

Trust in interorganisational networks: towards a conceptual model

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In this paper, we build a conceptual framework that models the influence of trust on strategic resource acquisition. The main focus is on the role of trust in interorganisational networks and how trust in interorganisational networks can accelerate the acquisition of strategic resources. Based on the network literature, social capital literature and the literature on trust, we seek to develop propositions that detail the relationships among trust, interorganisational network characteristics, strategic resource acquisition/network effectiveness and performance.

1. Introduction and problem statement

A key question in strategy research is why firms differ in their behaviour and performance. Some of the explanations given for differential behaviour and performance are referring to the industry structure, the inimitable firm resources and capabilities and/or the contracting and coordinating costs (Gulati et al, 2000).

Based on the resource-based view of the firm (RBV)², we emphasise that heterogeneous resources/capabilities among firms in the same industry lead to different market strategies and will yield performance differences among these firms. Resources and capabilities that lead to competitive advantage are those that are not only heterogeneous, but also hard to imitate or to substitute and not easily traded. These resources are called strategic resources (Peteraf, 1993; Dierickx and Cool, 1989 and Amit and Schoemaker, 1993). The ownership and the deployment of strategic resources and capabilities are said to be a necessary condition to create a competitive advantage. The challenge for a firm is

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² The theoretical explanations of entering into interfirm linkages are reducible to three theories: transaction cost theory, strategic behaviour theory and resource-based view (Kogut, 1988; Hennart, 1988). When using those three theories as possible alternative explanations, non-market interfirm agreements have typically been pictured as an intermediate level of integration between arm's-length contracts in open markets and full ownership. But where the goal/motive of interfirm linkages – market as well as non-market- is resource access or resource acquisition, as in our research, an interfirm linkage may be seen not as an optimal compromise between markets and hierarchy, but as a transitional stage between market and hierarchy (Hamel, 1991). In this sense we do not view interfirm linkages as an alternative to market-based transactions or full ownership, but as an alternative mode to resource access or acquisition. Alternatives might be mergers and acquisitions, licensing or developing the needed resources through internal effort.

to identify, develop, protect and deploy those strategic, value-creating resources and capabilities (Amit and Schoemaker, 1993).³

Whereas the seminal RBV-writings focus their analysis in essence on the firm level (see for instance Segal-Horn, 1998 and Dussauge et al., 2000), we intend to broaden the scope in this paper. Building further on a network perspective, we take it as a given that in many cases strategic resources originate from outside the firm and reside – as stated in the social capital approach - in the (business) network in which a firm is embedded (see for instance, Ford et al. 1998 and Gulati et al. 2000). The ability to build strategic resources is dependent on how a firm is able to extract resources from its business relationships. In this paper, we study the role of trust in the process of strategic resource acquisition.

In what follows, we build a conceptual framework that models the influence of trust on strategic resource acquisition. The main focus is on the role of trust in interorganisational networks and how trust in interorganisational networks can accelerate the acquisition of strategic resources and capabilities and consequently improve network effectiveness⁴.

Based on the management literature on networks, social capital and trust, we seek to develop conceptual propositions that detail the relationships among trust, interorganisational network characteristics, strategic resource acquisition/network effectiveness and (ultimately) performance. To do so, this paper is structured along the following outline: we begin with a brief literature review on the network perspective and the structural dimension of social capital. Secondly, we review the literature on trust and the impact and importance of trust – as the relational dimension of social capital - on the effectiveness and efficiency of interorganisational networks. The aim is to embed our own discussion in a multidimensional social capital perspective on networks that will help us modelling trust in a later stage. In the following section a summary is given to clearly map the territory of our research. The next section advances a conceptual model that details the relationships among the key concepts of this article: trust, social capital, interorganisational networks, strategic resources and (ultimately) performance. In other words, we extend literature on networks with the concept of trust by embedding both in a multidimensional social capital approach in order to explain interorganisational network effectiveness and ultimately a firm's performance. The aim is to formulate propositions on the causality among these concepts. Finally, we address limitations of our research and avenues for further research in this area.

³ Although this paper builds on the Resource-Based View (RBV) (resources as foundations of competitive advantage), we are mindful of the problems associated with the RBV. In recent years, a number of authors have discussed the potential shortcomings in the reasoning within the RBV. For instance, Priem & Butler (2001) point out that the tautological nature of the RBV explanations and imprecise definitions of key terms often hinder (1) hypothesis testing, (2) the advancement of theory building and (3) the making of clear prescriptions. However, the focus of this paper is not so much on further defining key concepts and relationships of the RBV, but on the way companies build resources and capabilities in general (see further).

⁴ We will analyse how companies can acquire strategic resources and capabilities stemming from its business relationships and networks. This means that we look at how companies can make full use of the networks in which they operate. This also implies that our focus is on extramural strategic resource acquisition. Moreover, this involves that we will not emphasise the direct relationship between trust and performance.

2. The network perspective and the structural social capital approach

In the literature on interorganisational networks (e.g. Dyer and Singh, 1998; Gulati et al, 2000; Inkpen, 1998 and Chung et al., 2000), it is argued that the way for a firm to identify, develop, protect and deploy resources and capabilities is to make use of all its relationships with other firms. Firms should not restrict their search for resources and capabilities to their boundaries, but they should look further than their own boundaries and recognise the possible value of their interorganisational relationships. Interorganisational networks are valuable for a firm because they can give access to the value-generating resources and capabilities of partners (Hamel, 1991). Other often mentioned reasons for the increasing importance of interorganisational networks are that interorganisational networks are mechanisms to leverage its own capabilities with access to complementary capabilities of partners (Chung et al, 2000) or vehicles by which, among others, organisational knowledge is exchanged and imitated (Kogut, 1988; Inkpen, 1998). Absorbing extramural knowledge (Chung et al, 2000), taking advantage of the skills and resources of the other partner (Ford, 1998) or acquiring access to new markets or to other customers (Matthyssens et al., 1998 and Helfert and Vith, 1999) are also possible network outcomes resulting from interorganisational networks.

