Interconnectedness and Interdependency: Strategic Networks' Perspective

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Abstract

This conceptual article focuses on strategic networks and more specifically the interconnectedness and interdependency between the actors. Strategic networks are seen to offer firms shared benefits like new knowledge, innovations, and resources besides those of a single firm. The purpose of the paper is to examine the different forms of connectedness and interdependencies as a mechanism and a channel of influence and discuss their strategic managerial implications on an organisation. We aim to contribute to the development of the emerging theory of network management by integrating notions from the Industrial Network Approach, Strategic Management, and the Resource Based View.

Key words: Strategic networks, interconnectedness, interdependency, embeddeddness

Introduction

The first aim of the paper is to bring together some ideas of "What we know about interconnectedness and interdependency in strategic networks". We review previous research and discuss the questions: How a firm may perceive its strategic relationships and manage the changes affecting its development? Is it possible to map those relationships? What kind of managerial capabilities are requested?

Strategic networks, as constructions of actors performing value activities, form the essence of 'business environment' in which firms are embedded. Actors from multiple industries or from public sector, and even from different countries constitute these networks. Our starting point is that there are both stable and dynamic strategic networks having different managerial needs; the interdependency and interconnectedness depends on the characteristics of the task that the organisations try to accomplish through forming a specific strategic network. Strategic networks are frequently created and controlled and coordinated by a focal actor, although they share common goals and complementary resources (Jarillo 1988; Forsgren & Johanson 1992). The multiplicity of business cultures and processes of doing business creates a dynamically changing business environment for organisations, both in public and in private sector, regardless of the type of network. The second goal of the paper is to provide a strategic perspective to inter-organisational relationships from a firm's view.

The purpose of the paper is to examine the different forms of connectedness and interdependencies and their implications on a single actor concerning the challenges of strategic management. In this paper, instead of focusing only on dyadic relationships the cohesive, connecting element in business networks explicates the secondary focus. For example, if a firm chooses a certain business partner, how this choice influence its overall position in its business network and how that business network restructures adapting to changes.

Several scholars have pointed out the significance of embeddedness and dependencies, but a comprehensive view from a single actor's perspective is still relatively fragmented, although that viewpoint may elucidate managerial questions (see Granovetter 1973,1985; Nohria & Eccles 1992, Sandberg 2003). A focal actor here refers to a firm, organisation or a public sector's body who is in a position to control and coordinate other participants of a network whereas a single actor is not necessarily a leading actor in a network. Sandberg (2003) criticises the lack of empirical evidence and lack of managerial understanding of embeddedness arguing in her study that it is evident that the actions and their outcomes are profoundly affected by the embeddedness of the actors' relations.

The overall embeddedness of an organisation has various variations, structures and levels that have different type of impacts (see e.g. Granovetter 1985; Ritter 1999, 2000; Flecther and Barrett 2001; Halinen and Törnroos 1998). Moreover, the complexity of embeddedness requires limitation in a relevant manner in a network context (Halinen and Törnroos 2004). Therefore, we focus on connectedness and dependencies from a single actor's viewpoint in an intentionally built strategic network context.

This article reviews literature on Strategic Management, Organisational theories and Resource-Based View (RBV) as well as previous research of business networks, interconnectedness and interdependency in the Industrial Network Theory (IMP). We attempt to create a synthesis on the embeddedness of a single actor in a strategic network context and to construct a model for understanding interconnectedness and interdependencies by categorising inter-organisational relationships.

As the previous research provides extensive literature and models, the other purpose of this paper is to summarise some key aspects and discuss some of the managerial implications and strategic significances of these constructions that have been left for less attention. As the issue is broad and complex therefore we concentrate in increasing understanding concerning the managerial challenges in organising relationships in strategic networks.

We argue that comprehending and perceiving the complexity of interconnectedness and dependency is essential for a firm's survival and growth, as well as the capability to plan and cope with the changes in the business environment at all levels of the organisation. Today, it is no longer enough that an organisation is efficient and economically sound, or superior to its current existing competitors. It is necessary to place the particular actor in a larger setting and identify the managerial challenges and capabilities, and position the particular actor in its strategic network.

This article is organized as follows: First, we will discuss of the concepts of strategic networks, interdependency, interconnectedness and embeddedness from the viewpoint of a single actor. Secondly, it will present a framework. A discussion of the theoretical and managerial contributions concludes the paper.

Network view- the concept of strategic network and its impact

The interdependency and interconnectedness of actors in strategic networks is a highly relevant issue when considering the rapidly changing technology and global competition which threatens or assists the businesses and organisations. The more technologies are required to integrate, the more diversified knowledge of various technologies and of different industries are required in the creation and production process, thus, the more probable it is that the realization of business will be carried out by an intentionally built network of organisations. First, it is important to make a distinction between a "network of organisations" and a "network organisation". The former refers to any group of organisations or actors that are interconnected in relationships.

According to Industrial Network Approach (IMP), any market can be described as this kind of macro network (Axelsson and Easton, 1992; Håkansson and Snehota, 1995). This view is also close to that of scholars in economic sociology (Granovetter 1973, 1985). For example, in high-tech and knowledge intensive industries R&D –partnerships, alliances and coalitions are often used for creating new technological platforms and dominant solutions (Möller and Rajala 1999). A technology-based organisation is "interweaved" with many other actors in many networks like for example supplier and manufacturer networks, customer networks which, thus, become the innovation environment for the organisation (cf. Gemünden et al. 1992 of innovation networks).

