

Developing Relationships in Business Networks

This book is the first to apply the network approach to the analysis of business relationships in a global context. Drawing on a wide variety of international case studies, a `network approach` is developed, giving rise to far-reaching theoretical and practical managerial insights and a different way of conceptualizing companies within markets. New angles emerge on traditional problems of business management, with some novel implications which will challenge established ways of analysing business markets.

Building on previous research in the area, this thought-provoking work will be of great interest to researchers and students in industrial marketing, business strategy and purchasing, as well as to marketing specialists and consultants.

Håkan Håkansson is Professor of Industrial Marketing, University of Uppsala.
Ivan Snehota is Associate Professor, also at the University of Uppsala.

Developing Relationships in Business Networks

Edited by Håkan Håkansson and Ivan Snehota



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Contributors

Maria Asberg, Uppsala University
Bjorn Axelsson, Uppsala University
Wim G. Biemans, University of Groningen
Anna Dubois, Chalmers University of Technology Krzysztof Fonfara, Wielkopolska
Business School, Poznan
David Ford, University of Bath
Kjell Gronhaug, Norwegian School of Economics and Business, Bergen Sven A.
Haugland, Norwegian School of Economics and Business, Bergen Naoto Iwasaki,
Obirin University
Mats B. Klint, University of Sundsvall Karin Ljungmark, Uppsala University
Randi Lunnan, Norwegian School of Economics and Business, Bergen Florence
Mazet, Institut de Recherche de l'Entreprise, Lyon
Jacqueline Pels, Bocconi University, Milan
Torger Reve, Norwegian School of Economics and Business, Bergen Robert Salle,
Institut de Recherche de l'Entreprise, Lyon
Kate Searls, Penn State University
Robert Spencer, Institut de Recherche de l'Entreprise, Lyon
Tohru Takai, Waseda University
Yoshiya Teramoto, University of Tsukuba Richard Thomas, University of Bath
Alexandra Waluszewski, Uppsala University David T. Wilson, Penn State University
Finn Wynstra, Eindhoven University of Technology

Preface

This book is about how to read industrial markets. It is about what is happening underneath the visible flows of products, enquiries, sales visits and negotiations, and beyond the visible growth and prosperity of some companies and failure of others.

For more than twenty years we have been looking over and into this field as researchers and consultants searching for answers to the many questions that the working of industrial markets raises. Unlike consumer markets, industrial markets are often not much known either to the wider public or, we are tempted to say, to many management scholars. We have been amazed by the complexity of the industrial markets and at the same time by the apparent smoothness of their working. Gradually, we have acquired respect for their importance and complexity and learnt something about how they work.

We do not think we have anything like final answers. Far from it. However, we strongly believe that we have learnt something about the forces at work in the industrial markets. In this book we have tried to condense what we have learned to one picture that we would like to share with others. The reason why we dare to share this picture with others is that we have not acquired it in isolation, but through a learning process together with many others, both practitioners and fellow researchers.

We have had the pleasure of extensive interaction with a number of colleagues and practitioners during the years and have drawn heavily on their experience and insight. We cannot mention and thank all of them. However, those who have influenced us most belong to a few groupings. First we would like to thank our IMP colleagues: David Ford from the University of Bath, Peter W. Turnbull and Malcolm Cunningham from UMIST in Manchester, Geoff Easton and Luis Araujo at Lancaster University, David Wilson at Penn State University, James Anderson from Northwestern University, Jean-Paul Valla, Robert Spencer and Robert Salle at the IRE of Lyon Business School, Jan Johanson, Lars Hallen and Bjorn Axelsson in the Department of Business Studies at Uppsala University, Lars-Gunnar Mattsson and Anders Lundgren from Stockholm School of Economics. They, and numerous other participants in IMP conferences, have been important in the IMP research programme and in discussions.

In our Department of Business Studies at Uppsala University we have benefited

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from the close cooperation with Alexandra Waluszewski, Jens Laage-Hellman, Mia Eriksson, Maria Asberg, Yimane Ketema and Bertil Markgren and from an exchange of opinions and discussions with Amjad Hadjikhani, Mats Forsgren and Deo Sharma.

We have had the great opportunity to work together in a collaborative research project during the last five years with Lars-Erik Gadde, Anna Dubois and Ragnar Horndahl at the Department of Industrial Marketing at Chalmers University of Technology in Gothenburg. This cooperation has influenced our way of thinking in more than one way and the changes it has induced cannot be considered marginal. Since 1993 this cooperation has also included a research group at the Norwegian School of Technology in Trondheim, where we had the opportunity to discuss different parts of this book with Age Games, Tim Torvatn, Jan Frode Janson and Ann-Charlott Pedersen.

Many practitioners both in Sweden and abroad have sacrificed their time and dedicated their interest to our empirical studies. A part of their contribution is visible in the cases presented in this book, but the effects of various discussions, interviews and meetings are much more important. As most of the companies wish to remain anonymous, we can neither disclose the names of companies nor of those individuals in the companies that offered their support. Participants in the Executive Masters Programme in International Business at our department are an important group in this category. They patiently scrutinized and challenged our views in a very fruitful way.

The financial support that made it possible to devote much of our time to the research reported in this book has been provided by The Bank of Sweden Tercentenary Foundation, Axel and Margaret Ax:son Johnson Foundation, STU (The Swedish National Board for Technical Development) and Uppsala University.

This book is the result of the attempt to condense what we have learnt about industrial markets into a picture to show to others, with all its weak and perhaps some strong points. It reflects the process we have been through and intend to continue – searching for explanations of the complex and changing world of industrial markets. We are more than aware of the fact that the language we use in providing the picture is not an easy one. The book is a mixture of conceptual parts and empirical cases that we both consider important and difficult to separate. Extensive cases are used to give fully-fledged examples of how companies cope with business relationships. The qualitative empirical research has always been important to our conceptualizations. There is another reason why the language we use is difficult; it is eclectic. We have found the complexity of the industrial markets such as to require explanations that go beyond those limited to business administration. We believe rather strongly that if we want to understand the workings of industrial markets, then technological and social factors must play an important role. In order to cope conceptually with these we have drawn heavily on concepts from several disciplines. While it works for us, it certainly requires a great deal of forbearance from the reader.

The blend of empirical cases with conceptual parts and the use of concepts and

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theories from different disciplines and research traditions reveals something about what our long-term learning process has been and about how we plan to go further. We have always put much value on interaction with others and on exploiting heterogeneity. We also believe that some degree of conflict and challenge favours the advancement of understanding. Therefore, we hope that you will question and react to the picture offered and perhaps enjoy some parts of it. We are grateful for all kinds of reaction!

Håkan Håkansson and Ivan Snehota
Uppsala, October 1994

1 Relationships in business

1.1 THE STARTING POINT

A marketing manager in a mid-size company once described the development of the relationship to a major customer in the following way:

It started out more than ten years ago, when we approached the customer with a technical solution that was new to them. They became immediately interested so we managed to get the first order within less than a year, which is quite unusual in our business. Over the past ten years we gradually became very close to them. Today it is a relationship characterized by openness, mutual trust and respect. One important reason has been that at a certain moment, about five years ago, we managed to solve a major problem for them in an unexpectedly positive way. At that time, we put into it a lot of time and efforts but it has paid back handsomely.'

This account of what has happened can be compared with how the history is remembered by a technician in the same company:

'This relationship is interesting because it basically evolved out from another customer relationship, with a German company, in which we managed to solve what we thought a very particular problem in a nice way. This customer has got in some way — I don't know how — information about the solution we found for the German company and asked if we could come to them and present our solution. We found that they had exactly the same type of problem as the German company, only in a different setting. It turned out that our solution worked well without any particular adaptation. So they started to buy from us. After a few years they installed new production equipment and changed the production process and lay-out in a major way; suddenly our products did not work and were causing a lot of trouble. Once again we were lucky at that occasion because we took part in a research project together with a university department and an equipment producer. 'Within that project we had done some preliminary studies which turned out to be relevant for the problem met by this customer. By letting some members of the project team — especially one of the university researchers — visit the

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customer and make some tests, we found rather quickly a good solution. By a small change in our own production (we actually only bought a new piece of equipment) we managed to modify our products in such a way that the problems for this customer were eliminated.'

The two stories of what has happened are interesting; both are honest attempts to account for what has happened between a supplier and a customer. Both seem true and have something in common; yet at the same time they are quite different.

They have in common a particular perspective on the market; they focus on relationships to single specific counterparts. Textbooks often describe a market as an impersonal mechanism existing 'out there'. Those who work in companies and who have to handle markets often seem to adopt a perspective in which markets appear more concrete. The market materializes in the form of specific customers. In these accounts the market takes the shape of specific individual buyers and sellers related to one another. They recognize that individual market actors have their distinct personalities; some of them are familiar, others unknown, some easy to deal with, others more difficult. What the two accounts have in common is that they describe some of the episodes of interaction between a supplier and customer, something we might call episodes in a relationship, in which a lot of things happen besides haggling over price and transferring products and money. They both suggest that results for the companies involved depend on how episodes in the specific relationships are handled in relation to each other and that the outcome depends on what has happened in the past and is expected to happen in the future.

