati 1995; Kohtamäki 2005). Not all actors involved in interactions are opportunistic, and according to the premises of bounded rationality (Williamson 1975; Teece 1998), or radical uncertainty (Nooteboom 2002), one cannot know in advance who are. Therefore, it is safest to assume that everyone is opportunistic (Nooteboom 2002; Kautonen 2005a, 2005b; see also Ghoshal & Moran 1996).

Trust was originally totally – at least explicitly³ - neglected in the TCE framework. Later, Williamson (1993) criticized the concept, claiming that, due to its vagueness, it was inappropriate in economic analyses (Castaldo 2007). One of the first times that trust was acknowledged as belonging to the domain of transaction cost economics was in an article by Bradach and Eccles (1989) suggesting that it was not only related to price and authority, but was also a governance mechanism in a relationship. Thereafter, the argument that trust is an essential means of reducing transaction costs has perhaps most often been used in the context of its effects on organizational performance. The focal point in this argumentation is that there is inevitably uncertainty and the risk of opportunistic behavior on the part of the other party in every relationship. Therefore, companies dealing with an uncertain, complex, and risky future need trust as a mechanism for making the other party's behavior more predictable. Coping with uncertainty and the risk of opportunism, again, is considered to reduce transaction costs. (Bradach & Eccles 1989; Gulati 1995; Nooteboom 2002; Kohtamäki 2005; Kautonen 2005b; Castaldo 2007)

It is not only a question of lowering transactions costs, however: trust also came to be perceived as a factor in increasing *transaction value* (for an introduction of this concept, see Zajac & Olsen 1993 and Dyer 1997) and *transaction benefits* (see e.g., Blomqvist et al. 2002). This discussion suggests that trust facilitates cooperation, innovation, and learning by increasing the sharing of confidential and sensitive information, for example. Thus it may be that it is through increasing transaction value that it enhances performance and economic outcomes (e.g., Zaheer et al. 1998; Dyer & Chu 2003; McEvily et al. 2003; see also McEvily and Zaheer 2006).

Rational choice theory and Game theory

Whereas the TCE framework recognizes the evident presence of bounded rationality and uncertainty in all interaction, *rational choice theory*, and game theory as its tool, emphasizes humans as rational actors, i.e. capable of calculating the best possible ways of dealing with the threatening images of the future. Rational choice theory is a central framework for explaining individual behavior in neoclassical and “mainstream” economics (Sugden 1991; Ruuskanen 2003). In following their own preferences individual actors show “manifestations of reasoning” while acting so as to satisfy their own interests by rationally considering the

³ Williamson (1975) refers to the *transactional atmosphere*, which could be interpreted as the recognition of trust in TCE (Kautonen 2005b, Castaldo 2007).

available alternatives and choosing the option that maximizes their own individual satisfaction and utility (Misztal 1996, 77-88). Free will, consistent elaboration, and the execution of decisions and choices are, in other words, the key factors of rational-choice theory (Elster 1983, 1; Sugden 1991).

The framework of *game theory* is salient in the analysis of decision-making processes and situations according to the theory of rational choice (Misztal 1996, 78; Elster 1983, 13). The original assumption behind both theories is that individuals are interested only in their own welfare and aim, therefore, to maximize their own – financial in particular – profits in strategic-decision-making situations (Chaudhuri et al. 2002). A common game-theoretical experiment is that of the prisoner's dilemma⁴, in which the two parties in the game have to decide whether to collaborate with the other party and thus expose themselves to opportunistic behavior (e.g., Axelrod 1984). This kind of experiment is called the *trust game*⁵ in trust-related studies based on game-theoretical methods (see e.g., Berg et al. 1995; Glaeser et al. 2000; Chaudhuri et al. 2002).

Thus, while emphasizing the relationship between trust and rationality, rational-choice theory suggests that individuals – as rational actors – trust only if the potential gains are bigger than the potential losses. In other words, trust is purposive behavior resulting from the rational pursuit of self-interest and aiming at utility maximization under risk. Consequently, studies on trust based on rational-choice theory and game theory tend to view trusting as a conscious decision, and hold that trust is, in fact, a rational expectation. (Misztal 1996, 78-85; Kautonen 2005a) The term calculative trust (Williamson 1993), used in these settings, thus refers to the rationality and wisdom of both 'to trust' and 'not to trust' decisions. The above-mentioned prisoner's-dilemma model predicts that rational actors choose the 'not to trust' mode but, according to studies based on rational-choice theory, it may be the opposite. For example, Dasgupta (1989) uses game-theoretical modeling to support the proposition that trusting creates economic value because of its connection to reputation.

⁴ In the prisoner's dilemma the players have to decide whether to expose themselves to possible betrayal by the other player by collaborating (when there is, on the other hand, also the possibility of a win-win or non-zero sum outcome). If either of the players makes a betrayal, the game ends up in a win-lose outcome. Game theory predicts that players, as rational and opportunistic individuals, choose the not-to-collaborate mode, in which there is no risk of being betrayed but there is a zero-sum outcome.

⁵ Consistent results of these trust-game experiments demonstrate, however, that humans do not, in fact, behave as argued in rational-choice and game theory. According to Chaudhuri et al. (2002), these results show that the actual behavior of humans as "homo economicus" is also affected by emotional factors such as reciprocity and trust.

In sum, the economic frameworks used for explaining the role and nature of trust in inter-organizational interaction deal with transactions and choices in decision-making situations. Transaction cost economics tends to neglect trust on the basis that it is too vague a concept for economic approaches, and thus assumes that a calculative decision is 'not to trust' the other party due to the risk of facing opportunistic behavior. Rational-choice theory, on the other hand, emphasizes the relationship between trust and rationality, i.e. the choice to trust or not to trust is a result of a careful and rational weighing-up of the consequences of that decision. Both frameworks thus emphasize a calculative approach to the role of trust in interaction between relationship parties.

2.3.2 Socio-psychological frameworks

Social capital

Social capital is undoubtedly one of the most relevant approaches for examining trust in inter-organizational contexts. In bringing the consequences of sociability and the functioning of social networks – i.e. social capital - into the discussion on other forms of capital, it has succeeded in reducing the distance between the social and economic perspectives in the examination of organizational advantage (Portes 1998; Nahapiet & Ghoshal 1998; Adler & Kwon 2000). In particular, Coleman's (1998) article stresses that combining the economic and sociological approaches gives the social-capital argument enhanced explanatory power. The sociological approach allows description of activities in their social environments and explains how this environment limits and redirects individuals' actions. Economics, on the other hand, postulates clear and consistent determinative grounds for individuals' activities: in assuming that actors are independent and self-interest seeking – i.e. bent on maximizing their own advantage - it provides an unambiguous starting point for the analysis, and reduces speculation about the interpretation of the results. Accordingly, Coleman criticizes sociological approaches for neglecting economic motives, and economic approaches for neglecting the social-functioning context. (ibid.)

The origins of the social-capital approach lie within the social sciences – initially in community studies from where it has spread to several other fields, including organization studies (Nahapiet & Ghoshal 1998; Adler & Kwon 2000). The basic premise of this approach

is that relationships – or networks of relationships, to be precise – form a valuable resource for conducting all social affairs (Nahapiet & Ghoshal 1998). In other words, the focus is on the positive consequences of sociability and the social relationships between the actors (Portes 1998). Networks of social relationships are seen as capital because they are, like other forms of capital, productive and they enable the achievement of goals that would otherwise be impossible (Coleman 1988). Social capital is thus a resource that can be invested in with the expectation of returns (Gulati 1998; Adler & Kwon 2000; Toivola 2005).

Prior research offers several definitions for the concept of social capital. Those given by Fukuyama (1995) and Portes (1998), for example, concentrate on the ability of actors, i.e. people, to work together for common goals and to secure benefits in groups, organizations, and networks. Putnam (1995), on the other hand, refers to the features of the “social organization” in facilitating cooperation for mutual benefit. Similarly, Coleman (1988), while noting that “social capital is defined by its function”, refers to the entities facilitating the actions of individuals. Nahapiet and Ghoshal (1998) define social capital in terms of both the network and the assets that it can mobilize (for a review and a list of definitions, see e.g., Adler & Kwon 2000).

The concept of trust is inherent in the discussion on social capital, yet their precise relationship is seen somewhat differently. Putnam (1993, ref. Adler & Kwon 2000) refers to trust as a source, and Coleman (1988) as a form of social capital. Moreover, Ruuskanen (2003) sees trust as a mediating mechanism between social capital and its effects, while Fukuyama (1995) equates the two. Nahapiet and Ghoshal (1998) define social capital as consisting of structural, cognitive, and relational dimensions, and suggest that trust is a component of the relational dimension. Adler and Kwon (2000), on the other hand, propose that trust is both a source and an effect of social capital, and furthermore that they are mutually reinforcing. In any case, the literature on the social-capital approach is unanimous in stressing the importance of trust in the functioning of social networks. Consequently, researchers have also used this approach as a theoretical framework in examining trust and its outcomes within and between organizations.

Social exchange theory

Another relevant socio-psychological framework within which to investigate trust is *social exchange theory* (SET), the aim of which is to explain social exchange and interaction, and to

consider the changes and permanence between the parties in a relationship. The roots of the SET approach are in socio-psychological studies of child-parent and marriage relations. The early work was based on the concept of social behavior as exchange and on the reciprocity norm (e.g., Homans 1958; Gouldner 1960). Later on, the focus in the literature expanded to include the factors of relationship development and maintenance (e.g., Cook & Emerson 1978).

According to the SET approach, all relationships between actors are formed on the basis of subjective cost and profit analysis, and by comparing the available alternatives. It is thus predicted that in a situation in which an actor finds that the costs related to the relationship exceed the profits (i.e. benefits), he or she chooses to withdraw. When the costs and profits are even, the relationship could be considered evenhanded and fair. The concepts of fairness and equitability are at the core of the SET approach. Another key assumption is that the actors are self-interested and thus interact with other self-interested actors in order to achieve goals they cannot achieve alone. A rational consequence of this assumption is that the actors in the relationship are interdependent. (Ekeh 1974; Emerson 1976; Lawler & Thye 1999)

The four essential concepts in the SET approach are reciprocity, the long-term relationship, dyadic exchange, and rationality. The concept of *reciprocity* in this connection “insists” that the parties in a relationship return a received favor. In other words, either one constantly owes the other a favor. Moreover, the party receiving the favor can never fully return it, and thus the exchange goes on and leads to a *long-term* relationship. Even though the actors inevitably belong to a network or networks, the SET approach focuses on the *dyadic relationship* – the exchange process takes place between two entities. Even though originally concentrated on the individual level, the analysis may nevertheless be conducted on the organizational level. The parties in a relationship assess their choices logistically and *rationally*, and aim at maximizing their benefits. The relationship is maintained – or exited – based on this rational cost-profit calculation. (e.g., Emerson 1976; Cook & Emerson 1978; Westphal & Zajac 1997; Lawler & Thye 1999)

While assumptions of reciprocity, fairness, equitability, and long-term relationships are connected to social motives, the emphasis on rationality and the calculative comparison of alternatives link the SET approach directly to economic frameworks in that it includes the core assumptions of rational-choice and game theory. On the other hand, assumptions of

equity, actors' social identity, and social motives link it to the social-capital approach and differentiate it from the rational-choice paradigm.

The assumption of reciprocity and norms of fairness are the points that link the SET approach to the concept of trust (e.g., Blau 1964). The expectation, or obligation, of reciprocity suggests that the parties in a relationship expect the not-yet-returned favors to be returned in the future. At this point, it is a question of whether to trust the other party to be reciprocal or not. Be it a rational and conscious, or an irrational and not calculated decision, it is about dealing with an uncertain future. Consequently, the SET approach is used as a theoretical basis in several studies on trust in inter-organizational settings (e.g., Ganesan 1994; Zaheer & Venkatraman 1995; Aulakh et al. 1996; Young-Ybarra & Wiersema 1999).

In sum, both of the socio-psychological approaches discussed above have close links to the economic approaches introduced in the previous sub-chapter. The social-capital approach sees social interaction and relationships in terms of capital, and as having similar outcomes to all other forms of capital, while the SET approach assumes that individual actors behave rationally and have self-interested goals when making decisions concerning their relationships. Yet, both also have socio-psychological aspects that separate them from purely economic frameworks. Further, both are inherently linked to the concept of trust. Table 1 below summarizes the key characteristics of the four theoretical frameworks introduced above.