2.1. The structural dimension of social capital⁵

By embedding the literature on networks in a multidimensional social capital approach, we have to consider interorganisational networks as a collection of different network ties with different structural features. From a social capital perspective, those ties and structural features are defined as the structural dimension. When studying performance implications of networks, previous research examined mostly the relationship between the structural dimension of social capital and a firm's performance (Ahuja, 2000 and Lee et al., 2001). The researchers found that aspects of a firm's network structure, such as the number of direct and indirect ties and the number of structural holes (the degree to which a firm's partners are linked to each other) managed by a firm are relevant for a firm's performance. Not only the kind of ties in a firm's network but also the structural features of/in the network, such as density or centrality have a strong impact on the functioning of a firm (Nahapiet and Ghoshal, 1998).

Networks are a possible mean to get access to or to acquire value-generating resources and capabilities. Networks are collections of links or ties involving technology transfer and diffusion of know-how and expertise. Various kinds of sources of competitive advantage are, in this manner, involved in networks (Thorelli, 1986). We recognise the great potential of interorganisational networks. In our opinion, however, the key question

⁵ Based on Nahapiet and Ghoshal (1998) we define social capital as the sum of the actual and potential structural and social resources embedded within, available through and derived from the network of relationships possessed by a firm. This definition is interpreted differently by sociologists and non-sociologists. According to sociologists (e.g. Bourdieu, Burt, Coleman, Portes,...), social capital focuses attention on resources that are **available through** networks (information benefits). Social capital is looked at as « social network exposure to other actor's resources ». Structural holes and density of a network become important forms of social capital. Non-sociologists (e.g. Nahapiet and Ghoshal, 1998) focus on resources that are **created through/in** networks. They look at social capital as a source for information, not as information resources. Elements created in networks become important in the search for information/knowledge. They consider these elements in terms of three dimensions: structural, relational and cognitive dimension. On the network level, most studies remain restricted to the investigation of the role of social capital in network formation; they do not cover research subjects that are related to ours, namely the use of interorganisational social capital. On the contrary, the use of intraorganisational social capital has been studied (see for instance Tsai and Ghoshal, 1998).

is 'how to make fully use of this potential?'. How can firms leverage their interorganisational networks to actually acquire and transfer strategic resources and capabilities in order to actually provide firms with them? In other words, we wonder what determines the effectiveness of an interorganisational network, which in turn can influence a firm's performance.

2.2. Shortcomings of the structural dimension approach

A sole focus on the structural dimension does not give a comprehensive view of the influence of interorganisational networks on performance. It emphasises where (outside a firm) and how (through the ties) a firm can identify and develop resources and capabilities. It leaves out, however, other factors that are related to the identification and development of resources and capabilities in interorganisational networks. More specifically, the following three shortcomings should be noted.

First, literature on networks implicitly assumes that having an interorganisational network is a sufficient condition to influence performance effectively. The network view of a firm assumes that all interorganisational networks – with the help of its ties and structural features - actually provide a firm with value-generating resources and capabilities in order to affect firm's functioning. Network literature (and a social capital approach that merely focuses on the structural dimension) does not question which elements are needed to acquire and transfer the necessary strategic resources and capabilities in networks.⁶ Further, a distinction is made between the resources and capabilities a firm is **able** to exchange and **willing** to exchange. The fact that resources and capabilities can be exchanged does not mean that firms are ready/willing to exchange them. Bouty (2000) argues that the difference stems from the network. Depending on the level and kind of trust (e.g. expectations concerning rewards or based on previous interaction), the available/exchangeable resources and capabilities will vary (Ritter, 1999).

Second, we question the often-made distinction in the contribution of direct and indirect ties to resource acquisitions. Although previous studies on the structural dimension (Ahuja, 2000) argue that direct and indirect ties differ in the nature of resources and capabilities offered, they did not explicitly measure the exact contribution of those ties⁷. Ahuja (2000) states that direct ties provide resource-sharing and information-spillover benefits and that indirect ties provide only the latter. The explanation of different contributions, and consequently different influences on performance, requires factors not related to the structural dimension. We would like to add the distinction between strong and weak ties, whereby factors as trust and trustworthiness, determine the strength and weakness of ties. In our opinion, based on Leana and Van Buren III (1999), direct and indirect ties may be weak or strong. This extra dimension will affect their contribution to and thus also the interorganisational network's influence on a firm's performance.

⁶ We refer the interested reader to the articles of Nahapiet and Ghoshal (1998), Ritter (1999) and Bouty (2000) which shed light on this shortcoming by offering a possible answer to the question how social capital can contribute to a firm's performance. They see social capital as a multidimensional concept that can contribute by influencing the resources that are actually exchanged (acquired and transferred) in interorganisational networks and the resources firms get access to through their interorganisational networks.

⁷ Ahuja (2000a) measures the positive contribution of both direct and indirect ties on the innovation output. He makes no distinction in contribution in his hypotheses.