Another point is that the market appears as a net of buyer—seller relationships. While both stories portray a single specific business relationship, they are different in the way they look at it. The first story describes the development of a supplier—customer relationship as an isolated phenomenon that concerns mainly, if not only, the two parties involved. The second depicts the supplier—customer relationship as a part of a larger whole, as something dependent on and integrated into its context and points thus to the interdependence or connectedness of relationships. The connectedness of relationships is then referred to in order to explain what is happening in a given relationship.

As this book is about business relationships, the two perspectives are interesting. They hint at the main theme of this book, which is the importance of relationships in business enterprise and the different ways in which business relationships in industrial markets can be described and explained. They provide some clues on the impact relationships have on business. The two accounts provide an example of how the choice of perspective can affect explanations of business relationships.

1.1.1 The perspective and approach followed

A business relationship between two companies can be viewed as something built up in isolation by the two parties involved, independently of the broader context. Once such a view is taken, the explanations of what has happened will be

Relationships in business 3

searched for within the frame of the relationship itself. Such explanations will most likely focus either on the features characterizing the two parties, or on the nature and characteristics of the interaction and the development processes between the parties. When it comes to business relationships the explanation will be sought either in the characteristics of the companies or of the buying and selling process. This kind of explanation is illustrated in the first of the two accounts above.

In the second account the relationship is not viewed as created and developed in isolation. It shows that a relationship can also be regarded as a part of a broader context — a network of interdependent relationships. The single relationship then does not appear as an isolated entity, but as a part of a larger whole. Any business enterprise, no matter how small it is, has to maintain relations with several other actors and some other relationships concur in the development of a certain relationship. When such a view is taken, explanations of what is happening in a certain relationship can be searched for, to some extent, in factors 'external' to the relationship itself. Each relationship appears then as embedded in or connected to some other relationships, and its development and functions cannot be properly understood if these connections are disregarded.

The difference between the two accounts is the degree to which the development of a specific business relationship is perceived to be connected to other relationships; how dependent it is on other relationships and how its development affects the other relationships. The second account suggests that it is troublesome to understand the development of a certain supplier—customer relationship if it is viewed as an isolated phenomenon. In the case of business relationships it suggests the need to explore the possibilities that, for example, a certain supplier—customer relationship is 'connected' to other relationships of the supplier and/or of the customer company. It means that some kind of 'network perspective' on business relationships has to be adopted if the forces shaping the relationships are to be captured.

This book attempts to explore intercompany relationships in industrial markets. It implies that we will take a 'relationship view' of business markets which means that we will concentrate on relationships between companies over time, rather than on single exchange episodes and transactions. The basic research issue that we will address is: how can the intercompany relationships be described, analysed and explained. Being set to develop a conceptual framework for analysis of business relationships and of their impact on companies, we will adopt a 'network approach'; that is, we will be viewing relationships as part of a broader network structure, rather than as isolated entities.

We are convinced that adopting the relationship perspective and the network approach has rather far-reaching theoretical as well as managerial implications. It seems to open up a quite new and different theoretical world compared to the traditional way of conceptualizing companies within markets. It offers new perspectives on some broad traditional problems of business management and yields some novel and perhaps unexpected normative implications for business management.'

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On the whole we believe that the relationship view offers a more 'pragmatic' description of the problem situations met in companies, close to the perception of the task of coping with the market which people in companies have. As for the network approach, it seems to offer a nuanced and rich picture of the constraints and possibilities a company is facing in dealing with its suppliers, customers and other important counterparts.

Some of the challenging ideas that stem from the relationship perspective are rather broad and profound. We can anticipate a few that will be discussed further in the following chapters:

1 The role, development and performance of companies will be explained by their ability to develop relationships, that is, from the networking process in the market. Traditionally it has been assumed to be a function of how they autonomously exploit a given set of resources.

2 The resource development appears to take place to a large extent between companies. Traditionally it has been thought to take place within companies.

3 Efficiency in the performance of internal activities such as production is to a large extent dependent on the supplier and customer relationships of the company. Traditionally it has been regarded as an internal technical matter.

4 In the network perspective, the more successful the counterparts are, the better it is for the company. The more a company can help its counterparts to develop and become successful, the greater are the chances it will become successful itself. That is not the way a company has traditionally been advised to look at its counterparts.

While the object of our research is business relationships within market networks in general, we will in this volume be dealing with business relationships in an international setting. We believe that the network approach is especially fruitful in a world with increasing trade between countries and regions, where inter-national companies evolve partly by acquisitions and partly by building up new units in different countries, where companies try to increase the use of suppliers worldwide and where governments get involved both as important buyers but also as promoters of specific technical areas or regions. Also, against the international background the 'universality' of business relationships emerge; it is a phenomenon not confined to a certain area or culture.

We do not claim to be the first or the only ones who have focused on relationships or used a network approach. We will be building on earlier studies using similar theoretical approaches that have addressed different related issues.² As the findings reported in this book come from a collective work it should be made clear that not all contributions in this volume follow one monolithic, integrated and unified approach.' Such a consensus is as yet far away. There are some important differences even if we regard them as much smaller than the differences to other approaches. We believe, however, that this is the first major attempt to apply the network approach to the analysis of business relationships.

Since a first step into a new territory is always challenging and uncertain it is obvious that there will be a lot of loose ends, unclear and even contradictory

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elements in this volume. It is our hope, however, that this will provoke and irritate, stimulate new ideas, and challenge some of the established ways of describing and analysing business markets. If the book achieves that purpose it will become an event in a sequence of events which hopefully will not just increase our understanding of the business world but also contribute to shaping it.

1.1.2 Business relationships — a challenge in theory and practice

In raising the issues of perspective and approach, it is implied that relationships are relevant phenomena in business. Indeed, interpreting the empirical evidence that will be discussed more fully further on in this chapter, we allege that they play an important role. We consider business relationships to be important empirical phenomena that have a considerable impact on business enterprises.

Once we take the stance that intercompany relationships are important in business we need to develop a conceptual framework adequate to capture the phenomenon, appropriate to describe and explain the phenomenon and to formulate normative recommendations for management. We need models, descriptive, explanatory or normative, that embrace relationships and connections between relationships. We need descriptive models that take into account the elements of relationships, the processes that form the relationships, and that capture the consequences of their connectedness. We need 'maps' where relationships and connections are identified and put in relation to other important constructs in business studies such as costs, revenues, innovations and strategies. We need explanatory models where relationships are either the explained or one of the explaining variables. We should identify the variables that intervene in the development of relationships and affect the goal dimensions of business enterprise such as efficiency, effectiveness, profits, development potential and innovativeness. We also need normative models that can be helpful in guiding the management action in business relationships; models that help management in companies to exploit relationships to their own advantage. The aim of this book is, thus, to develop a conceptual framework for description and analysis of business relationships.

As managerial action is guided by how situations 'are framed', the relationship perspective and the network approach are unquestionably of consequence to management. The frame of reference adopted affects the way in which the problems in different situations can be perceived and acted upon. The relationship perspective leads to a different way of formulating some of the traditional management problems but it also brings to attention some new management issues.

When the more traditional management problems of strategy management, the role of the marketing and purchasing functions and the capability development issue in business enterprise are reviewed from the relationship perspective a rather different picture of critical variables and determinants of outcome emerges. Relationships to others represent, for a company, not only constraints on its

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operations, but also new possibilities and opportunities to achieve desired goals. There are two issues, in particular, that in the relationship perspective and according to the network approach appear critical to the goal performance in business: how to mobilize the various different counterparts of a company and, consequently, how to develop cooperative posture and coordination mechanisms in interaction with others in order to solve problems as they arise. Both of these issues have a bearing on the traditional problems of strategy management and capability development and on how to conceive the marketing and purchasing activities. New issues for management suggested by the relationship perspective and the network approach are related to the handling of interaction with customers, suppliers and other third parties, to the identification and exploitation of possible interconnections of relationships and, to the attribution of priorities when managing the set of critical relationships of a company.

The development of a conceptual framework that takes into account the phenomenon of relationships in business will be done with reference to the body of available empirical data on business relationships gathered in different research projects by researchers at various institutions over the last few years. Needless to say, the knowledge of business relationships and the quantity of data available are growing at a rather fast rate.

1.2 BUSINESS RELATIONSHIPS — WHAT DO WE KNOW?

Relationships between industrial companies, organizations and institutions have for a long time been largely neglected by scholars of both economics and management. There have been studies of how business is transacted between companies and institutions but little if any attention was given to the continuity and complexity of interaction between business organizations. The situation has changed radically during the last two decades or so. The existence and the role of relationships between companies have received growing attention. Business relationships have been the object of a number of studies in Europe (e.g. Johanson 1966, 1994, Håkansson 1982, 1989, Turnbull and Valla 1986, Gadde and Mattsson 1987, Lorenzoni 1990, Hallen and Johanson 1989, Ford 1990, Grabher 1993), in the US (e.g. Frazier, Spekman and O'Neal 1988, Dwyer, Schurr and Oh 1987, Van de Ven *et al.* 1989, Anderson and Weitz 1989, Heide and John 1990, Anderson and Narus 1990, Powell 1990, Saxenian 1991, Miles and Snow 1992, Nohria and Eccles 1992, Piore 1992, Alter and Hage 1993) and Japan (e.g. Takeuchi and Nonaka 1986, Nonaka 1991, Teramoto 1990, Sahal 1980).