In studies on Strategic Networks, the focus has been on the implications of a network structure for value creation (see e.g. Gulati 1998, Gulati et al. 2000; Jarillo 1993), and the discussion has concentrated on how to combine the value activities of multiple actors in order to form 'value creating' end-products (Anderson and Narus 1999; Doz and Hamel 1998; Norman and Ramirez 1993). Moreover, Amit and Zott (2001) view strategic networks as "*stable interorganisational ties, which are strategically important to participating firms*". See also Park (1996, 797), Jarillo (1988) and Miles and Snow (1986) who viewed a strategic network to be a *determined* and conscious arrangement among different, but related profit-seeking organisations. However, these previous studies do not consider so much of non-profit seeking organisations as being in part or constructing strategic networks.

Further, firms are obviously not only trying to influence the evolvement of networks but they deliberately try to construct strategic networks to achieve their strategic and business goals (Hinterhuber 2002; Hung 2002; Jarillo 1993; Parolini 1999; Spencer 2003). Moreover, managing in strategic networks therefore require interaction between different organisations in order to create benefits of shared knowledge and innovations, and moreover, pursuing towards a common network goal in an efficient way makes companies interdependent of each others.

Autonomy of a single actor

The contemporary business setting emphasises boundary crossing activities, inter-linkages of resources and actors being involved in several partnerships, alliances or other business networks, particularly in the industrial sector the trend towards outsourcing, subcontracting and concentrating on core competencies has affected the way business is done.

One organisation, a single actor, is naturally a juridical entity. But we argue that an actor's ability to manage or control its activities and resources depends on its business context. If the single actor is a part of a tight, controlled strategic network that functions as its opportunity and constraint basis, its degree of autonomy is more reduced than of a firm that has remained independent. Hedaa (1999) has examined autonomy and sees the independency of an actor varying in a continuum: autonomy-homonomy-heteronomy.

The level of autonomy relates to the position of a single actor and the respective power differences and asymmetry in decision-making processes. Anderson and Narus (1999) see power as the ability to get the partner to undertake activities that the partner organisation would not do on its own. However, in several business areas the participation in various business networks or strategic networks has become the means of survival of a single actor in the long term as exchange of autonomy.

Embeddedness of a single actor

As Halinen and Törnroos (1998) argued that "*business actors are not only embedded at company-level but also on a broader contextual setting specific to a company and time"* in question (i.e. past, present, future). Previous experiences, current situation and assessments as well as future expectations all affect an actor's perceptions and behaviour. The embeddedness has various implications on an actor's behaviour; its aspects reach from time to social networks. Hedaa and Törnroos (1997, 2003) have further discussed time in the sense of timing and connected events in business networks. Hedaa (1999) introduced the notion of black holes as unfavourable situations time-wise that affect the functions and activities of

business actors. Time itself can be perceived in different ways also in inter-organisational context (Hurmerinta-Peltomäki 2001 p.27-36). Miettilä and Törnroos (1993) have discussed time in buyer-seller context and introduce relational notion of time as a relevant concept of time. Time incorporates more than one point of view; it can be seen vertically in relation to the specific organisational, economic and individual time.

Relational embeddedness or *social embeddedness* refers to the proximate ties of an actor (Wellman & Berkowitz 1988; Gulati 1998). Another issue in which the network approach has similar concerns with social sciences is the full range of actors: semi–autonomous decision making units (Henders 1992). Henders (1992) discusses the concept of connection between individual units. If a network of companies is considered, they could be considered to be connected through flows like material, financial, social, information and technical information flow, ownership ties or connected boards of directors (Henders 1992, Gulati 1998). For example, Henders (1992) emphasises the richness of content of the ties in terms of the extent of different connections considered.

Halinen and Törnroos (1998) used the term embeddedness referring to relations and dependencies with companies in various types of networks. Since actors are performing activities and controlling resources, their importance as a part of a network is central. Actors as firms or managers are embedded in several types of networks, some of them being of social nature. Luostarinen (1979 p.23) emphasises manager's role and importance since he considers a small firm as a system which behaviour is a result of the behaviour of its elements, the manager being one key element.

The network approach on Industrial Marketing and Purchasing (IMP) draws attention to similar aspects: direct and indirect linkages among actors, asymmetrical relationships, and reciprocity in ties, complexity, network formation and collaboration (see e.g.Ford 2002). The relationship marketing approach has a more dyadic approach (Gummesson 1999). Gummesson (1999, p.95-98) has discussed the type of relationships dividing them to commercial and non-commercial relationships. Both relationships are present in strategic networks as well as in business networks, non-commercial relationships perhaps in less visible regulatory role. The non-commercial relationships have a more dominant role in more stable public sector's networks whereas dynamic strategic networks tend to consist mainly of commercial, profit-seeking relationships.

Embeddedness in a wider setting, being part of a flow of activities producing value in the form of products or services is one core element of business networks. This holistic view is often neglected, firms fail to understand the value chain itself, investing only in certain

links in the chain, rather than in a fully integrated set of value creation and extraction processes (Young 2001, 2). Integration and effectiveness of the value chain as well as enterprise's capabilities, competencies and cultural attributes are critical aspects in achieving competitive advantages (Young 2001). This value production view differs in public sector where more stable type of strategic networks is constructed more of organisational or legal purposes benefiting consumers, organisations and the society as a whole. Value can be understood as an essential element in a value net (see e.g. Parolini 1999) where each product or service requires a set of activities performed by a number of actors forming a value-creating system (see e.g. Parolini 1999; Jarillo 1993).

