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INTFXORGANIZATIONAL RELATIONS IN INDUSTRIAL SYSTEMS - A NETWORK
APPROACH COMPARED WITH THE TRANSACTION COST APPROACH

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Abstract

A network approach, as it is developed by some Swedish researchers in industrial marketing and international business (see e.g. Hägg & Johanson (ed.), 1982 and Hammarkvist, Håkansson & Mattsson, 1982) is compared with the transaction cost approach associated with Oliver Williamson (e.g. Williamson, 1975, 1979, 1981). The reason we make such a comparison is that we often get questions from colleagues in the scientific community, suggesting that what we try to do is rather similar to what the transaction cost approach is doing.

Interorganizational Relations in Industrial Systems - A Network
Approach Compared with the Transaction Cost Approach

The purpose of this paper is to discuss some aspects of relations between firms engaged in industrial production as those relations are postulated or described in two theoretical approaches to the analyses of industrial systems.

A network approach, as it is developed by some Swedish researchers in industrial marketing and international business (see e.g. Hägg 6 Johanson (ed.), 1982 and Hammarkvist, Håkansson & Mattsson, 1982) is compared with the transaction cost approach associated with Oliver Williamson (e.g. Williamson, 1975, 1979, 1981). The reason we make such a comparison is that we often get questions from colleagues in the scientific community, suggesting that what we try to do is rather similar to what the transaction cost approach is doing.

We present first the basic characteristics of our "network" and its inter-organizational relationships. This is followed by a short description of the transaction cost approach and some comments on the recent debate of Williamson's approach. We will finally proceed with our comparative analysis.

Industrial Networks¹

In industrial systems firms are engaged in production, distribution and use of goods and services. We describe such systems as networks of relationships between firms. There is a division of work in a network which means that firms are dependent on each other. Therefore their activities need to be coordinated. Coordination is not brought about

¹This section is adapted from Johanson & Mattsson (1984).

through a central plan or an organizational hierarchy, "or does it take place through the price mechanisms in the traditional market model. Instead coordination takes place through interaction between firms in the network, where price is just one of several influencing conditions. The firms are free to choose counterparts and thus "market forces" are at play. To gain access, however, to external resources and make it possible to sell products, exchange relationships have to be established with other firms. Such relationships take time and efforts to establish and develop, which constrains the firms' possibilities to change counterparts. The need for adjustments between the interdependent firms as to quantity and quality of goods and services exchanged, and the timing of such exchange, call for more or less explicit coordination through joint planning, or through power exercised by one party over the other. Each firm in the network has relationships with customers, distributors, suppliers etc. (and sometimes also directly with competitors) as well as indirect relations via those firms with the suppliers' suppliers, the customers' customers, competitors etc.

The networks are stable and changing. Individual business transactions between firms usually take place within the framework of established relationships. Evidently, some new relationships are established now and then and some old relationships are disrupted for some reason (e.g. competitive activities), but most exchange takes place within earlier existing relationships. However, those existing relationships are changing all the time through interaction between the firms in connection with transactions made within the relationship.

As an aspect of those relationships, bonds of various kinds are developed between the firms. We distinguish technical planning, knowledge, social economic, and legal bonds. These bonds can be exemplified by, respectively, product and process adjustments, logistical coordination, knowledge about the counterpart, personal confidence and liking, special credit agreements, and long-term contracts.

We stress complementary in the network. There are of course also important competitive relations. Other firms want to get access to

specific exchange possibilities either as sellers or as buyers, and cooperating firms also have partly conflicting objectives.

The relationships imply that there are specific inter-firm dependence relations which are of a different character than the general dependence relations to the market in the traditional market model. A firm has direct and specific dependence relations to those firms with which it has exchange relationships. It has indirect and specific dependence relations to those firms with which its counterparts have exchange relationships, i.e. the other firms operating in the network where it is engaged.

To get established in a new market, that is in a network which is new to the firm, it has to build relationships which are new to itself and its counterparts. Sometimes this is done by breaking old, existing relationships and sometimes by adding a relationship to already existing ones. Initiatives can be taken both by the seller and by the buyer. A supplier can become established in a network which is new to the firm, because a buying firm takes initiative.