While these studies were framed with varying perspectives, they brought about a picture that shows some interesting common traits. They generally point to a few features of business relationships that we would call 'structural', that is, how the relationships are in terms of importance to companies, age and so on. They also provide some interesting indications about what we might call 'process' features of relationships, that is, about the nature of the interaction processes within the relationships, how they develop and decay, and what effects they have on the parties involved. The body of empirical data available today is rich enough

to permit some considerations on the importance of relationships to business enterprise.

1.2.1 Structural characteristics

The findings of the different studies converge on a few often recurrent 'structural' characteristics of business relationships. These are readily evident even to outside observers. If we are to summarize these we can say that business relationships, in particular the customer–supplier relationship, have been found to be often characterized by:

- continuity
- complexity
- symmetry
- informality.

Continuity

Major supplier and customer relationships of a company often show a striking continuity and a relative stability. Not only do business transactions often stretch over a long time period with distinct phases of contracting, delivery, post-delivery assistance and service, but also business is often contracted repeatedly between two companies for years in a row. Ten to twenty years have been reported in several studies as the average age of the relationships a company maintains with its main customers and/or suppliers (e.g. Hallen 1986). The major customer or supplier relationships in a company are generally built up successively and gradually from only a limited involvement of the parties to often very close, far-reaching and broad exchange relationships. There are some indications that the age of the relationship is a prerequisite for a more extensive use of the relationship by the parties involved and of its continuity being a precondition for change and development (e.g. Håkansson 1989).

Complexity

Business relationships are complex in several ways. One element of the complexity is the number, type and the contact pattern of individuals involved in the relationships. Five to ten or more persons on each side have been found, as a rule, to have frequent direct contact in international business relationships (Hallen 1986). Moreover, the individuals involved generally have very different status, organizational roles and personal backgrounds. Technicians from production and R&D, administrative and logistics personnel, financial people, besides the more typical sales and purchasing staff, interact with individuals in similar positions in the counterpart organization. Another aspect of complexity is the scope and use of established relationships. A broad array of product/service is often exchanged within a frame of a relationship between two companies. In a

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study of technical cooperation (Håkansson 1989) one of the findings was that both the expectations and results regarding a certain relationship were generally described as multiple; relationships were used to achieve several different goals. Established and well-functioning relationships are bound to be exploited for different purposes in different situations. Any of the main relationships encompasses several different facets, of which only a certain subset is activated in each situation.

Symmetry

Unlike a typical situation on many consumer markets, the parties in a business relationship tend to have resources and capabilities that are more balanced. Buyers in industrial markets may, and often do, have resources (human, knowledge, financial, technological) which are superior to those of the suppliers. The amount of resources controlled and thus the possibilities to exercise influence, to take the initiative and promote changes, appear more balanced. It is by no means rare that relationships are initiated and their development is promoted primarily by the buyer side. In any case the initiative in contracting business does not appear to be exclusively with the sellers (e.g. Gadde and Håkansson 1993). Typical business relationships thus appear symmetrical in terms of resources and initiative of the parties involved.

Informality

Business relationships often show a low degree of formalization. While formal contracts are common, their role is most often only limited (e.g. Macaulay 1963). Formal contracts are often ineffective in taking care of the uncertainties, conflicts and crises that a business relationship is bound to go through over time. On the whole the reliance on informal bonding is common in most business cultures. Informal mechanisms, some of which are closely related to the time dimension as they build on past experience such as trust and confidence, have been pointed out in several of the studies as being more effective for the development of relationships than formal contractual arrangements.

Considering these 'structural' features of intercompany relationships we get a picture that suggests relative stability of business relationships. Companies appear to be tied together by apparently long-lasting, broad, relatively balanced and informal relationships. This impression of stability is, however, to some extent misleading. When we look more closely at what happens within the relationships the whole picture changes. That becomes evident when we focus on the 'process' features of business relationships; that is, on what happens within such relationships.

1.2.2 Process characteristics

Research on the interaction processes within business relationships has pointed out a few 'process' characteristics which are perhaps familiar to those involved but certainly less evident to an outside observer. Again the research findings converge on a few features typical of business relationships, such as:

- adaptations
- cooperation and conflict
- social interaction
- routinization.

Adaptations

Analysing what happens in a typical business relationship over time it has been found that mutual adaptations of some kind are generally a prerequisite of the development and continued existence of a relationship between two companies (Hallen, Johanson and Seyed Mohamed 1989). The adaptations on either side are numerous and frequent. They stem from the need to coordinate the activities of the individuals and companies involved. The two companies in a relationship tend to modify and adapt, more or less continuously, the products exchanged as well as the routines and rules of conduct in order to function better *vis-a-vis* each other. Technical adaptations in product features or in the production process are typical of intercompany relationships, but adaptations in administrative and logistic activities are equally common. The mutual adaptations which bind the companies together, often in a direct physical sense, account for the very substance of a business relationship; they generate and reflect mutual commitment that at the same time constrains and empowers the companies.

Cooperation and conflict

Elements of cooperation and conflict have been found to coexist in the atmosphere of business relationships. There is an inherent conflict about the division of benefits from a relationship, but other conflicts also can arise over time. A relationship does not mean that all conflicts have been straightened out and resolved once and for all. Some amount of conflict might even be necessary in order to keep the relationship between two companies healthy. Yet, a cooperative posture is necessary in order to avoid the danger that a relationship becomes a zero-sum game. It is the concern with cooperation and value-creating which is what makes a relationship worthwhile for the parties. While conflicts of larger or lesser degree continue to occur, the existence of the relationship based on previous commitment generally directs the parties towards constructive solutions.

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Social interaction

Despite business relationships being essentially about business-specific behaviours – subjective values – the personal bonds and convictions that are always present play an important role in formation of a relationship. Machine-like relationships do not exist. Business relationships are generally built up very much as a social exchange process in which the individuals that take part become committed beyond strictly task content. The individuals involved in a business relationship tend to weave a web of personal relationship, and this appears to be a condition for the development of interorganizational ties between any two companies. Trust emerges as one of the salient factors influencing the interaction in intercompany relationships (e.g. Dwyer, Schurr and Oh 1987).

Routinization

While business relationships are often complex and informal, they tend to become institutionalized over time. Routines, explicit and implied rules of behaviour, and rituals in conduct emerge in the more important relationships that a company maintains with its customers and suppliers. The coming into existence of these routines is explicable because of costs involved in handling the transactions in a relationship. They are to some extent a mechanism that facilitates resolution of possible conflicts. The routines that emerge help in coping with the complex needs to coordinate the individual activities within the relationship. They play a role similar to the one they have in organizations in general (Nelson and Winter 1982).

Research on interaction processes within business relationships thus brings into the picture a few traits that change the impression of stability. It has pointed out the incessant organic change in a relationship, a kind of continuous organizing process. What that suggests is that continuity, rather than stability, is an important feature of business relationships. There may be spells of relatively routine interaction but they tend to be short. Major supplier–customer relationships are characterized by continuous change as a consequence of interaction between the parties.

In putting together the findings regarding the structural and process features we are tempted to conclude that we already know a great deal about business relationships. We know that they develop over time in an interaction process where a lot of different problems have to be dealt with. We know that there is a striking continuity in business relationships. Every relationship is a chain of episodes in which the past and the future matter. Relationships evolve all the time and have important development effects.

1.2.3 Relationships and business enterprise

Studies of intercompany relationships have brought to attention yet another important feature. The more we look at and into relationships the clearer it

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becomes that they play an important role in business enterprise. The empirical research shows that, as a rule, a limited number of relationships have a profound effect on a company's performance. Market performance of a company is dependent on the functioning of its relationships to others; volumes, market share, profits and growth depend on how the company handles its relationships. Most of a company's costs and revenues stem from its main business relationships.

The picture we get contrasts with the traditional one of a company facing 'a market' which consists of numerous and indistinct customers and suppliers. In the relationship perspective the situation of a company often looks like the one illustrated in Figure 1.1. The empirical data from various studies indicate that situations like the one described in Figure 1.1 are very common and not just a special case.

Most industrial companies have only a few customers and suppliers that account for a major part of their total sales and purchases. These and relationships to third parties are decisive for the performance of the company, whatever various measures of performance one might use. Sales volumes, profitability, growth potential often depend on only a limited number of relationships. A study of more than 100 Swedish companies shows that the ten largest customers and the ten largest suppliers account for more than two-thirds of the total sales and purchases in two out of every three companies (Håkansson 1989). Data available from PIMS data base (e.g. Cowley 1988) and other large-scale studies on hundreds of companies in Europe (e.g. Perrone 1989) produce the same findings. We thus have indications that situations such as the one described in Figure 1.1 are by no means an exception; they are frequent and perhaps the most typical case.

What makes this aspect of the picture interesting is, however, not simply the concentration of sales and purchases. As we will argue further on, what makes this aspect critical is that major relationships have their distinct personalities and that no two relationships are alike. It is the heterogeneity of relationships and their specificity that poses problems for management, while also providing some interesting opportunities.

When we say that a company's performance depends on relationships, it has to be said that the link between relationships and performance is working both ways. The overall performance depends on the performance in the individual relationships, but at the same time it is the performance in the whole set of relationships that affects the capacity of the company to perform in a given relationship. This double loop in the relationship—performance link will be explored more closely further on.

Why the relationships arise and play such a prominent role for industrial companies is an interesting question. They appear to be a solution adopted by the companies as a result of trial and error in handling market exchange. When we look carefully they also appear to be an effective form of handling market exchange. Developing continuous, 'dense' relationships with others seems to be a way to cope with the complexities and ambiguities which any company is facing in a market.