Table 1. A summary of the most commonly used theoretical approaches in the literature on inter-organizational trust

	Transaction cost economics	Rational choice theory & Game theory	Social capital	Social exchange theory
Origins	Economic theories; firm-level exchange, boundaries of the firm	Economic theories, neoclassical & mainstream economics; individual behavior analysis Biology, mathematics	Socio-psychological theories, community studies; social-network analysis	Socio-psychological theories, child-parent & marriage relationships; social exchange and interaction analysis
Key authors	Coase (1937); Williamson (1975, 1985, 1991)	e.g., Homans 1961; Axelrod 1981, 1984	e.g., Coleman (1988); Putnam (1995); Nahapiet & Ghoshal (1998)	e.g., Homans (1958); Gouldner 1960); Emerson (1976); Cook & Emerson (1978)
Level of analysis	Individual Organization Network	Individual Organizational Networks	Individual Organization Network	Individual Organization Network
Focus	Transaction characteristics between the parties	Individual actors' behavior in decision-making situations	Consequences of social relationships between the actors & social relationships as a form of capital	Rational, long-term, and reciprocal dyadic social interaction between individual actors
Relation to trust	Neglects / the other party is not to be trusted / calculative trust	Emphasizes trust as purposive behavior	Emphasizes trust as a source, form, mechanism, and effect of social capital	Embedded in the reciprocity assumptions
Basic assumption about humans	Individuals are boundedly rational. Some (not all) are opportunists	Individuals are rational and calculative actors, maximizing their own satisfaction and utility	Individuals are usually considered sociable, communal, trustworthy, and prone to helping each other and working for the common good	Individuals are self-interested, logical, and rational; yet interdependent, equitable, and reciprocal in their actions
Areas of research on trust where used	Organization studies, strategic management	Organization studies, strategic management	Organization studies, strategic management	Strategic management, marketing

2.4. A synthesis of the theoretical foundations

2.4.1 A summary of the theoretical frameworks

In sum, the economic and socio-psychological frameworks introduced above offer different yet relevant grounds and perspectives for research on trust in exchange relationships between organizations. *Economic frameworks* embody views of trust as a rational and self-interested attitude or an expectation, held by calculative actors seeking their own utility and satisfaction. The transaction cost approach emphasizes bounded rationality, causing a situation in which the actors cannot know whether the other party to the exchange is opportunistic or not. Rational-choice and game theory, on the other hand, view actors as capable of arriving at rational and tenable solutions to ‘trust or not to trust’ questions. The TCA assumption concerning long-term relationships is embedded in the notion that the risk of opportunism is bigger than in short-term market transactions. Rational-choice theory and its game-theoretical approaches, on the other hand, treat exchanges between parties as more or less one-time transactions.

Socio-psychological frameworks, although sharing some premises with economic frameworks, differ from them in emphasizing the equitability, fairness, sociability, and trustworthiness of actors. The social-capital approach posits that individual actors work for the common good and are prone to helping each other without any calculative and self-interested expectation of getting services or favors in return. Social-exchange theory views individuals as self-interested and capable of making rational judgments about their social relationships, and thus shares some common ground with economic frameworks. Yet, like the social-capital approach, SET also emphasizes reciprocity, fairness, and equity among actors in an exchange relationship. Both approaches also share the basic long-term-relationship premise: it is one of the four explicit and basic assumptions in the SET approach, whereas in the social-capital approach it is embedded in the assumption that building and forming social networks do not happen quickly.

As noted above, the economic and the socio-psychological approaches have different yet obvious advantages in research on trust in exchange relationships between organizations. Consequently, some studies use both (e.g., Heide & John 1992; Ganesan 1994; Gulati 1995;

Zaheer & Venkatraman 1995; Aulakh et al. 1996; Sako & Helper 1998; Young-Ybarra & Wiersema 1999): combining the tenets of the two frameworks gives a more comprehensive picture of the phenomenon. Yet, although incorporating the most relevant assumptions as far as research on trust is concerned, they still merely serve as a theoretical background in building up the emerging theory. There are, in fact, certain vital questions in the research on inter-organizational trust to which they cannot offer answers – or at least they have not yet done so. These are discussed next.

2.4.2 Issues to be resolved in developing a theory of inter-organizational trust

The subject and object of trust

One of the most crucial questions in studies on inter-organizational-level trust is to identify who are the actual subjects and objects of trust. As noted earlier, trust was originally considered an individual-level phenomenon, the obvious justification for this argument being that only individuals are capable of having subjective mental states, expectations, and attitudes (e.g., Aulakh, Kotabe & Sahay, 1996; Currall & Inkpen 2002). Yet, inter-organizational relationships inevitably exist on both individual and organizational levels. Consequently, treating a substantially individual-level phenomenon on the organizational level is an apparent challenge in exploring trust in inter-organizational settings (Zaheer et al. 1998; Janowicz & Noorderhaven 2006). Some studies conducted on this level conceptualize it as an organizational-level phenomenon, in other words the subject may be an individual (e.g., Zaheer et al. 1998; Jeffries & Reed, 2000) or an organization (e.g., Anderson & Narus 1990; Doney & Cannon, 1997; Das & Teng 1998). Similarly, the object of trust is defined as either an individual (e.g., Zaheer et al. 1998; Jeffries & Reed, 2000) or a whole organization (e.g., Nooteboom, Berger & Noorderhaven, 1997; Zaheer, Lofstrom & George, 2002). In addition to facing challenges in determining the level of inter-organizational trust, prior studies tend to mismatch the levels of theory and analysis: some are theoretically on the organizational level but are operationalized on the individual level (see Currall & Inkpen 2002 for more on this discussion).

Definitions and dimensions of trust

Secondly, there is not yet overall agreement about the nature and conceptualization of trust in inter-organizational settings (e.g., Nooteboom 2006), partly due to the different approaches

taken from various backgrounds and disciplines, as discussed earlier (see e.g., Blomqvist 1997, 2002). As pointed out in the first chapter, there are dozens (over 70, to be more precise) of definitions of trust in the existing literature (e.g., Castaldo 2007). It is most commonly conceptualized as an expectation, a belief, willingness, confidence, or an attitude (see Castaldo 2007, 142-148, 245-250). There is obviously, therefore a lack of consensus in the discussion about the number of dimensions trust incorporates.

One of the most often used dimensions in prior research is competence-based trust (e.g., Mishra 1996, Blomqvist 1997, Saporito et al. 2004), also called expertise (Hovland et al. 1953), ability (Deutsch 1960, Andaleeb 1992), expertness (Giffin 1967), and capability (Blomqvist 2002). It refers to skills and characteristics (Mayer et. al. 1995), and to a perception of, or a belief in, the other party's ability to perform, meet its obligations, and produce the desired outcomes (Andaleeb 1992; Doney & Cannon 1997). Another frequently used dimension is goodwill trust (Ring and Van de Ven 1992, Sako, 1992; Blomqvist, 1997; Lui & Ngo 2004): similar constructs include benevolence (Strickland 1958), intentions and motives (Deutsch 1960; Mishra 1996), fairness (Butler 1991), and altruism (Frost, Stimpson & Maughan 1978). Goodwill trust refers to the expectation held by one party that the other party intends to behave in a mutually beneficial way (Gulati 1995; Nooteboom 1996; Norman 2002). It thus includes the extent to which one party is believed to want to respect and act in the interests of the trusting party and to be loyal, honest, fair, understanding, and responsible (Mayer et al. 1995; Blomqvist 2002).

Among the several other suggested dimensions of trust are confidence (Aulakh et al. 1996), reliability (e.g., Chow & Holden 1997; Smith & Barclay 1997), credibility (e.g., Ganesan 1994; Doney & Cannon 1997), contract trust (Sako & Helper 1998), calculative trust (Gassenheimer & Manolis 2001), honesty (e.g., Chow & Holden 1997; Smith & Barclay 1997; Coote et al. 2003), judgment (Smith & Barclay 1997), dependability (Smith & Barclay 1997; Young-Ybarra & Wiersema 1999), and self-reference (Blomqvist 2002). For a review of definitions and dimensions of trust, see Castaldo (2007), for example.

The causes and effects of inter-organizational trust

Thirdly, previous research has produced somewhat controversial results about the linkages between trust and its causes and effects in inter-organizational contexts. It has been argued that trust is the result of information sharing and exchange (Plank et. al. 1999; Denize &

Young 2007), familiarity (Gefen 2000), conflict reduction (Leonidou et. al. 2008), and reputation (Anderson & Weitz 1989; Ganesan 1994; Doney & Cannon 1997), for example. Furthermore, shared values (Morgan & Hunt 1994), transaction-specific investments (Ganesan 1994), and honesty, integrity and reliability (e.g., Swan et. al. 1985; Moorman et. al. 1993, Doney & Cannon 1997) are also considered to engender inter-organizational trust. Some studies suggest, however, that these constructs describe the effects of trust, or even dimensions of the trust construct (again, see Castaldo 2007).

In a similar vein, the discussion on the effects of inter-organizational trust draws somewhat ambiguous conclusions. On the one hand, trust is considered to have a straightforward positive effect on business outcomes, i.e. on financial performance (Zaheer & Harris 2006), thus leading to competitive advantage (Barney & Hansen 1994). These direct effects include improved task performance (Carson et al. 2003) and higher return on investments (Luo 2002). On the other hand, it is also claimed that trust exerts its effect through various mediating factors (Dirks & Ferrin 2001; Zaheer & Harris 2006, 169-190), which either reduce transaction and relationship-specific costs such as those related to negotiation and severe conflicts (e.g., Zaheer et al. 1998), opportunism (Smith & Barclay 1997), and control (Smith & Barclay 1997), or increase the positive effects of exchange such as communication and information sharing (e.g., Dyer & Chu 2003; Szulanski et al. 2004), flexibility (Aulakh et al. (1996; Young-Ybarra & Wiersema 1999) and commitment (Tellefsen and Thomas 2007). Hence, prior studies obviously lack an overall view of the ways and links through which trust affects relationship performance.

In summary of the above discussion, there are still several issues to be examined and questions to be answered in the field of research on inter-organizational trust. Further development of a contextual theory of trust in inter-organizational relationships requires investigation and clarification of issues connected to the subject and object, the conceptualization, and the antecedents and consequences of trust in inter-organizational exchange relationships. Hence, the aim of this study is to make a contribution by examining these above-mentioned and not-yet-clarified issues.

3 EMPIRICAL STUDY

The chosen research strategy and methodology, and the data-generation process, are discussed in this chapter.

3.1 Research strategy and methodology

Part II of this dissertation consists of four research publications addressing the six research sub-questions. The first publication is a review and critical analysis of prior research, aimed at answering the first sub-question concerning how trust has been empirically studied in inter-organizational research. The other three consist of empirical analyses of trust in inter-organizational relationships. The second one is a qualitative study dealing with the sub-questions concerning who is the trusting party and who is the trusted party in the relationship. The third utilizes both qualitative and quantitative data, and addresses the sub-questions of how inter-organizational trust can be conceptualized, and what its antecedents are. A quantitatively oriented research approach is taken in the fourth publication, which deals with the relationship between trust and relationship performance.

The decision to utilize a multi-method design and data triangulation was based on the research objectives and questions, and also on the results derived from the theoretical phase of the study. It seemed that in order to enhance understanding of the complex phenomenon at hand, qualitative studies should be carried out prior to any quantitative testing. Consequently, qualitative methods were used in the development of the quantitative measures (Creswell et al. 2003, 209-214). Quantitative approaches, on the other hand, were considered essential because valid and reliable measurement methods facilitate the development of knowledge (Churchill 1979), the generalization and diffusion of produced knowledge, and more rigorous theory testing (Currall & Inkpen 2002). The development and verification or falsification of theories are dependent on hypothesis testing – which, again, is dependent on the solid measurement of constructs (Bacharach 1989).

A multi-method research design was used because it provides different levels of data and different perspectives on the phenomenon. In other words, the idea was to inductively develop the theoretical model and then to test it in the deductive phase. (Morse 2003, 202-205) A

summary of the methods and data used in each publication is given in Table 2 at the end of this chapter.

3.2 Data collection and analyses

3.2.1 Review and analysis of prior studies

In addressing the first research sub-question, the research process began with an extensive literature review and a systematic and critical analysis assessing several studies in the field of trust. Even though this study is strictly focused on the inter-organizational context, the review phase started with an examination of the literature on trust on several levels and in various disciplines. The aim was to gain an overall understanding of this phenomenon, which was originally studied on the individual level in the field of psychology, and later on expanded to incorporate the group, organization, inter-organizational, and even nation-wide levels in the disciplines of organization research, strategic management, economics, and marketing, for example.

Following a general examination of the literature, the analysis turned to prior research on inter-organizational trust. Given the nature of the research problem, the focus was on empirical, and especially quantitative, studies. The review covered studies published in scientific journals in 1990-2003, not including conference proceedings and working papers. An article search in international journal databases identified 107 articles. At this point, studies related to trust within organizations and to organization-consumer relationships were excluded. Artificial laboratory experiments, role-plays, trust games, and studies among students were also left out of the analysis. Further, given the focus on private business organizations, studies on governmental institutions, for example, were excluded. These restrictions led to the selection of 15 quantitative studies for deeper content analysis, the aim of which was to produce an objective assessment of the state of empirical research on trust, thus seeking to answer the first research sub-question. Three researchers were involved in this review phase, and they all participated equally in the data searching, reviewing, and analysis.

3.2.2 Qualitative study

The results of the analysis of previous research revealed that there was still much ambiguity and haziness on the conceptual level. Therefore, the next step was to adopt an explorative research strategy and a qualitative approach. The goal of this phase was to answer the second and third research sub-questions concerning the subjects and objects of trust in inter-organizational settings. Two separate data-gathering methods were utilized: focus-group interviews and individual interviews. Focus-group interviews allow the exploitation of group dynamics (Rubin & Rubin 1995; Morgan 1998; Krueger & Casey 2000), give speedy results, and facilitate low-cost sampling among fairly large populations (Berg 2004, 126-128). Semi-structured individual interviews, in turn, provide the possibility to gather more in-depth data (Berg 2004, 128). Both methods have their advantages and both were therefore used for the purposes of data-triangulation, i.e., to obtain both a broader and a deeper understanding of the topic.

