Managerial Challenges within Networks:
Emphasizing the Paradox of Network Participation

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Abstract

Flexibility and access to numerous resources are essential benefits associated with network participation. An important aspect of managing the network participation of a company is to maintain a dynamic portfolio of partners, and thereby keep up the strategic opportunities for development. However, maintaining the dynamics within a network seems to be a complex challenge. There is a risk that the network ends up in The Paradox of Network Participation. The desired renewal and flexibility are not utilised because the involved parties preserve the existing networks structure consisting of the same companies, and hence, the paradox reduces the potential advantages of the network. The objective of this paper is to analyse the fundamental conditions for a company which depends on an efficient network, and based on this discuss how active use of information can reduce the relative importance of trust and thereby sort out the paradox of network participation. Trust and information are mechanisms employed to absorb uncertainty. The relationship between trust and the requirement for information depends on the maturity of the relationship. When trust becomes too important as uncertainty absorption mechanism the paradox sets in. Three proposals are made for substituting trust with information as possible ways out of the paradox.

1. Introduction

Throughout the last two decades, several researchers within the organisational and sociological literature have focused on networks (Dacin, Ventresca and Beal, 1999). Various definitions of the concept have been made, but for now the network will be defined as two or more independent companies cooperating in order to manufacture a...
product or render a service. Cooperation is essential; because, the term underlines that the interaction between the companies involved is more intense than if the transaction had taken place as a traditional market operation.

Managers of companies have also set their eyes on cooperation across organisational borders. Closer and more intense cooperation between companies has become more important for a number of reasons. One reason is the managerial shift of focus from a functional towards a process-oriented managerial point of view, which often results in focus being on core competences and consequently outsourcing peripheral activities. Along with the increased focus on the core-competences of the company the process-oriented point of view has lead to an increase in the need for identification of partners in replacement for the processes that used to be carried out within the company; and thereby the companies are forced to cooperate with other companies along the value chain. In a static environment this would necessitate identification of such a partner once and for all after which nursing and fine-tuning the relationship follows. However, the general understanding of the business environment in most industries is that competition has increased and the conditions under which business is made are more turbulent. Consequently, the requirements that the company meets are in a steady state of flux; which leads to the second reason why the network has become an interesting method for coordinating activities in which the company is involved.

As early as 1986 Miles and Snow (1986) give two examples of the changing business conditions that companies are facing. They point at the rapid technological change, which has reduced the life cycles of most products. Additionally, they refer to the increasing international competition, which has made the set of potential competitors indistinguishable and impossible to predict. The shorter life cycles lead to a higher demand for change and flexibility. The more intense competition leads to an increased need for optimal utilisation of the resources of the company in order to remain profitable.

The Danish business structure is characterised by a relatively large number of small and middle-sized companies. These companies are likely to face difficulties at an international and competitive market. In order to help these companies and the export of Danish commodities, the Danish government in the mid-eighties launched the so-called network programme\(^2\). One of the conclusions obtained from an evaluation of the programme was that unsuccessful partnerships in many cases originated from lack of ability to identify and choose fitting partners (Ladegaard and Nørgaard, 1991).

\(^2\) For further details of the Danish Network Programme, see Ladegaard and Nørgaard (1991) or Nielsen (1993).
Several contributors have mentioned that one of the major managerial challenges of the network is choosing and evaluating partners (e.g. Uzzi, 1997; Gulatti et al, 2000; Maravealis, 2001; Håkansson and Ford, 2002). They point out, managers in networks seem to prefer to cooperate with partners they know and trust, which is a truly subjective preference. This phenomenon is labelled the Paradox of Network Participation. This again leads to a static network organisation even though it was supposed to be dynamic. There seems to be a need for methods, which systematically support the evaluation and choice of partners, and enable managers to make these choices proactively on grounds that are congruent with the goals and strategies of the company. The role of management accounting is to handle information systematically. Properly designed, the management accounting system may be able to soften the paradox, but an understanding of the conditions of network participation is fundamental in order to create an apt design of the management accounting system.

The aim of this paper is to make an introduction to selected paradigms of the network literature. Based on these, the managerial challenges will be highlighted in order to identify possible objectives for the management accountants in companies that depend on having an apt portfolio of partners; a special emphasis on the Paradox of Network Participation will be made.

Section 2 provides an argumentation of why the network of a company is relevant to manage. In section 3, four major network paradigms will be described in order to give an introduction to the field. Section 4 contains a discussion of major managerial tasks of the network company. Section 5 outlines some of the challenges that management accounting are expected to handle. In section 6 a discussion of the influence of trust in relation to sharing information with external partners will be made. Section 7 includes a discussion of the Paradox of Network Participation, and three propositions for avoiding this paradox will be outlined. Finally, in section 8 conclusions will round of the paper.

2. Understanding Company Capital

In this section a framework for describing three components of company capital will be outlined. The purpose is to set the scene for introducing the “value” of relations with the environment in which the company operates, and in which it has to manoeuvre skilfully in order to survive.

Coleman (1988) defines three forms of capital that constitute the total capital of a company; these are: physical capital, human capital, and social capital. Physical capital is
the tangible and financial assets of the company. This form of capital is relatively easy to measure in monetary terms; and it is this kind of capital that has been analysed in traditional economics and accounting. Human capital constitutes the characteristics of the people that are employed in the company. Human capital can be perceived as the knowledge and educational background of the people; but also personal characteristics of the people constituting the company will influence the human capital. The third form of capital is social capital. Social capital expresses the social relations of the people in the company, both the relations between people inside the company and their relations with people representing other companies. In this way, social capital is linked to social networks (Burt, 1997; Borgatti, Jones and Everett, 1998).

Like Coleman, Bourdieu (1986) perceives capital as consisting of three forms, which he labels: economic capital, cultural capital and social capital. Bourdieu explicitly points out, social capital is owned by at least two parties as opposed to both economic and cultural capital. Hence it takes more than one person to build up social capital. However, it takes only one part to break the relation and thereby ruin the social capital. Burt (1992, p. 9; and Håkansson and Snehota 1997, p. 138) make similar considerations concerning the asymmetrical dual ownership of social capital; the later, however, without explicitly putting it into a social capital context.

![Diagram](Figure 1: Three forms of capital: Physical capital, Human capital, and Social capital, and their interrelationship.)

The three forms of capital can be changed from one form to another under certain conditions. The arrows in figure 2 illustrate transformation of the forms of capital. The interplay between the three forms of capital creates new capital. For managers this means that all three forms of capital have to be in focus in order to secure company growth.
Burt (1992 and 1997) states that it is the social capital of the company that activates the two other forms of capital. Only companies acting on perfectly competitive markets do not depend on social capital, because these companies act on objective information on price and quality (Burt, 1992, p. 10). In the situation where companies face market imperfections, social capital becomes the coupling to the outside world. The ability of the company to interact with relevant partners will influence the profitability of the entire capital, and hence the economic performance of the company. The performance of companies and management is measured in the growth of physical capital exposed in monetary terms. As the so-called knowledge society becomes more and more sophisticated, the ability to unite these specific resources in a way that is not possible in a traditional market setting becomes increasingly important. In line with the relevance of managing physical and human capital it is important for the specialised company to manage social relations.

Based on a similar tripartition of capital, Mouritsen, Nielsen, Lindhart and Stakemann (2001) describe how venture companies not only bring in financial capital, but also human and social capital to the companies with which they enter into business relations. Human capital is brought into play to systemise and goal-direct the companies. Social capital is used to link the emerging companies with potential business partners. Both elements are found to drive the growth that is essential for the venture company in order to be able to sell its share of the new companies and thereby transform the invested financial, human, and social capital into new financial capital, which is essentially the primary goal for venture companies.