Finally, we doubt the general accepted reasoning behind the role of structural holes/disconnections in a firm's network⁸. Ahuja (2000) argues that many structural holes in a firm's network will increase a firm's access to diverse information and, hence, enhance performance. Conversely, networks with fewer structural holes might promote trust generation and reduce opportunism, leading to more productive collaboration from the perspective resource sharing. In our opinion, based on Leana and Van Buren III (1999), trust can take many forms and can, consequently, be built in different forms in many distinct interorganisational relationships/networks (cf. supra). This implies that we believe that trust also can exist between loosely connected organisations.

When studying the impact of interorganisational ties on performance, we do not only have to study the network configuration (connectivity) but we also have to consider relational aspects such as trustworthiness. In recent literature on trust in organisations, support is found for the argument that only studying the structural dimension is too restricted⁹. In the next section we look in more detail to the literature on the relational dimension of social capital and how trust can be incorporated in a network analysis.

3. Trust as the relational dimension of social capital¹⁰

Organisation studies have discovered that many economic objectives – from achieving success in mergers, acquisitions and partnerships to sustaining long term economic growth – are furthered by higher levels of trust in organisational (interorganisational and intraorganisational) relationships (see for instance Williamson, 1979; Barney and Hansen, 1994 and Baba, 1999). Especially in situations involving vulnerability and interdependency the importance of trust is highlighted (Mayer et al., 1995; Baba, 1999 and Jensen, 2000). Trust reduces the threat taken by firms when in relationships with others (Jensen, 2000). As interorganisational relationships often involve interdependency and vulnerability, the need for trust in interorganisational networks might be relatively high.

A clear conceptualisation of trust is needed before embarking on further research. Based on Mayer et al. (1995, p. 712) and Jensen (2000, p.4), we define trust as:

“The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.”

When a party makes itself vulnerable in a relationship, it takes a risk. Trust is therefore reflected by the willingness to take a risk in a relationship (Mayer et al., 1995 and Jensen, 2000). The existence of risk in a situation determines the need for trust. Trust only arises in a risky situation where parties want to be vulnerable.

When firms enter into interorganisational networks, they create a situation of interdependency and of vulnerability. Especially in interfirm cooperation, networks might involve some risk level due to the possibility of exchanging strategic resources and capabilities. On the one hand, the firm that owns the needed resources and capabilities (the source) becomes vulnerable because it gives access to its value-generating resources and capabilities. Therefore, it risks that other parties in the network might abuse the accessed or obtained resources and capabilities. Moreover, the chance exists that the

⁸ Structural holes refer to the degree to which a firm's partners are linked to each other.

⁹ See for instance Hosmer, 1995; Mayer et al., 1995; Wicks et al., 1999; Browning et al., 1995; Dyer and Chu, 2000; Hutt et al., 2000 and Jeffries and Reed, 2000.

¹⁰ We focus on research about trust in management theory. Therefore we do not discuss the articles mentioned in the first column beneath relational dimension in table 1.

source is not adequately rewarded or that it gets nothing in return (Szulanski, 1995). On the other hand, the receiver of resources and capabilities makes itself vulnerable by letting the source learn about its weaknesses and current level of knowledge and skills (Jensen, 2000). In other words, in an interorganisational network it is possible for one firm (the source as well as the receiver of resources and capabilities) to behave in a way that could harm the other network partners.

Based on this statement, we conclude – just as Baba (1999) – that it is possible for a firm to choose not to enter in resource exchanging relationships. The reason firms choose to participate in the interorganisational network is because of the existence of trust. Entering an interorganisational network in order to influence performance through the exchange of resources and capabilities is a risky situation. Without trust, the risk associated with forming an interorganisational network would be perceived as being too high. Therefore trust is needed to create the willingness to transfer and receive resources and capabilities. From a multidimensional social capital perspective, trust is regarded as the relational dimension. In case of networks, we talk of *mutual* trust, instead of unidirectional (from a given trustor to a given trustee) trust (cf. Mayer et al. 1995).

In order to comprehend the role of trust as relational dimension on network effectiveness, we examine two important components of trust, namely reciprocity and the frequency and directness of interactions. Based on these two components, we develop a matrix of different types of trust.

The first component ‘reciprocity’ reflects the extent to which trust is ‘resilient’ rather than ‘fragile’ (Leana and Van Buren III, 1999). Fragile trust is based on perceptions of the immediate likelihood of rewards (Leana and Van Buren III, 1999). Fragile trust – also called instrumental or transacting trust – is about being confident that the other party in a dyad will give in return so that rewards are sufficient, even if it concerns a single transaction and thus no opportunity has arisen in the past to establish a basis for trust (Leana and Van Buren III, 1999). Resilient trust is based on stronger and more numerous links between the organisations and its members. This kind of trust is not calculative and its meaning is close to that of benevolence, especially when it is used in the sense of not harming each other (Bouty, 2000). Resilient trust is based on experience with other parties and therefore it relates – in our opinion – to the concept of knowledge-based trust (Gulati, 1995) and that of cognitive-based trust (McAllister, 1995; Baba, 1999 and Jeffries and Reed, 2000)¹¹.