Being integrated into an industrial setting, particularly in manufacturing type of activities, the role of value chain may explain many of the dependent and interconnected relationships. Dependency and interconnectedness take place in the same context, industrial relationships, but they have different forms and different effects on the relationship. Industrial relationships posses value in intangible assets; they have relationship value, which is the customer's perceived value of the supplier relationship (Walter et al. 2002). Customer relationship's value is one major determinant in business markets that contributes to the stability and further development of the customer-supplier relationships (Gemünder et al. 1996; Walter et al. 2002), another significant question is value sharing in a network. Walter, Hölzle and Ritter (2002) examine relationship value and network functions. According to them the functions of a supplier relationship are defined as the supplier's contribution to the value increase in the customer's organisation and in the whole network. Functions are divided into direct functions (i.e. purchasing functions) and indirect functions (i.e. network functions) (Walter et al. 2001; Walter et al. 2002).

Connectedness of a single actor vs. interconnectedness in strategic networks

Connectedness indicates the extent to which exchange in one relation is contingent upon exchange in the other relation. Relationships of interest can be directly or indirectly connected to other relationships or affect them as a part of a larger network. A single relationship is connected to several different relationships that either the supplier or the customer has, some of which are with the same third parties (Anderson et al.1994) . We argue that a shift in "actor" perspective is needed; the classical view where actors (between suppliers and customers) form the dichotomy of "the firm and its competition" is over-simplified and provides a one-eyed view to the mechnisms of influence. The blurring of organisational boundaries requests more activity and resource-based perspective.

Interconnectedness is a dimension that highlights the structure of dependencies and power on activities and resources being controlled by the actors. It has become one of the major challenges of organisations operating in networks today: who do we affect when changing the way our activity is performed? Or where did a new problem actually come from? Industrial processes and supply chain management are stretching far beyond organisations' boundaries. Ritter (2000) has analysed the role of interconnectedness in a business context and emphasises that each actor is dependent on resources controlled by other actors.

Connectedness refers to the different types of effects. Anderson, Håkansson and Johanson (1994) offered two constructs to capture the focal relationship's connectedness: First, anticipated constructive effects on network identity, which can be defined as the extent to which a focal firm perceives that engaging in an exchange relation episode with its partner firm has, in addition to effects on outcomes within the relation, a strengthening, supportive, or otherwise advantageous effect on its network identity. Second, anticipated deleterious effects on network identity, which can be defined as the extent to which a firm perceives that engaging in an exchange episode with the partner firm has, in some way, negative, damaging or otherwise harmful effects on its network identity.

Ford and Mc Dowell (1999) have analysed the effects and value of different actions in the context of business relationship portfolios. They have identified four levels of effect from the perspective of a single participant and nature of value to the network-participants: Effects in the relationship (immediate value), effects on the relationship (value in terms of change to the state of the relationship), effects on a portfolio (value in terms of change in the total relationship portfolio), effects within a network (value in terms of change in the network) (see more in Ford (ed.) 2002 p.320-334).

Connectedness, embeddedness and interdependencies all examine the contingencies in a strategic network, and these contingencies incorporate effects that may explain changes in a network (see more in Ritter 2000). Cook (1982) distinguishes positive and negative connectedness, for example, a positive change for one company may lead to a negative change in another.

Ritter (2000) provides practical examples for interconnectedness of relationships and created a framework for analysing this interconnectedness of relationships. He criticises the network related research of being interested in the outcome of the interconnectedness but not in the interconnectedness itself. His analysis on neutral, positive and negative effects distinguishes ten different cases of interconnectedness (see more in Ritter 2000, p.320-322):

1. Neutrality effect: No interconnectedness between two relationships exists when two relationships are totally independent form each other.
2. Assistance effect: A one-sided positive effect between two relationships can occur when experiences made in one relationship can be used in the other.
3. Hindrance effect: If one relationship is hindering the other and there is no impact in the opposite direction, there is a one-sided negative effect.
4. Synergy effect: A two-way positive effect means that both relationships support or even necessitate or presuppose each other.
5. Lack effect: Between two relationships a positive and a negative impact can coexist. It is the lack of alternatives that keeps the relationship existing.
6. Competition effect: Two relationships can also weaken or even exclude each other.
7. Unitary neutrality effect: Three relationships (triad is the basis for analysis) just coexist with no impact on each other.
8. Initiation effect: One relationship initiates other relationships to become interconnected.
9. By-pass effect: It is also possible that one relationship supports the third relationship whereas the other relationship weakens it.
10. Hierarchy effect: Two relationships in a triad can have a negative impact on a triad relationship.

When referring to interconnectedness effect in a strategic network context this study refers to Ritter's approach. According to Ritter (2000) changes in a relationship impact step-by-step into a wider network, which is called *domino effect* (see Hertz 1998). He suggests that manipulation of interconnectedness between relationships becomes an element of strategic network management and points out the shortcomings of the approaches based on relationship portfolios (Ritter 2000, p.324). Hertz (1998) discusses the nature of domino effect, if it is possible for managers to anticipate, to stop or to avoid domino effects. The domino effect influences a firm's costs and investments, but also its strategy.

Change could also be described as "*Network effects*" or "*positive feedback effects*" (see Katz and Shapiro 1994). In markets with "network effects", customers want to buy products which are compatible with those bought by others because the product's value is an increasing function of the size of the network of compatible products (Katz and Shapiro 1994). Network effects are indeed all-encompassing, and can take different forms: *Direct network effects* can for example found in communications networks e.g. a cell phone in which a phone-device would be of no use if one's counterparts do not have a compatible network (e.g. NMT, GSM, UMTS) and a compatible device to use. *Indirect network effects* exist in any situation where the availability of complementary products increases at the same time when there is a boost in the amount of users.

Value systems' competition based on indirect network effects can be noticed in various areas of business e.g. manufacturers of software or hardware of different technology platforms. When more than one value system is competing with one another, actors want to get more benefits from network effects by joining a superior one, and thus, a larger one has an

advantage in competing with smaller ones, and the growth of the value system in question is accelerated. In other words, network effects create “positive feedback effects” or “snowball effects” (cf. also Hertz 1998 of “domino effects”).