This model of industrial markets implies that the firm's activities in industrial markets are cumulative processes in the sense that relationships all the time are established, maintained, developed, and broken in order to give satisfactory, short-term economic return and to create positions in the network, securing the long-term survival and development of the firm. Through the activities in the network the firm develops the relationships which secure the access to important resources and the sale of its products and services.

Because of the cumulative nature of the market activities, network position is an important concept. At each point in time the firm has certain positions in the network. They characterize its relations to other firms, are a result of earlier activities in the network both by the firm and by other firms, and constitute the base which gives the development possibilities and constraints of the firm in the network.

All the firms in the network have objectives regarding their future positions. Desired changes or defence of positions thus describe

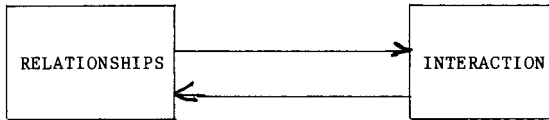
important aspects of the firms' strategies. The strategies of firms can be complementary to each other or competitive or a combination of both.

A basic assumption in the network model is that the individual firm is dependent on resources controlled by other firms. The firm gets access to these external resources through its network positions. Since the development of positions takes time and efforts and since the present positions define opportunities and constraints for the future strategic development of the firm we look at the firm's positions in the network as partially controlled, intangible market assets. Market assets generate revenues for the firm and serve to give the firm access to other firms' internal assets. Because of the interdependencies between firms, the use of the asset in one firm is dependent on the use of other firms' assets. Thus also the investment processes and their consequences are interdependent in the network.

Relationships in Industrial Networks

In industrial networks suppliers and customers establish, develop and maintain lasting relationships with each other. Such relationships may be significant to the parties. They may reduce costs of exchange and production, they may promote knowledge development of the parties, they may give the parties some control over each other, they may be used as bridges over to other firms, and they may be used when mobilizing partners against third parties.

Basically an interfirm relationship is a mutual orientation of two firms toward each other. This implies that the firms are prepared to interact with each other and expect each other to do so too. We distinguish two separate, but closely related, types of interaction — exchange processes and adaptation processes (Håkansson (ed) 1982). They constitute the dynamic aspects of relationships. The mutual orientation implies also that the firms have mutual knowledge about each other and that they are aware of each other's interests and are prepared to pay some attention to them. (Figure 1).



MUTUAL ORIENTATION
 - PREPAREDNESS TO INTERACT
 - MUTUAL KNOWLEDGE
 - RESPECT FOR EACH OTHER'S INTERESTS
 INVESTMENTS
 BONDS
 DEPENDENCE

EXCHANGE PROCESSES
 - SOCIAL EXCHANGE
 - BUSINESS EXCHANGE
 - INFORMATION EXCHANGE
 ADAPTATION PROCESSES
 - PRODUCTS
 - PRODUCTION
 - ROUTINES

Figure 1. Relationships and Interaction in Industrial Markets

The **relationships** arise through exchange processes between the parties. The positive **inducements** they offer each other is the **primary** feature of the exchange processes. Mutuality is an important aspect of the exchange process, the **parties demonstrate** that they **respect each other's** interests. A **lasting** relationship may **emerge** if the **parties** perceive a **certain** complexity or **heterogeneity** in exchange. This implies that a **number** of rather weak and long-term criteria **enter** into and **become** critical in the **evaluation** of the exchange. A situation **emerges** which is **similar** to what **Blau** (1968) has **characterized** as social exchange. He describes how a relationship **evolves** in such a case:

"Social exchange relations **evolve** in a slow process, starting with minor **transactions** in which little trust is required because little risk is **involved** and in which both partners **can prove** their trustworthiness, **enabling** them to **expand** their relation and engage in major **transactions**." (Blau, 1968, p. 454)

Single exchanges **are** in this case integral parts of a process in which the **parties** **gradually** build up a **mutual** trust in each other.

In **supplier-customer relationships** business exchange is an important aspect of this social exchange process and the **gradual** build up is well known **among** business men. "It takes time to become established as

a supplier", "we always test new suppliers for a long time before switching to them" and similar statements are typical.