The second important component of trust concerns the degree to which trust may exist without much direct information and/or previous interaction, simply by associating. This component refers to two different perspectives on trust, namely dyadic or generalised trust (Leana and Van Buren III, 1999). Unlike dyadic trust, generalised trust relies less on direct knowledge and more on affiliation or reputation. This implies that trust – even resilient trust – can exist without having much personal knowledge of or interaction with the other party (Wicks et al., 1999). This component of trust supports our opinion expressed in the third shortcoming of a ‘mere’ structural dimension approach. We questioned whether trust could only be built between tightly connected organisations. In our opinion, trust could be built in many different forms in many distinct

¹¹ According to Gulati (1995) knowledge-based trust rises in situations where firms learn about each other. He claims that there are strong cognitive and emotional bases for such kind of trust. Trust that reflects technical competence and that is based on predictability, past behaviour, dependability and fairness is – according to McAllister (1995); Baba (1999) and Jeffries and Reed (2000) - called cognitive-based trust.

interorganisational networks and not only in dense interorganisational networks. The fact – as explained above - that the frequency of interaction or the directness of information is not necessary because of the existence of generalised trust, offers extra argumentation for our statement. Factors as affiliation or reputation, that make generalised trust possible, refer to the concept trustworthiness. Consequently, it is not only trust that is important but also trustworthiness (Barney and Hansen, 1994; Mayer et al., 1995; Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998 and Tsai, 2000)¹².

By crossing those two components of trust, we obtain four different types of trust (see figure 1). As will be discussed later, this typology is instrumental in understanding the role trust plays in strategic resource acquisition.

Figure 1: Different types of trust

		reciprocity	
		resilient	fragile
frequency and directness of interactions	dyadic	type 1	type 2
	generalised	type 3	type 4

4. Summary: Mapping the territory of social capital

In table 1 a short literature review on the different aspects of social capital is presented. The rows of the table exhibit the different dimensions of social capital (structural, relational and cognitive); the columns refer to the scope of the networks under study. Hence, table 1 is an attempt to classify recent literature in this domain.

- insert table 1 here -

Further, this table helps us to clearly delineate the research focus of this paper. We focus on the structural and the relational dimension of social capital in interorganisational networks (see table 1). Although we recognise the potential value of the cognitive dimension of social capital, this dimension is beyond the scope of our current study.

5. Towards a comprehensive model of trust as a driver of network effectiveness

In our research, we aim to develop a comprehensive model of trust as a driver of network effectiveness (and ultimately firm performance). In this model, we focus on how interorganisational networks influence a firm's performance by enhancing strategic

¹² Trust is an attribute of a relationship and trustworthiness is an attribute of a unit (Barney and Hansen, 1994).

resource acquisition. It encompasses factors about the structural and relational dimension of social capital built in interorganisational networks. Based on this model, we formulate propositions on (1) how interorganisational network ties and their features influence network effectiveness, (2) how trust affects (strategic) resource exchange and (3) how network effectiveness in turn influences a firm's performance (see figure 2).

Interorganisational networks can ultimately influence a firm's performance, because interorganisational networks consist of different type of ties and different structural features. First, the ties and features are channels by which resources and capabilities are accessed. Second, they are channels by which resources and capabilities can be exchanged. Network ties and structural features therefore influence how effective an interorganisational network is in exchanging and helping to acquire (strategic) resources and capabilities. Although network ties on their own can represent significant flows of resources and capabilities, they do not guarantee the actual transfer or exchange of resources and capabilities – especially of strategic ones – in networks. The three biggest barriers to transfer are (Szulanski, 1995):

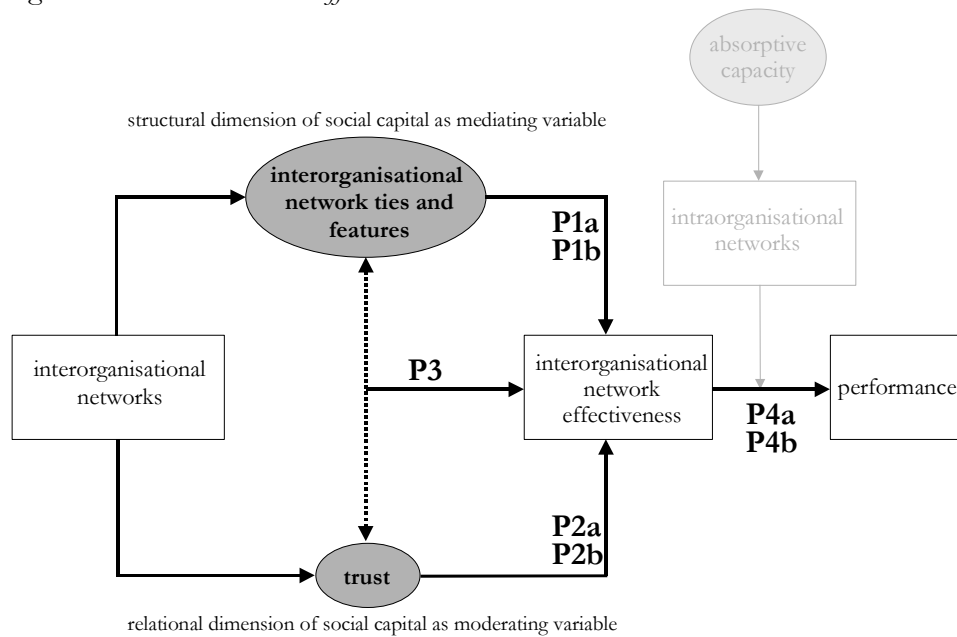
1. the receiver's lack of absorptive capacity;
2. causal ambiguity; and,
3. the difficult relationship between source and receiver.

Following Jensen (2000), trust overcomes all three of these barriers. Without trust firms will be reluctant to share resources and capabilities – especially strategic resources and capabilities – because of the risk involved. Thus, other factors, such as trust, help interorganisational network ties and their structural features in actually transferring resources and capabilities. If trust is missing, they may find the transfer nearly impossible.