Relationships between companies are a complex knitting of episodes and

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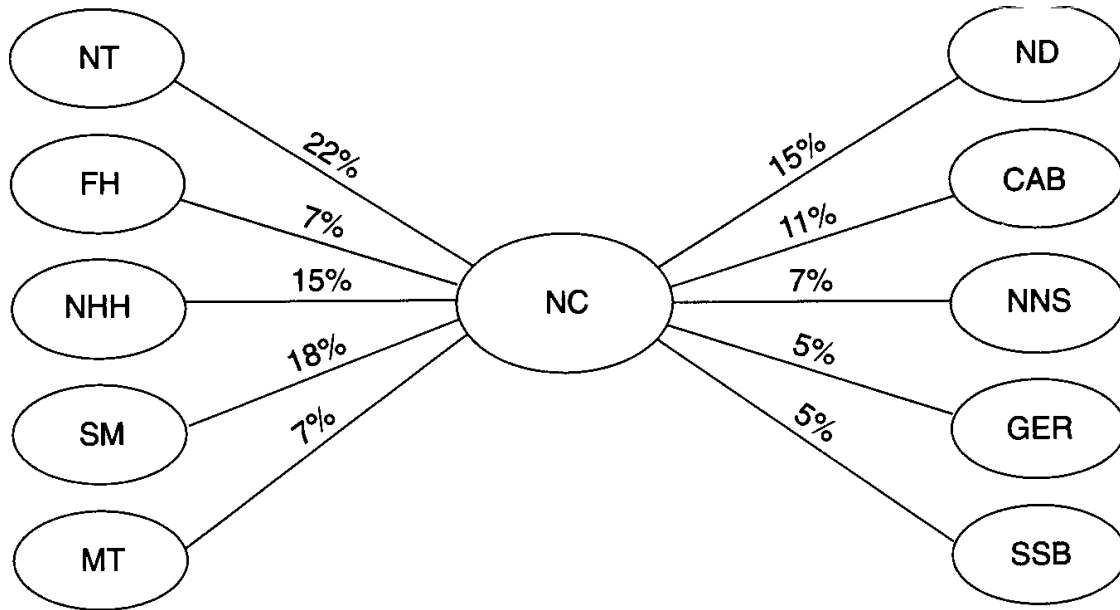


Figure 1.1 Main supplier and customer relationships of NC Co.

interactions. The various episodes and processes that form business relationships are often initiated and triggered by circumstances beyond the control of people in companies. They are, however, never completely random; they form patterns. Various episodes in a relationship are generally taking place because there exists a texture of interdependencies, in which the business activity is embedded. What happens in business relationships reflects various technical, knowledge, social, administrative, and legal interdependencies on which every business builds.

1.3 INTERDEPENDENCIES AND CONNECTEDNESS IN BUSINESS RELATIONSHIPS

The research findings reviewed in the previous section spurred some further research into the circumstances that favour the development of business relationships. Major relationships of a company (to suppliers, customers and other third parties) have been found to be 'connected' in the sense that what is happening in one relationship affects the interaction in others (Blankenburg and Johanson 1990). This connectedness of business relationships becomes evident when we consider the numerous interdependencies against the background of which business activity takes place. We will start by discussing some of these interdependencies and come back to the issue of connectedness towards the end of this section.

Every business enterprise is deeply rooted in its specific context. Specific conditions and circumstances (technical, economic and social) make a business enterprise possible at the same time as they constrain its possibilities. Every company connects different people, various activities and miscellaneous resources with varying degrees of mutual fit. Regardless of the type of industry, a

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company always operates within a texture of interdependencies that affects its development. We shall be dealing here with a few that are repeatedly encountered in various business relationships:

- technology
- knowledge
- social relations
- administrative routines and systems
- legal ties.

1.3.1 The texture of interdependencies

The different interdependencies are interlaced in business activity in general and affect business relationships. In some situations one type of interdependence can be dominating, but all the others can also potentially exist. Each of the interdependencies exemplified and discussed in this section, can be used and exploited by companies in different ways. This is done when existing interdependencies are perceived and consciously acted upon. Examples of the interdependencies are numerous.

Technology

Companies in industrial markets operate in a texture of available technology. The technical know-how and the technology in use are important to business activities. The flow of exchange and relationships between two companies reflects the technologies employed by the two companies. Linking these technologies poses specific problems and makes certain activities and adaptations more important than others. As a relationship develops, possible technical misfits have to be avoided. Many of the adaptations made in the companies involved originate in the technical dimensions of either products or processes (Håkansson 1982).

On an aggregated level, technical interdependencies are characterized by technological systems, in some cases called 'paradigms' (Nelson and Winter 1982, Freeman and Perez 1988) or 'trajectories' (Dosi 1982) that provide the broad frame to business activity in industrial markets. These tend to embrace several stages of transformation and thus several industries. The technical connections reflected in paradigms or trajectories, and their evolution, is one of the major forces shaping the context of a company. The technical connections make relationships at a certain stage of transformation subject to, or the origin of, changes in other sometimes rather distant areas of the technological system.

Technical development within one company and in its relationships is dependent on other companies' technologies; it is facilitated or constrained not only by those with whom the company maintains direct relationships but also by the technology of other third parties. Actually, technical development often takes place within the frame of relationships to other companies. The technical texture connects different relationships to each other. Sometimes it is easy to see how, for

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example, the technical development of equipment is related to the development of material or how the different products used as components in the same end product (system) must be related. In other situations the role of the technical connections is less evident although it is actually of equal strength. The technology employed by the parties to a business relationship tends to influence not only the characteristics of the products and services exchanged but also the ways to do business in general, such as logistics, routines, planning and so on. Business relationships can be seen as links that shape and reflect the existing technology. The technical connections between the different relationships of a company are often very strong.

Knowledge

Every company represents a combination of human and physical resources that makes certain activities possible. These are then tied into the activities of other companies. Beneath the activities of an industrial company there is a pooling and combining of the knowledge and skills of the individuals. The know-how, the tacit knowledge, that is, the combined knowledge of those taking part in a company is generally regarded as one of its main assets (e.g. Nonaka 1991).

When different company activities are carried out and resources are used, some kind of knowledge of how they can be combined is needed. This knowledge of resource use is only partly explicit, which means that it can be articulated, codified in the form of documents or books, and thus is relatively easy to transfer. Perhaps the main part of the knowledge necessary in order to use resources and to undertake activities is more difficult to articulate. It is 'tacit' in nature which means that it is more difficult to transfer as it is often unique to individuals, and is based on and developed from their past experience.

The know-how of the company reflects not only the knowledge of its personnel but also that of the other companies and organizations to which it is connected through business relationships. Much of the knowledge put in use in a company becomes available from its relationships to others outside the company. The activities of a company draw on and are made possible by some knowledge possessed by others. It becomes available in relationships to customers, suppliers and others. It can be activated and put to work when and if necessary. As the relevant knowledge is scattered among different actors (other companies) in the context of the company the access to some and not other counterparts means that only certain knowledge can be used. The know-how of a company and its competence is dependent on its relationships that are thus an important tool in connecting the knowledge of various different actors.

As the competence of a company is to a large extent based on its relationships, the development of knowledge (the development of competence) is to a large degree taking place in those relationships (Lundvall 1988). It is in relationships that the existing knowledge is confronted with other parties' knowledge and new knowledge is created. As this new knowledge generally is related to both sides it means that the knowledge of the two parties will be connected. As this process

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of knowledge development goes on with several parties the company has to connect and integrate these fragments.

From a knowledge point of view the company can be perceived as a unit that brings together different pieces of knowledge. The impact of knowledge connections on the competence and thus the performance of companies is strong as proved by, for example, the importance of different 'industrial districts' or local networks, on which rather extensive research has been carried out (e.g. Lorenzoni 1990, Piore 1992, Saxenian 1991).

Social relations

Business relationships are handled by people with different social roles. Social bonds that arise among individuals in the two companies are important for mutual trust and confidence in interaction between individuals. The individuals inter-acting on behalf of their organizations in a business relationship take on other roles in other contexts. They take part in other relationships; belong to professional associations, are relatives, neighbours or schoolmates, have perhaps developed other types of personal relationships in other arenas, creating various social bonds in working places, social and sporting clubs, religious organizations and the like.

Every individual's social network is built up of personal relationships originated for different reasons. It can be used in different ways in order to enhance or develop the business relationships in which the individual takes part. These personal networks can, within well-established industrial networks, be of a 'clan' type of structure. The professional networks in a certain industry (e.g. Hamfelt and Lindberg 1987) can be an example. They can make it difficult for a person lacking the 'right' background and connections to become accepted and to perform effectively. Again we find a dimension that can connect different relationships to each other.

Administrative routines and systems

A lot of what is going on in a relationship is administrative in nature. There are rules and norms in the context of a business enterprise that impose some activities to be carried out; meetings are held, papers and documents are 'processed' to comply with business practice. There are other obligations imposed on companies by legislation. The bulk of the administrative activity is some form of information processing or control which is necessary in order to facilitate the coordination of behaviour among different parties.