The social exchange process implies that the relationships have an important social element. They have, however, important technical, logistical, knowledge, administrative and time elements also. The exchange process implies that the parties test how well they fit each other. The process is, however, not only a learning process, but also an adaptation process. In the course of the process a number of problems usually emerge, the parties do not fit and a number of activities can be carried out to eliminate the misfits. The parties adapt to each other and influence each other to adapt. This is a vital characteristic of the relationships.

Adaptations are made in a number of different dimensions. The firms can adapt to each other technically by modifying products or production processes. They may adapt logistically by adjusting stock levels or developing common delivery systems. Some adapt administratively by modifying planning or scheduling systems. Thus, on-line computer systems of firms are getting usual. They may also adapt financially by special ways of handling payments. Finally some firms adapt to each other with regard to knowledge by acting together in some technical development matters.

Some of the adaptations between firms take place in the form of specific investment or projects, such as acquisition of specific machinery or change of systems. To a large extent, however, the adaptations occur through continuous processes as a result of day-to-day experiences. In total there is a close relation between the general exchange process and the adaptation processes. The more intensive the exchange process between the firms, the stronger will be the reasons to make adaptations. The type of adaptations is also related to the characteristics of the exchange, such as frequency, complexity and regularity.

Adaptations are important for at least three reasons. First, they strengthen the bonds between the firms. Through adaptations the firms

are getting increasingly dependent on each other. The supplier whose products or processes are modified so as to fit a specific customer's needs becomes dependent on this customer. And a customer who has adjusted production processes and scheduling systems to fit a supplier's capabilities is dependent on that supplier. The dependencies may be mutual, but they are not necessarily so, and in general it can be assumed that they are more or less asymmetrical in the sense that one party is more dependent on the relationship than the other.

Second, the reinforcement of the relationships through adaptations make them more enduring which in turn brings about that disagreements as a rule have to be handled within the frame of the relationships. A situation evolves in which "voice" is better as conflict resolution mechanism than "exit", since exit is not easy or attractive (cf Hirschman, 1970, p. 83). (p.83). This implies that the existence of relationships need not make the firms passive, but they have to learn other conflict solution methods than just switching to new customers or suppliers. Those methods are of a more problem solving nature than is the exit method.

Third, the adaptations are important as they indicate that there is some space change in the relationships. Everything is not given once and for all. Rather the two parties can adapt to fit each other better. At the same time, however, there are limits to those adaptations as all adaptations are a kind of investment. The investment has to give some return which limits the total space of change. Furthermore, there are limits to the adaptations to specific counterparts without losing one's own independence and identity.

Finally, the interaction processes create adaptations in attitudes and knowledge of the parties that is the mutual orientation is developed. This mutual orientation is manifested in common language regarding technical matters, rules of contracting, standardisation of processes, products and routines. More latent aspects of the mutual orientation may refer to views on business ethics, technical philosophy, and handling of organizational problems. A most important aspect of the mutual orientation is mutual knowledge, that is knowled-

ge which the **parties assume each other to have** about each other and which they draw upon in **communicating with each other**. This mutual knowledge may **refer to resources**, strategies, needs and capabilities of the **parties**, and in **particular to their relationships** with other firms. It is a **subtle** knowledge which is **based on personal experience** and takes time to develop.

Above we have characterized interfirm **relationships** as a mutual orientation of **two firms towards each other**. This mutual orientation implies that the firms **are prepared to interact with each other**. We have distinguished **two related** interaction processes, exchange and adaptation. We **have also** said that the mutual orientation is affected by the interaction processes between the firms. The mutual orientation is **established**, developed and maintained through interaction **processes**. Its strength and character **are** developed and maintained through interaction. **Again**, the mutual orientation constitutes the **frame** within which further interaction can take **place**.