Because of the presence of trust in a network, organisations are willing to take a risk. More specifically, it is the type of trust (see figure 1) that will affect the amount of risk firms are willing to take in a relationship (Mayer et al., 1995). In our model, this implies that the type of trust affects if strategic resources and capabilities are exchanged. Further we do not only focus on the positive contribution of trust on network effectiveness. Based on the concept of 'optimal trust' (Wicks et al., 1999 and Parkhe and Miller, 2000) and on Dess and Shaw (2001), we point to the fact that trust is not always beneficial. We argue that a firm has to avoid 'overinvestment' in trust because that can lead to the possibility of ignoring opportunities with less-trusting partners or to rigidity. Leonard-Barton (1992) studied the problem of capabilities becoming rigidities. Based on her ideas, it is possible that trust hinders strategic resource acquisition through interorganisational networks instead of enabling it.

Network ties and structural features in/of interorganisational networks are instruments to create access to resources and capabilities. They form the structural channels for the transfer of resources and capabilities in interorganisational networks. Hence, interorganisational network ties and their features perform a very important role in the procurement of resources and capabilities (Lee et al, 2001). As interorganisational network ties are channels by which resources and capabilities are accessed or transferred, they can be considered to be resources in their own right (Madhavan et al, 1998). Put differently, interorganisational network ties play a mediating role, connecting conceptually the interorganisational network to interorganisational networks effectiveness. Figure 2 summarises the discussion.

Figure 2: Trust and network effectiveness



5.1. Propositions related to interorganisational network effectiveness

Network ties and structural features are mediating variables¹³. They account for the relationship between interorganisational networks (causal variable) and interorganisational network effectiveness (dependent variable). Thus, without mediating variables, there is no effect of the causal variable on the dependent variable except through the causal variable's impact on the mediating variable, and the mediating variable in turn has an effect on the dependent variable. Based on the above reasoning and on the discussion in 2.1, we formulate the next propositions:

Proposition 1a: The effectiveness of the interorganisational network is related to the kind of network ties (direct, indirect and structural holes).

Proposition 1b: The effectiveness of the interorganisational network is related to the structural features of the interorganisational network (density, centrality,...).

Trust is considered as a factor that affects the actual transfer and acquisition of resources and capabilities. If trust is missing, the transfer of strategic resources and capabilities is nearly impossible. Too much trust can, however, also have negative effects and hinder or render more difficult the transfer of resources and capabilities between partners in an interorganisational network (Wicks et al., 1995; Parkhe and Miller, 2000 and Dess and Shaw, 2001). In our model, trust is a moderating variable. Trust (or lack of) influences the strength or direction of the relationship between interorganisational networks (causal variable) and interorganisational network effectiveness (dependent variable). Trust can control the strength of the relationship between interorganisational networks and interorganisational network effectiveness. If the level of trust changes, the strength of the relationship between interorganisational networks and interorganisational network

¹³ The theoretical explanation of the concepts moderating and mediating variables is based on <http://uts.cc.utexas.edu/~tai/theory/critique2.html>.

effectiveness will become stronger or weaker. Whether interorganisational networks enable resource acquisition or not depends on the level and kind of trust. In one end, the relationship between interorganisational networks and interorganisational network effectiveness is negative but in the other end, the relationship is opposite.

Proposition 2a: The effectiveness of the interorganisational network is dependent on the kind of trust built in the interorganisational network.

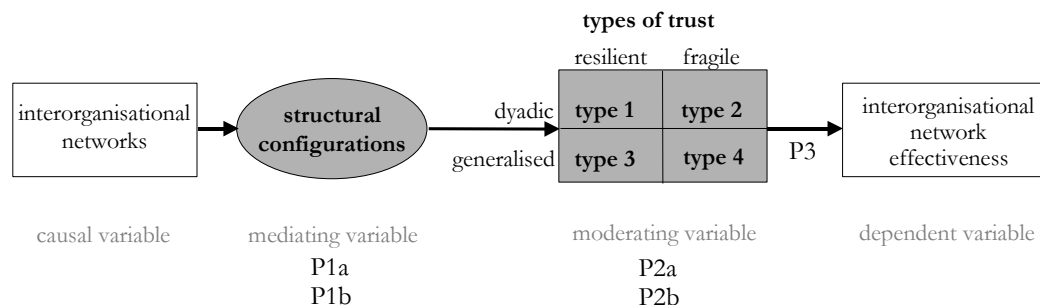
Proposition 2b: The effectiveness of the interorganisational network is dependent on the level of trust built in the interorganisational network.

Trust is seen as a moderating variable because of the interaction among trust, network ties and structural features in/of interorganisational networks. The relational dimension of social capital interacts with the structural one (cf. shortcoming 2 and 3). This has implications on the role of trust as a moderating variable. As such, trust (moderating variable) moderates the extent to which network ties and structural features (mediating variable) mediate the influence of interorganisational networks (causal variable) on interorganisational network effectiveness (dependent variable). Based on this reasoning and by putting the two above propositions together, we come up with our basic proposition:

Proposition 3: The level and the kind of trust influence the effect of interorganisational network ties and structural features on interorganisational network effectiveness.

The formulated propositions should not be looked at as classical research hypotheses that will be tested directly, but as *'building blocks'* in the research process. From the formulated propositions various elements can be identified. Propositions 1a and 1b, on the one hand, focus us on the structural configuration of interorganisational networks (kind of ties and structural features). Proposition 2a and 2b, on the other hand, create the necessity of a typology of trust. Proposition 3 puts these two elements together. In figure 3 we summarise the identified elements that will be operationalised in further research.