The focus-group and individual interviews were carried out during 2006. The interviewees for the focus groups were selected with a view to forming homogenous groups in order to avoid hierarchical influences between the participants (Krueger & Casey 2000; Krueger 2002). The interviewees were from multiple industries and companies of varying sizes. A total of 22 interviewees were segmented (Morgan 1996) into four groups, each of which consisted of worker, expert, leader, and manager levels. The discussion topics were based on the literature review discussed above. There were two moderators in all four interviews, each of which lasted approximately 150 minutes. They were tape-recorded, with the permission of the interviewees, and afterwards fully transcribed for analysis. A dataset of 146 pages was produced as a result of the transcription. The number of focus-group interview sessions was determined by data saturation (Morgan 1996; Berg 2004).

Six *individual interviews* were also conducted in order to deepen and clarify some of the findings and insights that arose from the focus-group data. These interviews were semi-structured, i.e., there was a combination of open-ended and structured questions (Snow & Thomas, 1994). The participants were from two multinational companies (one in the ICT industry and one in machinery and equipment manufacturing). They were all key boundary-spanners in their firms, i.e. they were people who dealt with inter-firm collaborative relationships on a daily basis. They represented upper- and middle-level managers, and people

on the operational level. One of these interviews was conducted by telephone, and the remaining five were conducted face-to-face. They, too, were all tape-recorded and fully transcribed for analysis. The interviews lasted from 50 to 120 minutes. As a result of this phase, a dataset of 114 pages was created.

Atlas/Ti qualitative-analysis software was used to code and analyze the resulting datasets. It assists the coding process in facilitating the maintenance and tracking of the chain of evidence during the analysis process. Template analysis (King 1998, 2004) was used for organizing, reducing, and analyzing the data in a thematic and hierarchical manner. This method allows modification of the initial code set during the analysis process, and thus supports the reflexivity of the research process. (King et al. 2002; King 2004) The foundations and the use of Template analysis are described in more detail in the second publication.

3.2.3 Quantitative study

The quantitative phase of this study was conducted in order to find answers to the research sub-questions dealing with the conceptualization, antecedents, and consequences of inter-organizational trust. The interview data gathered in the qualitative phase was also utilized in the hypothesis-development process in this phase. The empirical survey data, i.e. for both the pre-testing phase and for the actual analyses, was collected in spring 2007 with the help of the developed survey instrument. It was gathered from multiple companies of varying sizes in the field of technology. The selected companies were members of the Technology Industries of Finland association who were participating in its TRIO development project. The respondents were selected together with two experts in the association. The respondents represented various organizational levels, yet they all dealt with at least one of the inter-firm collaborative relationships in which their firms were engaged. As is common in organizational studies, the key-informant technique was also applied here. Janowicz and Noorderhaven (2006) suggest that single key informants may well be used as data sources.

In the pre-testing phase the preliminary questionnaire was sent to 142 people in 14 companies who were involved in inter-organizational collaborative relationships, and 43 usable questionnaires were returned. Principal component analysis (PCA) was used for testing the data. Given the modest response rate, the PCA analysis was conducted with oblique rotation

for each factor separately. A number of items (communalities $< .5$ and items that had either cross-loadings or poor loadings on the right factor) were dropped. Some modest changes in wording were made as well, based on the verbal comments of the pre-test respondents. Following the pre-testing phase, the final survey instrument consisted of 91 items, of which 22 concerned antecedents of trust, 35 concerned trust, 30 the consequences of trust, and four the performance of the relationship. In addition, respondent-, company-, and relationship-level questions were used for collecting descriptive data.

An e-mail invitation to participate in the study, including information about the research project, response instructions⁶, and a personal link to the web-based questionnaire, was sent to 1,079 respondents. A reminder message was sent to those who had not replied after five days, and this procedure was repeated twice, i.e. three reminder messages were sent. A total of 266 responses were received, of which 263 were usable: this gave a response rate of 24.7%.

The companies comprising the final data sample were mainly small and medium-sized, i.e. over 70% had less than 250 employees, and about two thirds had an annual turnover of less than 20 million euros. Over two thirds of the firms were in the machinery-engineering and metal industries, and the rest were in ICT, and in electronics and electrical engineering. The majority (about 80%) of the respondents were either department or company directors, while the rest were experts and staff or team supervisors. The great majority of the company relationships were buyer-supplier or R&D-related. Most of them were at quite a mature stage: in almost 50% of the cases they had been going on for between two and ten years, and in 46% of the cases for over 10 years.

The aim in the next phase was to gain a holistic understanding of trust and its antecedents and consequences. Causal explanatory logic was used, and the research approach was quantitatively oriented. A conceptual model consisting of the hypothesized relationships between trust and its causes and effects was developed based on the prior literature and the qualitative phase of the study. The constructs in the model were then operationalized as a survey instrument. Standard psychometric scale-development methods were used in the measurement-building process (Churchill 1977; DeVellis 2003). The majority of the measures were adapted from prior research, but they were nevertheless modified to suit the context of

⁶ The respondents were asked to choose one collaborative partnership from all the partnerships their company had, and to respond accordingly about that partner company and the key boundary person.

this study. In addition, some measures were specially generated. The language of the survey instrument was Finnish, and therefore the adapted items were translated from English and then back-translated into English for reporting purposes.

Following the gathering of the data via the final survey instrument, the developed conceptual model and formed hypotheses were tested using quantitative methods. First, following the normality checks, non-response bias was tested according to the procedure suggested by Armstrong and Overton (1977), by means of analysis of variance with one-way ANOVA. Next, the theoretical model was tested and the validity and reliability assessed by means of Structural equation modeling⁷ (Confirmatory factor analyses - CFA) using LISREL 8.5. software with Maximum Likelihood (Joreskog & Sorbom 1996). The CFA analysis – rather than exploratory factor analysis – was chosen in order to obtain a strict assessment of unidimensionality (Gerbing & Anderson 1988). The results of the CFA analyses revealed extensive shared residual variance or large modification indices in some items. As a result of further specification, these items were excluded one-by-one. The remaining items are listed in the appendices of the two relevant publications.

Once the content, convergent and discriminant validity, and the construct reliability of the model and the required psychometric properties of the measures (Fornell & Larcker 1981; Hair et al. 1998; Diamantopoulos & Siguaw 2000) were assured, the hypotheses were tested by means of linear regression analysis, with SPSS software. The variables were added to the model according to the enter method. The Mediated Regression Technique (Baron & Kenney 1986; Pierce et al. 2004)⁸ was used for testing the hypothesized mediating effects of collaboration benefits and drawbacks between trust and performance. The progress of each quantitative analysis is described in more detail in the two relevant publications.

⁷ Structural equation modeling is an umbrella term for a group of methods used for modeling the covariance structure between variables. Structural equation models, in other words, aim at depicting the structure of the data and the relationship between the variables using linear groups of equations. The target is to create a group of equations that depicts the structure of the data as well as possible. Confirmatory factor analysis with LISREL-software is one of the most commonly used means of conducting structural equation modeling in testing whether the previously created, fairly complex theoretical model fits the data. (Hair et al. 1998; Diamantopoulos & Siguaw 2000; Nummenmaa 2004)

⁸The aim is to obtain more detailed information about the causal relationships than could be gained with simple regressions or correlations. The mediated regression technique includes the modeling of regression in three steps: 1. regressing the mediating variable on the independent variable ($z = a_1 + b_1x$); 2. regressing the dependent variable on the independent variable ($y = a_2 + b_2x$); and 3. regressing the dependent variable simultaneously on both the independent and the mediating variables ($y = a_3 + b_3z + b_3x$).

Table 2. A summary of the methods and analysis in relation to the publications

Publication	Methods	Data
Publication 1: <i>Measuring inter-organizational trust – A critical review of the empirical research in 1990 - 2003</i>	Systematic review and critical analysis (context, level of analysis, theoretical approach, conceptualization, operationalization, and measurement issues) of prior quantitative studies of trust in an inter-organizational context	15/107 studies, focusing on trust in inter-organizational business context, published in international scientific journals
Publication 2: <i>Who trusts who? Examining the nature of inter-organizational trust</i>	Qualitative: open-ended focus-group interviews & semi-structured individual interviews, Template analysis	22 interviewees - workers, experts, leaders, and managers - in 4 focus-group interviews & 6 individual interviewees - organizational key boundary spanners - in individual interviews
Publication 3: <i>Trust and its antecedents in inter-organizational relationships</i>	Qualitative: open-ended focus-group interviews & semi-structured individual interviews, Template analysis & Quantitative: survey; PCA, Confirmatory factor analysis & Linear regression analysis	22 interviewees - workers, experts, leaders, and managers - in 4 focus-group interviews & 6 interviewees - organizational key boundary spanners - in individual interviews & 43/142 organizational key informants as respondents in the pre-testing of the survey instrument 263/1,079 organizational key-informants as respondents
Publication 4: <i>The effects of trust on value creation in inter-organizational relationships</i>	Quantitative: survey; PCA, Confirmatory factor analysis & Linear regression analysis, Mediated regression technique	43/142 organizational key informants as respondents in the pre-testing of the survey instrument 263/1,079 organizational key-informants as respondents

Both the qualitative and quantitative data for this study were collected as a part of the Technology Business Research Center (TBRC) research project ‘Collaborative Innovation and networked R&D’ (InnoSpring Access).

4 SUMMARIES OF THE PUBLICATIONS AND A REVIEW OF THE RESULTS

This chapter presents the overall objectives and main contributions of each publication. They all deal with separate yet related research objectives and questions. In combination they build up a holistic and general view of trust in inter-organizational relationships, thereby answering the research questions posed earlier. The questions and the main results reported in the publications are summarized in the last section of this chapter.

4.1 Measuring inter-organizational trust – a critical review of the empirical research between 1990 and 2003

4.1.1 Overall objective

Numerous studies on trust have been conducted and published during the last few decades, yet there is still no consensus about its true nature. The first publication (Seppänen, Blomqvist & Sundqvist 2007), a literature review of prior empirical studies on trust in inter-organizational settings, addressed this issue. The objective was to evaluate the advancements and setbacks in quantitative research aiming to measure trust. The ultimate goal was to establish the possible reasons behind the different approaches taken in the studies conducted so far. Accordingly, the review covered the research contexts and levels of analysis, the theoretical approaches, conceptualizations and operationalizations, and measurement issues.

4.1.2 Results and main contribution

The findings revealed major conceptual and methodological challenges in studying the complex concept of trust in inter-organizational settings. There are major inconsistencies in terms of conceptualization, operationalization, and measurement. The differences in conceptualization cover the very concept of trust as well as its antecedents and consequences. The fact that constructs suggested as antecedents in some studies are referred to as consequences or even dimensions in others indicates the causal and reciprocal nature of trust and related concepts. Furthermore, the theoretical level on which inter-organizational trust is dealt with varies: both the trusting and the trusted parties are conceptualized on either the

individual or the organizational level, or both. In addition, there is, in some studies, apparent confusion between the levels of theory and measurement: while trust is conceptualized on the organizational level, it is operationalized and measured on the individual level.

The variation in the study contexts – i.e. industry and relationship type – is not different enough to justify the use of fundamentally different approaches. As a conclusion it is suggested that researchers first need to conduct more theoretical studies, and only then to embark upon empirical research in order to improve the theoretical coverage of trust as a concept. A further suggestion is to carry out qualitative studies prior to conducting quantitative surveys. More attention should be paid in particular to the level of analysis in future studies on inter-organizational trust, and there is a need for replication in different types of contexts.

The main contribution of the first publication thus lies in the critical analysis and assessment of the advancements and setbacks of prior research, and accordingly in the suggestions put forward for future research directions and approaches.

4.2 Who trusts who? Examining the nature of inter-organizational trust

4.2.1 Overall objective

The main objective of this second study (Seppänen 2008) was to find out whether trust could exist as a collective-level phenomenon. The goal was, in other words, to clarify who is the subject and who is the object of trust in inter-organizational relationships.

The findings of the first study revealed a lack of, conceptual distinction between inter-personal and inter-organizational trust in many of the earlier studies. Further, when a distinction is made, the levels of theory and empirical treatment are often mis-specified. Prior research identifies four types of trustor-trustee situation: one individual trusts another individual; an individual trusts an organization; an organization trusts an individual; or one organization trusts another organization. Figure 2 below illustrates these four varying conceptualizations in a two-by-two matrix.

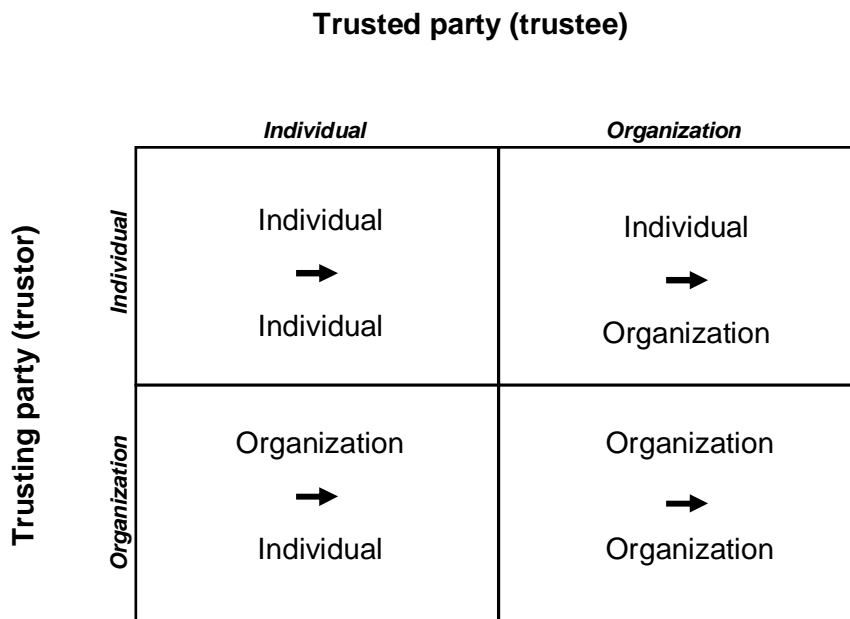


Figure 2. Conceptualizations of trust in inter-organizational settings in prior research (adapted from Janowicz & Noorderhaven 2006)

There is, in other words, an ongoing debate for and against the existence of trust on the collective level. Clearly, defining the trustor and the trustee on the inter-organizational level is a challenging task. This conceptual inconsistency is one of the main reasons for the ambiguity, the variations in approaches, and the different interpretations in previous studies, however. Accordingly, this paper contributes to the trustor-trustee discussion in the context of relationships between organizations.