Information processing and exchange – communication – in business is both extensive and costly. Within buyer–seller relationships different attempts are therefore made to improve the efficiency of the information processing by establishing rules and administrative routines. Some companies develop information systems, often common to a number of companies, to cope with the costs and problems of the information processing needs. There have been attempts to

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develop more general types of communication systems in groups of companies and in certain industries. Development of industry standards and norms is another significant factor in this respect.

The solutions adopted in one (or several) relationship(s) will affect what is possible or necessary to do in some other relationships. If, for example, a supplier wants to sell to a large car manufacturer it will probably have to join its supplier information system. This will, in turn, affect what it can do for other customers. It will be easier for the supplier to serve other customers who are using the same system than customers using another system. The same applies with respect to industry standards and norms. This is how the administrative systems create connections between the relationships. Entering a booking system in the airline business makes connections of a tour operator with certain air-carriers privileged. Selling to a nuclear power equipment manufacturer requires compliance with a number of quality assurance routines and rituals, and so on. Connections with important consequences may thus exist between different relationships of a company due to administrative routines and systems.

Legal ties

Besides the more general system of rules and norms, a texture of control (influence), which we will label as legal texture, is often present in the context of business organizations. The legal texture is of interest as it can connect different business units with privileged ties. This applies especially to different forms of ownership control or other forms of agreements.

There may be ownership ties that can take different forms. Some multinational companies are organized in a large number of quite independent companies that have developed through internal growth, by establishing new units in foreign countries or technologies. Other companies belong to more or less extensive conglomerates where the mutual exchange relationships are weaker but seldom insignificant. Priorities might be given, formally or informally, to buy from or to sell to the companies with which ownership links exist.

Other types of legal interdependencies are the different formal cooperation agreements of various types from joint ventures to licensing agreements. Still another example can be procurement rules, common in many fields of inter-national business, that enforce some degree of 'local content' in supplies and similar legal requirements. In some industries legal ties in some form are a typical and marked phenomenon. We could take as an example the known ownership and control relations in the automotive industry, in the telecommunications, pharmaceutical and many other industries, or the legal ties in procurement of public authorities or in international business. The legal ties make certain relationships to suppliers, customers and third parties in a company connected and interdependent.

The various interdependencies can be used in order to reach effective solutions in a certain business relationship by connecting it to some other relationships but also to block development of a relationship. They can be used for good and for

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bad, for short-term or long-term goals, by individuals, companies or departments and units within companies. They can be consciously exploited by a company for its own advantage in some relationships and suffered in other relationships.

We believe that exploiting the various aspects of interdependence in the context of a company is a characteristic component of business activity. Exploiting various interdependencies is a matter of connecting a specific business relationship in which the company is involved.

1.3.2 Connectedness of business relationships

Considering the different interdependencies of business relationships and their effect on a relationship, we have approached the issue of connectedness. It is related to the claim, made at the outset of this chapter, that the single business relationships are but part of a larger whole. The notion of interdependence of business relationships applies generically; things happening in a relationship have a bearing on what is happening in other relationships. The generic interdependence of business relationships is rather obvious. Of course, what a company can offer in a relationship to its customers depends on its relationships to, for example, suppliers. But there is more to the interdependence; there are specific connections between a company's relationships. 'Connectedness' is about these connections; relationships are connected when a given relationship affects or is affected by what is going on in certain other relationships. Not all the relationships are connected.

What happens in a relationship to a customer can, for example, affect what is happening in the relationship to some other customer. A change in a relationship that a company has to a supplier of materials may affect positively or negatively a certain customer relationship. The connectedness of specific relationships of a company is often recognized and held in account by people coping with business relationships in a company (Blankenburg 1992). How these connections are handled matters greatly for relationship development and thus for the performance of a company. The kind and amount of resources a company can access have a bearing on its capacity to perform in a given relationship.

Examples of specific connections are easy to find. If we take, for example, a company's relationship to its major customer, various kinds of connections, to other customers, to suppliers or to other bodies such as consultants, banks or research institutions, can be found as well. It is obvious that the technical and knowledge attributes of that customer relationship can be used in other customer relationships in a positive way, but that the effects may also be negative. A Product developed together with the customer can be of advantage for other customers who have similar requirements, but it can become a disadvantage for Customers with different requirements as it absorbs important development resources. In a similar way the development of a certain administrative routine in the relation with the customer can be a positive argument in another customer relationship, but it can make it difficult to respond effectively to customers that have different needs. The relationship to the customer is handled by people on the

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two sides who got to know each other. Social bonds are developed and have an important function. However, they are also used between relationships. One of the most common ways to evaluate a new partner is through references, i.e. by investigating how it has handled earlier relationships. One of the best references is to refer to an individual already known to the counterpart. Personal connections are often a major tool in trust-building. A legal agreement or ownership link can be seen as both an advantage and a disadvantage. It can be regarded as a threat if the customer is a competitor, but it can be seen as a strength if it is a complementary producer.

Connections between a certain customer relationship and other customer relationships are relatively easy to identify and their effects are often relatively easy to assess. Connections between a customer relationship and other relationships are, as a rule, less obvious. That does not mean that they are less important. The importance of connections of a certain customer relationship to supplier relationships is easy to understand if it is kept in mind that an average company purchases as inputs more than 50 per cent of its turnover. In order to succeed in its customer relationships, support from its suppliers is needed. Technical cooperation with a supplier can be important for the customer relationship. The possibility offering just-in-time (JIT) deliveries to the customer may depend on a certain supplier's ability to deliver in time. A certain supplier's know-how can be used to develop or to adapt products for the customer. Quality assurance in a certain supplier relationship can be a means of getting more business from the customer. In a similar way connections of a relationship to a horizontal unit can be important for the customer relationship. The horizontal units which can affect a certain customer relationship are numerous: banks, owners, lawyers, inter-national committees in standardization or trade, and so on. Relationships to these may be instrumental for the quality of the products offered, for the services, for the social connections, and so on.

Taken together we get a picture of the company as an entity that in order to build up its own capabilities and strength and to offer the required performance in a certain relationship has to strive to connect all the other relationships. By doing so consciously it can improve its own performance significantly.

1.4 BUSINESS RELATIONSHIPS IN MARKET NETWORKS

Connectedness of relationships has some implications that need to be examined more closely. One of our earlier considerations has been that the performance of a company in its individual relationships is a determinant of its overall economic performance. Introducing the concept of connectedness we went a step further; this amounts to an allegation that performance in a certain relationship is dependent on that in other relationships. What happens in a certain business relationship is thus not independent of what is happening in some other relationships. The issue of connectedness also takes us to the notion of business networks. That is why the connections such as those exemplified in the previous section are important.

1.4.1 Business relationships and networks

Once we admit that business relationships of a company are connected and that this applies for companies in general we have to consider possible chain dependencies between relationships. We might also call these 'indirect connectedness'. If, for example, there are connections between a supplier relationship of a company and a certain customer relationship, it may also be that the relationship to the customer is connected to some of the relationships the customer has to its own customers or suppliers. In a similar way, a situation can arise when a customer relationship of the company which is connected to a certain supplier relationship can be, in turn, connected to some of the supplier's relationships to its own suppliers or customers. In principle the chain of connectedness is without limits and can span over several relationships that are (indirectly) connected. So the connectedness is not only important between relationships of a given company but between relationships of different companies. It is generalized.

Generalized connectedness of business relationships implies existence of an aggregated structure, a form of organization that we have chosen to qualify as a network. Because of the connectedness a relationship is a part of a larger whole. Relationships are parts of the broader structure that links its elements — the actors (companies). This may be illustrated as in Figure 1.2.

This kind of structure represents a form of organization that has a few distinctive properties that originate in the nature of the relationships between its components. It is not a structure imposed on the companies (actors). The relationships are not determined *a priori* but result from enactment, therefore they change and evolve over time. This form of organization is peculiar because it does not have a centre, nor does it have clear boundaries.

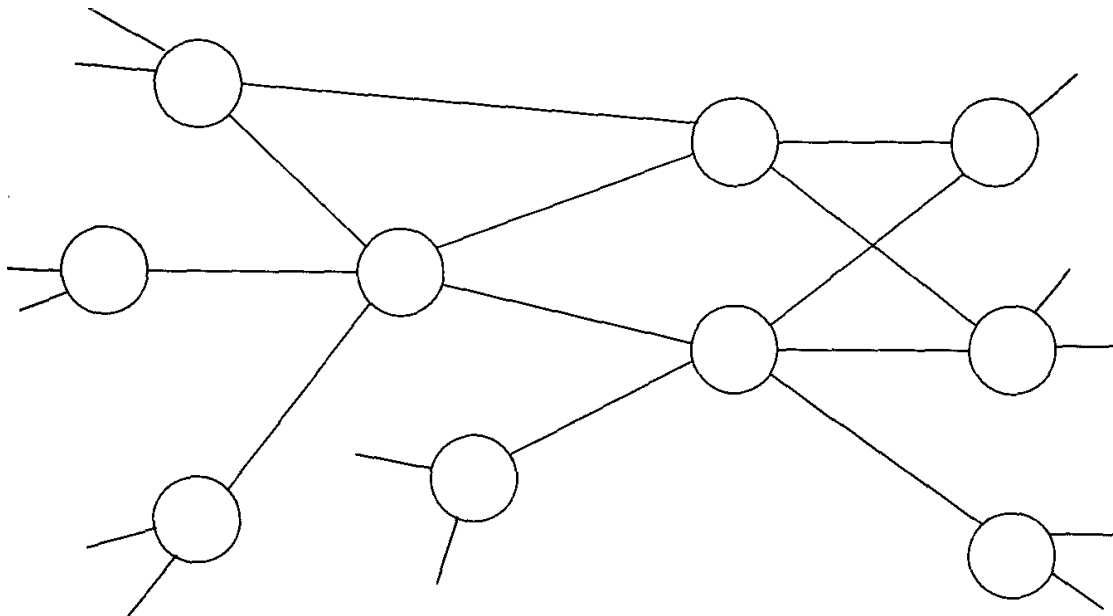


Figure 1.2 Business relationships as elements of a network structure

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A peculiar characteristic of the network structure is the chain effect resulting from connectedness. If what happens in one business relationship affects another one then a change in one relationship propagates through the network. The chain effect is not automatic or deterministic. It comes into effect when transmitted by at least some of the actors.