Burt (2002) sees bridges as specific exponents of social capital. From the position of a bridge, a person has access to information before others. This will enable the person to control the flow of information between two separate networks. Companies in such a position are able to increase the utilisation of physical capital and human capital, and thereby achieve higher profitability. From a survey of bankers in a number of investment banks, Burt (2002) found, bankers most capable of identifying and create bridges across structural holes received the relatively highest income.

Nahapiel and Goshal (1998) advocate, the social capital of a company will influence the edification of the intellectual capital of a company. Thereby the interplay between the two forms of capital is essential for the economic success.

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3 A bridge is a relation combining two networks that would else have been isolated (Scott, 2001, p. 15).
4 Income consisted of both a fixed salary and different kinds of bonus payments.
The purpose of this section has been to show that in business settings where the success of the company depends on the abilities of the management to transform one kind of capital into other forms of capital it becomes important to manage all three forms of capital. In a world where companies focus on core-competences, physical and human capitals are what the company has to offer. The high degree of specialisation indicates a massive investment in these forms of capital. However, if companies do not manage social capital, the company will not be able to create contacts with potential customers, and hence not be able to create profitability of the investments made.

3. Four Paradigms Dealing with Networks

The term network has turned into a buzz-word employed in many settings. Different associations are related to the word, and hence a clarification of the term is suitable before a discussion of the four paradigms can be made.

Networks are interrelationships between a company and other organisations that are part of the environment in which the company conducts business. These organisations can be suppliers, customers, competitors, public authorities, etc. (Gulatti et al, 2000). The organisations may be located in the neighbourhood of the company or in other countries; and the organisations may be colleagues within the same industry or belong to a totally different industry. The interrelationships may thus point in any direction: horizontally, vertically, and spatially. Understanding the nature of networks requires recognition of the interrelationship between the network members. Change in the relationship with one member of the network will to some extent influence the remaining network. Solely focusing on vertical relations or horizontal relations will not grasp the complexity of the environment of which the company forms part.

Christopher (1998, p. 18) employs the network term in relation to supply chain management with focus on the single supply chain. However, most companies take part in several supply chains, and action taken in relation to one chain is likely to affect actions taken or to be taken on other chains. Hence, one-directional focus on networks will hinder management from recognizing the environmental complexity.

In the following subsections four approaches to understanding and describing networks will be discussed. The purpose is to build a foundation for a multiparadigm perspective on networks, which can be used to gain insight into the field at different theoretical levels.
3.1 The Organisational Theoretical Based Paradigm


The Internal network is rooted in a corporation in which a number of autonomous centres exchange products or services both within the corporation and with partners outside the corporation. The individual centre within the internal network can be compared with a profit centre or investment centre with full autonomy. However, it is assumed that the parties within the internal network trade with external parties on a level of significant magnitude, an assumption that may not be fulfilled for traditional profit or investment centres. Assuming that trading with internal parties is made on arm’s-length principles that reflect the market value of the product, it is possible to measure the profitability of the internal network and to compare it with external parties on market basis (Snow et al, 1992).

The main participant within the stable network is the core firm. The core firm is normally a large company that has outsourced non-core activities to a number of sub-suppliers. Within the stable network, there is often a high degree of interaction between the core firm and the sub-suppliers, but on conditions set by the core firm. The stable network can be characterised as quasi outsourcing, since the core firm de facto controls the sub-suppliers, though these are legally independent of the core firm. In order to accept such conditions, the sub-suppliers often want some sort of risk sharing; such kinds of arrangements typically lead to inflexible relationships (Snow et al, 1992). The core firm is able to control the other members of the stable network as if they were part of the same corporation; this is what Blois (1972) characterised as Quasi-integration. The usage of modern information technology eases the coordination within the stable network, but it is not a condition for cooperation of this kind.

An example of a stable network can be found in Francis and Garnsey (1996). They describe the development of the U.K. grocery retailer industry and the consequences for the sub-suppliers who supply to this industry. In England, a concentration of the grocery retailers has been seen. The concentration of the industry has given the grocery retailers a massive bargaining power compared to the suppliers because the producers have to go through the retailers to reach the end-customers. The result is, retailers have been able to assign a significant part of the risk to their sub-suppliers.
**Dynamic Networks** are characterised by disintegration. This means that the companies included cooperate across the legal borders of the corporations in a more intense way than found in a stringent market transaction. Networks may be more or less complex and dynamic depending on the competitive conditions at the market (Miles and Snow, 1992). Networks can be formed vertically among complementary companies and horizontally among congruent companies, e.g. a united marketing campaign on a new market.

Mouritsen, Hansen and Hansen (2001) describe a company, which participate in a dynamic network. Due to an increase in the activity level, the company initially decided to outsource some parts of the production, but later on the entire production was outsourced. At first there were problems with delivery times etc. Enlarging the domain of management accounting by implementing Open-Book Accounting solved the problem. Mutual exchange of relevant information has given the sub-suppliers knowledge of the sales budgets of the company, and the company has gained insight into the cost structure of the sub-suppliers, information that is incorporated in the development of new products.

Compared to stable networks, members of dynamic networks are peer partners. One member of the dynamic network is hence not able to dominate one or more of the other members. Customers and suppliers are not opponents but partners. This condition means that the management of such relationships has to be changed from control-based management to management based on trust and sharing of relevant information.

Miles and Snow perceive the network as a possible way of coordinating the company in line with other forms of organisations. They focus on the concept *Fit*, which is a description of the ability and speed at which the company is able to adjust to changes regarding strategy, structure, and management processes (Miles and Snow 1984). The conceptual frame of reference is constructed around four measures of fit: *Minimal Fit, Tight Fit, Early Fit and Fragile*.

Miles and Snow propose that the business environment of most companies is far more unpredictable than earlier; this change emphasizes the importance of fragility. Likewise, competition is more intense, and hence the early and tight fit is essential in order to succeed. As a consequence of these changes in the business environment, Miles and Snow propose that the dynamic network is an efficient way of organising companies facing these challenges.
3.2 The Transaction Cost Based Approach to Networks

Based on the work by Coase (1937) and Williamson (e.g. 1979), Thorelli (1986) uses the transaction cost theory as point of reference for his work on networks. The network to be analysed is two or more companies, which by the intensity of their interaction comprise a subset of one or more markets. Each company in the network is called a node, and these are linked by continuous interaction. Networks can be loose or tight depending on the frequency, the quality, and the character of the interaction among the nodes. Thorelli sees power and influence as central concepts of network analysis. Power is defined as the ability to affect the decisions or actions of other network members. Influence is defined as the extent to which power is used. A concept related to power and influence is trust. Thorelli refers to power and influence as based on the past; trust is the perception of a network partner’s future use or misuse of power and influence.

Jarillo (1988) perceives the network as an organisation form that can be used to position the company in a stronger competitive context. Transaction cost theory is used to explain why and when it is economically relevant to use the network. If the external price is higher than the internal cost, the hierarchy is always the most cost efficient coordination method; at the other extreme, the internal cost is higher than the external cost, and then the market is always the most cost efficient coordination mechanism. The network is an interesting form of coordination in the situation where companies are confronted with an external price, which is lower than the internal cost, but due to transaction costs, the external cost will increase to a level above the internal cost. In order to become relevant, the network should reduce the transactions costs; otherwise the hierarchy is more cost efficient. The economic span in which the network is an interesting coordination mechanism is sketched in figure 2.