We have also **primarily** characterized the interfirm **relationships** from a social viewpoint. **However**, it is **important to** keep in mind that the **relationships are** established and developed in order **to perform** the industrial activities in the firms. Thus, the needs of those **activities will** strongly affect the **nature** of the **relationships** developed with other firms. **Technical, logistical**, economic and other operative considerations will affect both the **relationships** and the interaction processes. The same is **true for** considerations of a **strategic nature** about the **individual firms' objectives** and activities as to their **development** and positions in the **market**. On the other hand, the industrial activities in the firms are modified and developed as a **result** of the interaction processes. (Figure 2)

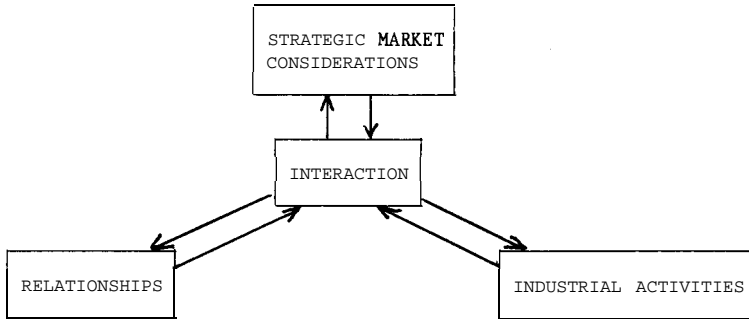


Figure 2. Basic Causal Relations of the Model

Furthermore, we have discussed interfirm relationships without explicitly referring to individual actors. However, the mutual orientation between firms is principally a mutual orientation between individual actors in the firms. In some cases the mutuality is primarily a matter of interpersonal relationships between salesmen and purchasers, in other cases a number of persons on different levels and with different specializations may be mutually oriented towards each other. Correspondingly the interaction processes are carried out by individuals, but we have discussed them as taking place between the firms.

Our view on interfirm relationships implies that the development of the relationships is affected by developments in the technical, logistical, economic etc. systems in which the interaction is embedded. The view assumes, however, by no means that the characteristics of the relationships are determined by structural circumstances. There is always some discretion as to which relationships to develop in what respects and to that extent the view is voluntaristic. On the other hand, the possibilities to change the relationships through unitateral decisions are rather limited as the relationships are created and modified through the interaction between a number of persons.

The Transaction Cost Approach

In a perfect market transactions are carried out without transaction costs. Information is freely available, decision-making is rational, there always exist alternative suppliers and buyers, there are no carry-over effects from one period to the other of a specific transaction between two parties in the market. When these conditions are not upheld, transaction costs emerge because there is a need to devote efforts to organize, to carry out and to control transactions between interdependent actors. The transaction cost approach tries to explain the institutional form, i.e. the "governance structure" (market, hierarchy or intermediate forms) for these transactions. Two behavioral characteristics are postulated: Decisions and actions are characterized by bounded rationality and opportunistic behaviour. Under conditions of certainty it is possible ex ante to gather information and to specify contracts between supplier and buyer, to take care of various future contingencies and also ex post to control the fulfillment of the agreement between the parties. However, when uncertainty prevails contracts will be very complex and costly both to construct and to enforce, especially so in the small number bargaining case. "Small numbers" means that there are few if any alternatives open for a buyer or for a seller to replace the counterpart in a transaction. The major reason for this is that the asset specificity is high. Personal knowledge or skills, type of machinery or products, geographic location etc. are not homogeneous across the population of buyers or sellers. The higher the asset specificity, the more dependent will the parties be on each other and the higher the costs of switching to another party will become. Frequency of transactions also enters as a major concept in the analysis. If there are only occasional transactions and the asset specificity is very high, there is no opportunity for vertical integration and the market transaction must be developed with the aid of some arbitrating agency. If the frequency is high and the asset specificity is high the transaction cost approach expects vertical integration to take place. Bilateral market relations is the institutional form expected to be the most transaction cost efficient if the asset specificity is intermediate

(Williamson, 1981, Figure 1). Some empirical studies, with somewhat mixed results, have been carried out to test the hypotheses (e.g. Walker & Weber, 1984).

The transaction cost approach offers an explanation to why industries are characterized by large scale organizations. Under the label "theory of internalization" it has become one of the recently most discussed theoretical explanation for the existence of multinational corporations (Rugman, 1982).

The transaction cost approach has recently been rather extensively debated and criticized by economists and sociologists. "Neo-institutionalists" (to be distinguished from the "new institutionalists!") criticize Williamson for believing in the neoclassical assumption that the most efficient institutional form will "survive" (Dugger, 1983).