Figure 3: A basic model for assessing interorganisational network effectiveness



5.2. Propositions related to performance

Interorganisational networks create access to resources and capabilities and network linkages are channels through which resources and capabilities, with the help of trust, can be exchanged (propositions 1a/1b and propositions 2a/2b). If an interorganisational network transfers resources and capabilities, it is effective. If an interorganisational network transfers *strategic* resources and capabilities, it is even more effective. Effective interorganisational networks can affect a firm's functioning. Especially when interorganisational networks supply a firm with strategic resources and capabilities, performance can be improved. The more (strategic) resources and capabilities are exchanged in/through interorganisational networks, the more effective an interorganisational network is and the higher the chance that performance is positively influenced. We recognise however that in order for the externally obtained (strategic) resources and capabilities to affect a firm's performance, the different divisions in the organisations should use (e.g. combine/explore/exploit) the resources and capabilities.

The use of strategic resources is said to be dependent on absorptive capacity¹⁴ or organisational memory¹⁵ and on networks within a firm. A firm that lacks absorptive capacity or organisational memory will be less likely to recognise the value of resources and capabilities and will be less likely to use them to improve its performance. Although our focus is on interorganisational networks, we need to take the intraorganisational networks into consideration to be able to assess the impact of the interorganisational network effectiveness on a firm's performance. Therefore, we formulate the next propositions:

Proposition 4a: The more an interorganisational network is effective, the higher the likelihood that a firm's performance will be improved.

Proposition 4b: The probability of performance improvement is dependent on the intraorganisational network.

Proposition 4c: The probability of performance improvement is dependent on the level of absorptive capacity and organisational memory.

6. Limitations and further research

This paper represents an attempt to model the influence of interorganisational networks on interorganisational network effectiveness and ultimately on a firm's performance, thereby paying attention to the role of trust. In developing our model, we have noted several limitations. First, we recognise that the influence on performance of interorganisational networks requires sequentially:

1. access to (strategic) resources and capabilities;
2. transfer or exchange of those (strategic) resources and capabilities in order to acquire them, and,
3. the internal use of the exchanged (strategic) resources and capabilities.

We covered explicitly the first two requirements. We looked at the structural dimension of interorganisational social capital to create access to resources and capabilities outside the firm and channels for the transfer of them (see propositions 1a and 1b). We discussed the role of trust in enabling the actual transfer of the externally accessed

¹⁴ Absorptive capacity is defined as the stock of prior related resources and capabilities. (See for instance, Cohen and Levinthal, 1990 and Szulanski, 1995).

¹⁵ Organisational memory is defined as stored information from an organisation's history that can be brought to bear present decisions (Hargadon and Sutton, 1997).

resources and capabilities and especially of externally accessed strategic resources and capabilities (see propositions 2a and 2b). Thus, we investigated the influence of two dimensions of **interorganisational** social capital. The third requirement, the internal use of the externally acquired (strategic) resources and capabilities, is partially dealt within propositions 4a, 4b and 4c. In further research we will extend our model by incorporating intraorganisational networks, **intraorganisational** social capital and the concepts of absorptive capacity or organisational memory.

Second, although we adopt a multidimensional approach we do not discuss the cognitive dimension of social capital. We limit our discussing to the structural and relational dimension of social capital. Further inquiry should cover the influence of shared values and shared vision on the network effectiveness and thus represent the influence of the three dimensions of social capital. Studying the three dimensions also implies that the interaction effects between them should be examined.

Finally, there is need for additional theorising in terms of trust based on literature beyond management (e.g. Luhman, 1988; Dasgupta, 1988 and Lewicki and Bunker, 1996). And there is also need for studying trust as a dynamic concept. Mayer et al. (1995) propose that the outcome of trust (beneficial or not) will influence trust in a relationship. Bouty (2000) looks at the consequences of reciprocation refusal and non-collaboration or exchanging fake resources and capabilities. She wonders how rapidly and deeply the exchange of resources and capabilities and trust suffer from such a negative feedback. Therefore, in future research attention should be given to the dynamic evolution of trust in interorganisational networks.

7. Bibliography

- AHUJA, G. "Collaboration Networks, Structural Holes, and Innovation: a longitudinal study", *Administrative Science Quarterly*, 2000, volume 45, p.425-455
- AMIT, R. & P.J.H. SCHOEMAKER, "Strategic assets and organizational rent", *Strategic Management Journal*, 1993, volume 14, no.1, p.33-46
- BABA, M.L. "Dangerous Liaisons: Trust, Distrust, and Information Technology in American Work Organizations", *Human Organization*, fall 1999, volume 58, no. 3, p.331-346
- BARNEY, J.B. & M.H. HANSEN, "Trustworthiness as a source of competitive advantage", *Strategic Management Journal*, winter special issue 1994, volume 15, p.175-190
- BOUTY, I. "Interpersonal and interaction influences on informal resource exchanges between R&D researchers across organizational boundaries", *Academy of Management Journal*, 2000, volume 43, no.1, p.50-65
- BROCKNER, J., SIEGEL, P.A., DALY, J.P., TYLER, T. & C. MARTIN, "When trust matters: The moderating effect of outcome favorability", *Administrative Science Quarterly*, 1997, volume 42, p.558-583
- BROWNING L.D., BEYER, J.M. & J.C. SHETLER, "Building cooperation in a competitive industry: Sematech and the semiconductor industry", *Academy of Management Journal*, 1995, volume 38, nr.1, p.113-151
- CHUNG, S., SINGH, H. & K. LEE, "Complementarity, Status Similarity and Social Capital as drivers of Alliance Formation", *Strategic Management Journal*, 2000, volume 21, no.1, p.1-22
- COHEN, W.M. & D.A. LEVINTHAL, "Absorptive capacity: A new perspective on learning and innovation", *Administrative Science Quarterly*, volume 35, p.569-596