Comparing alliances and industrial networks it is difficult to draw the separating line, often contractual or ownership structure is considered as a definition factor. However, Gulati (1998) argues that strategic alliances may be defined as voluntary agreements between organisations involving exchange, sharing or co-development of products, technologies or services. It seems that except clearly defined alliances and subcontracting networks also more loosely connected industrial networks are highly interconnected in terms of activity structure and relational structure as their functioning is based on the allocation and utilisation of available resources. Therefore, it is of interest to analyse strategic networks not only from the point of view of juridical or organisational constructs but from the point of view of activities that the network performs to create value. It seems as the processes themselves were gaining importance in the industrial setting in connecting the actors with each other into an interdependent net of participants where the governance and coordination of the processes is very context-dependent. Processes here refer to tangible and observable type of processes, such as supply-production-distribution.

Connectedness has s strong social dimension when looking at network development from a more behavioural viewpoint. Returning to the original unit of analysis; dyads have been extensively studied from various perspectives. They are analysed as dyads, relationships, ties and bonds. Relationships are based on economic, legal, technical, social and/or administrative bonds (Hammarkvist et al. 1982). The actors are structurally connected with ties that are weak or strong (Granovetter 1973, 1985). The intensity or a content of a tie between two firms in international industrial networks has indicated its importance; also weaker ties may have a significant impact on a certain activity or development (Nieminen 1999).

Dependencies of a firm

Dependencies stem from interconnectedness. On the public sector the dependencies have a more hierarchical or structural character, whereas in business the strategic aspects form the focus. One type of core dependency is dependency on primary resources. Gulati (1998) uses the term structural embeddedness to describe resource interdependence and dyadic attachments that may be increased by the depth of the social structure. Gulati (1998) emphasises the role of dyadic ties, particularly prior ties may facilitate development.

In industrial markets the dependencies are diverse and usually significant (Webster 1991). Webster (1991) emphasises complexity of the organisational buying process. Product complexity extends to all economic, technical and personal relationships between industrial buyer and seller. There is a high degree of buyer-seller interdependence extending well beyond the transaction itself and cumulates its impact on the network in which the firm is involved.

The firm level dependencies vary. According to Webster (1991), international marketing in industrial markets is much more a general management responsibility than in consumer field, since an industrial company is very dependent on its existing structure and resources. For example, changes in marketing strategy are more likely to involve capital commitments for new equipment, shifts in development activities, or departures from traditional engineering and manufacturing approached, any one of which would have organisation-wide implications (Webster 1991). Therefore, a decision concerning change in industrial purchasing and marketing may have a wider strategic impact. Webster (1991) described the different types of interdependencies influencing industrial firms' activities and decision-making as following:

1. Functional interdependence: Industrial marketing effectiveness depends to a greater degree on other business functions, especially manufacturing, research and development(R&D), inventory control and engineering (Ames 1968)
2. Product complexity: One dimension is technical product complexity that makes an industrial firm to remain more product-, engineering-, manufacturing-, and technical-oriented. Webster (1991 p.15) defines the product in an industrial setting as an array of economic, technical and personal relationships between buyer and seller. The definition points to a third dimension of uniqueness in industrial marketing-the high degree of interdependence between buyer and seller.
3. Buyer-seller interdependence: Interdependence is particularly high operations-related products. The buyer becomes crucially dependent on suppliers for an assured supply of raw materials, components, or subassemblies; continued supply of maintenance and repair parts and skilled repair service for capital equipment; efficient order handling, delivery and usually, extension of credit terms and the like. On the other hand, strategic partnerships with customers may require substantial investments in supporting services and systems, such as electronic data interchange, and these investments must be evaluated in the context of overall marketing strategy.
4. Buying process complexity: The complexity in industrial buying behaviour is high in terms of the type of buying decision (straight re-buy, routine purchase, modified re-buy, new buy) as well as in terms of influence of the formal organisation itself, the number of the people involved, the technical and economic factors, the operational environment, the large sums of money (see more in Webster 1991).

Interdependency exists on all levels of industrial organisations, both internally within the organisation and externally with the wider functional environment. Interdependence between organisations and within industries is significant and gaining increasing attention in research both on national and international level (Ritter 1999, 2000; Johanson and Mattsson

1988). Analyses of international trade, international investments, industrial organisation and international business behaviour attempt to describe, explain and give advice about these interdependencies (Johanson and Mattsson 1988).

Synthesis of the concepts

How a single actor can perceive its business environment and its position is a vital question. There are several overlapping levels and context that may seem separate but which are interlinked directly or indirectly, and the environment evolves, it changes over time. What is the context of a particular firm depends on its activities and resources as well as its position and role in the market. This complex configuration sets the basis for strategic planning and creation of intentional business networks.

There are several levels of analysis possible and Möller and Halinen-Kaila (1997) identified as units of analysis the following: Actor (organisation, person), dyadic relationship, and a network of relationships.

The trend in business market management goes towards sustaining and developing business networks. Firms believe that close, collaborative relationships with selected suppliers, customers and value-added resellers enhance prosperity. Firms experience and manage the development of relationships as a series of exchange episodes. Exchange episode is composed of four sequentially related events that are described as critical incidents when parties engage in actions related to the development of their relationship (Ring & Van de Ven 1994). The events are: defining purpose, setting relationship boundaries, creating value, and evaluating exchange outcomes. An actor evaluates the outcomes from the exchange episode against its expectations and against outcomes it perceived it could have obtained from collaborating with others instead.

