Interconnected Relationships: The Effects of Relationships on Relationships.

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**Abstract**

In this paper the effects of inter-organizational relationships on other inter-organizational relationships are analyzed. These impacts which guides to the analysis of networks of relationships are frequently noted but analytical tools to deconstruct the complexity are still missing. Therefore, the paper develops a framework for analyzing those effects and points out managerial implications.

**Introduction**

Companies exist in an "interacted environment" (Ford, Håkansson & Johanson 1986, p. 28) The interactions between two companies are seen as the building units of inter-organizational relationships (Håkansson 1982). A growing body of literature is dealing with the nature of those inter-organizational relationships (for an overview see Backhaus & Büschken 1997; Gemünden 1997). Out of this stream a lot of managerial implications were developed regarding how companies can cope with inter-organizational interactions or even manage single relationships. Special attention has been paid to buyer-seller relationships (cf. e.g. Ford 1980; Ford et al. 1998; Hallén, Johanson & Seyed-Mohamed 1993; Helfert 1998; Kleinaltenkamp & Plinke 1997; Walter 1998), international relationships (cf. e.g. Gemünden, Walter & Helfert 1996; Hallén 1982) and technology-oriented relationships (Biemans 1992; Gemünden 1999; Gemünden & Heydebreck 1994; Håkansson 1987, 1989; Heydebreck 1996).

But companies are not monogamous and develop only one relationship with one other organization. "Each company has a portfolio of buying and selling relationships in which it is enmeshed" (Ford 1997, p. xiii). Business markets become even more complex as "firms access resources not only through suppliers and customers but also through banks, shareholding institutions, government, distributors, consultants, associations, etc." (Easton 1992)."Thus it enters into a network of relationships" (Håkansson 1982, p. 11). Håkansson (1989) and Håkansson & Henders (1992, p. 37) report from an empirical study that companies had 10 relationships on average.

Within those networks relationships do not exist independent from each other - they are interconnected. "A company would have to be aware of the effects of its actions with any one company on the feelings of others in its portfolio" (Ford 1997, p. xiii). These
interconnections are of paramount importance for the understanding of business markets and relationship profitability (Blankenburg Holm, Eriksson & Johnson 1996) because a given relationship does not only affect itself and the two actors involved it may also have a network function (Håkansson & Snehota 1995; Laage-Hellman 1996). But so far, only little attempt has been made to discuss in detail and to structure the complex interconnections of relationships. What we know is that those interconnections exist and that they have an impact on relationship and network success as well as on managerial issues around relationships and networks. But how can we describe interconnectedness, can we distinguish different cases of connectedness? Therefore, this paper focuses on the interconnections between inter-organizational relationships and a framework for analyzing those effects will be developed.

The paper is organized as follows: In the next section various phenomena are presented, which can only be explained by widening the analytic frame of reference from single relationships to interconnected ones. This section will point out the importance of a network view on industrial markets. The proceeding section is dedicated to a theoretical discussion on the connections between relationships. Out of this discussion managerial implications will be presented. Finally, remaining questions are discussed in the outlook section.

Phenomena of Interconnected Relationships

It is known for a long time that particular constructs cannot be studied within a dyad, e.g. power and equity (Blau, 1964; Cook & Emerson, 1978). Dyads can be studied more fruitfully within a context of connected network relationship (Achrol, Reve & Stern 1983, Anderson; Hakansson & Johanson 1994; Iacobucci & Hopkins 1992). In industrial markets we can illustrate this issue using the following examples:

- **System selling:** Selling systems to customers involve normally a complex product where more than one company is involved in the delivery of this product. Within the process of system selling heterogeneous contributions of the companies involved are brought together in order to provide a 'complete' or 'complex' solution to the customer (cf. also the notion of 'virtual corporations' Davidow & Malone 1993, O'Leary, Kuokka & Plant 1997). Taking computer systems for example, hardware, software and installation as well as customizations or adaptations will be provided by different, but co-operating companies as a package to the customer. Another example can be found in the automotive industry where there is a trend towards purchasing complete components or systems as opposed by buying single items or smaller components. In most of the cases, a single company is the main contractor and, thus, co-ordinates all parties involved. In system selling, we can see a positive effect of the relationships between the main contractor and the contributing companies on the relationship of the main contractor with the customer because only through the earlier ones the main contractor can satisfy the customer.