What is happening in a relationship between two companies does not depend solely on the two parties involved in the relationship but on what is going on in a number of other relationships. Possibilities for a pair of actors to develop a relationship thus depend on the broader network structure.

The network structure as a form of organization is different from a 'hierarchy' in which components are assumed to be invariably linked. It is also different from the 'market' as a form of organization that is generally assumed to be an atomistic structure in which all links between components are instantaneous and where few, if any, impediments exist to any of the components being connected to any other.

The assumption of business relationships being elements of a network structure leads to a different picture of the role and potential of business enterprise and to a different picture of how markets function. That in turn has implications for what is required in order to manage a business enterprise.

1.4.2 The points of departure

This book is to a large extent about how connectedness of the relationships affects single specific relationships of a business enterprise. We will be dealing extensively with the question of how to analyse and exploit connectedness of business relationships and, in more general terms, how to cope with a context that has a network structure.

We have in this chapter raised the issue of business relationships in industrial markets. The brief review of the empirical evidence to this point can be summarized in the following points that constitute the points of departure for this book.

First we observed that:

- There is a considerable body of empirical research indicating the existence of phenomena we qualified as business relationships. The earlier research suggests some good reasons for using the notion of relationship in order to characterize the exchange and interaction between companies in industrial markets.

- The intercompany relationships have certain characteristics. The interaction is broader and 'thicker' than solely economic transactions revolving around a given product as suggested in the textbook view of industrial markets. Business relationships have the components of mutual orientation, commitment, adaptations, trust-building and social exchange over time. There is mutual interdependence of outcomes since they cannot be controlled unilaterally.

- They can be seen as a result of 'non-rational' behaviour of companies or as

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a result of inefficiencies in the market. Yet, observing how companies act in business relationships, we do not think so – quite the contrary. They seem a sensible, economically efficient arrangement; a consequence of rational behaviour.

- Relationships are essential for the economic performance of companies. They appear thus an economic phenomenon worth studying.

In the next step we reviewed some of the further findings with what consequences the existence of business relationships have. We observed that:

- Relationships are connected. We have evidence of general interdependencies as well as of specific connections among relationships, that is, of how a change in one relationship affects positively or negatively the state of some other relationship.

Connectedness of business relationships ties companies into a form of structure with peculiar properties that we qualified as a network form of organization and called 'business networks'.

An interesting property of this form of structure is its heterarchical character, the absence of a given centre and, perhaps most important, its dynamics over time.

The empirical evidence of business relationships and networks leads us to consider the consequences which they have for the business enterprise. We argued that:

By focusing on relationships and their connectedness a business enterprise acquires quite another face than the one we are accustomed to in micro-economics and in management literature where it is generally seen as an island, an isolated unit with clear boundaries and with standardized exchange with its environment. The existence of relationships, connections between these and their role in the activity of a business enterprise requires a change in this picture. A business enterprise looks more like a linking unit where its strategic attributes lie in how it connects other market participants to each other. In this perspective the picture of both the possibilities and the means to manage the business enterprise becomes rather different.

The importance of handling connections to other market actors has significant management implications. The first regards the marketing and purchasing functions in a company, whose task is to handle the relationships. Second, it affects the perception of the means available to management of companies in order to develop the capabilities and potential of the company as this means exploiting the existing relationships. Third, it affects the very concept of business strategy and of the task of strategy development.

1.4.3 Where we are headed?

In order to explore the implications for management we need first of all to spell out more systematically the impact of relationships on business enterprise. What

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do we need in order to understand better the implications of business relationships for management?

First, as we observed at *the* outset of this chapter, business relationships are complex. We need a language that helps to assess the mechanism of relationship development in a better way. The conceptual frame to be developed has to capture *the* complexity, it has to encompass *the* main variables in *the* formation of relationships and *those* critical for their impact on *the* company. This is clearly *the* case for new relationships but it might be even more important for existing relationships. We have the experience, for example, that a lot of companies have what *they* claim are good relationships with customers and suppliers but when *these* relationships are looked at in more detail they are very empty. They do not include anything of *the* technical and/or commercial aspects mentioned earlier in this chapter.

Second, there is perhaps no such thing as a 'typical' relationship, they are a variable; each tends to be unique in some respect. We need *an* understanding of this variability and a language to capture the differences and their implications for *the* companies involved. Every relationship is developed between two parties over time. It is developed through *an* interaction process in which *the* two parties act in relation to each other, solving problems *and* taking advantage of opportunities. As we have argued in this chapter, this might lead to technical, administrative, legal or other connections to other relationships. Every relationship will, in this way, be unique *and* it will be very difficult to compare one relationship with another. Some relationships are so important to one company and might have existed during its whole life and dominated the way it is performing its business. They are more or less impossible to separate out *from the* company. They are *the* company. Others are much more marginal and *the* company *can* have or lose them without anyone really noticing *the* difference. The conclusion must be that there is nothing like a typical or average business relationship. All too often when discussing relationships — their importance, functions, etc. — all business relationships are regarded as just 'relationships'. One of *the* main aims of this book is to classify and describe relationships in such a way that we can characterize them not just in terms of their importance but also in terms of how *they* affect the involved companies as well as third parties.

Finally, relationships evolve over time. Their content, strength and nature is changing as those involved interact. They are *the* source of change in the industrial organization — in *the* overall network. The language we need has to account explicitly for *the* forces underlying *the* dynamics of relationships and business networks. It has to help in identifying the forces *that* produce change. Coping *with* change in relationships and within the network is perhaps *the* most critical issue for management, and definitely *the* most difficult one. Change *can* be promoted or it has to be absorbed. Either case requires that companies understand *the* change process not only in *the* single relationships but in *the* network of relationships as a whole.

We are thus set to develop a conceptual framework that broadens and deepens our understanding of business relationships and of their impact on business

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enterprise. This will be a framework that deals with business relationships as a variable and permits the description and explanation of their variety as well as one that seizes the forces underlying the dynamic aspects of relationships and in business networks.

1.4.4 The disposition of the book

The above points of departure indicate where we are headed and influence the way in which this book is organized. In the next chapter we will outline a conceptual framework for the analysis of business relationships, a framework that takes into account some of the features brought forward by the earlier research, and suggest a few others. The framework outlined in chapter 2 will be a base for describing and analysing the variety of relationships.

In chapters 3 to 5 we will explore in more detail the different aspects of business relationships. Chapter 3 is devoted to the activity aspects of business relationships. In chapter 4 the resource dimension will be explored. In chapter 5 the actors facet of intercompany relationships will be discussed. Each chapter is introduced by a section in which a theoretical discussion will be undertaken. The second section of each of these chapters contains several larger case studies that contain illustrations of the aspects raised in the theoretical discussion. Each chapter contains a final section in which implications for management are discussed.

In chapter 6 we will look into the issue of stability and change in market networks. We will discuss the underlying factors of change in companies as actors in market networks. The structure of the chapter is analogous to that of chapters 3 to 5: a section of it is devoted to a theoretical discussion of change and stability, there is a section presenting three company case histories and a final section in which implications for management are discussed.

In chapter 7 the approach developed in this book is confronted with two related streams of research that have dealt with issues related to those of this book from a different perspective: 'relational contracting' and 'transaction costs' approaches.

The book concludes with a chapter in which we will consider the economic rationale for business relationships and for the network form of organization. We will also discuss the economics of business relationships and networks.

2 Analysing business relationships

Faced with the empirical evidence of long-lasting relationships in business, discussed in the previous chapter, the scholars of management have reacted in rather different ways. At first the phenomenon was largely ignored. It is only during the last decade or so it has received some attention from researchers (e.g. Arndt 1979, Håkansson 1982, Astley 1984). More recently we have witnessed an upsurge in interest for business relationships, especially among academics in the US (e.g. Webster 1992, Miles and Snow 1992, Nohria and Eccles 1992, Alter and Hage 1993, Achrol 1991). Some have argued that what we labelled as business relationships is a relatively new phenomenon while earlier business was conducted much more on an arm's-length basis. Others, often practitioners and those studying the so-called business markets, have claimed that relationships have always been an important part of the business landscape and that today we are simply becoming more aware and are telling the practitioners to do what they have been trying to do for many years.

Indeed, business relationships do not easily find a convincing explanation in the traditional, transaction-focused framework of economics that inspires management studies. It requires redrawing the conceptual framework, which always is difficult and risky. The purpose of developing an analytical framework with respect to a phenomenon is to provide guidance for acting on it. In management studies an analytical framework is supposed to help to identify the problems to be handled, to structure the situation assessment in order to identify the intervening variables, and to identify alternative courses of action. To make a step in that direction we need first to understand how relationships between companies develop and what forces they are subject to. Relationships are a complex phenomenon.