- DASGUPTA, P. (1988), "Trust as a commodity". Published in D. GAMBETTA (Ed.), *Trust: Making and breaking of co-operative relations*, Oxford, UK, Basil Blackwell.
- DESS, G.G. & J.D. SHAW, "Note: Voluntary turnover, social capital, and organizational performance", *Academy of Management Review*, 2001, volume 26, nr.3, p.446-456
- DIERICKX, I. & K. COOL, (1989) "Asset Stock Accumulation and the Sustainability of Competitive Advantage" published in FOSS, N.J. *Resources, firms and strategies: A reader in the Resource-Based Perspective*, New York, Oxford University Press, 1997, p.378
- DODGSON, M. "Learning, trust, and technological collaboration", *Human Relations*, January 1993, volume 46, nr.1, p.77-
- DUSSAUGE, P., GARRETTE, B. & W. MITCHELL, "Learning from competing partners: outcomes and durations of scale and link alliances in Europe, North America and Asia", *Strategic Management Journal*, 2000, volume 21, p.99-126
- DYER, J.H. & W. CHU, "The determinants of trust in supplier-automaker relationships in the US, Japan, and Korea", *Journal of International Business Studies*, 2000, volume 31, nr.2, p.259-285
- DYER, J.H. & H. SINGH, "The relational view: Cooperative strategy and sources of interorganizational competitive advantage", *Academy of Management Review*, 1998, volume 23, no.4, p.660-679
- FORD, D et al. *Managing business relationships*, Chichester, Wiley, 1998, p.292
- GULATI, R. "Social structure and alliance formation patterns: a longitudinal analysis", *Administrative Science Quarterly*, December 1995, volume 40, blz.619-652
- GULATI, R. "Network location and Learning: The influence of Network Resources and Firm Capabilities on Alliance Formation", *Strategic Management Journal*, 1999, volume 20, no.5, p. 397-420
- GULATI, R., NOHRIA, N. & A. ZAHEER, "Strategic Networks", *Strategic Management Journal*, 2000, volume 21, Special Issue March, p.199-201
- HAMEL, G. "Competition and interpartner learning within international strategic alliances", *Strategic Management Journal*, 1991, volume 12, p.83-10.
- HANSEN, M.T. "The Search-Transfer Problem: The role of weak ties in sharing knowledge across organization subunits", *Administrative Science Quarterly*, 1999, volume 44, p.82-111
- HARGADON, A. & R.I. SUTTON, "Technology Brokering and Innovation in a product development firm", *Administrative Science Quarterly*, 1997, volume 42, p.716-749
- HELFERT, G. & K. VITH. "Relationship Marketing Teams: Improving the utilization of customer relationship potentials through a high team design quality", *Industrial Marketing Management*, September 1999, volume 28, no.5, p.553-564
- HOSMER, L.T. "Trust: The connecting link between organizational theory and philosophical ethics", *Academy of Management Review*, 1995, volume 20, nr.2, p.379-403
- HUTT, M.D., STAFFORD, E.R., WALKER B.A. & P.H. REINGEN, "Case Study: Defining the social network of a strategic alliance", *Sloan Management Review*, winter 2000, p.51-62
- INKPEN, A. "Learning and knowledge acquisitions through international strategic alliances", *Academy of Management Executive*, 1998, volume 12, no.4, p.69-80
- JEFFRIES, F.L. & R. REED, "Trust and adaptation in relational contracting", *Academy of Management Review*, 2000; volume 25, no.4, p.873-882
- JENSEN, R.J. "Trusting the source: Being willing to receive knowledge in knowledge transfer relationship", paper AOM-congress 2000

- KOGUT, B. "Joint Ventures: Theoretical and empirical perspectives", *Strategic Management Journal*, 1988, volume 9, p. 319-332
- LEANA, C.R. & H.J. VAN BUREN III, "Organizational social capital and employment practices", *Academy of Management Review*, 1999, volume 24, no.3, p.538-555
- LEE, C., L. KYUNGMOOK & J.M. PENNING, «Internal capabilities, external networks, and performance: a study on technology-based ventures», *Strategic Management Journal*, 2001, Volume 22, p.615-640
- LEONARD-BARTON, D. "Core Capabilities and Core Rigidities: A paradox in managing new product development", *Strategic Management Journal*, 1992, volume 13, p. 111-125
- LEWICKI, R.J. & B.B. BUNKER (1996), "Developing and maintaining trust in working relationships. Published in R.M. KRAMER & T.R. TYLER (eds.), *Trust in organizations: Frontiers of theory and research* (pp.114-140), London, Sage.
- LUHMAN, N. (1988), "Familiarity, confidence and trust: problems and alternatives". Published in D. GAMBETTA (Ed.), *Trust: Making and breaking of co-operative relations* (pp.213-237), Oxford, UK, Basil Blackwell.
- MADHAVAN, R., R.K. KOKA & J.E. PRESCOTT. "Networks in transition: How industry events (re)shape interfirm relationships", *Strategic Management Journal*, 1998, volume 19, p.439-459
- MATTHYSSENS, P., MARTENS, R. & K. VANDENBEMPT, *Concurrentiestrategie en marktdynamiek: Op weg naar concurrentievoordeel in industriële markten*, Kluwer Bedrijfsinformatie, 1998, p.283
- MAYER, R.C., DAVIS, J.H. & F.D. SCHOORMAN, "An integrative model of organizational trust", *Academy of Management Review*, 1995, volume 20, nr.3, p.709-734
- MCALLISTER, D.J. "Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations", *Academy of Management Journal*, 1995, volume 35, nr.1, p.24-59
- NAHAPIET, J. & S. GHOSHAL, "Social capital, intellectual capital, and the organizational advantage", *Academy of Management Review*, 1998, volume 23, no.2, p.242-266
- PARKHE, A & S.R. MILLER, "Dialogue: The structure of optimal trust: A comment and some extensions", *Academy of Management Review*, 2000, volume 25, nr.1, p.10-11
- PETERAF, M. (1993) "The Cornerstones of Competitive Advantage: A Resource-based View" published in FOSS, N.J. *Resources, firms and strategies: A reader in the Resource-Based Perspective*, New York, Oxford University Press, 1997, p.378
- POWELL, W.W., KOGUT, K.W. & L. SMITH-DOERR, "Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology", *Administrative Science Quarterly*, 1996, volume 41, p.116-145
- PRIEM, R.L. & BUTLER, J.E., Is the resource-based "view" a useful perspective for strategic management resource?, *Academy of Management Review*, 2001, vol. 26, no.1, p. 22-40.
- PROVAN, K.G. & H.B. MILWARD, "A preliminary theory of interorganizational effectiveness: A comparative study of four community mental health systems", *Administrative Science Quarterly*, 1995, volume 40, p.1-33
- RITTER, T. "The networking company: Antecedents for coping with relationships and networks effectively", *Industrial Marketing Management*, September 1999, volume 28, no.5, p.467-479
- ROTHAERMEL, F.T. « Research note: Incumbents advantage through exploiting complementary assets via interfirm cooperation », *Strategic Management Journal*, 2001, volume 22, p.687-699