4.2.2 Results and main contribution

The results of this study revealed that no collective or generic and shared trust in an organization exists: it is rather a question of the sum or mean of trust that organizational members have in the other party. The role of key boundary persons in the formation of trust among other organizational members in the other party is obvious. The unanimous and uniform perceptions and opinions of the other party do not, therefore, represent a manifestation of collective, organizational-level trust. Further, the study findings strongly

support the argument that trust can be targeted both on the key boundary persons and on the organization itself. Complementing the above arguments from prior research, the results offer strong support for the argument that the trustee is not *either* an individual *or* the organization, but is inherently *both*.

The conclusions derived from the results are set out in the form of six propositions for further research. They stress, firstly, that the trusting party in inter-organizational relationships is not the organization itself, but the individuals who constitute it. Secondly, the trustee in inter-organizational settings is both the individual boundary spanner and the organization, i.e. both individuals and organizations inherently have to be taken into consideration as objects of trust when it is conceptualized, operationalized, and measured in inter-organizational relationships.

It is further proposed that studies on trust on the organizational level could justifiably ask a well-informed organizational key informant to answer questions on behalf of the whole organization about trust in the other organization. In other words, it is maintained that single-informant bias is not a serious threat to validity and reliability in studies on organizational-level trust.

The main contribution of this publication is hence to the discussion on levels of trust in terms of clarifying the subject and the object of trust in relationships between organizations. The results of the study are depicted in the form of propositions to be hypothesized and tested in future research.

4.3. Trust and its antecedents in inter-organizational relationships

4.3.1 Overall objective

Prior research almost unanimously agrees that trust is a multi-dimensional construct. Yet, the number and the content of the dimensions still remain to be agreed on. There is also an evident lack of consensus about the antecedents of trust. Accordingly, the objective of this third study (Seppänen 2008) was two-fold: the first goal was to examine the dimensions of inter-organizational trust, and the second was to explore the factors that evoke trust of one

party in the other party. The aim was to hypothesize, operationalize, and empirically test a conceptual model explaining the antecedents and dimensions of trust (see Figure 3 below) .

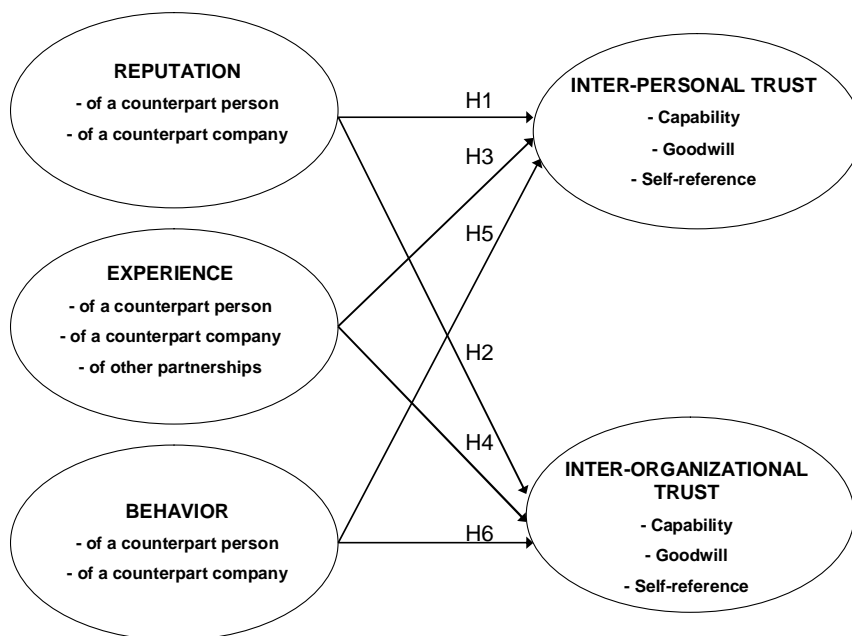


Figure 3. The hypothesized model

The results of the first and second studies were utilized in the development of the conceptual model. Accordingly, the relationships in the model are depicted in hypotheses suggesting that the reputation, experience, and behavior of both the counterpart person and the counterpart company have an effect on their trust in the other party. In other words, the model shows reputation, experience, and behavior as independent variables, and trust as a dependent variable. As suggested in the propositions of the second study, both individual and organizational levels were modeled as the targets of trust.

On the basis of the prior research and the empirical data that was utilized in the second publication, it was hypothesized that on both individual and organizational levels, trust consists of capability, goodwill, and self-reference. This study started from the commonly agreed definition of trust put forward by Rousseau et al. (1998, 395; see also e.g., Gambetta 1998; Bradach & Eccles 1989; Sako 1992; Mayer et al. 1995; Möllering 2006): trust is “a psychological state comprising the intention to accept vulnerability based upon positive

expectations of the intentions or behavior of another”. On the basis of this and of Blomqvist’s (2002) conceptualization, the definition used in this study was thus: “an individual actor’s expectation of the capability, goodwill, and self-reference of both the counterpart persons and the counterpart company”. In addition, prior research stresses the importance of making a conceptual distinction between the concepts of trust and trustworthiness (e.g., Mayer et al. 1995). Hardin (2001, 18), on the other hand, makes the simple observation that when we perceive some people as trustworthy we then also perceive that they can be trusted (see also Möllering 2006, 14). In a similar vein, trustworthiness is conceptualized in this study as a result of the determination of the characteristics and actions of the trustee by the trustor (Good 1988; Ring & Van de Ven 1992; Mayer et al. 1995).

4.3.2 Results and main contribution

Overall, the study introduced in this publication supports the developed model. The findings, firstly, further confirm that trust is a multi-dimensional concept incorporating the dimensions of capability, goodwill, and self-reference, and is applicable on both the individual and the organizational level. Whereas the capability and goodwill dimensions are discussed in several prior studies, self-reference as a dimension of individual and organizational-level trust is quite a novel insight, which is seldom dealt with. Secondly, the results of this study support the notion that reputation and behavior are antecedents of trust in inter-organizational relationships. The finding that a good reputation enhances trust in inter-organizational settings supports earlier research, but there is scant reference to the construct of behavior as affecting trust. On the other hand, experience was, unexpectedly, not found to have an effect on perceived trust in the other party.

Hence, the main contribution of this publication lies in conceptualizing, operationalizing, and empirically testing a model of antecedents of trust together with a three-dimensional trust model.

4.4 The effects of trust on value creation in inter-organizational relationships

4.4.1 Overall objective

The objective of this fourth paper (Seppänen 2008) was to explore the consequences of trust in the performance of inter-organizational relationships. There is similar ambiguity surrounding the consequences of trust in previous research as there is in the very construct of trust and its antecedents. There are two different ways of viewing the effect of trust on the performance of inter-organizational relationships: it is either straightforwardly positive, or takes place through certain mediating factors. Accordingly, the aim is to find out whether the effect is direct, or whether it occurs indirectly through mediating effects, which in turn positively affects the relationship and thus improves its performance. Here, too, the goal is to develop and hypothesize a conceptual model, and to test it accordingly (see Figure 4 below).

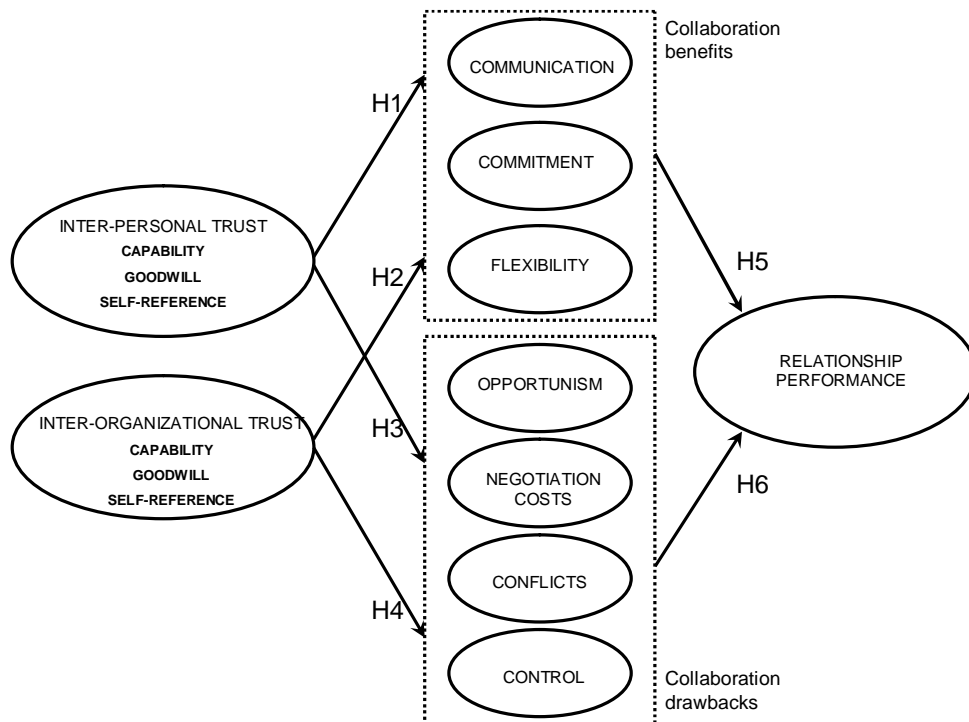


Figure 4. The hypothesized model

The model depicts trust as an independent variable, relationship performance as a dependent variable, and collaboration benefits and drawbacks as mediating variables. In other words, the developed hypotheses suggest that there is a relationship between individual and organizational trust, and between collaboration benefits and drawbacks. In other words, it is suggested that trust increases communication, commitment, and flexibility in a relationship. It is further proposed that it reduces opportunistic behavior, negotiation costs, conflicts, and control. Finally, it is hypothesized that the increase in collaboration benefits and the lowering of collaboration drawbacks, in turn, have a positive effect on relationship performance.

4.4.2 Results and main contribution

Overall, the findings reported in the fourth publication offer support to the argument that trust indeed has clear positive effects on performance and value creation in inter-organizational dyadic relationships. This conclusion is in line with the results of several theoretical and empirical studies. It was also shown that both individual and organizational trust have an effect on relationship performance. The findings also supported the three-dimensional trust model introduced in the third publication. Furthermore, it seems that trust affects performance through the mediating effects of increased collaboration benefits and reduced collaboration drawbacks: it does indeed improve the level and quality of communication and commitment between the parties. In addition, trust and relationship performance are also mediated through the reduction of negotiation costs and conflicts. These factors, in turn, affect relationship performance. Some of the findings in this study were unexpected: the data did not support the mediating effect of flexibility, conflicts, control, and opportunism between trust and relationship performance.

The contribution of this publication is thus, firstly, in pointing out the relationship between trust and the performance of inter-organizational relationships, and in confirming that this occurs through the mediating effect of increasing collaboration benefits and decreasing collaboration drawbacks. Secondly, it contributes to the discussion on levels of trust in inter-organizational relationships in stressing the importance of both individual and organizational trust in improving performance. Thirdly, in that it supports the three-dimensional conceptualization of trust it also contributes to the discussion on the whole phenomenon.

4.5. A summary of the results of the whole study

The main research questions and the results reported in each publication are summarized in Table 3 below.

Table 3. A summary of the research questions and the main results of the whole study

	Publication 1	Publication 2	Publication 3	Publication 4
Title	Measuring inter-organizational trust – A critical review of the empirical research in 1990 - 2003	Where does inter-organizational trust reside? An examination of the nature of trust in inter-organizational settings	Trust and its antecedents in inter-organizational relationships	The effects of trust on value creation in inter-organizational relationships
Main research question	<i>How has trust been empirically studied in inter-organizational research?</i>	<i>Who is the trusting party in inter-organizational settings?</i> <i>Who is the trusted party in inter-organizational settings?</i>	<i>How can inter-organizational trust be conceptualized?</i> <i>What are the antecedents of inter-organizational trust?</i>	<i>What is the relationship between trust and relationship performance?</i>
Main results	Although trust has emerged as an important factor in inter-organizational relationships, there are still major conceptual and methodological challenges to be met in studying this complex concept. The results show major inconsistencies in the conceptualization, and operationalization, and measurement of trust.	The results reveal that the trusting party is not the organization itself, but the individuals who constitute it. However, the ultimate objects of trust in inter-organizational settings are individual boundary spanners and the organization.	The findings promote the conceptualization of reputation and behavior as antecedents of trust in inter-organizational relationships. Furthermore, a three-dimensional model incorporating capability, goodwill, and self-reference is found to be applicable on both the individual and the organizational level.	The results of this study reveal that trust affects relationship performance through the mediating effects of improved collaboration benefits and reduced collaboration drawbacks.