![Figure 2. The Economic Span in which the Three Coordination Mechanisms are Relevant](image)


Note:
EP = External Price
IC = Internal Cost
EC = External Cost, consisting of EP plus Transaction costs
The network is economically feasible due to the specialisation and effectiveness of the individual participant of the network. Jarillo calls attention to, management of the company can reduce transaction costs via coordinative and trust building arrangements. Trust and efficient sharing of relevant information are factors that make the network become relevant from a cost-efficient point of view.

Examples of others who have used the transaction cost theory to analyse interorganisational relations are: Anderson et al (2000); Geitzman (1996); Lacity and Wilcocks (1995); van der Meer-Kooistra and Vosselman (2000).

Despite the fact that Williamson adds an additional coordination mechanism, the hybrid, in his later written contributions on transaction cost theory, the theory still has the individual transaction as the unit of analysis (Williamson, 1991). Analysis of transaction costs includes the relative cost of a number of coordination alternatives for a specific transaction. Transaction cost analysis is discrete, and the effect from a change in one relation in the network on other relations is neglected by the theory; hence, the interdependence of the members of the network will not be caught by transaction cost analysis (Håkansson and Snehota, 1997, p. 380). Another point of criticism is that transaction cost analysis is static. This means, included relations and knowledge built up during the development of network relationships will not be included in the analysis (Granovetter, 1985; Walker, Kogut and Shan, 1997). This is critical since the dynamics of networks are central in relation to understanding networks and the mechanisms driving them.

3.3 Business Networks

The Business Network model is rooted in industrial markets and business-to-business marketing (Håkansson and Snehota, 1997). The centre of attention is the interaction between an organisation and a specific partner; this association is labelled a relation. The relation is part of a web of relations that concurrently forms a network. The relation consists of two companies that mutually cooperate on bilateral trading of commodities or services. The development of the relation takes place through successive interactions among the parties. Description and understanding of relations have to be made in two dimensions: substance and function.

The substance dimension describes the parts of the two sides, which are affected by the relationship. The substance dimension is defined as consisting of three layers: activity links, resource ties, and actor bonds. A relation links activities, which connect internal activities within the two interacting parties. The quality of these activity links will influence
the outcome of the relation. A number of resources will be employed when the two interacting parties cooperate. These resources may be tangible or intangible, and knowledge of the relation is in itself a resource that can be utilised. Throughout the development of the relation resources will be attached to the relation and resource ties will be made between the two parties. The last substance layer concerns the interplay between the two parties. The relation is more than activities and resources; it also consists of the interacting organisations and the people that make up the organisation. The human relationships that will be developed create an obligation and commitment to the relation. This feeling of responsibility towards the relation will connect the parties and tie them together.

The second dimension is the functions of business relations. This deals with the effects that the relation has on the actors involved. A relation affects three aspects: the individual party in the relation, the two parties directly involved in the relation, and the other participants in the network. The relation will affect the individual company. The company has the opportunity to specialise and utilize core competences far more intensively than if it did not participate in a relation. Likewise, the relation opens for possibilities to draw on resources that would otherwise have been inaccessible to the company. The company will often find that the quality of the resources of the company will increase, and in addition, the agility of the company increases too. Though the company becomes more effective through the relation it may experience that their partner becomes even more effective. This may cause tension and conflicts, and it is hence important to measure the outcome of the company against what would have been possible without the relation. The effect of the relation will depend on the interacting parties’ view on the relation and their perception of the relation. In order for the relation to be effective there has to be a sufficient level of substance associated with the relation. The parties have to link activities; in addition, the parties have to invest some resources in the relation; and finally, the parties have to commit themselves to each other and the relation. The substance of the relation must be more than just the sum of the parties’ contributions if the relation is to become successful. Therefore it is important that the two parties understand the competences of each other, and that they recognise that a potential symbiotic relationship will appear if this mutual respect is present.

Though the Business Network model has the relation as its central unit of analysis, it is recognised that it is the relations and their mutual interaction that constitutes the entire network. A company typically participates in a number of relations, and in that way takes part in the network. The company and its actions in a relation will affect the internal substance of the company and consequently the substance of other relations will change.
A network is changing constantly. It is also difficult to define a network; where does it begin and where does it end. Analysing the evolution of a relation is possible by employing a system-theoretic approach (see Håkansson and Snehota 1997, p. 45). The three layers of the substance dimension will mutually influence each other. Furthermore, the functions of the relation will adjust. There are three critical areas connected to the managerial task of handling relations. The company has to develop and refine their core competences. In the development of the relation, the parties should focus on the specification of sales and purchases of commodities and services. Finally, the company should position itself in the network in accordance with its strategy.

Summing up on the Business Networks. The model is rooted in marketing theories at industrial markets, whereby the customers’ needs and the fulfilment thereof are in focus. Business Network describes participants, components, and mechanisms within the respective networks. The model focuses on the nearest relations of the focal organisation; hence the model has an ego-centric approach. This approach reduces focus on the mechanisms beyond the nearest relations. However, the model recognises that any action within the network also influences periphery relations.

### 3.4 Social Network Analysis

Social network analysis is a method for including patterns and connections between elements within the social system to be analysed (Wellman, 1991, p. 20). When making social network analysis, the unit of analysis is a number of individuals and their reciprocal relations (Wasserman and Faust, 1997, p. 9). Social network analysis focuses on the social patterns that would have been impossible to identify by partial analysis of the potential relations. Opposed to neo-classical economic theory, social network analysis is built on the assumption that the actions of the actors are correlated and dependent upon the actions of other parties in the network; hence, economic activity has to be understood within a social context (Biggert and Castanias, 2001).

Granovetter (1985) includes a number of empirical studies indicating that even complex transactions may be coordinated at the market, and even simple transactions may be impossible within the hierarchy. He discusses the unrealistic assumption of perfect markets as the fundamental economic principle, and he says that most products are specialised to fit the requirements of the customer, and most often there is some kind

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5 Social Network Analysis employs a number of concepts describing the strength of the relations included in the network and concepts describing the composition of the network. An introduction to these concepts can be found in Scott (2001), Wasserman and Faust (1997), and Wellman (1991). Wellman is specifically focusing on the historical development of Social Network Analysis.
of connection between the parties involved in a transaction. Trading is made within networks, and this has to be taken into account when analysing transactions. Uzzi (1997) summarises a number of contributions, and concludes that networks give access to business opportunities that are unattainable by traditional market transactions or even vertical integration.

Dyer and Singh (1998) state, it is not sufficient to focus on competitive advantages at company level; you also have to include the partners that most companies have and analyse how these partners fit the company. They build a model, which can be used to analyse sources of the interorganisational value-creation process. Four mechanisms are mentioned: relation-specific assets, Knowledge-sharing routines, Complementary resources and capabilities, and Effective governance.

The point of reference for Galaskiewicz and Zaheer (1999) is that companies can achieve higher profits by influencing other parties in the environment surrounding the company. They state, networks are best suited under non-perfect market conditions; e.g. in situations with few actors on the market, in situations with limited access to information, and in situations where the institutional norms of the market are not fully developed or hard to enforce\(^6\). From that point of view, social network analysis becomes an interesting paradigm for analysing the highly specialised company acting at a market characterised by a steady state of flux.