Each episode is followed by a decision to continue the relationship, to broaden it or to end it. Broadening the collaboration takes place through expansion of scale or scope. Concept concerning *relationscape* has been developed to examine the complex nature of relationship development (Strandvik & Törnroos 1997). There may be a number of parallel concurrent exchange episodes and some episodes that lack common co-ordination. Each exchange episode is a business strand of the collaborative relationship between the firms. There is a mixture of common and distinct actors engaged across the set of exchange episodes at a particular point of time (Anderson & Narus 1999). The partner firms and the repeated social interaction link the various business strands together through mutual strategy. Maintenance stage represents the continuation of collaborative exchange episodes. Relationship dissolution

is seen as the ultimate conclusion or termination of the relationship maintenance stage (Anderson & Narus 1999; Tähtinen 2001).

In the public sector, the strategic networks have slightly different stages, being clearly stated and defined for a certain purpose and often for a determined time span. The reasoning behind the creation of public sector strategic networks may have essential differences although many public organisations today are run more like business enterprises, for example, harbours.

Many of these afore mentioned concepts are neither comparable nor alone standing but describe a part of a phenomenon. To make a synthesis of the phenomenon that is the platform of domino effect and network effect, illustrating where the contingency of action and exchange stems from, a combination of the concepts from previous research is applied. The autonomy of a business actor, a firm, is influenced by numerous factors on several levels. What makes the firm to make certain strategic decisions, to act in a certain way and to get hold of certain resources is very much in accordance to its level of autonomy and market power in the particular market situation being a part of its business network.

We have summarised previous research and created a synthesis illuminating the nature of a firm's autonomy. When emphasising single actor's view on its environment, the following mapping of concepts and terms is suggested (see figure 1):

Embeddedness is used to describe the overall context and configurations of a firm.
Interconnectedness is used to describe the structural nature of a firm and its position.
Dependency is used to describe the actor, resource and activity-related nature of the firm.
Actor is an organisation, grouping, a firm, a part of an organisation or an individual.
Arrow A describes the network effect. Network effect takes place primarily between two actors in a wider business network. It is basically a dyadic effect, which takes place in a triad. Network effect does not have to accumulate; it may be a confined effect.
Arrows B describes a connected network effect, domino effect that accumulates further into the business network.

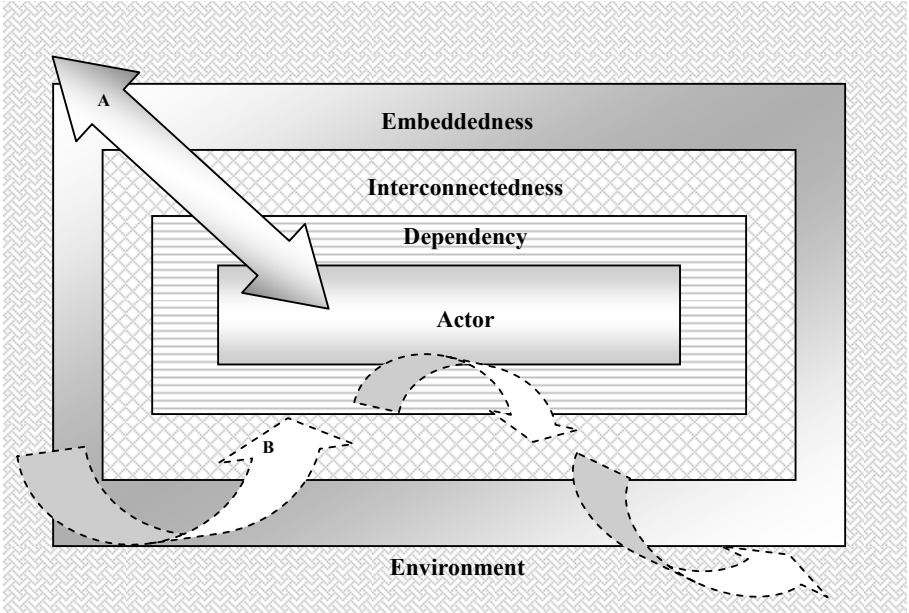

Figure 1. The multifaceted structure of autonomy of an actor.

Discussion on the managerial dimension:Embeddedness and strategy

How can managers use these concepts? Embeddedness and strategic management are linked together, and we attempt to illustrate some aspects of these linkages and provide a tentative model for strategic mapping of interorganisaitonal relationships.

The management of a single actor and the firm/organisation as a whole is embedded into its overall environment, its industry and the partners' and network's structure. Therefore, all levels of management have their own type of interface and activities with the environment differing from strategic decision making to implementation.

Due to internationalisation and the increased usage of Internet and other channels of communication, a local or regional view of an actor does not apply as such. In a globalising world, an actor needs to understand a more complex setting, as its competitors may be invisible without physical presence. Here, main categorisations of management abilities in different levels are suggested. The emphasis is on the single actor's view.

Embeddedness of an actor needs to be understood by all levels of the management. What is the actor's position globally, internationally or regionally in its industry has to be understood by its management in order to act competitively and identify the mega trends in its market as well as the settings of the environment. Visionary capabilities and strategic planning skills in the management level are required in addition to organisation and coordination capabilities.

Interconnectedness plays a central role in strategic planning and decision-making; what is the market of the firm, who are the actors in this markets, and how a firm is interconnected to its partners, suppliers, customers and competitors. Interconnectedness in terms of ownership, strategic alliances, R&D projects, supply, marketing, distribution and production requires strategic thinking from all the levels of management, but particularly from the top management choosing partners and closing strategic agreements. Also, the ability to perceive the structure and coordinate the resources and activities is requested on the departmental level. Organisational tuning and orchestrating capabilities are necessary.

Dependency related issues are common in a network management, particularly in supply & purchasing, R&D, and in marketing and distribution networks. Relying on network partners as a strategy stems from the top and middle management. It also requires superior coordination skills, mutual goal setting and realisation abilities.