On the whole, the results of this study support the developed conceptual model. Some of the hypothesized relationships in both the antecedent and mediating variables, however, were not supported by this data. On the other hand, the three-dimensional model of trust was supported on both individual and organizational levels. Figure 4 below summarizes the results of the whole study.

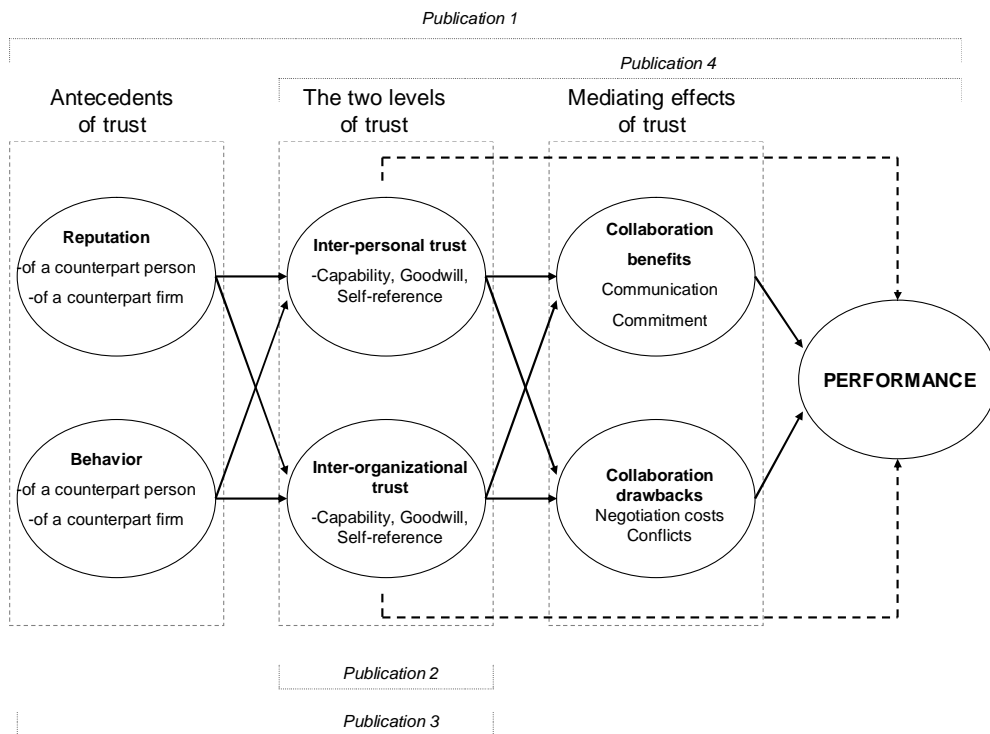


Figure 4. A summary of the results of the whole study

5 DISCUSSION AND CONCLUSIONS

5.1 Answering the research questions

The overall objective of this study was to answer the question of **how trust is manifested in inter-organizational relationships**. In order to achieve this, six sub-questions were posed. The first of these was: *How has trust been empirically studied in inter-organizational research?* Answering this question shed light on the major drawbacks of prior research. The conclusions of the study emphasize the need for researchers to focus more on the theoretical level, and only then to carry out empirical studies: this will improve the theoretical coverage of the trust concept. It was also concluded that more qualitatively oriented studies are needed before quantitative surveys are carried out. Furthermore, it was stressed that future studies should pay much more attention to the level of analysis, and that there is a need for replication in different contexts. The main contribution in response to this research question is thus in revealing the major limitations of prior studies, and consequently in suggesting future research avenues.

The second and the third sub-questions were: *Who is the trusting party in inter-organizational settings? Who is the trusted party in inter-organizational settings?* Several conclusions were drawn. Firstly, there is no such thing as organization-level, i.e. generic or collective, trust. In other words, the trustor is an individual, and not an organization per se, and trust in the other party within an organization is merely a matter of the sum or mean of the trust of its members towards the counterpart-firm. This finding is in line with earlier research conducted by Blois (1999), for example. Secondly, the findings strongly support the argument put forward by Janowicz and Noorderhaven (2006) and the empirical results of the studies by Ganesan and Hess (1997) and Zaheer et al. (1998) that trust can be targeted both on the key boundary persons and on the organization itself. In addition to the arguments from prior research mentioned above, the results of this study strongly support the idea that the trustee is not *either* an individual *or* the organization, but inherently *both*: this is in line with the arguments presented in Blomqvist (2002). Thirdly, it was concluded that an organizational key informant could justifiably be used as a respondent, in other words as representative of the whole organization, in matters to do with trust in another organization.

This conclusion also supports the theoretical argument raised by Janowicz and Noorderhaven (2006).

The fourth sub-question was: *How can inter-organizational trust be conceptualized?* In response it is concluded that trust indeed is a multi-dimensional concept comprising the dimensions of capability, goodwill, and self-reference on both the individual and the organizational level. This conclusion is strongly in line with the findings of prior research. Moreover, the modeled dimensions of capability and goodwill confirm the results of several earlier studies (e.g., Ring & Van de Ven 1992; Sako 1992; Mayer et al. 1995; Doney & Cannon 1997; Blomqvist 2002). Goodwill as a dimension of organization-level trust is a new and therefore a most interesting insight. Another novel aspect, dealt with only once (Blomqvist 2002) in prior research, is the identification of self-reference as a dimension of individual and organizational trust.

The fact that a good reputation and behavior were found to precede both inter-personal and inter-organizational trust offers an answer to the fifth sub-question: *What are the antecedents of inter-organizational trust?* The conclusion that a good reputation enhances trust in inter-organizational settings supports earlier findings (Anderson & Weitz 1989; Ganesan 1994; Doney & Cannon 1997), but the construct of behavior (Blomqvist 2002) as an affecting factor is rarely noted in prior theoretical and empirical research. The lack of an effect of experience on trust was a somewhat surprising result in the light of previous research results (e.g., Anderson & Weitz 1989; Doney & Cannon 1997).

The sixth sub-question was: *What is the relationship between trust and relationship performance?* The results of this study reveal, firstly, that trust has a positive effect on the performance and value creation of inter-organizational relationships. This is in line with the findings reported in numerous theoretical and empirical studies. Further, both levels of trust were shown to have an effect on relationship performance, which is in line with the results of Zaheer et al. (1998). Support was also found for the three-dimensional model of trust introduced in the third publication: its effect was mediated by communication and information sharing, and by increased commitment to the relationship. For example, Szulanski et al. (2004) and Denize and Young (2007) produced similar results on the connection between trust and communication. The identified effect of trust on commitment also supports prior research (e.g., Ganesan 1994; Tellefsen & Thomas 2007). In addition, trust and relationship

performance was mediated by reducing collaboration drawbacks such as negotiation costs and conflicts, which reflects the results reported by Zaheer et al. (1998) and Coote et al. (1998). In the light of prior research, some of the findings in this study were unexpected: the data did not support the mediating effect of flexibility, conflicts, control, and opportunism between trust and relationship performance. In the case of flexibility, this may have been caused by problems in operationalizing the construct, and in the case of control and opportunism it may have been attributable to the respondents' conceptualizations. The data in the conflict variable was somewhat skewed, and this may have caused the unexpected result.

The answers to the above six sub-questions shed light on the main research question of this study: **How is trust manifested in inter-organizational relationships?** In summary, trust indeed matters in relationships between organizations: it increases collaboration benefits and lowers collaboration drawbacks, thus having a positive effect on relationship performance.

Inter-organizational trust also incorporates three dimensions on both the individual and the organizational level: capability, goodwill, and self-reference. It develops from the reputation and behavior of the trusted party. It appears from this study that trust is clearly directed towards *both* individual boundary spanners *and* the counterpart company itself – i.e. not only to one or the other. The trusting party, on the other hand, is always an individual, and not the organization per se.

5.2 Theoretical contribution and managerial implications

This study contributes to the developing research on trust in several ways. The major contribution lies in uncovering the critical points and drawbacks in prior research and thereby in responding to the highlighted challenges. The way in which these challenges were addressed offers contributions to three major issues in the emerging theory of trust in the inter-organizational context: *firstly*, this study clarifies the trustor-trustee discussion; *secondly*, it conceptualizes trust as existing on both individual and organizational levels; and *thirdly*, it provides more information about the antecedents of trust and the ways in which it affects relationship performance. The contribution of this study lies, in other words, in both developing and testing of the emerging theory of trust. It also offers foundations and premises for further development and generalization of knowledge of the research area.

5.2.1 Clarifying the theoretical level

This study contributes to the theoretical discussion related to inter-organizational trust in offering a clear conceptualization of both the trusting and the trusted parties. The results demonstrate, firstly, that the subject of trust, i.e. the trustor, in inter-organizational relationships is inherently an individual, not an organization. Furthermore, key boundary spanners or opinion leaders in an organization develop a level of trust and diffuse their perceptions in their organization. This is, however, not the same as saying that organizations trust.

The results reveal, secondly, that both the counterpart persons and the whole organization are objects of trust, i.e. trustees in inter-organizational relationships. However, trust in the individual counterpart and in the organization may vary at any given point of time. It may well be that the trusting person trusts an individual counterpart, but not the organization, or vice versa. Collaborative inter-organizational relationships may function well even though trust on either level is lacking, provided that trust in the other entity exists. Thus, both individuals and organizations have to be taken into consideration as inherent objects of trust in this context.

5.2.2 Introducing a three-dimensional definition of trust

Another major contribution of this study to trust research is in offering support to the conceptualization of trust as a multi-dimensional concept on both individual and organizational levels. The results give support to the notion that trust is a multi-dimensional concept incorporating capability, goodwill, and self-reference. In terms of the capability and goodwill dimensions, the findings confirm the results of prior research, but organizational goodwill as a dimension of inter-organizational trust is a new and interesting finding. In addition, *self-reference* in particular, as a dimension of trust on both levels, brings a new and significant insight into the research.

5.2.3 Revealing the antecedents, consequences, and performance effects of trust

The third major contribution of this study to the emerging trust theory lies in revealing of the causes and effects of trust in inter-organizational settings. The results emphasize that a good reputation and behavior are factors enhancing both inter-personal and inter-organizational trust. In particular, the construct of behavior as such is seldom mentioned as an antecedent in the theoretical or empirical literature.

Furthermore, it was found that trust affects relationship performance through the mediating effects of increased collaboration benefits and reduced collaboration drawbacks. It improves the level and quality of communication and information sharing, and increases commitment to the relationship. These two constructs, in turn, improve the performance of the relationship. Moreover, trust reduces negotiation costs and conflicts. All in all, the effect of increasing the collaboration benefits to performance was higher than the effect of decreasing the collaboration drawbacks.

In addition to the three major contributions discussed above, it is worth noting that this study also contributes to the emerging theory of trust in terms of developing and validating measures in an inter-organizational context. In sum, the theoretical contribution lies in providing, i.e., developing and empirically testing, a conceptual model of trust and its causes and effects, thereby helping to overcome the challenges inherent in prior research on trust in inter-organizational relationships.

Finally, in the light of the results of this study, and following Coleman's (1988) discussion about social capital, it could be suggested that a combination of economic and socio-psychological theoretical frameworks is needed for analyzing the role and nature of trust in inter-organizational relationships. Despite sharing some similar assumptions, they do not match as substitutes, but they do as complements. Economic frameworks offer rational ways of dissecting trustworthiness – such as evaluating the capability and self-reference of the other party – which are not given priority in socio-psychological frameworks. However, they ignore essential elements of social life such as reciprocity and altruism, which are manifested in the goodwill of the relationship parties. Despite our will and attempts to act rationally, we do not have enough information to be rational when making decisions concerning our relationships.

Hence, it could be said that trust explains part of human interaction in relationships, which economic frameworks cannot. As Luhmann (1979) puts it: “trust begins where knowledge ends”. Yet, it needs to be emphasized here again that not even a combination of economic and socio-psychological frameworks is sufficient if they remain unconnected to the essential issues of the theory of trust discussed above.

5.2.4. Managerial implications

The results of this study also have significant managerial implications. Given that trust has positive effects on both organizational and inter-organizational management and performance, managers obviously need to pay attention to, and to invest in, the conscious development and maintenance of the trustworthiness of their company.

This requires an emphasis on maintaining a good reputation by constantly behaving in a manner signaling one’s own capabilities, goodwill, and self-reference. Furthermore, both levels of trust essentially need to be taken into account in forging relationships between companies, yet it has to be kept in mind that the actual trusting party is always a person as an organizational member, and not an organization per se. Trust between parties brings collaboration benefits such as information sharing and communication, and reduces collaboration drawbacks such as negotiation costs. All this, in turn, works in favor of positive performance and economic outcomes in the relationship.

Yet another managerial contribution is the developed measurement tool⁹ for assessing inter-organizational trust and its outcomes. It should be of help to firms in managing and improving their collaboration capability, and could be used as a pre-sensing tool in their collaborative relationships.

⁹ A slightly shorter form of the developed survey instrument was handed over – as one part of the results of the above-mentioned InnoSpring Access research project - to the Trio development project for use in its development activities.

5.2. Limitations

This study has some limitations that should be noted. Firstly, the context was national, and therefore caution is needed in generalizing the results throughout different countries and cultures, and to multinational relationships. Nevertheless, all the large companies and many of the SMEs in the data sample were either multi-national or operated in international markets. It could therefore be argued that, despite the national context and study approach, there quite probably is a multi-national element present (the respondents were not asked to specify whether the relationships they described in their responses were national or international).