- **Combination advantages:** Combination advantages occur when companies allow access to or pool one another's (homogenous) resources. By establishing the Star Alliance, Air Canada, Lufthansa, SAS, Thai Air, United Airlines and Varig were able to offer a larger...
variety of flights (through code sharing) and a better ground service (through the joint use of launches and check-in facilities). The full potential of this alliance was basically exploited by moving beyond a dyad. We can observe the same logic in R&D consortia where development projects can only be started when several companies commit resources to the project.

- **Exclusive rights**: The logic of exclusive rights can only be understood if there is a third party to be excluded. With that, the existence of an exchange (or a relationship) between two organizations excludes the exchange between those organizations and others (at least in particular areas). After developing an anti-blocking system (ABS) for cars, the Germany based company Bosch was selling this system exclusively to Mercedes-Benz for two years with which other car manufacturers were left without the system.

- **Mediation**: Companies can mediate inter-organizational relationships through actively promoting the relationship initiation process between two companies (e.g. the European Commission pays mediators which initiate inter-organizational co-operations within the SPRINT network). Also suppliers might wish to establish relationships between their customer and the customer's customers in order to ensure the supplier's sales (cf. Gemünden, Heydebreck & Moschner 1991, p. 32). Apart from those direct mediations the reference function of a relationship can indirectly support other relationships.

- **Competition**: Competition can only be understood when at least three parties are analyzed. In general, two parties competing for resources controlled by the third one. From a focal company's perspective competition can occur in different settings (e.g. purchasing a limited product, selling in a competitive environment, or competing for technology or innovation partner).

- **Lobbyism**: Through lobbyism a group of actors tries to influence (political) decision-making. Recent examples include the U.S. tabacco industry and producers of genetic food. The European Program ESPRIT (European Strategic Programme for Research in Information Technology) results from lobbyism of major European information technology companies. From an industrial marketing perspective we see that the relationships between several companies form the basis in with the relationship(s) with typically a governmental agency is effected.

- **Surety**: Likewise the previous examples, surety can only be understood by analyzing at least three parties. In an industrial setting a surety can be given by one actor for enabling the two other actors to do business together. E.g. newly founded companies sometimes face the situation that a customer demands a surety for the warranty because the customer is on one side convinced about the company's technological competence but on the other side there are doubts about the long-term future of the company.

As all those effects are of high significance in order to understand business markets. There is a strong need to analyze and understand the broader network structure as well as individual relationships. I am not claiming "the death of the dyad" as the dyadic point of view offers rich insights into the management of single relationships, e.g. the understanding of the development of relationships, trust, commitment, and adaptations. But in addition to analyze single relationships we need to understand their interconnectedness for which a framework will be developed in the following section.
Interconnectedness of Inter-organizational Relationships

In order to conceptually address the issue of interconnectedness between relationships it is sufficient to analyze triads because every greater system (the network) can be deconstructed to triads for analytic analyzes and network effects can be demonstrated with a triad (cf. Hummell & Sodeur 1987; Kappelhoff 1987; Smith & Laage-Hellman 1992). Therefore, we will discuss a triad in the following consisting of a focal organization (F), two other organizations (A) and (B), and their (possible) relationships (x), (y), and (z). The following picture illustrates this exemplary triad.

Figure 1: A triad

Having set the scene we can now turn to conceptualize interconnectedness of relationships. Following Cook & Emerson (1978, p. 725) "two exchange relations are connected to the degree that exchange in one relation is contingent upon exchange (or nonexchange) in the other relation." In an inter-organizational relationship perspective the definition can be phrased as follows: "Relationships are connected when a given relationship affects or is affected by what is going on in certain other relationships" (Håkansson & Snehota 1995, p. 17). This interconnectedness between two relationships can be positive or negative (Anderson, Håkansson & Johanson 1994, Blankenburg & Johanson 1992, p. 7, Cook & Emerson 1978, p. 725). But it is also known that "not all the relationships are connected" (Håkansson & Snehota 1995, p. 17). Thus, the impact of one relationship (x) on another relationship (y) can have three different features:

1. Relationship (x) has no impact on relationship (y); i.e. the existence of relationship (y) is independent from the existence of relationship (x).
2. Relationship (x) has a positive impact on relationship (y); i.e. the existence of relationship (x) is supporting, enabling or even enforcing the existence of relationship (y). This positive impact can be caused by learning or enabling effects (e.g. when a new product collaboratively developed between organization (F) and (A), is sold to organization (B)).
3. Relationship (x) has a negative impact on relationship (y); i.e. the existence of relationship (x) is hindering, disabling or even excluding the existence of relationship (y). This negative impact can be caused by resource limitations (e.g. when a company is only able to have one partner in new product development due to exclusive rights or R&D budgets).