Social network analysis consists of two overall ways of analysing the network. Either an ego-centric view or a socio-centric view is taken. In an ego-centric network analysis the researcher analyses the network from the point of view of an individual network member. Socio-centric analysis refers to methods that include the entire network and all the relations between the parties of which the network consists. Socio-centric network analysis requires knowledge of all members of the network and their interrelationships. Such knowledge is typically very hard to gain unless you are able to identify the entire network, which is very difficult in an interorganisational setting. The dynamics of networks consisting of companies are hence complicated to capture and analyse.

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\(^6\) Such lack of norm may be observed in new industries, new forms of organisations, situations of crises, etc.
3.5 Summing up

In this section four approaches to networks have been described. The four approaches are exponents of different paradigms, and thereby they focus on different units of analysis. The four paradigms are summarised in table 1.

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Theoretical basis</th>
<th>Unit of analysis</th>
<th>Theoretical Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisation Theory</td>
<td>Organisation Science</td>
<td>Fit of the company</td>
<td>Micro/Meta</td>
</tr>
<tr>
<td>Transaction Costs</td>
<td>Economics of Organisations</td>
<td>The transaction</td>
<td>Macro</td>
</tr>
<tr>
<td>Business Network</td>
<td>Industrial Marketing</td>
<td>The relation in the network context</td>
<td>Micro</td>
</tr>
<tr>
<td>Social Network Analysis</td>
<td>Economic Sociology</td>
<td>The entire network</td>
<td>Meta/Macro</td>
</tr>
</tbody>
</table>

Table 1. Four paradigmatic approaches to understanding networks

The purpose of this section has not been to find the best theory to describe networks. The intention has been to outline different approaches to describe and understand networks. It is found that the different paradigms can be used at different theoretical levels to analyse the network phenomena. In line with Lewis and Grimes (1999), it is found that making research by employing theories from different paradigms will make it possible to achieve a multifaceted view of the research object and thereby gain deeper insight into the field. In this paper, three theoretical levels are employed: micro, meta and macro levels. At the micro level the single relation or the company is in focus. The meta level concerns a specific network and the dynamics herein. The macro level is about networks in general.

It is found, the framework of Miles and Snow is suitable for analysis of the single company, and in some instances of the entire network in focus. With its focus on the fit of the company in relation to the contingencies it faces, this paradigm is a useful tool for conducting analyses on micro level and to some extent on meta level.

Though the transaction cost paradigm has the transaction as the unit of analysis, it is found that the theory is so general that it is inappropriate for analysis at a specific level. The advantage of the transaction cost theory is the intuitively appealing way of describing factors that drive different ways to organise companies. However, it lacks the ability to
explain why the specific company is organised the way it is. Hence it is found that this theory is most applicable at the macro theoretical level.

The business network theory gives precise descriptions on what drives the single relation. Yet it is deficient when it comes to explaining what happens beyond this point, even though it is recognised that these higher order relations will influence the relation in focus. Therefore it is found that Business Network theory is applicable for analysis at the micro level.

With its focus on the entire network, social network analysis is effective to gain insight at a meta-theoretical level. In addition, the paradigm can contribute with a conceptual framework that enables to do analysis at a macro level.

Though the paradigms presented differ, it is found that they all are able to contribute to explaining the network phenomenon at different theoretical levels. Choice of paradigm will hence depend on the type of analysis one is facing; and properly conducted, a multi-paradigmatic approach might give access to deeper insight into the field.

4. Advantages of Network Participation

This section examines the advantages of networks. A discussion of the general motives for network participation will be made. Based on this, key factors in relation to network management will be identified.

4.1 Motives for Network Participation

An analysis of the Danish network programme examined, among several other aspects, the motives for active participation in networks. Based on answers from 42 companies, the motives for joining networks could be grouped into four categories. These were: flexibility of capacity, access to markets that otherwise would have been unreachable, access to resources distinct from the resources of the company, and more efficient research and development (Ladegaard and Nørgaard, 1991, p. 21).

Gulatti (1998) concludes that networks give companies access to information that set them in a position to choose and create a portfolio of partners. Hereby companies obtain a degree of flexibility they would not have been able to create themselves. Companies get access to the right resources in an amount they need without doing specific investments they are unable to fully utilise themselves. He thereby points at two
important motives for choosing the network. The first motive is flexibility originating from an increased press for alteration and ability to make fast corrections of production. The pressure originates from shorter product life cycles than similar products had years ago. In addition to this, many companies employ a differentiation strategy often combined with the possibility for the customer to configure the product. This strategy has an inherent requirement for flexibility. The second motive is the specialisation motive. The network is an effective and efficient method for combining and utilising the core competences of the participants in the way the end customer wants it. Many companies focus on their core competences, and they have outsourced most of the other activities. This makes it essential to cooperate with other companies along the value chain.

4.2 Characteristics of Flexibility and Core Competences

Flexibility can take two forms: scale and content. Scale flexibility may be caused by large fluctuations in orders. Sabel et al (1987) show how the German company Bosch has the explicit policy to create a network of long lasting relationships with their sub-suppliers. Bosch actively joins product development well aware that the sub-suppliers might use the knowledge gained to sell similar products to other companies that might be the competitors of Bosch. For Bosch it is important that the revenue originating from dealing with Bosch do not exceed 20 percent of the sub-supplier’s total revenue. This policy has the consequence that the sub-supplier does not become too dependent on Bosch. Thereby it is possible for Bosch to reduce the purchases from this supplier for a period without losing the supplier either because he finds another purchaser or because he goes out of business.

Flexibility in form of content is created by using competences owned by several members of the network in order to create a specific product. These competences are often complementary to core competences of the company. A transfer of knowledge will thereby take place between the companies in the form of joint research and development, purchase of modern technology to be a component of the product, etc. (Ebers 2001). Mouritsen, Hansen and Hansen (2001) describe a company, which produce electric surveillance equipment. The company used to keep all their product development within the company. However, the technological development within the field expanded, which made it difficult for the company to keep pace. This change in business conditions led the company to outsource product development, and focus on defining the customer needs instead. With the needs of the customers as the point of reference, the company buys the required components from state-of-the-art producers, typically with some kind of
modification involved in order to fully live up to the demands of the customers. The company thereby buys flexibility and know-how.

4.3 The Linkage Between Flexibility and Core Competences

Often both increased focus on core competences and the need for flexibility are mentioned concurrently as motives and advantages of the network. As will be proposed in this subsection, the reason for this is that these motives are interrelated and bring about each other.

As discussed above, flexibility and ability to change are often important motives for a company to actively participate in a network. Factors that trigger the requirement of flexibility will not be discussed here. It is simply noted that from its environmental conditions, the company is met by a request for flexibility for one or another reason. This request is manifested in a need for access to several, often highly specialized, kinds of resources.

The flexibility and change-over ability of the internal resources of the company are restricted, both due to economic and human limitations. Being able to respond to new requirements from customers requires a high degree of capacity, which is incongruent with participation at a highly competitive market. Likewise, living under constant changes makes it hard for the employees to keep up to the educational level required, and it will also bring about motivational difficulties. From a managerial point of view, an organisation trying to live up to ever changing requirements is hard to coordinate and manage. Hence there are practical limitations for how flexible an organisation can be. This phenomenon is here labelled *Bounded Internal Agility*:

One way to deal with the bounded internal agility is to reduce the number of activities that the company is handling by focusing on the core-competences. In that way the company puts all its efforts in one kind of activity and seeks to become state-of-the-art within that field.