Further, even though the studied relationships were dyadic, the data was gathered from only one party. It would have been most interesting to find out whether both parties had the same view about the level of trust and the relationship performance. On the other hand, the respondents were describing the trust they felt in the other party and, furthermore, the profitability and outcomes of the relationship particularly on their side.

Trust is clearly linked to several other concepts that are close or even inter-related: these include relationship-specific factors such as dependence and asset specificity, and context-specific factors such as environmental uncertainty. These issues were not addressed in this study. The decision not to include these factors was taken at the beginning of this research project. The reasoning was that the complex phenomenon of trust was to be studied on two different levels, and the conceptual model included explanatory factors for both trust and performance to be explained through several mediating factors. In order to keep the size of the study manageable, it was decided to keep the research framework relatively simple.

An obvious limitation is the exclusive use of subjective measures for studying relationship performance. This happened because no objective data or archival records covering the performance of dyadic relationships were available. On the other hand, it is argued in prior research that subjective measures can reflect objective data quite accurately (Lumpkin & Dess 2001; Jantunen 2005). Subjective performance measures are, therefore, often used in studies on trust.

There are other limitations to be noted. The qualitative data for the study were gathered only from interviewees employed in large companies, and the number of companies was somewhat limited. Furthermore, even though the study concerned the field of technology, which is quite wide, care must be taken in generalizing the results in other fields. Finally, the focus of the study was limited to business organizations.

5.3 Suggestions for further research

Researchers are encouraged to take the above issues into consideration in future studies, which should replicate the results of this one and its conceptual model and measures on samples from other industries (such as services), countries, and cultures. Further, studies taking into consideration a broader set of trust-related concepts, and both levels of trust in inter-organizational relationships, would be welcome. Longitudinal studies would provide interesting and important insights into changes in objects of trust between the individual and organizational levels, for example. Suggestions arising from the first publication of this study (the review of prior research) should be addressed in future studies. It would also be interesting and fruitful to study further and to deepen understanding about the modeled relationships for which this study found no support (i.e. experience, flexibility, opportunism, and control).

Finally, an interesting and potentially fruitful area for future research remains to be pointed out. Even though this study, among a number of others, revealed that trust indeed is positively linked to relationship performance, its conceivable downsides cannot be ignored. Some studies seem to have taken the idealistic view according to which “the more you trust the better off you are”. Obviously, this cannot be the case – neither in personal life, nor in the business world. Outside of talk about credulity, or about being naïve and a gudgeon, there certainly is a limit at which it is reasonable to note that enough is enough. With regard to social capital, Portes (1998), for example, argues that it can also produce less desirable consequences. This “negative social capital” could lead to discrimination and the restriction of individual freedom, and may prevent the success of business initiatives. Further, group solidarity may cause withdrawal from sharing justified criticism and the covering up of other group members’ mistakes and malpractices.

The basic argument is that strong ties between group members may be inefficient and cause a decrease in productivity because they know each other “too well”. It is not difficult to imagine that when two actors – even if they act in different companies – share a high enough level of trust, they may avoid negative actions against each other regardless of the justification and necessity for taking such steps. Wicks et al. (1999) refer to a suitable amount of trust using the term *optimal trust*, which, according to them, is a “golden mean” between overinvestment in trust and underinvestment in human conduct. A distinct yet related and relevant term in this context is *distrust*, which Luhmann (1979) defines as a “positive expectation of injurious action”: he maintains that distrust and trust are coexisting mechanisms for managing and governing relationship complexity. Even though this is a widely studied area there is no consensus in terms of whether distrust and trust are, as Lewicki et al. (1998) suggest for example, separate phenomena, or whether they are merely opposite ends of a single continuum (e.g., Schoorman et al. 2007). Suggesting a need to further study the concepts of optimal trust and distrust is not to say that trust is not necessary and beneficial – quite the contrary. If anything, this call for future research is made with a view to achieving a deeper and more holistic picture of trust in business relationships.

REFERENCES

- Adler, P.S. & Kwon, S.-W. (2000). Social capital: The good, the bad, and the ugly. In Lesser, E.L. (ed.). *Knowledge and social capital: Foundations and applications*, Butterworth-Heinemann, Woburn, US.
- Andaleeb, S.S. (1992). The trust concept: Research issues for channel distribution. *Research in Marketing*, 11, 1-34.
- Andersen, P.H. & Kumar, R. (2006). Emotions, trust and relationship development in business relationships: A conceptual model for buyer-seller dyads. *Industrial Marketing Management*, 35, 522-535.
- Anderson, E. & Weitz, B. (1989). Determinants of continuity in conventional industrial channel dyads. *Marketing Science*, 8(4), 310-323
- Anderson, J.C. (1995). Exchange episodes, value creation and their empirical assessment. *Journal of the Academy of Marketing Science*, 23(4), 351-357.
- Anderson, J.C. & Narus, J.A. (1990). A model of distributor firm and manufacturer firm working partnership. *Journal of Marketing*, 54(1), 42-58.
- Argyris, C. (1962). *Interpersonal competence and organizational effectiveness*. Dorsey, Homewood, US.
- Ariño, A. & de la Torre, J. (1998). Learning from failure: Towards an evolutionary model of collaborative ventures. *Organization Science*, 9, 306-325.
- Armstrong, J.S. & Overton, T.S. (1977). Estimating non-response bias in mail surveys. *Journal of Marketing Research*, 14, 396-402.
- Arrow K. J. *Limits of Economic Organization*, New York: Norton, 1974.

Aulakh, P.S., Kotabe, M. & Sahay, A. (1996). Trust and performance in cross-border marketing partnerships: A behavioral approach. *Journal of International Business Studies*, 27(5), 1005-1032.

Axelrod, R.M. (1981). The emergence of cooperation among egoists. *American Political Science Review*, 75(2), 306-318.

Axelrod, R.M. (1984). The evolution of cooperation. Basic Books, New York, US.

Bacharach, S. B. (1989). Organizational Theories: Some Criteria for Evaluation. *Academy of Management Review*, 14 (4), 496-515.

Bachmann, R. (2001). Trust, power and control in trans-organizational relations. *Organization Studies*, 22(2), 337-365.

Baier, A. (1986). Trust and antitrust. *Ethics*, 96, 231-260.

Barney, J. B. & M. H. Hansen "Trustworthiness as a Source of Competitive Advantage," *Strategic Management Journal*, 15, 175-191, 1994.

Baron, R.M. & Kenney, D.A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

Batt, P.J. & Purchase, S. (2004). Managing collaboration within networks and relationships. *Industrial Marketing Management*, 33, 169-174.

Berg, B.L. (2004). Qualitative research methods. Pearson Education, Boston.

Berg, J., Dickhaut, J. & McCabe, K. (1995). Trust, reciprocity and social history. *Games and Economic Behavior*, 10, 122-142.

Blau, P.M. (1964). Exchange and power in social life. Wiley, New York, US.

- Blois, K.J. (1999). Trust in business-to-business relationships: an evaluation of its status. *Journal of Management Studies*, 36(2), 197-217.
- Blomqvist, K. (1997). The many faces of trust. *Scandinavian Journal of Management*, 13, 271-286.
- Blomqvist, K. (2002). *Partnering in the dynamic environment: The role of trust in asymmetric technology partnership formation*. Doctoral thesis, Acta Universitatis Lappeenrantaensis.
- Blomqvist, K., Kyläheiko, K. & Virolainen, V. (2002). Filling the gap in traditional transaction cost economics: Towards transaction benefits based analysis using Finnish telecommunications as an illustration. *Journal of International Production Economics*, vol. 70, 1-14.
- Boss, R.W. (1978). Trust and managerial problem solving revisited. *Group and Organization Studies*, 3, 331-342.
- Bradach, J.L. & Eccles, R.G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual Review of Sociology*, 15, 97-118.
- Butler, J.K. (1991). Toward understanding and measuring conditions of trust: Evolution of conditions of trust inventory. *Journal of Management*, Vol. 17, No. 3, 643-663.
- Carson, S.J., Madhok, A., Varman, R. & John, G. (2003). Information processing moderators of the effectiveness of trust-based governance in interfirm R&D collaboration. *Organization Science*, 14(1), 45-56.
- Castaldo, S. (2007). *Trust in market relationships*. Edward Elgar, Cheltenham, UK.
- Chaudhuri, A., Sopher, B. & Strand, P. (2002). Cooperation in social dilemmas, trust and reciprocity. *Journal of Economic Psychology*, 23(2), 231-249.
- Child, J. (2001). Trust – the Fundamental Bond in Global Collaboration. *Organizational Dynamics*, 29 (4), 274-288.

Child, J. & Faulkner, D. (1998). *Strategies of co-operation: Managing alliances, networks and joint ventures*, Oxford University Press, Oxford.

Chiles, T.H. & McMackin, J.F. (1996). Integrating variable risk preferences, trust, and transaction cost economics. *Academy of Management Review*, 21(1), 73-99.

Chow, S. & Holden, R. (1997). Toward an understanding of loyalty: The moderating role of trust. *Journal of managerial Issues*, 9(3), 275-298.

Churchill, G. A. (1979). A paradigm for developing better measures of marketing construct. *Journal of Marketing Research*, 16 (1), 64-73.

Coase, R. (1937). The nature of the firm. *Economica*, 4(4), 386-405.

Coleman, J.S. (1972). Systems of social exchange. *Journal of Mathematical Sociology*, 2, 145-163.

Coleman, J.S. (1988). Social capital in the creation of human capital. *The American Journal of Society*, 94, 95-120 (reprinted [2000] in Lesser, E.L. (ed.). *Knowledge and social capital: Foundations and applications*, Butterworth-Heinemann, Woburn, US.).

Contractor, F.J. & Lorange, P. (2002). The growth of alliances in the knowledge based economy. *International Business Review*, 11, 485-502.

Cook, K.S. & Emerson, R.M. (1978). Power, equity, and commitment in exchange networks. *American Sociological Review*, 43(5), 721-739.

Coote, L.V., Forrest, E.J. & Tam, T.W. (2003). An investigation into commitment in non-Western industrial marketing relationships. *Industrial Marketing Management*, 32, 595-604.

Costigan, R.D., Iltis, S.E. & Berman, J.J. (1998). A multi-dimensional study of trust in organizations. *Journal of Managerial Issues*, 10(3), 303-317.

- Creswell, J.W., Plano Clark, V., Guttman, M.L. & Hanson, W.E. (2003). Advanced mixed methods research designs. In (Tashakkori, A. & Teddye, C. (eds.). Handbook of mixed methods in social & behavioral research. Sage Publications, Thousand Oaks, US.
- Currall, S. C., & Inkpen, A. C. (2002). A multilevel approach to trust in joint ventures. *Journal of International Business Studies*, 33 (3), 479-495.
- Currall, S.C. & Inkpen, A.C. (2006). On the complexity of organizational trust: A multi-level co-evolutionary perspective and guidelines for future research. In Bachmann R. & Zaheer, A. (eds.), Handbook of trust research. Edward Elgar, Cheltenham, UK.
- Das, T.K. & Teng, B-S. (1998). Between trust and control: Developing confidence in partner cooperation in alliances, *Academy of Management Review*, 23(3), 491-512.
- Das, T.K. & Teng, B-S. (2001). Trust, control, and risk in strategic alliances: An integrated framework. *Organization Studies*, 22(2), 337-365.
- Dasgupta, P. (1988). Trust as an economic good. In Gambetta, D.G. (ed.). Trust: Making and breaking cooperative relations. Basil Blackwell, New York, US.
- Davis, J., Schoorman, F.D., Mayer, R. & Tan, H. (2000). Trusted unit manager and business unit performance: Empirical evidence of a competitive advantage. *Strategic Management Journal*, 21, 563-576.
- Denize, S. & Young, L. (2007). Concerning trust and information. *Industrial Marketing Management*, 36, 968-982.
- Deutsch, M. (1960). The effect of motivational orientation upon trust and suspicion, *Human Relations*, Vol. 13, 123-139.
- DeVellis, R.F. (2003). Scale development: Theory and applications. Sage Publications, Thousand Oaks, California, US:
- Diamontopoulos, A.& Siguaw, J.A. (2000). *Introducing Lisrel*. Sage Publications, London.

- Dirks, K. T. (1999). The effects of interpersonal trust on work group performance. *Journal of Applied Psychology*, 84, 445-455.
- Dirks, K.T. & Ferrin, D.L. (2001). The role of trust in organizational settings, *Organization Science*, Vol. 12, No. 4, 450-467.
- Dollinger, M.J., Golden, P.A. & Saxton, T. (1977). The effect off reputation on the decision to joint venture. *Strategic Management Journal*, 18(2), 127-140.
- Doney, P. M. & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 6, 35-51.
- Dwyer, F.R., Schurr, P.H. & Oh, S. (1987). Developing buyer-seller relationships. *Journal of Marketing*, 5, 11-27.
- Dyer, J.H. (1997). Effective interfirm collaboration: How firms minimize transaction costs and maximize transaction value. *Strategic Management Journal*, 18(7), 535-556.
- Dyer, J.H. & Chu, W. (2003). The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan, and Korea. *Organization Science*, 14(1), 57-68.
- Ekeh, P.P. (1974). *Social exchange theory: The two traditions*. Harvard University Press, Cambridge, US.
- Elster, J. (1983). *Sour grapes: Studies on in the subversion of rationality*. Cambridge University Press, Cambridge, UK.
- Emerson, R.M. (1976). *Social exchange theory*. Harvard University Press, Cambridge, US.
- Erikson, E.H. (1968). *Identity, youth and crisis*. Norton, New York, US:
- Ford, D., Gadde, L.-E., Håkansson, H., Lundgren, A., Snehota, I., Turnbull, P. & Wilson, D. (1998). *Managing Business Relationships*. John Wiley & Sons, Chicester, UK.