When we propose a conceptual framework we have to single out the variables that are critical in the explanation of the phenomenon. We have to focus on some aspects and to exclude many others. The value of a theory for the praxis lies in that it dismisses a number of possible explanatory variables. A broad descriptive framework of the substance and functions of business relationships will be outlined in this chapter. A few dimensions that can be used to assess and analyse business relationships will be proposed. The choice of these is always a critical step as it determines what will be observed and put in focus in the further analysis.

2.1 THE CONCEPT OF RELATIONSHIP

While intuitively appealing, the notion of 'relationship' may be difficult to grasp. What makes dealings between two companies in a market become a relationship? It is not easy to define what a relationship is. Tentatively we can say that a relationship is mutually oriented interaction between two reciprocally committed parties. One reason why we choose the notion of relationship in analysis of intercompany interaction is that it evokes the concepts of mutual orientation and commitment over time. Mutual orientation and commitment are common in interactions between companies, if we judge from the empirical studies discussed earlier. Another reason is the high degree of interdependency between business organizations, as their very existence depends on exchange with other economic subjects. A relationship often arises between two parties because of the interdependence of outcomes, even if it can arise for other reasons. As it entails mutual commitment over time a relationship creates interdependence which is both positive and negative for the parties involved. A relationship develops over time as a chain of interaction episodes – a sequence of acts and counteracts. It has a history and a future. In this way a relationship creates interdependence as much as it is a way to handle interdependence.

We believe that exchange interaction between companies in industrial markets can be fruitfully described in terms of relationships essentially for two reasons: one is that actors themselves tend to see their interactions as relationships, another is that the interaction between companies over time creates the type of quasi-organization that can be labelled a relationship (Blois 1972).

The research findings discussed in chapter 1 indicate that mutual orientation and commitment over time, as well as interdependence, are typical of the exchange interaction between companies in industrial markets. The interaction between, for example, suppliers and industrial customers appears as a series of acts and counteracts creating interdependencies and affecting their behaviours. Mutual commitment and interdependence of companies in the industrial market constrains their behaviour as much as it creates opportunities; relationships are mutually demanding besides being mutually rewarding. Time has to be explicitly considered in order to identify the forces shaping the behaviour. The combination of a process over time and the interdependencies make the relationships produce something unique by interlocking activities and resources of the two companies. Relationships produce something that neither of the two can produce in isolation and something that cannot easily be duplicated. That is why we choose to conceive the interaction between businesses in industrial markets as relationships. This is what is at the core of the 'relationships' view of business markets.

The empirical research on business relationship discussed earlier shows that, despite certain similarities, there is a large variation between different relationships. Relationships always have some unique features. We observed earlier that no two relationships are alike. Still, there is a certain pattern in the effects they produce. There are two dimensions that appear to capture the effects and which

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can be used to categorize business relationships: one regards who is affected by the relationships, the other what is affected. We will call the former the function and the latter the substance of business relationships.

What makes the relationship concept slippery is that it cannot be conceived as 'just a relationship'. A relationship is a result of an interaction process where connections have been developed between two parties that produce a mutual orientation and commitment. A relationship is thus not a given, but a variable that can take on different values. That is why we have to go beyond the consideration that relationships exist between companies and are important. We need to look at the elements being connected in a relationship and the effects the connections produce. This is the reason for choosing to describe business relationships in the two dimensions of substance and function.

The first dimension regards what the relationship affects on the two sides — the 'substance' of a business relationship. Three different layers of substance can be identified in a business relationship. First, there is an activity layer. A relationship is built up of activities that connect, more or less closely, various internal activities of the two parties. A relationship links activities. Clearly the activity links affect the outcomes of the relationship for the parties. Second, there is a resource layer. As a relationship develops, it can connect various resource elements needed and controlled by two companies. A relationship can tie together resources. Relationships consist then to various degree of resource ties. As a relationship makes various resource elements accessible for the parties it also constitutes a resource that can be used and exploited. Third, there is an actor layer. As a business relationship develops, actors become connected. Bonds between actors are established which affect how the actors perceive, evaluate and treat each other.

The three layers of substance can be taken as three different effect parameters that are determinants of the values involved in a relationship and thus of its outcome. They add up to a relationship. A relationship between two companies can be characterized by the relative importance of the three layers. The more effects there are in the three layers in a relationship, the 'thicker' and the more complex it will be. Major relationships between companies tend to have complex substance. Still, there is a large variety in their substance, dependent on the existence, type and strength of the activity links, resource ties and actor bonds.

In sum, a relationship between two companies has a profile in terms of activity links, resource ties and actor bonds:

- *Activity links* regard technical, administrative, commercial and other activities of a company that can be connected in different ways to those of another company as a relationship develops.
- *Resource ties* connect various resource elements (technological, material, knowledge resources and other intangibles) of two companies. Resource ties result from how the relationship has developed and represents in itself a resource for a company.
- *Actor bonds* connect actors and influence how the two actors perceive each

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other and form their identities in relation to each other. Bonds become established in interaction and reflect the interaction process.

The existing activity links, resource ties and actor bonds can be used to characterize the nature of a relationship that has developed between two companies. If we are to assess, predict or explain the importance and role of a relationship, they need to be examined.

The second dimension regards the effects a relationship has for different actors — what we have chosen to call the 'functions' of business relationship. A relationship between two companies has different functions because it affects and is affected by different parties and other relationships.

We believe three different functions can be distinguished. First, a relationship has effects for the dyad in itself, i.e. the conjunction of two actors. A relationship is a place where some kind of interaction takes place, and something is produced; where activity links, resource ties and actor bonds are established. This kind of effect can be more or less pronounced in a relationship between two companies. Second, a relationship has a function for each of the two companies; it is likely to affect them in different ways and is affected by them. A relationship is one of the resources the company can exploit and use in combination with other resources (other relationships) available to the company. What is produced in a relationship can be used for different purposes and with different effects by either of the two companies. Third, as relationships are connected, what is produced in a relationship can have effects on other relationships and thus on other companies than those directly involved. A certain relationship is also subject to effects from other relationships and actors as it is an element of the larger structure and has a function in it. All the three types of effect originate and are intervening in business relationships.

Thus, if we are to find out what effects a relationship has and is subject to we have to take into account three different functions:

- *Function for the dyad* This originates in the conjunction of the two companies; their activities, resources and actors. Activity links, resource ties and actor bonds in a relationship integrate various elements and thereby some unique outcomes and effects are produced.

Function for the individual company A relationship has effects on each of the companies, on what it can do internally and in other relationships. These depend on how what is produced in the dyad can be connected to other internal elements of the company and its other relationships.

- *Function for third parties* Being a building element in the larger network structure, what is produced in a relationship can affect and is affected by other relationships that involve other parties. The effects on third parties and from third parties and their relationships on the relationship in any of the three layers of substance depend on how tight the connectedness of relationships is in the overall network.

The three functions are closely interwoven but they can be more or less

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pronounced in a certain relationship. However, whenever analysing a relationship between two companies and its development potential, all three functions concur and therefore deserve attention.

We have examined in this section the premise that intercompany interaction can be conceived in terms of relationships as they show the traits of mutual orientation and commitment. We believe it is fruitful to consider intercompany interaction as relationships, but have argued that in doing so we need to go beyond and look into the substance and functions of the relationships. The argument we used is that if we are to use 'relationship' as an analytical concept we need to find the underlying generative structures of relationships. In order to capture the variety of business relationships we proposed two dimensions: the substance and function. We posited that the substance of a business relationship becomes manifest in activity links, resource ties and actor bonds that arise as two companies become connected. The functions of a relationship can be conceived in terms of the effects a relationship between two companies produces for the dyad, for each of the involved parties and for third parties.

2.2 THE SUBSTANCE OF BUSINESS RELATIONSHIPS

We have observed that the substance of the relationships between companies in business markets can have facets and layers that vary with respect to the kind of effects they produce. In this section we will discuss more extensively the three earlier identified layers of activities, resources and actors. For the sake of simplicity we will start by treating the three separately, although in practice they are very closely related.

2.2.1 Activity links

A relationship between two companies may affect the way the two companies perform their activities, that is, their activity structure. Compared to individuals, companies are much more complex as to the variety and volume of activities performed. Thousands of different activities are performed and coordinated within a company. Every company thus takes the (often complex) form of a coordinated activity structure. When two companies build up a relationship, certain of their different technical, administrative or commercial activities can become linked to each other. A business relationship grows as a flow of exchange episodes in which some activities are undertaken by either of the companies. These activities in a relationship link a number of other activities in the two companies. The internal activity structures in either of the two companies may need to be adapted. Also in other directions the activity links are important; as the activity structures of the two companies change over time the interaction activities in a relationship may need to be modified and adjusted. The linking of activities reflects the need of coordination and will affect how and when the various

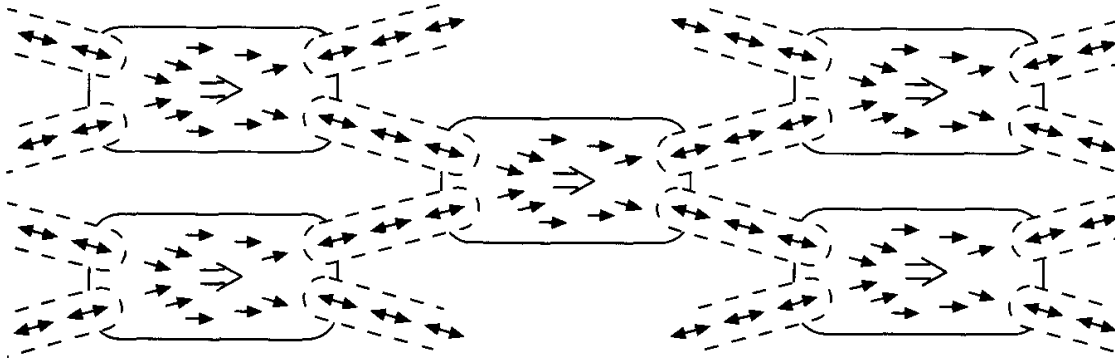


Figure 2.1 Activity structures, links and pattern over five companies

activities are carried out. That, in turn, will have consequences for both the costs and effectiveness of the activities.