The core-competence-focused company is forced to interact more closely with other actors along the value chain in order to acquire relevant information stemming from sources outside the range on which the company is operating. Likewise, the company has to interact on a number of value chains, since the core competences of the company are likely to be part of a number of contexts in order to be fully utilised. Interaction with a number of partners, who each have their specific requirements, adds to the requirement of flexibility.
The interrelationship between the motives for network participation has been sketched in figure 3.

The interrelationship described could be interpreted as a vicious circle - a never-ending race for the unachievable. This is not the point. The point is, the press for flexibility and the strategic choice of focusing on a limited field of core competences are interrelated, and are consequences of each other. Hence managing a network organisation requires awareness of this interrelationship since it is a driving force for the dynamics characterising networks.

4.4 A Simple Model for Managing Active Network Participation

As discussed, increased focus on core competences and press for flexibility are important motives for active network participation. Likewise, it was discussed how these factors are interrelated and lead to an increased need for intense interaction along the value chains on which the company takes part. Since these factors are key motives for participating in the network, they are also relevant managerial topics. A proposal for a model to describe the managerial process for active participation in a network is illustrated in figure 4.

Core-competence-focused companies have to expose themselves to their surroundings in order to create relevant contacts. This requires an adequate flow of information from the company to potential and present partners. Likewise, the company needs similar information from potential and present partners. This information has to be
used to select and coordinate the activities with external parties. Sharing managerial information is hence an essential task in a network setting.

Deep-rooted knowledge of the core competences, and thereby the strategy, of the company has to be used to define the qualifications needed of the partners. Based on the core competences of the company and information from external partners, managers are able to make decisions on which products to make, and which partners to engage with. It is the combination of right and proper core competences combined with apposite partners that defines the flexibility of the company. In order to stay flexible and compatible, managers have to revise if the core products, or even the core competences, of the company need to be adjusted.

The vertical links between strategy, managerial processes and structure in the right-hand side of the figure illustrates that the model is connected to these three aspects, and in accordance with the framework of Miles and Snow, management should seek for a fit between the three aspects.

5. Management Accounting in Networks

Based on the previous sections, the objective of this section is to discuss the role of management accounting in a network setting. As a basis, the section begins with a short discussion of the role of management accounting.

5.1 What is the Role of Management Accounting?

According to Kaplan and Atkinson (1998, p. 1) the activities of management accounting include: ‘... collecting, classifying, processing, analysing, and reporting information to managers.’ Information in relation to management accounting was traditionally defined in monetary terms. Data was used to calculate costs and profitability
either those of the company at an aggregated level or those of a department or at product level. Moreover, in most Western countries accounting for internal usage was based on data intended for financial accounting (ibid, p. 8). Hence, the applicability of the information for managerial decisions was limited, because the data was intended for a different purpose than managing a company.

One of the most cited critics of traditional management accounting is Johnson and Kaplan (1987). In the wake of their book ‘Relevance Lost: The Rise and Fall of Management Accounting’ modern management accounting have evolved. In the last two decades, a vast number of management accounting models has been developed or revived; examples of these models can be found in Nielsen, Melander and Jakobsen (2002). Modern management accounting models are designed to support the managerial process of the company. Information is extracted from several sources in order to achieve this goal. Though management accounting information is still first and foremost quantitative, the figures are not only presented in monetary terms. Modern management accounting includes non-financial performance measures on a par with financial measures (e.g. Chenhall and Langfield-Smith, 1998). Non-financial performance measures are brought into play where these are found to provide earlier and often more precise indications of the performance level of the company.

The users of management accounting information have also shifted. Where senior management used to be the only recipients of management accounting information, other members of the organisation also need and use information provided by the management accounting system (e.g. Burns and Vavio, 2001). The management accounting department of the company is no longer the number-island of the company. The department has to be an integrated part of the organisation, and the management accounting process has to be made in accordance with the organisational context, whereby the information provided is understood and used by the members of the organisation. This contains the assumption that economic actions are made by people in the organisation; costs do not occur by themselves, they are consequences of decisions and actions made by human beings (e.g. Swieringa and Weick, 1987). Management

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7 A noteworthy exception is the tradition of German cost accounting e.g. Schildbach (1997). Cost accounting models developed in Denmark also give useable suggestions to the problems highlight by Johnson and Kaplan. The Danish cost and management accounting traditions are developed by scholars like Vagn Madsen, Palle Hansen and Zakken Worre; see Israelsen et al (2000) for further discussion of management accounting in Denmark.

8 An example of a management accounting model that includes narrative information is the Intellectual Capital Statement (Mouritsen, Larsen and Bukh 2001). In this model, the knowledge narrative is part of the reporting on and management of the intellectual capital of the company.
accounting is therefore obligated to present performance measures, whether it be financial or non-financial, in a way that enables the members of the organisation to see the results of their own efforts; for instance by employing open-book accounting (e.g. Case, 1997).

Management accounting is an important part of the management control system of the company (Otley, 1999). Consequently, the design of the management accounting system has to be rooted in the strategy and the organisational structure of the company in order to be able to do the job as provider of relevant information within the company (Anthony and Govindarajan 1998). This causes a number of challenges for management accounting in its role as provider of information to the members of the organisation. Information should meet a number of quality requirements. First of all it has to be valid, which means that the information has to be based on correct registrations. Additionally, the information has to be relevant for the recipient of the specific decision with which he is confronted. This requires that the management accountant has to be aware of why the information is needed, what the target of managing is, which parameters are relevant in the specific situation, etc. Management accountants have to have an understanding of the goals, strategies, and processes behind a given report to be made.

As discussed above, the business conditions of most companies have changed. Companies tend to focus on their contribution to the value-adding process along the value-chain. Traditionally, companies have had a functional managerial perspective. Companies focused on the individual departments, and analysed the profitability thereof. However, as the managerial focus has shifted, companies want to employ control systems that focus on the processes within the company and thereby identify the processes that create value for the company. Companies have implemented what Lind (2000) labels Horizontal Management Accounting. Examples of management models that support horizontal management accounting are: Activity-Based Costing, Target Costing, Kaizen Costing, and Open-Book Accounting.

Summing up. The role of management accounting is to provide information for the members of the organisation, and the information has to be relevant for the specific decisions that the members are facing. The information has to be rooted in, and it has to support the strategy and the organisational context of the company. If these conditions change, the management accounting system of the company has to change and adjust too.
Three examples of modern management accounting models are given in table 2. For each of the models the objective of the model is described. In addition, recaps of the design of the models are made. Finally the contribution to modern management accounting from the models are listed. The three models have been chosen because they are exponents of three innovations of management accounting: more precise cost allocation, the link between activities and the financial performance of the company, and the time dimension of management.