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The reasons for those three different features can be found in all three layers of relationship substance, i.e. activities, resources, and actors (Hakansson & Snehota 1995, Laage-Hellman 1996). For the purpose of this paper we will only discuss the different impacts and not the reasons behind those impacts. The above described features are shown in figure 2.

The definition by Hakansson & Snehota (1995, p. 17) points out another important characteristic of interconnectedness: Between any two relationships (x) and (y) there can be an effect of (x) on (y) ("A relationship affects other relationships") and at the same time there can be an effect of (y) on (x) ("A relationship is affected other relationships"). With that, we can develop six different cases of interconnectedness between any two relationships leaving out those cells, which only capture change of labels. The cases are shown in the following figure. Please note that we concentrate first on those impacts which do not imply that impacts with other relationships (especially the third relationship) do not exist. If only two relationships exist then we could classify this as serial triad (as opposed to a unitary triad with all three interconnected relationships, cf. Havila 1996).

In the following the cases are explained by taking the perspective of the focal company (F):

1. No interconnectedness between two relationships exists when the two relationships are totally independent from each other. Assume that organization (F) is a university and two departments working in totally different areas have both a relationship with an industry collaborator. In such a case there is no effect of one relationship on the other on both ways. This case is named 'neutrality effect'.

2. A one-sided positive effect between two relationships can occur e.g. when experiences made in one relationship can be used in the other. Those synergies can be based on collaboratively developed products and processes (e.g. selling a new product to other customers) or managerial experiences in managing business relationships (e.g. the use of new communication technologies). This effect is called 'duplication effect'. This case is also typical for the reference function: Through the existence of relationship (x) relationship (y) is initiated or supported but without any reverse effect. In those cases we talk about a 'reference effect'.

Figure 2: Notation of the impact of relationship (x) on relationship (y)

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neutral effect

- case 1

positive effect

- case 2
- case 4

negative effect

- case 3
- case 5
- case 6

Figure 3: Effects between two inter-organizational relationships

4. If one relationship is hindering the other and there is no impact in the opposite direction, there is a one-sided negative effect. We can imagine a situation where a customer tries to get exclusive rights of purchasing a certain product from the focal company (F) but the other customer is not interested in such rights. This situation can be labeled 'hindrance effect', which can be in an extreme case a 'ban effect'.

5. A two-way positive effect means that both relationships support or even necessitate or presuppose each other. In the case of new product development the combined resources of the focal company (F), a supplier (A), and a customer (B) may be needed in order to successfully complete a development project. In another case relationship (x) supports the initiation of relationship (y) because company (F) and (A) are developing a new

product together which is offered to customer (B). But relationship (x) can only exist in the long run when relationship (y) is maintained because company (F) only buys from supplier (A) when the focal company can sell its products to customer (B). We call this case a 'combination effect'. As an extreme situation this can develop to a 'force effect' when one party insists on the existence of the other relationship (cf. e.g. surety in the previous section).

6. Between two relationships a positive and a negative impact can co-exist. Imagine a case where new products are collaboratively developed within relationship (y) which are also sold to customer (A). At the same time customer (A) insists to become the exclusive development partner (weakening relationship (y)). This case might seem to be very unstable at first glance but when customer (A) has no other choice as to buy those products by the focal company this case can survive a considerable time. Based on the fact that it is only the lack of alternatives which keeps relationship (x) existing this case is called 'lack effect'.

7. Two relationships can also weaken or even exclude each other. As companies are limited in terms of their resources each relationship and potential relationship competes with every other one for resources (e.g. personnel, time, budgets). Another scenario would be when several research and development partners compete for exclusive rights. This case is named 'competition effect'.

In order to complete the analysis of a triad we need to turn our attention to the impact of two relationships (x) and (y) on a third one (z). Hereby, we will only look at additional effects because the impacts between relationships (x) and (y) are already discussed. Also, impacts of relationship (z) on the relationships (x) and (y) will not be included in the discussion because those effects can be explained by the above discussion through changing the labeling for the relationships or the organizations. Through the inclusion of relationship (z) four further effects can be seen which are illustrated in figure 4 and discussed below.

Figure 2: Effects of two inter-organizational relationships on a third relationship

8. Relationship (z) is neither affected by relationship (x) nor by relationship (y). This case would be possible when all three actors undertake collaboratively research and development activities but within every relationship a totally different area is covered which are not at all related to each other. Or all three organizations buy and sell products to each other but no one is a competitor to the other. To put it simple the three relationships just co-exist with no impact on each other. We call this a 'second order neutrality effect'.