Fornell, C. & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.

Frost, T., Stimpson, D.V. & Maughan, M.R.C. (1978). Some correlates of trust. *Journal of Psychology*, Vol. 99, 103-108.

Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*, Penguin, London.

Fryxell, G.E., Dooley, R.S. & Vryza, M. (2002). After the ink dries: The interaction of trust and control in U.S.-based international joint ventures. *Journal of Management Studies*, 39(6), 865-886.

Gadde, L.-E. & Håkansson, H. (2001). *Supply network strategies*. John Wiley & Sons Ltd. Chichester, UK.

Gadde, L.-E. & Snehota, I. (2000). Making the most of supplier relationships. *Industrial Marketing Management*, 29(4), 305-316.

Gambetta, D.G. (1988). Can we trust trust? In Gambetta, D.G. (ed.). *Trust: Making and breaking cooperative relations*. Basil Blackwell, New York, US.

Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing*, 58, 1-19.

Ganesan, S. & Hess, R. (1997). Dimensions and levels of trust: Implications for commitment to a relationship. *Marketing Letters*, 8, 439-448.

Gassenheimer, J.B. & Manolis, C. (2001). The influence of product customization and supplier selection on future intentions: The mediating effects of salesperson and organizational trust. *Journal of managerial Issues*, 13(4), 418-435.

Gefen, D. (2000). E-commerce: The role of familiarity and trust. *Omega*, 28, 725-737.

Gerbing, D.W. & Anderson, J.C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, 25, 186-192.

Ghoshal, S. & Moran, P. (1996). Bad for practice: A critique of the transaction cost theory. *Academy of Management Review*, 21(1), 13-47.

Giffin, K. (1967). The contribution of studies of source credibility to a theory of interpersonal trust in the communication department. *Psychological Bulletin*, 68, 104-120.

Glaeser, E.L., Laibson, D.I., Scheinkman, J.A. & Soutter, C.L. (2000). Measuring trust. *Quarterly Journal of Economics*, 115(3), 811-846.

Good, D. (1988). Individuals, interpersonal relations, and trust. In Gambetta, D.G. (ed.). *Trust: Making and breaking cooperative relations*. Basil Blackwell, New York, US.

Gouldner, A.W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 161-178.

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness, *American Journal of Sociology*, 91, 481-510.

Grey, C. & Garsten, C. (2001). Trust, control and post-bureaucracy. *Organization Studies*, 22(2), 229-250.

Guba, E.G. & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In Denzin, N.K. & Lincoln, Y.S. (eds.). *Handbook of qualitative research*, Sage, Thousand Oaks, 105-117.

Gulati, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38(1), 85-112.

Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 19, 293-317.

Gulati, R. & Singh, H. (1998). The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances. *Administrative Science Quarterly*, 43(4), 781-814.

Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate data analysis*. Prentice Hall, NJ.

Halinen, A. (1994). Exchange relationships in professional services: A study of relationship development in the advertising sector. Publications of the Turku School of Economics and Business Administration, Turku, Finland.

Hardin, R. (2001). Conceptions and explanations of trust. In Cook, K.S. (ed.). *Trust in society*, Sage, New York, US.

Heide, J.B. & John, G. (1992). Do norms matter in marketing relationships?? *Journal of Marketing*, 56, 32-44.

Hertzberg, L. (1988). On the attitude of trust. *Inquiry*, 31, 307-322.

Homans, G.C. (1958). Social behavior as exchange. *American Journal of Sociology*, 78 (6), 1360-1380.

Homans, G.C. (1974). *Social behavior: Its elementary forms*. Hartcourt Brace Jovanovich, N.Y.

Hosmer, L.T. (1994). Strategic planning as if ethics mattered. *Strategic Management Journal*, 15, 17-34.

Hosmer, L. T. (1995). Trust: The connecting link between organizational theory and philosophical ethics. *Academy of Management Review*, 20, 2, 379-403.

Hovland, C.I., Janis, I.L. & Kelley, H.H. (1953). *Communication and persuasion*. Yale University Press, New Haven.

- Jantunen, A. (2005). Dynamic capabilities and firm performance. *Acta Universitatis Lappeenrantaensis* 221.
- Janowicz, M. & Noorderhaven, N. (2006). Levels of inter-organizational trust: conceptualization and measurement. In Bachmann R. & Zaheer, A. (eds.), *Handbook of trust research*. Edward Elgar, Cheltenham, UK.
- Jarillo, J.C. (1988). On strategic networks. *Strategic Management Journal* 9, 31-41.
- Jeffries, F.L. & Reed, R. (2000). Trust and adaptation in relational contracting. *Academy of Management Review*, 25(4), 873-882.
- Joreskog, K.G. & Sorbom, D. (1996). LISREL 8: User's reference guide. Scientific Software International, Chicago, US.
- Kale, P., Singh, H. & Perlmutter, H. (2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, 21, 217-237.
- Kale, P. Dyer, J.H. & Singh, H. (2002). Alliance capability, stock market response, and long-term alliance success: The role of the alliance function. *Strategic Management Journal*, 23, 747-767.
- Kautonen, T. (2005a). Trust as a governance mechanism in interfirm relations: An embeddedness perspective. Doctoral thesis, University of Wuppertal, Munchen, Germany.
- Kautonen, T. (2005b). Luottamus hallintamekanismina liikesuhteissa. In Vihanto, M. (ed.). *Instituutitaloustieteen nykyisiä suuntia, Turun korkeakoulujen yhteiskunnallis-taloudellinen tutkimusyhdistys*, Turku.
- King, N. (1998). Template analysis. Cassell, C. & Symon, G. (eds.), *Qualitative methods and analysis in organizational research*. Sage, London.

King, N. (2004). Using templates in the thematic analysis of text. In Cassell, c. & Symon, G. (eds.). *Essential guide to qualitative methods in organizational research*. SagePublications, London, UK:

King, N., Carroll, C., Newton, P. & Dornan, T. (2002). "You cant't cure it so you have to endure it": The experience of adaptation to diabetic renal disease. *Qualitative Health Research*, Vol. 12, 329-346.

Kohtamäki, M. (2005). Strategisen verkoston ohjaus: Toimittajien toimijoiden kokemuksia kärkiyritysten ohjauksessa. *Acta Wasaensia* nr. 147, Vaasa, Finland.

Kohtamäki, M., Vesalainen, J., Varamäki, E. & Vuorinen, T. (2006). The governance of partnerships and a strategic network. *Management Decision*, Vol. 44, no 8, 1031-1051.

Kramer, R.M. (1999). Trust and distrust in Organizations: Emerging perspectives, enduring questions, *Annual Review of Psychology*, 50, 569-598.

Konovsky, M. & Pugh, S. (1994). Citizenship behavior and social exchange. *Academy of Management Journal*, 37, 656-669.

Kramer, R.M. & Tyler, T.R. (eds.) (1996). *Trust in organizations: Frontiers of theory and research*. Sage, Thousand Oaks, US.

Krueger, R.A. (2002). Designing and conducting focus group interviews. Retrieved from <http://www.whatkidscando.org/studentresearch/2005pdfs/Kruegeronfocusgroups.pdf>.

Krueger, R.A. & Casey, M.A. (2000). *Focus groups – A practical guide for Applied Research*, 3rd edition. Sage Publications, Thousand Oaks.

Lagerspetz, O. (1992). Legitimacy and trust. *Philosophical investigations*, 15(1), 1-21.

Lane, C. & Bachmann, R. (1998). *Trust within and between organizations: Conceptual issues and empirical applications*, Oxford University Press, Oxford.

- Lane, P.J., Salk, J.E. & Lyles, M.A. (2001). Absorptive capacity, learning, and performance in international joint ventures. *Strategic management Journal*, 22, 1139-1161.
- Lawler, E.J. & Thye, S.R. (1999). Bringing emotions into social exchange theory. *Annual Review of Sociology*, 25, 217-244.
- Leonidou, L.C., Talias, M.A. & Leonidou, C.N. (2008). Exercised power as a driver of trust and commitment in cross-border industrial buyer-seller relationships. *Industrial Marketing Management*, 37, 92-103.
- Lewicki, R.J. & Bunker, B.B. (1995). Trust in relationships – A model of development and decline, in: Bunker, B.B. & Rubin, J.R (Eds.). *Conflict, cooperation, and justice*, Jossey-Bass Publishers, San Francisco, CA.
- Lewicki, R.J., McAllister, D.J. & Bies, R.J. (1998). Trust and distrust: New relationships and realities. *Academy of Management Review*, 23, 438-458.
- Lewis, J. & Weigert, A. (1985). Trust as a social reality, *Social Forces*, 63, 967-985.
- Luhmann, N. (1979). *Trust and power*. Wiley, Chichester.
- Lui, S.S. & Ngo, H.Y. (2004). The role of trust and contractual safeguards on cooperation in non-equity alliances. *Journal of Management*, 30(4), 471-486.
- Lumpkin, G.T. & Dess, G.G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing*, 16(5), 429-451.
- Luo, Y. (2002). Contract, cooperation, and performance in international joint ventures. *Strategic Management Journal*, 23(10), 903-919.
- Mayer, R.C., Davis, J.H. & Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review*. 20(3), 709-734.

- McAllister, D. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations, *Academy of Management Journal*, 38, 24-59.
- McCauley, D.P. & Kuhnert, K.W. (1992). A theoretical review and empirical investigation of employee trust in management. *Public Administration Quarterly*, 16(2), 265-285.
- McEvily, B., Perrone, V. & Zaheer, A. (2003). Trust as an organizing principle. *Organization Science*, 14(1), 91-103.
- McEvily, B. & Zaheer, A. (2006). Does trust still matter? Research on the role of trust in inter-organizational exchange. In Bachmann R. & Zaheer, A. (eds.), *Handbook of trust research*. Edward Elgar, Cheltenham, UK.
- Miles, R.E., Snow, C.C. & Miles, G. (2000). The future.org. *Long Range Planning*, 33, 300-321.
- Mishra, A. (1996). Organizational responses to crisis: The centrality of trust. In: R.M. Kramer & T.R. Tyler (eds.). *Trust in organizations – frontiers of theory and research*. Sage, London.
- Misztal, B.A. (1996). *Trust in modern societies: The search for the bases of social order*. Polity Press, Cambridge, UK.
- Mohr, J. & Spekman, R. (1994). Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal* 15, 135-152.
- Moorman, C., Deshpandé, R. & Zaltman, G. (1993). Factors affecting trust in market research relationships. *Journal of Marketing*, 57(1), 81-101.
- Morgan, D.L. (1996). Focus groups. *Annual Review of Sociology*, Vol. 22, 129-152.
- Morgan, D.L. (1998). *Planning focus groups*, Sage Publications, Thousand Oaks.

- Morgan, R.M. & Hunt, S.D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20-38.
- Morse, J.M. (2003). Principles of mixed methods and multimethod research design. In (Tashakkori, A. & Teddue, C. (eds.). *Handbook of mixed methods in social & behavioral research*. Sage Publications, Thousand Oaks, US.
- Möllering, G. (2006). *Trust: Reason, routine, reflexivity*. Elsevier, Oxford, UK.
- Nahapiet, J. & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242-266.
- Naude, P. & Buttle, F. (2000). Assessing relationship quality. *Industrial Marketing Management*, 29(4), 351-362.
- Nooteboom, B. (1996). Trust, opportunism, and governance: a process and control model. *Organization Studies*, 17, 985-1010.
- Nooteboom, B. (2002). *Trust – forms, foundations functions, failures and figures*, Edgar Elgar Publishing, Glos, UK.
- Nooteboom, B. (2006). Forms, sources and processes of trust. In Bachmann R. & Zaheer, A. (eds.), *Handbook of trust research*. Edward Elgar, Cheltenham, UK.
- Nooteboom, B., Berger, H. & Noorderhaven, N.G. (1997). Effects of trust and governance on relational risk. *Academy of Management Journal*, 40(2), 308-338.
- Norman, P.M. (2002). Protecting knowledge in strategic alliances: Resource and relational characteristics. *The Journal of High Technology Management Research*, 13, 177-202.
- Nummenmaa, L. (2004). *Käyttäytymistieteiden tilastolliset menetelmät*. Kustannusosakeyhtiö Tammi, Helsinki.