<table>
<thead>
<tr>
<th>Model</th>
<th>Activity-Based Costing (ABC)</th>
<th>Balanced ScoreCard (BSC)</th>
<th>Kaizen Costing (KC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>Cost allocation of indirect costs.</td>
<td>Measure indicators of the value creation process of the company.</td>
<td>Continuous cost reduction of products during their life cycle.</td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td>Based on the activities of the company, the indirect costs (representing resources) are divided into relevant cost pools, which are allocated to the respective cost objects. The allocation is based on the usage of the resource and converted into monetary terms by a cost driver.</td>
<td>The interplay of the different activities within the company and their contribution to the financial result is mapped. Key performance indicators relevant for the strategy of the company are formulated, and the performance measures are the main management objects.</td>
<td>When the product is launched, the members of the organisation are expected to pool their experiences and together adjust design of the product and processes in order to cut costs. Kaizen costing is an ongoing process during the life cycle of the product.</td>
</tr>
<tr>
<td><strong>Contribution</strong></td>
<td>A more precise allocation of the indirect costs. Applicable when the rate of indirect costs is high, and when a long-term evaluation of the value creation process is pertinent to ensure a fit resource base available for the company.</td>
<td>BSC recognises that it is the activities within the company that drives the value creation process, and that there is a time lag from the activities are conducted until they influence the financial performance of the company. Hence it is necessary to manage these activities in order to ensure long-term profitability.</td>
<td>Introduces a time perspective to cost management. A recognition of a general decline of revenue per unit sold as the product matures; and in order to keep up planned profit margins, costs have to decline too.</td>
</tr>
</tbody>
</table>

*Table 2. Three examples of modern management accounting models: objectives, designs, and contributions*

5.2 **The Role of the Management Accounting System in a Network Setting**

Management accounting has traditionally been focussed on the company, and thereby having the hierarchy as the unit of analysis. Everything beyond the hierarchy has been perceived as elements from which the company bought or sold products or services at a competitive market. Since companies seem to focus on smaller parts of the value-chain than before, the necessity of cooperating with other companies about activities outside the part of the value-chain on which the company focus has increased (Hopwood, 1996). This calls for more intense exchange of information than normal market
transactions contain. Likewise, the more intense interorganisational exchange of information will change the conditions for management accounting.

Actively joining networks is a reorganization of the company compared to the traditional view of a company. Does this change the fundamental activities of management accounting? Not at first sight. The fundamental activity of management accounting is still to provide relevant information updated, promptly and valid (Nielsen and Mortensen, 2001). What will change are the sources from where the information is to be gathered and also the users of the information are expected to change. When companies cooperate more closely and become dependent on the performance of other parties, it will be natural that information from other parties in the network has to be part of the management accounting system. Likewise, other decision makers than members of the company may need information from the company in order to make proper decisions to the benefit of all participants.

Is there a need for new management accounting models in order to handle these new managerial challenges that appear in a network setting? This does not seem to be the case. It is all a question of modifying and utilising existing process-oriented management accounting models in a way that fits the network context (Tomkins, 2001; Nielsen, Mortensen and Nielsen, 2002). Cooper and Slagmulder (1999) support this point of view. They advocate in favour of employing Target Costing and Kaizen Costing across organisational borders. Håkansson and Lind (2000) suggest to employ Open-Book accounting to the same effect. The existing management accounting models developed for usage within the individual company are hence found to be functional for management accounting in networks too. Nielsen, Melander and Jakobsen (2002) found that management accountants in general have a high level of knowledge about these models. A first step into implementing such models is made, and the technical problem of exchanging information across organisational borders can be solved.

Is it the kind of information that management accounting in networks must deal with, which has to be changed? Not from an overall perspective. The activities involved in manufacturing a product are more or less the same whether a company is vertically integrated or the activities have been split up between several companies, as is the case in the network setting. Hence the kind of information to be handled is the same. In section 4.2, the case by Mouritsen, Hansen and Hansen (2001) showed that the outsourcing decision opened a managerial gap. Implementing target costing and functionality analysis closed the gap by creating a forum for sharing relevant information.

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9 Though the study showed a high level of knowledge, it also showed a low level of usage.
The fundamental difference is that management accounting information, which is often found to be confidential, now has to be shared with parties outside the company. From this ensues a risk of misuse. Sharing information across organisational borders is not a technical problem; it is a mental challenge. The following sections contain a discussion of these mental barriers and suggestions to how to overcome them.

6. Trust and Exchange of Managerial Information within Networks

Intense interaction with other parties exposes weaknesses and strengths of oneself; this is found both on a personal and on a company level. Often a company will be reticent about the information they wish to share with other members of the network, since it might be abused to the disadvantage of one's own interests (e.g. Venkatesen, 1992; or Welch and Nayak, 1992). On the other hand, sharing information is essential in order to coordinate activities, and thereby utilise the potential advantages of network participation. The extent and content of the information one wishes to share with other members of the network will depend on the trust you have in these members. Likewise, Zaheer et al (1998) found interorganizational trust to be positively correlated with the performance level of the companies who participated in the survey. Within network research, trust is often found to be central. A likely explanation is the asymmetrical ownership structure of the social capital discussed in section 2. Investment in capital that you do not fully control requires trust in the partner with whom you build up social capital.

This section deals with the concept trust. A definition and understanding will be sought for; and a discussion of trust and management will be made.

6.1 Understanding the Concept Trust

Trust begins where knowledge comes to an end; and thereby trust is fundamental for handling insecure, complex and threatening scenarios (Neu, 1991). Trust is reducing social complexity; especially the complexity originating from the freedom of action held by other human beings (Luhmann, 2000, p. 24). Showing trust is to act as if some possible future incidents will not happen (Lewis and Weigert, 1985).

Mayer et al (1995) note that trust is often mixed up with similar concepts. These are: cooperation, confidence and predictability. Even though trust often makes cooperation more efficient, trust is not a necessary assumption for cooperation. It is
possible to cooperate with someone you do not trust; all it takes is that you are able to control the actions of this party, and that you are able to exercise suitable sanctions if the agreement is not fulfilled. This could be the case when the parties are not of equal status, like in the UK grocery retailer example given in section 3.1. The retail shops do not need to trust their suppliers, since they are able to control the activities of the suppliers due to their dependence on the grocery chains. Trust may also be mixed up with confidence. If alternatives in relation to a specific partner are not considered, then you have confidence in this person. If one on the other hand actively chooses a specific partner on the basis of specific criteria, then you have trust in this person. Trust is based on considerations, weighing, and choice of partner; confidence is a blind action (see also Luhmann, 2000, p. 28). Finally, trust has to be more than the predictability of a person. A person that is one hundred percent predictable does not contain any element of uncertainty; therefore it is not necessary to have trust in a person if you can predict the future actions of this person for sure. Consequently, trust is rooted in the fact that people are not one hundred percent predictable; and trust is built on the foundation of experiences telling you that you can rely on a person’s intentions and on that basis get involved with that person.

Trust in other people is a cognitive action, which is brought into play when the available knowledge is not a sufficient foundation for an unambiguous conclusion. Within a network setting trust is the grease that enables complex transactions to be handled efficiently without excessive contracts and control mechanisms. Trust implies some kind of risk; though, the risk is estimated under careful considerations, and in this manner, trust is the volition to bear risk. Trust cannot develop in case of excessive doubt or suspicion about the intentions of the other party. Likewise, trust is only relevant in situations where the future actions of ones partners are unknown. Hence, trust is a condition of network relationships, since complete knowledge of the future actions of ones partners will not exist.

6.2 Trust and Managing Networks

The importance of trust will increase in networks on two aspects compared with the hierarchy and the market. In relation to the hierarchy, network participants have less possibility of control and immediate influence. Weighed against a simple market operation, the content of a network-based transaction is more complex. In both instances, the proportion of factual information is reduced, and a larger proportion of the management process must be based on trust. The increased importance of trust will make it tempting to increase the level of control; however, this may be problematic. Formal management implies control to some extent. Controlling the activities of the other
members within a network can be interpreted as mistrust; since if it is not based on mistrust, why control it in the first place. Hence, there are some inherent conflicts by implementing formal management of networks\(^\text{10}\).

Seal and Vincent-Jones (1997) cite several authors who state, formal management instruments, as for instance management accounting, will reduce trust within a relation. From that point of view, managing the network will restrain the efficiency of the network. Does this mean that networks are uncontrollable, and that active participation in networks is like opening Pandora’s Box? Not necessarily. Seal et al (1999) states, proper use of management accounting will facilitate that decisions made by the participants in a network are made on a more solid foundation than trust-based decisions.