The transaction cost approach can be used as an argument for vertical and horizontal integration, since the use of hierarchies rather than markets for coordination of interdependent activities may economize on transaction costs. The critics say that the transaction cost concept is vague and even ill-defined and that there is little if any empirical evidence that economizing on transaction costs is a good explanation or even a dominating motive for vertical integration (e.g. Perrow, 1986, Kogut, 1985).

Another major objection is that Williamson makes unrealistic assumptions about the differences between markets and hierarchies. Opportunism also exists within firms, organizations are not necessarily able to economize on bounded rationality, markets can also be characterized by asymmetrical power relations (controlled by "fiat") etc. Another important issue in the application of transaction cost analysis, is the delimitation of the systems to be compared. The transaction is a dyadic relation, but the industrial system is made up of many such relations that are more or less interdependent. If we pick just one of those dyads and change the institutional form, e.g. through vertical integration, also the other dyads may be affected.

The efficiency of the wider system may very well move in the opposite direction from the efficiency achieved in the original dyad that was changed. It has also been argued that the basically neoclassical approach assumes that there is a unique and stable equilibrium indicating a single institutional form under specific circumstances. However, even casual observations show that integrated and non-integrated arrangements co-exist.

Of the assumptions and major variables in the transaction cost model the postulate that mankind is basically "opportunistic with guile and deceit" has been questioned, both from an empirical and "moral" point of view. Especially, sociologists point out that economic relationships also contain elements of mutual trust and exchange of a social and cultural kind (Perrow, 1986).

A Comparison Between the Transaction Cost Approach and the Network Approach

We believe that there are some fundamental differences between the transaction cost approach and the network approach. These can be related to the theoretical foundations, problem orientation, basic concepts, system delimitation and nature of relationships between firms.

- a) Differences in theoretical foundations. Williamson's approach lies firmly within the neoclassical framework focusing conditions for stable equilibrium. Ours does not. In the network approach the benchmark models of markets and organizations are not used. The "markets" are characterized by interaction in relationships where the parties have some control over each other and our organizations are not "pure" hierarchies. To us the legal frameworks of the transactions are less important and the boundaries of the individual organizations are unclear. The network approach rather views firms as social units and is close to social exchange theory. With regard to control assumptions it is based on resource dependence theory. (Pfeffer & Salancik, 1978)
- b) Differences in problem orientation. The transaction cost approach aims at explaining institutional governance structures. Why and

when are activities coordinated within, rather than between, firms? Our basic interest lies in describing and explaining dynamic aspects of industrial systems and strategies pursued by firms in such systems. We are also interested in the functional activities in the individual firm, especially those that are related to the exchange and adaptation processes (marketing, purchasing, R&D).

- c) Williamson's basic concepts, with the exception of opportunism, can also be used to describe important characteristics of networks.

Opportunism is not by us regarded as a basic characteristic of the actors. As in social exchange theory, its correlate trust is an important concept in the network approach.

Bounded rationality is for us an implicit assumption, in the sense that actors need to handle information, learn by experience etc. More interesting than boundaries is the formation of new knowledge as to the handling of resources. An important source of knowledge in the firm is the interaction with other firms inside the network relationships.

Uncertainty is in our model also linked to the relationships in the network. The nature of the bonds and the degree of structuring of the network influence the degree and type of uncertainty. It is possible to influence the uncertainty both in Williamson's and in our approach. However, in Williamson's framework this influence seems to be more related to the legal form of the transaction than in ours.

Asset specificity is very closely related to our stress on heterogeneity (se Hägg & Johanson, op.cit.), mutual adaptation and market assets. However, we basically disagree with Williamson when he argues that high degree of asset specificity leads to vertical integration. Asset specificity can be the result of internal activities in a firm, but we believe that it is mostly the result of interaction within inter-organizational relations. Thus, firms are using each others assets in a mutual adaptation process. Asset spe-

cificity is one reason why firms are dependent on external resources and devote important resources to investments in relationships. However, if all these resources should be "internalized", a company will find itself in an impossible "growth" situation. To us, a high degree of asset specificity, is the rule rather than the exception and that variable in itself can hardly explain integration. Furthermore, unless the production and demand capacities of supplier and user respectively match each other, surplus supply or surplus demand must be sold/bought in the "market".