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9. If organization (F) is introducing company (A) and company (B) to each other than the two relationships (x) and (y) positively affect relationship (z). This case illustrates a situation when a focal company makes a word-of-mouth reference for (A) to (B) and relationship (z) will be initiated. The European Union uses sometimes a list of approved consultants which need to be contacted by applications for certain funds and, thus, initiates a relationship between the consultant and the applicant. Automobile manufacturers sometimes insist on collaboration between their suppliers even though the suppliers would prefer not to do so. This situation is called 'initiation effect'.

10. It is also possible that one relationship supports the third relationship whereas the other relationship weakens it. If company (A) is a retailer of the focal company's products than relationship (x) enables relationship (z). At the same time the focal company might wish to deal directly with this customer (B) and, thus tries to weaken relationship (z). This case is labeled 'by-pass effect' because company (F) bypasses retailer (A).

11. Relationships (x) and (z) can both have a negative impact on relationship (z). Think about a situation when the focal company (F) forbids a direct contact between innovative customers (A) and (B) in order to get original ideas from both sides. The ban of direct contacts forces the two organizations (A) and (B) to interact via (F) what introduces some kind of hierarchy into the information flow. Therefore, this case is named 'hierarchy effect'.

We can conclude that an inter-organizational relationship can hinder, weaken, strengthen, or enforce another relationship. Within the developed framework, we were able to identify 10 different cases describing the possible impacts between inter-organizational relationships.

"Generalized connectedness of business relationships implies existence of an aggregate structure, a form of organization we have chosen to qualify as a network" (Håkansson & Snehota 1995, p. 19; cf. also Cook & Emerson 1978, p. 725). "Industrial networks are sets of interrelated actors performing interconnected activities by employing interdependent resources" (Lundgren 1997, p. 500; cf. also Easton & Araujo 1992). A company within such an industrial network "can be viewed as a node in an ever-changing pattern of interactions" (Ford, Håkansson & Johanson 1986, p. 26). The following figure illustrates an industrial network as connected relationships (figure based on Gemünden & Ritter 1997; Ritter 1998). Case studies have shown that in such interconnected networks whole sequences of change can take place and role out the impact of change in one relationship into a wider network which was labeled as "domino effects" (Hertz 1998).
After the development of a framework for analyzing interconnectedness of inter-organizational relationships, managerial implications are presented in the following section.

Managerial Implications

Before we can develop some managerial implications it is important to stress that "it is a false picture to see a company as the master of its own destiny, building its independent strategy and trying to get favorable reaction from the market" (Ford & Saren 1996, p. 51). Companies are dependent on what other companies do. With that "both the consciousness of the actor and the random factor are integrated aspects of the network" (Håkansson 1987, p. 91). But the existence of a random factor does not mean that companies do not have to 'manage' their portfolio of relationships.

The interconnectedness of relationships adds another dimension to the task of managing in business markets and it makes this task even more complex. "Nevertheless, despite this complexity, managers have to take decisions within relationships ..." (Ford 1997, p. 559). "There is no 'invisible hand' creating a situation of efficiency and health. Instead there are several 'visible hands' that try to create situations that are beneficial to themselves" Håkansson (1987, S. 89). The management of relationships can be seen as those 'visible hands' with which a company tries to influence other actors and is influenced at the same time.

Out of the discussion of interconnectedness between relationships we can draw the following managerial implications:

Figure 5: Illustration of an industrial network
First of all we would like to encourage companies to use the framework to analyze the interconnectedness of their relationships. As discussed earlier it is important to understand interconnectedness in business markets. The presented approach is a way of looking into the black-box of interconnectedness by deconstruction the general notion of interconnectedness into different cases. This can guide decision-makers to a more realistic picture of their current situation. Analyzing interconnectedness also forces managers to think about particular situations and explain and justify their perception of the business network the company is embedded into. Sometimes interconnectedness is overestimated ("We can never sell our products to (B) when we lose customer (A)") without any kind of reason. But the more frequent situation can be judged as underestimation of interconnectedness as companies often try to manage relationships in isolation.