Based on a number of case studies, Hedberg et al (2000, p. 145) found, management of networks based on formal exchange of information is uncommon. Their studies showed a certain amount of aversion to formal management of networks. Within several of the networks studied, cooperation was based on trust and a belief in the advantage of cooperation (Hedberg et al 2000, p. 161). The rationale behind this approach is understandable. Formulation of formal contracts and follow-up on these are both difficult due to the problems in describing such contracts in details, and due to the signal of mistrust, which is implied by such contracts. From an analytical point of view Hedberg et al state, formal management of the network is a subject that has to be taken into consideration. They suggest that management control can be carried out in two dimensions, exchange of information and evaluation of partners.

The dialogue between the interacting parties seems to be an important management instrument regarding the exchange of relevant information. The exchange of information can be made in the form of a number of indicators about the parties involved. It can be information about customers, business associates, products, but also information concerning cost structures is relevant. In order to manage the indicators included and their interrelationship formalised management system can be developed with advantage, e.g. a Balanced Scorecard.

To a wide extent exchange of information concerns sharing knowledge of what you expect of the other parties in the network (often at an operational level). Correspondingly, evaluation as management instrument involves strategic considerations about the individual partner. Evaluation of the relations has to be made in order to determine if the relations create value for both parties. It is essential to know if the value is based on value-

\(^{10}\) See Luhmann (2000, p. 98) for a further discussion of this aspect
added for the product in focus, if it is caused by access to new markets, potential business opportunities, etc. It thereby becomes relevant to evaluate on more aspects of the relationship than the price of the product in focus.

Ittner et al (1999) have investigated the performance level of two kinds of sub-supplier relationships; arm’s-length (market transactions) versus close coordinative relationships similar to networks. They specifically investigated different approaches regarding choice of sub-suppliers, exchange of information, evaluation of the relationship, etc. They found, increased use of systematic evaluation processes had a positive effect on the performance of companies using close coordinative relationships, compared to companies primarily relying on arm’s-length transactions.

Geitzman (1996) states, innovation and flexibility are most efficiently created in a network environment based on non-contractual relations. Such relations require a certain level of knowledge of each other, and thereby relations of a certain maturity. He states, the price of the product is not sufficient to decide on relationships. To focus mainly on the price will even damage network relations and hinder efficient relationships. In a network setting, the management control system should be able to provide information beyond that of the cost of a product. It should be able to generate information of the cost of maintaining a relation, and the benefits expected from it (Nielsen, Mortensen and Nielsen, 2002).

Though it may be complicated and sensitive to share information within a network, companies who actively participate in networks must face that management control is a necessary - but not sufficient - condition for success. However, new approaches have to be employed when performing management control. Managing networks must be rooted in a dialogue between the parties involved about the content of the information that is germane to be exchanged. Likewise, an agreement about the conditions under which the exchange should take place has to be made. The information generated is to be used to support strategic decisions regarding the positioning of the company within the network.

7. The Paradox of Network Participation

The benefit from network participation is the flexibility and access to numerous resources. An important aspect of managing the network participation of a company is to maintain a dynamic environment of potential partners, and thereby keep up the strategic opportunities for development. However, maintaining the dynamics within a network seems to be one of the more difficult challenges of managing networks. There is a risk
that the network ends up in what Brian Uzzi (1997, p. 57) labels ‘The Paradox of Embeddedness’.

‘The same processes by which Embeddedness creates a requisite fit with the current environment can paradoxically reduce an organization’s ability to adapt’.

Uzzi (1997) highlights three conditions that can damage the effectiveness of networks: 1) an unforeseeable exit of a core network member, 2) institutional forces rationalise the market, and 3) over-embeddedness characterises the network. Conditions 1 and 2 are here found to be exogenous risks that are difficult to affect by the individual company. The third condition is here found to be endogenous to the company and hence it has to have a key role in the management of networks. Over-embeddedness arises when the companies within a network becomes excessively interrelated. They construct a common perception of the business environment, and due to the limited contact to companies outside the network, new information does not gain footing inside the network; hence, the network slowly loses touch with the surrounding world. At the same time feelings of obligations and friendships among the network members are built up, which makes it even harder to open the network for new members and revised perceptions of the business environment.

The paradox reduces the potential advantages of the network. People choose to cooperate with partners who they have worked with before, and with whom they have built up a relationship of trust. The desired renewal and flexibility are not utilised, and the companies end up forming closed networks consisting of the same companies (Gulati and Gargiulo, 1999). The network that should have been characterised by dynamic and adaptability becomes static, and the advantages of the network seem to disappear.

Maravealis (2001, p. 48) also discusses this problem. He proposes, it is the intensive interaction of the network relations that binds the members together. Thereby the network becomes institutionalised and a state of inertia develops whereby the flexibility of the network is lost over time.

Ahuja (2000) finds that the well-established network enables trust, but at the cost of reduced input of new ideas whereby the network becomes static. This condition may be appropriate in some situations, but for companies who entered networks to achieve flexibility the paradox is likely to cause complications.
Trust is a key parameter to understanding the paradox. Network participants living in this steady state of flux will seek a solid foundation on which the business can be built. Unfortunately, such foundation is not directly available, and to compensate for this, the members cling to partners with whom they have positive experiences in order to reduce uncertainty. The trustworthy partners in the close network become the landmarks that the managers take bearing of, but at the expense of flexibility.

The question is, whether it is possible to substitute information with trust, and whether this is a possible way out of the paradox? This is the topic of this section. In the first subsection, a framework in which the paradox can be described will be outlined. In the second subsection possible avenues out of the paradox will be proposed.

7.1 Framework Describing the Paradox

Tomkins (2001) advocates, trust and information are mechanisms, which are employed to absorb uncertainty. The relationship between trust and the requirement for information depends on the maturity of the relationship. To begin with, the relationship is characterised by definite transactions carried out in accordance with arm’s length principle. If the relationship is maintained and there is a need for closer coordination than that supplied by the arm’s length transaction, the complexity and thereby uncertainty of the relationship increases. To absorb this uncertainty, the partners exchange relevant information. Simultaneously, trust is build up by successive interactions. As the relationship develops, the significance of the interactions becomes more important whereby the need for information increases. At the same time, the level of trust increases as people’s knowledge of each other increases. That is, in the introductory phase of the relationship, both the level of information exchanged and the level of trust increase. At some time, the relationship has worked long enough and well enough, and the parties have built up a common understanding of each other. At that time the need for information in order to manage the cooperation declines, whereas the level of trust continues to increase. The situation is comparable with the relationship that can be observed between old married couple. They know each other so well that they are able to handle most everyday activities without verbal communication.

The ratio of information requirement (IR) over trust will develop as an inverse U-shaped curve; this is illustrated in figure 5 by the IR/Trust ratio curve. The IR/Trust curve represents the cost of uncertainty absorption, and is interpreted as the marginal cost of reducing uncertainty related to doing business with the network partner. Sharing information enables the partners to communicate about their common processes.
However, as the relation develops, the complexity of the processes increases; this calls for more sophisticated systems to handle the exchange of information. Employing these systems is likely to cause an increase in the explicit cost of information. Following this logic, the cost of information increases as the relation develops. The other uncertainty absorption mechanism is trust. As discussed above, trust is built up through iterative interactions; hence the perceived probability of being let down will decrease as the relation matures, and concurrently the potential cost of trust decreases. The rationale is, as the relation matures, trust becomes more cost efficient as uncertainty absorption mechanism. At the time the IR/Trust curve begins to decline, trust becomes the most important source of uncertainty absorption, and as indicated by the shape of the curve, it is also the source that increases the most, whereas the exchange of information is stable or perhaps even reduced.