Moreover, the operational management level has to deal daily with partner selection results and coordination in supply and customer interface as well as in the production management. The ability of the top management to obtain and apply the related information from operational level is one of the key strategic capabilities. The harmonisation of a corporate strategy is essential as a successful realisation of the strategy is challenging when the environment evolves.

The literature indicates that the management in a network needs to consider the additional dimension: the single actor's embeddedness and its degree of autonomy. Also in Strategic Management studies (cf. Mintzberg et al. 1998) the connectedness of different organisations has been taken into account in strategy planning and formation. For example, the harmonisation and coordination of the strategies and goals of the different departments and subsidiaries can be a complicated task for a top management in a large corporation or a multinational firm (MNE). It will require the orchestration capabilities to mobilize, control and coordinate several overlapping, cooperating, coopetiting and also competing business- or strategic networks. Furthermore, in a small or a medium-sized enterprise (SME), the limited managerial resources may hinder its development and strategy. SME seem to be more clearly struggling with exogenous forces and effects of interconnectedness in a network context than MNE or a large corporation. MNE or a strategic alliance may be able to create intentionally not only network effects on other firms, but also domino effects due to its structure, size and market importance.

Different effects of interconnectedness in a network context need to be recognised, understood and managed at all levels of management, but often more invisible domino effects

require special managerial attention on the top and middle management. The connected nature of domino effects may not give clear warnings as it might take place on a different level and arena than the daily operational management activities. Still, a domino effect occurs often through strategic business relationships.

Strategic actions of a single actor are both controlled and facilitated by the network's structure and by strategic actions by other actors in the network. Strategic actions to cope with changes in design of connectedness can cause sequential, time-distributed and interrelated strategic actions in a network. Such chains of actions caused by "domino effects" require diverse analytical capabilities i.e. understanding of interconnectedness, dependency of actors in a network and embeddedness to the overall environment around the network in question (Hertz 1998).

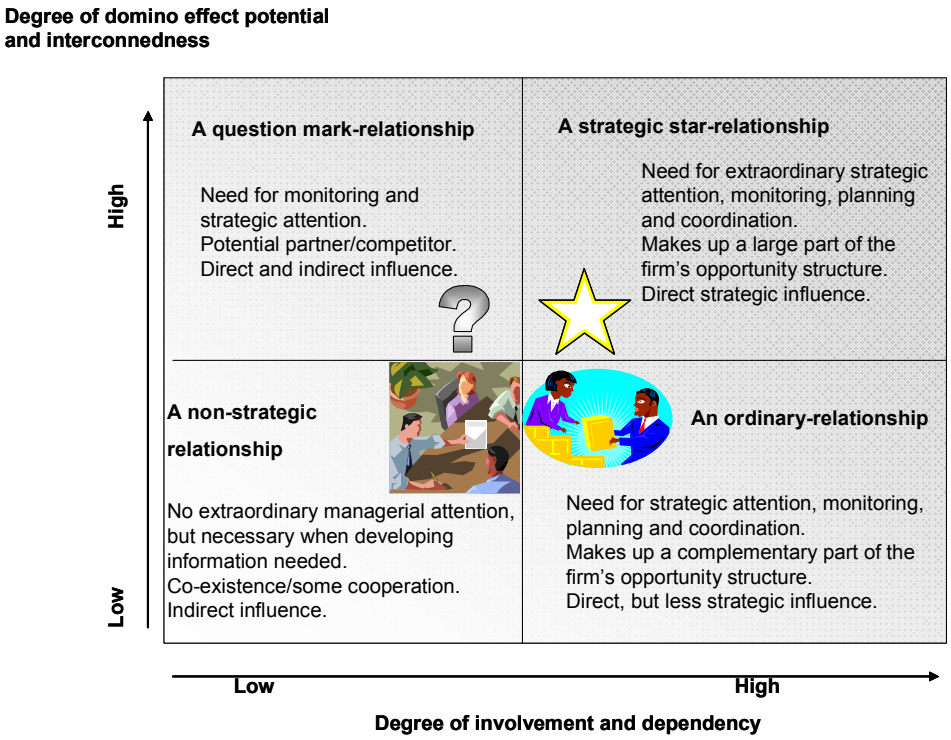

Figure 2. Firms relationships in a network context.

The Figure 2 tries to illustrate the firm's relationships in a network context. It presents a tentative model, which tries to recapitulate the strategic character of business network relationships of an actor. It describes the degree of interdependency and interconnectedness of a relationship. The figure implicates the potential to anticipate the domino effects (cf. Hertz 1998; Ritter 2000) in a network caused by endogenous effects within a business network.

Also, exogenous effects can have different impacts on the network depending on the nature of the change and the degree of firms' autonomy. The domino effect potential and its impact are higher in relationships with a higher degree of interconnectedness than in relationships with a lower degree of interconnectedness**.** A comprehension of interconnectedness in relationships is an element of strategic network management and being able to anticipate the domino effect influences positively on a firm's strategy and investments.

A firm may assess, for example, its supplier relationships, by dividing the visible, existing relationships into ordinary and strategic star-relationships, it may comprehend its own position against the supplier and rate each suppliers' interdependency and changeability as well as the suppliers' overall role in their field of business. A firm may also consider the importance and change potential stemming from the less committed, less visible business relationships that may be inactive (in a dormant stage) or inexistent currently, but despite that, directly or indirectly capable of forming or influencing the firm's business and position.