There are no normative strategies to be developed with the 10 cases as the objectives of strategic action may differ between companies. Sometimes the aim of a company is simply to decrease the level of interconnectedness between relationships in order to be able to manage them in isolation from each other (e.g. when a company wishes to terminate a relationship with a particular partner it might try to decrease the positive interconnections of this relationship on others in order to prevent negative effects from the termination on the other relationships). In other cases companies might try to establish a positive interconnection in order to strengthen a particular relationship even when there is no rational reason for a positive impact (e.g. a manufacturer highlights the results out of relationships with suppliers in order to strengthen a customer relationship). But the inappropriateness of normative strategies does by no means imply that companies do not need to understand the network in which they operate.

In addition to the use of the framework interconnectedness of relationships suggests the modification of some analytic tool which were developed in the past. In a recent overview over relationship portfolios Turnbull & Zolkiowski (1997) show that a variety of matrixes and classifications of relationships are suggested and possible to use. All approaches have their merits and offer guidance for decision-makers but at the same time most of the proposed approaches fall short in terms of interconnectedness: Relationships are placed in the matrixes isolated from each other. Given the possible interconnections interpretation of those portfolios is difficult because a very central element is not included. Apart from an understanding of the atmosphere within a single relationship conclusions for the management of the interconnected portfolio of relationships cannot be drawn. An effective solution would be to introduce the interconnections into the portfolio by adding arrows into the portfolios. In the following figure two hypothetical matrixes are shown based on the work by Shapiro, Rangan, Moriarty & Ross (1987) and Krapfel, Salmond & Spekman (1991) including also interconnections.
Figure 5: Relationship portfolio including interconnections between relationships

Those portfolios offer additional insights: In the 'carriage trade' or 'partner' quadrant we not only see two relationships (D) and (E) which are of high interest for the focal company but we also have indicated a potential problem there: The negative interconnection between the two. A possible strategy might be to reduce this interconnection in order to be able to maintain both relationships. Taking also the enabling relationship (A) in the 'bargaining basement' or 'acquaintance' quadrant into consideration, relationship (E) appears more problematic because the company has to maintain relationship (A) on a low netprice/low commonality level. There might be a trade off between keeping those two positively interconnected relationships (A) and (E) and weaken the other one (D) or may terminate the acquaintance one (A) and may lose one partner (E). At this stage we can only illustrate the value of analyzing interconnects briefly.

The third managerial implication highlights organizational issues, which arise out of interconnectedness. We know from empirical studies that teams rather than individuals are involved in managing a single relationship (cf. Helfert 1998). This let to the notion that inter-departmental communication and co-operation is essential in order to manage a single relationship. Interconnectedness adds another perspective to this issue: In order to capture, cope and manage interconnected relationships information must flow inside the company. The network outside needs to be mirrored by the internal organizational design. Companies are well advised to implement effective communication structures, e.g. through new information technology or through promoting information exchange between personnel. It has been shown that a high integration of the internal communication structure and the availability of resources are driving forces for the development of a company's network competence which in turn leads to a higher degree of inter-organizational interaction (Ritter 1998).

To summarize three managerial implications can be derived: Firstly the developed framework should be used in order to gain a better understanding of a company's interconnected relationships. Secondly, portfolio approaches (as well as other management tools) need to be modified as to include interconnectedness of relationships. With that those...
models can illustrate a particular situation more realistically. And finally, companies need to design themselves for coping with interconnectedness in a way that they implement the preconditions for network competence. There is a need to shift from managing single relationships towards analyzing, coping and managing a company's network as a whole.

Outlook

In this paper the interconnectedness of relationships was addressed. Although this issue has been widely recognized only few attempts have been made in order to derive managerial implications. The paper tried to fill in this gap by developing a framework for structuring and analyses of relationship interconnectedness. This framework offers some insights and breaks down a bit of the 'black-box' character interconnectedness has had so far.

Further research is needed in order to develop managerial tools, which could help decision-makers. The potential benefits of inclusion of interconnectedness were briefly shown in this paper. Further work can be conducted in order to modify existing tools or to develop new ones. Empirical studies can help to work out practical solutions.

Interconnectedness plays also an important role on a day-to-day basis. Organizations do not only need to realize their interconnected environment - they also have to live it. Companies need to organize around interconnected relationships. The remaining question is how to do this effectively. Some indications of best practice in terms of designing the networking organization have been derived so far but a more complete picture is needed.

The developed 10 cases are drawn upon a static background as a time dimension is missing. If the time dimension is added, additional effects can be analyzed (cf. Wilkinson, Easton & Hibbert, 1997). This guides into the field of network dynamics, which is another area of potential conceptual and empirical work. Most of the companies operate in a changing environment and there is a need to manage change within and through relationships.

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