SEGAL-HORN, S. *The strategy Reader*. Oxford, Blackwell Publishers, 1998, p. 457

SMITH, K.G., CARROLL, S.J. & S.J. ASHFORD, "Intra- and interorganizational cooperation: Toward a research agenda", *Academy of Management Journal*, February 1995, volume 38, no.1, p.7-23

SZULANSKI, G. "Unpacking stickiness: An empirical investigation of the barriers to transfer best practice inside the firm", *Academy of Management Journal*, 1995, p.437-441

THORELLI, H.B. "Networks: Between markets and hierarchies", *Strategic Management Journal*, 1986, volume 7, p.37-51

TSAI, W. "Social capital, strategic relatedness and the formation of intraorganizational linkages", *Strategic Management Journal*, 2000, Volume 21, nr.9, p.925-939

TSAI, W. & S. GHOSHAL, "Social capital and value creation: The role of intrafirm networks", *Academy of Management Journal*, 1998, volume 41, no.4, p.464-476

WALKER, G., KOGUT, B. & W. SHAN, "Social capital, structural holes and the formation of an industry network", *Organization Science*, 1997, volume 8, no. 2, p.109-125

WICKS, A.C., BERMAN, S.L. & T.M. JONES, "The structure of optimal trust: moral and strategic implications", *Academy of Management Review*, 1999, volume 24, nr.1, p.99-116

WILLIAMSON, O.E. "Transaction cost economics", *Journal of Law and Economics*, 1979, volume 22, p.233-261

YLI-RENKO, H., E. AUTIO & H.J. SAPIENZA, « Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms », *Strategic Management Journal*, 2001, p.587-613

<http://uts.cc.utexas.edu/~tai/theory/critique2.html>

Table 1 : Mapping the 'territory'

	Internal networks		External networks ¹⁶
	Intradivisional	Interdivisional	
Structural dimension		Powell et al., 1996; Hargadon and Sutton, 1997; Tsai and Ghoshal, 1998; Nahapiet and Ghosal, 1998; Hansen, 1999; Tsai, 2000;	Thorelli, 1986; Kogut, 1988; Hamel, 1991; Dyer and Singh, 1998; Ford, 1998; Inkpen, 1998; Matthyssens et al., 1998; Helverth and Vith, 1999; Provan and Milward, 1995 Powell et al., 1996; Hargadon and Sutton, 1997; Walker et al., 1997; Madhavan et al., 1998; Gulati, 1999; Ahuja, 2000; Chung et al., 2000; Rothaermel, 2001; Lee et al., 2001; Yli-Renko et al., 2001
Relational dimension ¹⁷ Hosmer, 1995; Mayer et al., 1995; Browning et al., 1995; Brockner et al., 1997; Wicks et al., 1999; Dyer and Chu, 2000; Hutt et al., 2000; Jeffries and Reed, 2000		Smith et al., 1995; Tsai and Ghoshal, 1998; Nahapiet and Ghoshal, 1998; Tsai, 2000 McAllister, 1995; Baba, 1999; Leana and Van Buren III, 1999; Jensen, 2000	Williamson, 1979; Dodgson, 1993; Barney and Hansen, 1994; Gulati, 1995; Smith et al., 1995; Baba, 1999
Cognitive dimension		Tsai and Ghoshal, 1998; Nahapiet and Ghoshal, 1998	
Σ of 3 dimensions Multidimensional approach	Intradivisional Social Capital	Interdivisional Social Capital Tsai and Ghoshal, 1998; Nahapiet and Ghoshal, 1998	Interorganisational Social Capital
	Intraorganisational Social Capital		

¹⁶ Many authors consider external networks as such without any connections to any of the three dimensions of social capital, see for instance, Thorelli, 1986 and Kogut, 1988.

¹⁷ A lot of authors discuss the relational dimension of social capital – in our paper defined as trust - in a more general or conceptual way without any links to networks, see for instance Hosmer, 1995 and Mayer et al, 1995.