- O'Reilly, C. (1978). The intentional distortion of information in organizational communication: A laboratory and field investigation. *Human Relations*, 31, 173-193.
- Park, S.H. & Ungson, G.R. (2001). Interfirm rivalry and managerial complexity: A conceptual framework of alliance failure. *Organization Science*, 12(1), 37-53.
- Perrone, V., Zaheer, A. & McEvily, B. (2003). Free to be trusted? Organizational constraints on trust in boundary spanners. *Organization Science*, 4(2), 301-324.
- Pierce, J.L., O'Driscoll, M.P. & Coghlan, A-M. (2004). Work environment structure and psychological ownership: the mediating effects of control. *Journal of Social Psychology*, 144(5), 507-534.
- Plank, R. E., Reid, D. A. & Pullins, E. B. (1999). Perceived trust in business-to-business sales: A new measure, *Journal of Personal Selling and Sales Management*, 19 (3), 61-71.
- Poppo, L., Zeng Zhou, K. & Ryu, S. (2008). Alternative origins to interorganizational trust: An interdependence perspective on the shadow of the past and the shadow of the future. *Organization Science*, 19(1), 39-55-
- Poppo, L. & Zenger, T. (2002). Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal*, 23(8), 707-725.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1-24.
- Putnam, R.D. (1993). Making democracy work: Civic traditions in modern Italy. Princeton University Press, Princeton, US.
- Putnam, R.D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, 6(1), 65-78.
- Ring, P.S. & Van de Ven, A. (1992). Structuring cooperative relationships between organizations, *Strategic Management Journal*, Vol. 13. 483-498.

- Ring, P.S. & Van de Ven, A. (1994). Developmental processes of cooperative interorganizational relationships, *Academy of Management Journal*, Vol. 19, 90-118.
- Roberts, P.W. & Dowling, G.R. (2002). Corporate reputation and sustained superior financial performance. *Strategic Management Journal*, 23, 1077-1093.
- Robertson, P. (1996). Competences, transaction costs and competitive strategy. In Foss, N.j. & Knudsen, C. (eds.). *Towards a competence theory of the firm*. Routledge, London, UK.
- Robinson, S. (1996). Trust and the breach of the psychological contract. *Administrative Science Quarterly*, 41, 574-599.
- Rotter, J.B. (1967). A new scale for measurement of interpersonal trust. *Journal of Personality*. 35(4), 651-665.
- Rousseau, D.M., Sitkin, S.B., Burt, R.S. & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393-404.
- Rubin, H.J & Rubin, I.S. (1995). *Qualitative interviewing: The art of hearing data*, Sage, Thousand Oaks.
- Ruuskanen, P. (2003). Verkostotalous ja luottamus. SoPhi, Jyväskylä [a doctoral dissertation]
- Sako, M. (1992). Prices, quality, and trust: Inter-firm relations in Britain and Japan, Cambridge University Press, Cambridge.
- Sako, M. (1998). Does trust improve business performance? In Lane, C. & Bachmann, R. (eds.). *Trust within and between organizations*, Oxford University Press, Oxford, UK.
- Sako, M. & Helper, S. (1998). Determinants of trust in supplier relations: Evidence from the automotive industry in Japan and the United States. *Journal of Economic Behavior and Organization*, 34(3), 387-417.

- Saparito, P.A., Chen, C.C. & Sapienza, H.J. (2004). The role of relational trust in bank-small firm relationships. *Academy of Management Journal*, 47(3), 400-411.
- Schoorman, F.D., Mayer, R.C. & Davis, J.H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review*, 32(2), 344-354.
- Smith, J. B. & Barclay, D.W. (1997). The effects of organizational differences and trust on the effectiveness of selling partner relationships. *Journal of Marketing*, 61, 3-21.
- Snow, C.C.C. & Thomas, J.B. (1994). Field research methods in strategic management: Contributions to theory building and testing. *Journal of Management Studies*, Vol. 31, No. 4, 457-480.
- Sobh, R. & Perry, C. (2006). Research design and data analysis in realism research. *European Journal of Marketing*, 40(11/12), 1194-1209.
- Strickland, L.H. (1958). Surveillance and trust. *Journal of Personality*, 26, 20-215.
- Sugden, R. (1991). Rational choice: A survey of contributions from economics and philosophy. *The Economic Journal*, 101, 751-785.
- Svahn, S. (2004). Managing in different types of business nets: Capability perspective. Acta Universitatis Oeconomicae Helsingiensis, Helsinki, Finland.
- Swan, J.E., Trawick, I.F. & Silva, D.W. (1985). How industrial salespeople gain customer trust. *Industrial Marketing Management*, 14, 203-211.
- Sydow, J. (2006). How can systems trust systems? A structuration perspective on trust-building in inter-organizational relations. In Bachmann R. & Zaheer, A. (eds.), *Handbook of trust research*. Edward Elgar, Cheltenham, UK.
- Szulanski, G., Cappetta, R. & Jensen, R. (2004). When and how trustworthiness matters: Knowledge transfer and the moderating effect of causal ambiguity. *Organization Science*, 15(5), 600-613.

Teece, D.J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review*, 40(3), 55-79.

Tellefsen, T. & Thomas, G.P. (2005). The antecedents and consequences of organizational and personal commitment in business service relationships. *Industrial Marketing Management*, 34, 23-37.

Toivola, U. (2005). Yrittäjyys verkostotaloudessa: Yksin tekemisestä verkostomaiseen toimintaan. Acta Wasaensis nr 144, Universitas Wasaensis, Vasa, Finland.

Tyler, T.R. (2003). Trust within organizations, *Personnel Review*, Vol. 32, No.5, 556-568.

Van de Ven, A. & Ring, P.S. (2006). Relying on trust in cooperative inter-organizational relationships. In Bachmann, R. & Zaheer, A. (eds.). *Handbook of trust research*. Edward Elgar, Cheltenham, UK.

Weigelt, K. & Camerer, C. (1998). Reputation and corporate strategy: A review of recent theory and applications. *Strategic Management Journal*, 9, 443-454.

Vesalainen, J. (2002). Kaupankäynnistä kumppanuuteen: Yritystenvälisten suhteiden elementit, analysointi ja kehittäminen. Metalliteollisuuden Kustannus, Helsinki.

Westphal, J.D. & Zajac, E.J. (1977). Defections from the inner circle: Social exchange, reciprocity, and the diffusion of board independence in U.S. corporations. *Administrative Science Quarterly*, 48(1), 161-183.

Wicks, A.C., Berman, S.L. & Jones, T.M. (1999). The structure of optimal trust: Moral and strategic implications. *Academy of Management Review*, 24(1), 99-116.

Williamson, O. E. (1975). *Markets and hierarchies: Analysis and antitrust implications*, Free Press, New York.

Williamson, O.E. (1985). *The economic institutions of capitalism*. Free Press, New York, US.

- Williamson, O.E. (1991). Economic institutions: spontaneous and intentional governance. *Journal of Law and Economics*, 36, 453-486.
- Williamson, O. E. (1993). Calculativeness, Trust, and Economic Organization, *The Journal of Law and Economics*, vol. 36, April, 453-486.
- Young-Ybarra, C. & Wiersema, M. (1999). Strategic flexibility in information technology alliances: The influence of transaction cost economics and social exchange theory. *Organization Science*, 10(4), 439-459.
- Zaheer., A., Loftrom, S. & George, V. (2002). Interpersonal and inter-organizational trust in alliances. In: Farok, J., Contractor, J. & Lorange, P. (Eds.), *Cooperative strategies and alliances*, Pergamon, Amsterdam, NL.
- Zaheer, A.; McEvily, B. & Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, 9 (2), 141-159, 1998.
- Zaheer, A. & Harris, J. (2006). Interorganizational trust. In Shenkar, O. & Reuer, J.J. (eds.). *Handbook of strategic alliances*. Sage Publications, Thousand Oaks, Ca.
- Zaheer, A. & Venkatraman, N. (1995). Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. *Strategic Management Journal*, 16(5), 373-392.
- Zajac, E.J. & Olsen, C.P. (1993). From transaction cost to transaction value analysis: Implications for the study of interorganizational strategies. *Journal of Management Studies*, 30(1), 131-145.
- Äyväri, A. (2006). Verkosto-osaaminen kasvaa hyvästä yhteistyöstä. *Acta Universitatis oeconomicae Helsingiensis*, Helsinki.

ACTA UNIVERSITATIS LAPPEENRANTAENSIS

281. KINNUNEN, JANNE. Direct-on-line axial flux permanent magnet synchronous generator static and dynamic performance. 2007. Diss.
285. VALTONEN, MIKKO. Performance characteristics of an axial-flux solid-rotor-core induction motor. 2007. Diss.
286. PUNNONEN, PEKKA. Impingement jet cooling of end windings in a high-speed electric machine. 2007. Diss.
287. KÄRRI, TIMO. Timing of capacity change: Models for capital intensive industry. 2007. Diss.
288. TUPPURA, ANNI. Market entry order and competitive advantage of the firm. 2007. Diss.
289. TARKIAINEN, ANSSI. Field sales management control: Towards a multi-level theory. 2007. Diss.
290. HUANG, JUN. Analysis of industrial granular flow applications by using advanced collision models. 2007. Diss.
291. SJÖMAN, ELINA. Purification and fractionation by nanofiltration in dairy and sugar and sweetener industry applications. 2007. Diss.
292. AHO, TUOMO. Electromagnetic design of a solid steel rotor motor for demanding operation environments. 2007. Diss.
293. PURHONEN, HEIKKI. Experimental thermal hydraulic studies on the enhancement of safety of LWRs. 2007. Diss.
294. KENGPOL, ATHAKORN. An evaluation of ICTs investment using decision support systems: Case applications from distributor's and end user's perspective group decision. 2007. Diss.
295. LASHKUL, ALEXANDER. Quantum transport phenomena and shallow impurity states in CdSb. 2007. Diss.
296. JASTRZEBSKI, RAFAŁ PIOTR. Design and implementation of FPGA-based LQ control of active magnetic bearings. 2007. Diss.
297. GRÖNLUND, TANJA. Development of advanced silicon radiation detectors for harsh radiation environment. 2007. Diss.
298. RUOKONEN, MIKA. Market orientation in rapidly internationalizing small companies – evidence from the software industry. 2008. Diss.
299. OIKARINEN, TUIJA. Organisatorinen oppiminen – tapaustutkimus oppimisprosessien jännitteistä teollisuusyrityksessä. 2008. Diss.
300. KARHULA, JUKKA. Cardan gear mechanism versus slider-crank mechanism in pumps and engines. 2008. Diss.
301. RAJAMÄKI, PEKKA. Fusion weld metal solidification: Continuum from weld interface to centerline. 2008. Diss.
302. KACHINA, ANNA. Gas-phase photocatalytic oxidation of volatile organic compounds. 2008. Diss.
303. VIRTANEN, PERTTU. Evolution, practice and theory of European database IP law. 2008.
304. TANNINEN, KATI. Diffusion of administrative innovation: TQM implementation and effectiveness in a global organization. 2008. Diss.
305. PUISTO, ANTTI. The initial oxidation of transition metal surfaces. 2008. Diss.

306. FELLMAN, ANNA. The effects of some variables on CO₂ laser-MAG hybrid welding. 2008. Diss.
307. KALLIOINEN, MARI. Regenerated cellulose ultrafiltration membranes in the treatment of pulp and paper mill process waters. 2008. Diss.
308. PELTOLA, SATU. Capability matrix – identifying and evaluating the key capabilities of purchasing and supply management. 2008. Diss.
309. HONKAPURO, SAMULI. Performance benchmarking and incentive regulation – considerations of directing signals for electricity distribution companies. 2008. Diss.
310. KORHONEN, KIRSI. Facilitating coordination improvement efforts in cross-functional process development programs. 2008. Diss.
311. RITVANEN, VIRPI. Purchasing and supply management capabilities in Finnish medium-sized enterprises. 2008. Diss.
312. PYNNÖNEN, MIKKO. Customer driven business model – connecting customer value to firm resources in ICT value networks. 2008. Diss.
313. AL NAZER, RAMI. Flexible multibody simulation approach in the dynamic analysis of bone strains during physical activity. 2008. Diss.
314. The Proceedings of the 7th MiNEMA Workshop. Middleware for Network Eccentric and Mobile Applications. Ed. by Pekka Jäppinen, Jouni Ikonen and Jari Porras. 2008.
315. VÄÄTÄNEN, JUHA. Russian enterprise restructuring – the effect of privatisation and market liberalisation on the performance of large enterprises. 2008. Diss.
316. DABAGHMESHIN, MAHSA. Modeling the transport phenomena within the arterial wall: porous media approach. 2008. Diss.
317. HAIMALA, JUHA. Supplier's position in project marketing networks. 2008. Diss.
318. UOTILA, TUOMO. The use of future-oriented knowledge in regional innovation processes: research on knowledge generation, transfer and conversion. 2008. Diss.
319. LAPPALAINEN, TOMMI. Validation of plant dynamic model by online and laboratory measurements – a tool to predict online COD loads out of production of mechanical printing papers. 2008. Diss.
320. KOSONEN, ANTTI. Power line communication in motor cables of variable-speed electric drives – analysis and implementation. 2008. Diss.
321. HANNUKAINEN, PETRI. Non-linear journal bearing model for analysis of superharmonic vibrations of rotor systems. 2008. Diss.
322. SAASTAMOINEN, KALLE. Many valued algebraic structures as measures of comparison. 2008. Diss.
323. PEUHU, LEENA. Liiketoimintastrategisten vaatimusten syntyminen ja niiden toteutumisen arviointi keskisuurten yritysten toiminnanohjausjärjestelmähankkeissa: Tapaustutkimus kolmesta teollisuusyrityksestä ja aineistolähtöinen teoria. 2008. Diss.
324. BANZUZI, KUKKA. Trigger and data link system for CMS resistive plate chambers at the LHC accelerator. 2008. Diss.
325. HIETANEN, HERKKO. The pursuit of efficient copyright licensing – How some rights reserved attempts to solve the problems of all rights reserved. 2008. Diss.