Summary and conclusion

In this paper, instead of focusing only on dyadic relationships, we aimed at describing the cohesive, connecting element in business networks creating a view of the embeddedness of a single actor in an intentionally built strategic network context. We constructed a tentative model for understanding interconnectedness and interdependencies by categorising inter-organisational relationships. The model organises relationships of strategic networks presenting four types of relationships: ordinary, non-strategic, a question mark and a strategic (star) relationships. We attempted to increase understanding and pinpoint managerial challenges.

The importance of strategic networks increases, which imply that a wider perspective is necessary for comprehending a firm's operations in contemporary strategic networks. A firm is embedded into its strategic network and environment, which forms its development, opportunity and constraint structure. The interconnectedness, dependencies and restricted autonomy require development of managerial tools, which assist in measuring, monitoring and managing these aspects. The implications provide arguments for rethinking theoretically the autonomy and sovereignty of actors in a network context. Our synthesis supports the findings of Ritter (1999, 2000) and Hedaa (1999).

Different types of relationships have different logic and they keep evolving over time. Managerial implications suggest that it is necessary to monitor all kinds of relationships in a network context, not only those of a visible strategic importance. The monitoring and assessment of business network relationships request particularly augmented managerial

attention and capabilities as the degree of interconnectedness and dependency increases. The often sudden and unexpected character of domino effect suggests that also the business relationships with lower degree of dependency may significantly affect a firm and its opportunity structure, especially when the degree of interconnectedness raises. We conclude that understanding of the dynamic environment and its effect on the single actor's autonomy and strategy is a key management capability necessary for any contemporary organisation.

We suggest that further research would be necessary in examining in detail the managerial skills and capabilities in orchestration of actors in a strategic network. Also, the role and perspective of smaller actors, SMEs, seems to be relatively unknown in this context. It would be theoretically and managerially interesting to find out to what extent firms apply their strategy and to what extent they are guided by their strategic relationships and networks. The managerial challenges of direct and indirect governance possibilities in this context are not yet thoroughly studied.

REFERENCES

Ames, Charles B. (1968), Marketing Planning for Industrial Products, *Harvard Business Review*, 46, 5 (September-October, 1968), pp.100-111.

Amit, R. and Ch. Zott (2001), "Value Creation in E-Business," Strategic Management Journal, 22, 493-520.

Anderson, J.C. & Håkansson, H. & Johanson, J. (1994). "Dyadic business relationships within a business network context". Journal of Marketing 58: 1-15.

Anderson, J.C., and Narus, J.A. (1999) Business Market Management: Understanding, creating and delivering value, Prentice Hall

Axelsson B. & Easton, G. (Eds.) (1992). Industrial Networks: A New View of Reality. London: Routledge.

Cook, K.S. (1982) Network structures from an exchange perspective in Marsden, P.V. & N.Lin (eds.) Social Structure and Network Analysisi, Beverly Hills, Sage Publications

Doz, Y. L.and Hamel, G. (1998). Alliance Advantage: The art of creating value through partnering. Harvard Business School Press, Boston, MA.

Ford, D. (2002), Understanding Business Marketing and Purchasing, Thomson Learning.

Ford,D & Mc Dowell, R. (1999) Managing business relationships by analyzing the effects and value of different actions in Ford, David (ed.) (2002) *Understanding business marketing and purchasing*, Third edition, Thomson Learning, London p.320-334

Forsgren, M. & Johanson, J. (Eds) (1992) Managing Networks in International Business, Pennsylvania: Gordon ans Breach

Gemünden, H. & Heydebreck, P. & Herden, R. (1992). "Technological interweavement: A means of achieving innovation success". R & D Management 22(4): 359-376.

Gemünder, H. & Helfert, G. & Walter, A.(1996) Geschäftsbeziehungen in Europa, Absatzwirtschaft 39 (10):p.104-114

Granovetter, M. (1973) The Strength of Weak Ties, American Journal of Sociology 78(6), pp.1360-1380

Granovetter, M. (1985) Economic action and Social structure. Atheory of Embeddedness.American Journal of Sociology, 91 99.481-510

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

Gulati, R. & Nohria, N. & Zaheer, A. (2000). Strategic Networks. *Strategic Management Journal*, 21, 203-215.

Gummesson, E. (1999). Total relationship marketing. Rethinking Marketing Management: From 4Ps to 30Rs. The Chartered Institute of Marketing.Butterworth-Heinemann. Oxford.

Fletcher, R. & Barrett, N. (2001) Embeddedness and the Evolution of Global Networks, *Industrial Marketing Management*, vol.30(7) p.561-573

Halinen, Aino & Törnroos, Jan-Åke (1998) The Role of Embeddedness in the Evolution of Business Networks, *Scandinavian Journal of Management* , 1998:14(3) p.187-205

Halinen, Aino & Törnroos, Jan-Åke (2004) Using Case Methods in the Study of Contemporary Business Networks, *forthcoming in Journal of Business Research* 2004

Hammarkvist, Karl-Olof and Håkansson, Håkan and Mattsson, Lars-Gunnar, (1982), Marknadsföring för konkurrenskraft, Liber, Malmö

Hedaa, L. (1999) Black holes in Networks, Advances in International Marketing, Vol.9, pp.131-145

Hedaa, L. and Törnroos, J.Å. (1997) Understanding event-based business networks, 68. Working papers, Department of Management, Politics and Philosophy, Copenhagen Business School 1997 No. 10, 32 pp.

Hedaa, Laurids & Törnroos, Jan-Åke (2003) Time and timing as connected events in business networks, Plenary Session Paper, ISIDA Palermo, May 8-10.2003.

Henders, Barbara (1992) Positions in Industrial Networks. Marketing Newsprint in the UK, Doctoral dissertation, Uppsala Universitet, Uppsala, 1992

Hertz, Susanne (1998) Domino Effects in International Networks, Journal of Business-to-Business Marketing, Vol.5(3) 1998 p.3-31

Hinterhuber, A. (2002), "Value Chain Orchestration in Action and the Case of the Global Agrochemical Industry," Long Range Planning, 35 (6), 615-35.