Small numbers bargaining is also for us a characteristic of the market as is a relatively high frequency of transactions between parties. Since we are dealing with industrial systems, buyers seldom have only occasional need for a specific type of product or service. Even capital goods transactions are often part of long-term relationships, including transfer of service for the maintenance of the function performed by the capital good.

- d) The system delimitation is different. The transaction cost approach bases its conclusions about governance structures on characteristics of aggregates of specific types of transaction relations. We look at relationships in networks in the context of other network relationships. The network approach bases its analyses on characteristics of systems of interdependent dyadic relations. Thus, if A first buys from B, but then merges with B, not only is the relationship between A and B changed (in our framework perhaps not very much), but also A's relation to B's other customers, suppliers, competitors etc. From a transaction cost point of view, what might be gained in the A-B relationship might very well be lost through the changes in the other relationships that B had before the merger.

Another consequence of our system delimitation is that it is not possible to characterize the system as a typical market or a typical hierarchy. Different governance structures co-exist (complementary or competitive) within this wider system.

It can be argued that whereas the function of the dyadic relation in the transaction cost approach is to analyse the boundaries of organizations and markets, their function in the network approach is to open the systems under study.

- e) The most important difference is in the nature of the relationships. For us the industrial markets are characterized by lasting relationships between firms because such relationships can reduce costs of exchange and production and can promote knowledge development and change. Through lasting relationships firms do get some control over each other and they get indirect access to assets in firms with whom they do not have direct relationships. The exchange and adaptation processes are looked upon as investment processes (of course not always successful ones!). "Mutual orientation" is developed. To Williamson such relationships hardly exist in markets, only within hierarchies. "Bilateral governance", which is Williamson's counterpart to our "relationship" is not considered a stable institutional form. To us the relationships between firms in networks are stable and can basically play the same coordinative and development function as intraorganizational relations. Through the relationships to customers, distributors, suppliers etc. a firm can reach out, to a quite extensive network. Such indirect relationships might be very important. They are not handled within the transaction cost approach.

Finally, an example which contrasts the transaction cost and the network approach in the analysis of a specific issue, i.e. internationalization of business (adapted from Johanson & Mattsson, op.cit.).

The theory of internalization (Rugman op.cit.) assumes that a multinational enterprise has somehow developed a firm-specific advantage in its home market. Usually this is in the form of internally developed, intangible assets that give the firm some superior production, product, marketing and for management knowledge. If this asset cannot be exploited and safe-guarded effectively through market or contractual transactions, an "internal market" has to be created. Expansions out-

side the firm's domestic market, given that local production is advantageous, will then take place through horizontal and/or vertical integration. The firm establishes, or buys, manufacturing plants outside of its home market. Thus the multinational enterprise exists because of "market failure" or high "contracting costs". The firm wants to protect its intangible assets and to be able to control the price others pay for the use of these assets. There are, however, also costs of internalizing in the form of internal administrative systems and risk-taking. These costs of internalization will be lower the less different the foreign market is from the home market. Thus, the internalization model will predict that international expansion starts in "nearby" markets. The internalization model is not intended to explain processes. It tries to explain a specific economic institution, the multinational enterprise. But it says something about what according to the transaction cost approach are driving forces for international expansion of production of the firm.

It seems to be an implicit assumption in the internalization approach that the firm's development activities are "internal". In the network approach development activities to an important extent are dependent on the relationships with other firms, and thus on the network positions of the firm. Since international expansion is a process by which network positions are established and changed, international expansion as such influences the further development of the products, production processes, marketing behaviour, etc.

We said earlier that firms in networks invest in relationships with other firms. The positions thus created give access to external resources. Thus, the multinational enterprise to a larger extent enjoys direct relationships with customers and users in foreign markets rather than the indirect relations, through agents or licensees, that the less internationalized firm, operating only in its home market, has. This leads to a further observation linked to the network model. The multinational firm may use its network positions to effectively "externalize" some of its activities, without losing control of its crucial intangible assets. The manufacturing value added by

multinational industrial firms might thus decrease due to increased "subcontracting".

It should be evident from our discussion that the network is quite different from the transaction cost approach. Since the theoretical bases and the problem orientations are different this is hardly astonishing.

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