![Figure 5. The Development of a Relation](image)

Evaluation of a relationship is often based on subjective perceptions of the relationship (e.g. Hedberg et al, 2000, p. 161). The relative perceived benefit (RPB) included in figure 5 illustrates the development of this subjective perception along with the maturity of the relationship. The curve includes the sum of both the perceived benefit from the actual relation and the perceived benefit foregone by maintaining the relation instead of changing partner. Managers are thus aware that other opportunities exist, but compared to these, the managers perceive the benefit from the actual relation to be sufficient. The subjective perception of the benefit from the relation is to some degree dependent on the trust in the partner with whom one is involved. That is, the trust in a relation will bias the evaluation of the relation and lead to higher perceived benefit than can actually be justified.
It is proposed that the paradox sets in at the point where the IR/Trust curve begins to decline. Both cost and benefit from the relation are to a large extent evaluated and controlled on subjective grounds, and since both are rooted in the trust in the other partner of the relation the two curves are highly correlated. This leads to a number of complications.

The perceived value of a relation will be biased; and inefficient relations will not be exposed until they are vastly uneconomic. Due to the correlation of two curves stemming from trust, the relation will look profitable, and no in-depth evaluation of the relation is made. A relation will hence be retained until it is apparent that the relation no longer adds value to the company. At this point the relation has probably been uneconomic for a long period, and consequently the company has been damaged to an extent that may be difficult to overcome.

Involvement with new partners appears to be unprofitable. It is not only difficult for new partners to oust existing relations due to the alleged profitability. It is also difficult due to the low level of trust that is normal for a new relation. Existing relations work at a complex level. Interaction at the same complex level as with the current partner would be uneconomic, due to an increased requirement for information to replace the trust that has not yet been built up with the new partner. Even though a new partner would be able to replace an existing relation and work at the same complex level on the basis of information, this would be impossible because the new relation has not proved its trustworthiness up to a level that qualifies for the exchange of information at a sufficiently high level.

### 7.2 Avenues to Handle the Paradox

Drawing a line back to section two, it is found that the Paradox of Network Participation is a symptom of obsolete social capital. It is found that the evolvement of the paradox is due to preponderance of trust as uncertainty absorbing mechanism. Hence information has to regain footing as uncertainty absorbing mechanism in more complex settings.

As can be seen in figure 1, the three forms of company capital are interrelated, and a solution to the paradox has to be seen in relation to the physical and human capital of the company. In this section three avenues to handle the paradox will be discussed. The avenues are: 1) lower the cost of information, 2) focus on the actual benefit from the relation, and 3) accept the paradox.
7.2.1. Lower the Cost of Information

There is a difference between the kind of information needed to build up trust and the information needed to control the cooperative activities. The former kind of information is labelled type 1 information by Tomkins (2001), and the last kind of information type 2 information. Type 1 information is primarily related to information about competences and integrity both by actions and communication. Type 2 information regards the planning of the activities of the involved parties. Even though Tomkins differentiates between two kinds of information, he states, albeit type 2 information is primarily used to manage and control the activities in the relation, this information will influence the content of type 1 information. Thereby type 2 information indirectly contributes to the maintenance and development of trust in the relationship. Implementing more sophisticated management models would lower the marginal cost of information and shift the break-even point of a given relation. Examples of such models are Open-Book Accounting, Kaizen Costing etc. as discussed in section 5.2.

Proposition 1: Employment of modern management models will lower the marginal cost of information whereby it becomes possible to enter relationships at a lower level of trust.

The paradox can be highlighted by investment in physical capital in the shape of a suitable management model and a matching information system. This will alter the balance between information and trust; whereby it becomes possible to carry out complex tasks with partners at a lower level of trust. Thereby an investment in physical capital opens for a renewal of the social capital.

7.2.2. Focus on the Actual Benefit from the Relation

As mentioned, Hedberg et al (2000) found that the benefit from networks was typically built on subjective perceptions of the relationship. Combined with risk averse behavior this will lead to a biased perception of the benefit from existing relationships. Under such conditions a change of partner will only take place in case of major dissonance of interests between the involved parties. At that point the relationship has probably been detrimental for some time. Under such circumstances more systematic evaluation of the relationship is called for in order to acquire a more precise picture of the benefit from this relation.
Proposition 2: *A more systematic evaluation of the benefits from the respective relations will enable the company to focus on the benefit obtained from the different network partners.*

The evaluation of the relations has to be held up against the core competences and the strategy of the company in focus. These are typically connected to the human capital of the company. Therefore, the evaluation of relations requires mapping of the human capital of the company; e.g. by a Balanced ScoreCard as proposed by Hedberg et al (2000, p. 162) or by an intellectual capital statement (Mouritsen, Larsen and Bukh, 2001); and with these as point of reference manage the partner portfolio of the company.

### 7.2.3. Accept the Paradox

The third proposal is simply to accept and face the paradox. Accept that it is only suitable to interact with partners with whom you are well acquainted and perceive as trustworthy. In order to avoid being restrained in future business opportunities, the company has to have a large portfolio of potential partners. This must not end up in a situation where the company has a lot of direct contacts, which are suitable for every possible situation, since such a strategy would be cost inefficient (Burt, 1992, p. 17). Instead the company should focus on the potentials of the peripheral partners of the relationships with which the company interacts at present.

Proposition 3: *Increased focus on the capabilities of potential partners beyond the nearest relations would enable the company to begin a relation with these at a higher level of trust.*

It is proposed to increase focus on the value of friends-of-friends. Beginning a relation with the recommendation by a common partner makes it possible to increase trust at a higher level than if the parties are unacquainted. Thereby changing partner is less risky. But why should the present relation create the contact in the first place – because he has trust in you. He knows, that you will not abuse the favour, but try to repay one way or another.

Related to the capital framework, this proposition means an investment in the social capital, not direct investment, more like investments in options.
8. Conclusion

Fine-tuning the resources of the company is an important aspect of the managerial process. For the vertically disintegrated company, which actively participates in networks, some of these resources are placed outside the company. This does not change the fundamental aspect of management, namely to ensure that the resources of the company can facilitate the necessary value creating process for the company. This implies that an important aspect of managing a network-based company is to make sure that the company via its relations is able to acquire the necessary resources. Doing this, management must exchange relevant information with the external parties on a high level of complexity, and based on this, choose the right partners who can match the profile of the company in focus.

There seems to be a problem in this process. Close relationships with other companies are likely to be based on trust due to insufficient access to information; but building up trust takes time. Companies tend to continue cooperating with partners they know and trust. The choice of partner may not be based on the actual competences of the partners, but rather trust and familiarity. Companies thereby risk being locked in relations that may not fit the actual strategy of the company. Companies experience the paradox that the network they joined due to its dynamics and agility becomes static because the humans in the company find it mentally hard to break with existing relations.

It is proposed that the reason for the paradox of network participation is that trust has become too important as the uncertainty absorbing mechanism. Three avenues out of this paradox have been proposed. The first proposal is to implement appropriate management accounting models in order to lower the cost of information. The second proposal is to evaluate the relations more systematically. Finally, it has been proposed to accept that trust matters, and by awareness of the existence of the paradox avoid being locked into unproductive relations.
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