Hung, Shih-Chang (2002), "Mobilising networks to achieve strategic difference," Long Range Planning, 35 (6), 591-613.

Hurmerinta-Peltomäki, L. (2001) Time and Internationalisation. The Shortened Adoption Lag in Small Business Internationalisation, Publications of the Turku School of Economics and Business Administration, Series A-7:2001, 2001, doctoral dissertation

Håkansson, H. and I. Snehota (Eds.). (1995), *Developing relationships in business networks.* London: Routledge.

Jarillo, J. C. (1988), On Strategic Networks. Strategic Management Journal Vol. 9 p.31- 41

Jarillo, J. C. (1993), Strategic Networks: Creating The Borderless Organisation. Bodmin, Cornwall: MPG Books Ltd.

Johanson, J. & L-G Mattson (1988) "Internationalization in Industrial Systems – A Network Approach". In N. Hood & J-E Vahlne (eds.) "Strategies in Global Competition", Croom Helm, London, 287-314.

Katz, M. L. and Shapiro, C. (1994), "Systems competition and network effects", Journal of Economic Perspectives, Vol. 8, No. 2: 93-115.

Luostarinen, R. (1979), Internationalisation of the Firm, An Empirical Study of the Internationalisation of firms with small and open domestic markets with special emphasis on lateral rigidity as a behavioural characteristic in strategic decision-making, 3rd edition of 1989. Acta Academiae Oeconomicae Helsingiensis, series A:30, The Helsinki school of Economics

Miettilä, Aino& Törnroos, Jan-Åke (1993) The Meaning of Time in the Study of Buyer-Seller Relationships. Publications of the Turku School of Economics and Business Administration, Series Discussion and Working Papers 4:1993, Turku

Miles, R.E. & Snow, C. (1986) Organisations: New concepts for new forms. *California Management Review,* 28, 62-73.

Mintzberg, H. & Ahlstrand, B. & Lampe, J. (1998). Strategy Safari. The complete guide through the wilds of strategic management. Prentice Hall Financial Times, London.

Möller, Kristian and Halinen-Kaila, Aino (1997) Relationship Marketing: Its disciplinary roots and future directions, Helsingin Kauppakorkeakoulu, HeSE Print, 1997

Möller, K. & Rajala, A. (1999), "Organizing Marketing in Industrial High-Tech Firms: The Role of Internal Marketing Relationships", Industrial Marketing Management, 28 (5), 521-535.

Nieminen, Jarmo (1999) The Changing bsuienss context in the transition economies. In (eds. Törnroos & Nieminen) Business Entry in Easters Europe. A network and learning approach with case studies, Kikimora Publications, Helsinki 1999

Nohria, N. & Eccles,R.G. (eds.) (1992) Networks and Organisations, Structure, Form and Action, Boston, Harvard University Press

Normann, R. & Ramirez, R. (1993), "From Value Chain to Value Constellation. Designing Interactive Strategy", *Harvard Business Review,* 71 (4), 65-77.

Park, S. H. (1996), "Managing an Interorganisational Network: A Framework of the Institutional Mechanism for Network Control", *Organisation Studies,* 17 (5), 795-824.

Parolini,C. (1999), The Value Net – A Tool for Competitive Strategy, John Wiley & Sons, England.

Ring, P.S. & Van de Ven, A. (1994) Developmental Processes of Cooperative Interorganisational Relationships, Academy of Management Review 112

Ritter, T. (1999) The Networking company, Industrial Marketing Management 28, pp.467-479

Ritter, T. (2000). A framework for analyzing interconnectedness of relationships. Industrial Marketing Management, Vol. 29: 317-326.

Sandberg, Eva A. (2003) The Face of Embeddedness-A case Study, IMP Working paper for IMP Annual Conference, Lugano, 2003

Spencer, J.W. (2003), "Firms' Knowledge-Sharing Strategies in the Global Innovation System: Empirical Evidence From the Flat Panel Display Industry," Strategic Management Journal, 24 (3), 217-33

Strandvik, T. & Törnroos, J-Å.(1997) Discovering Relationscapes-Extending the Horizon of Relationship Strategies in Marketing, New and Evolving Paradigms: The Emerging Future of Marketing, American Marketing Association Special Conferences, Dublin, 12-15.6.1997

Tähtinen, Jaana (2001) The dissolution process of a business relationship. A case study from tailored software business, Doctoral dissertation, Oulu University, Oulu University Press 2001

Van de Ven, A.H. & Poole, M. S. (1990). " Methods for Studying Innovation Development in the Minnesota Innovation Research Program. Organisation Science. Vol. 1, no.3: 313- 335.

Walter, Achim & Hölzle, Katharina & Ritter, Thomas (2002) Relationship functions and customer trust as value creators in relationships: A conceptual model and empirical findings for the creation of customer value, paper presented at 18th Annual IMP Conference, Dijon, France, 2002

Walter, Achim & Ritter, Thomas & Gemünden, Hans Georg (2001) Value Creation in Buyer-Seller Relationships: Theoretical considerations and empirical results form a Supplier's perspective, Industrial Marketing Management 30(4) p.365-377

Webster, Frederick. E. Jr. (1991) Industrial Marketing Strategy, Third Edition, John Wiley & Sons, USA

Wellman, Barry & S.D. Berkowitz, (1988) Social structures: a network approach, Cambridge University Press, 1988

Young, C. (2001) Reaping Value From Knowledge and Innovation, Strategic Planning, Research Note 26.1.2001 Gartner Inc.