Activity links have to reflect not only sequential but also horizontal (parallel) interdependencies of activities. Parallel activities are linked, for example, when a buying company tries to influence suppliers delivering complementary products to adapt to each other. The needs of parallel coordination and thus parallel activity links are particularly strong in certain industries such as, for example, construction or investment equipment businesses, where unit or small batch technologies prevail. Sequential activity links seem critical in industries where process technology is dominant. Both types of links are common in many other industries with large-scale manufacturing.

Linking activities can be regarded as a way to create a unique performance. By linking the activities of a company with those of its counterparts the company's performance is affected because of the effects either on its own activity structure or on the activity structure of the counterpart. Activity links are a factor in the productivity of the companies involved. They also affect, however, the productivity in the whole network.

As both companies have other relationships in which activity links can be important, an activity link in a relationship 'links other links' in the activity pattern. A business relationship is thus a link in what might be conceived as an activity chain in which activities of several companies in a sequence are linked to each other (as exemplified in Figure 2.1). Activities of a sub-supplier can affect those of a supplier which will in turn have effects on those of a buying company which in turn is reflected in those of its customers. These activity chains are quite robust in many industries, as for example in the automotive industry where the buying departments can be involved down to the third-tier level in the supplier network. In these industries the effects of change in an activity link may be very large. In other industries the sequential interdependence of activities tends to be weaker.

As the activity structures of companies become linked and coordinated through and by activity links in relationships, a complex activity pattern emerges in which different companies carry out different parts. Developing new relationships and

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activity linkages changes the overall pattern. Conversely, changes elsewhere in the activity pattern affect the activity links between two companies. This effect is palpable when new technological paradigms are being accepted by at least a subset of the network of which the two companies are part.

The wider activity pattern of which the company with its relationships is a part is often difficult to map as the activity links are mostly known only to those directly involved. This may be a problem for an outsider or newcomer who, in order to be accepted, has to find out what this pattern looks like and what interdependencies exist between various activities.

The activity aspect is present in all business relationships, but its importance can vary both with the ambitions that the two companies have in the relationship and with the complexity of their own activity structures. Companies are often involved in relationships with others where a substantial portion of the activities (in terms of volumes, frequencies, etc.) is performed and thus holds the key to the total costs and performance of the company. The flexibility of the pattern is very much dependent on the way the company has linked up with different counterparts. Even though the activity links are intangible, their effect on business relationships is often clearly manifest. If properly handled, they can be exploited by some companies for their own advantage.

In order to describe, explain or predict the effects of a relationship and how it is likely to develop, the assessment of activity links is an important starting point. The type and the strength of activity links are among the critical dimensions in our conceptual framework.

2.2.2 Resource ties

A relationship between two companies has effects on the way the companies are utilizing resources. Within a relationship different resource elements of the two actors can be tied together. A business enterprise consists of an assortment of different resources — manpower, equipment, plant, knowledge, image and financial means — that sustain its activities. Industrial companies in particular are as a rule large and complex resource units. In a relationship between two companies some of the resources needed for their activities can be accessed and acquired. The resources sought by the parties respectively are of different types. Expectations, of either party, to get access to various types of resources are a common ingredient of a business relationship. Apart from the tangible resources in the form of products, various intangible, often vaguely defined, resources such as technical, commercial or administrative know-how can be of interest.

Relationships between companies are, however, not just a way to acquire and access resources. In a relationship some of the resources of the two companies are brought together, confronted and combined. The interface between the resources of the two companies, over time, can become both broad and deep; it can embrace different types of resources and activate these to various degrees. The effect on the resources will be that they become specifically oriented towards each other, that is, various resource ties will emerge. The resources of the two companies will

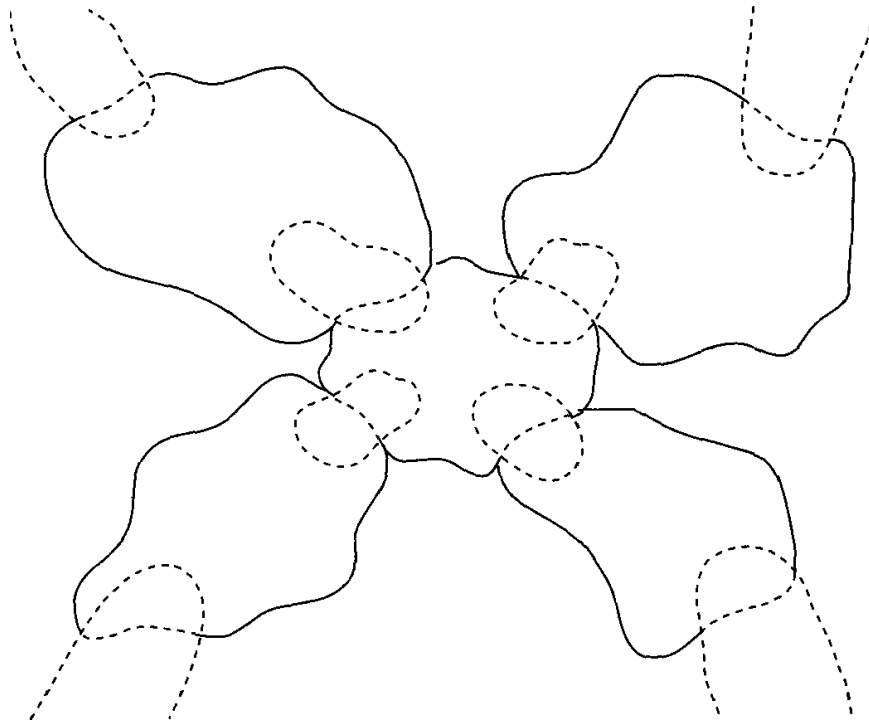


Figure 2.2 Resource ties, resource collections and resource constellation over five companies

be tied together. New resource combinations are thus likely to arise as a relationship develops. As different elements of the two companies, tangible as well as intangible, become integrated they constitute resources of new quality. As relationships are valuable bridges to access resources, they can also be regarded in themselves as resources. A relationship is a resource which ties together various resource elements. The process required to develop a business relationship has some characteristics that make it similar to an investment process. It usually is costly, and the costs precede the future benefits; when a relationship is developed it becomes an asset that must be taken care of and utilized in an efficient way.

On the whole the availability of resources provides opportunities and constraints on the activities that can be undertaken by a company. The relationships that a company develops to others are important for the collection of resources available, which affects what the individual company can do. They make it possible to mobilize and access the resources of others for a company's own purposes and advantage.

There are some resource ties among most of the interacting actors (resource providers), within a certain context. The result is a kind of aggregated resource structure – a resource constellation. In such a structure resource ties are but one of the structural elements – a piece of resource in a larger resource constellation. Resource ties in a relationship are an element of the aggregated structure. They can thus become both a valuable asset and a constraint for other third companies when different resources of the resource constellation can be connected. The

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extent and type of resource ties in a relationship can vary, and because of the economic consequences on productivity and innovation are the second central dimension in a relationship analysis.

2.2.3 Actor bonds

A relationship between two companies affects the two units in a way similar to that between two persons. Bonds between two actors may alter their way of seeing and interpreting situations, as well as their identities both in relation to each other and to others. Being seen as a 'close friend' to a company known as advanced or powerful helps in other relationships. The perceived identity thus affects the possibilities to act. There are some specific problems with business relationships between collective actors as companies, as the interpersonal relationships in their organizations do not sum up in a simple linear way.

Bonds arise in a relationship between two companies as they direct a certain amount of attention and interest towards each other — they become mutually committed. To become mutually committed amounts to giving and being given some priority. Giving priority is closely interwoven with a building up of identity. Actor bonds have an effect on what the parties know about each other and what they can exchange. Identities in relation to each other but also to some third parties might change. Every act and counter-act in a relationship is based on an assumed identity by the counterpart. The assumed and created identities reflect actors' bonds, giving rise to or ending certain relationships, or meaning that they are never even attempted.

There are different clues to the assumed identity of a company; some stem from the direct past interaction experience, others from what is known, or believed to be known, about the counterparts. The process of shaping identities in a relationship is close to that of learning. Learning (and 'teaching') is central within relationships. The interdependencies of outcomes for the parties to a relationship in a specific situation are not always fully understood by those involved, and perhaps never can be. What and how a party learns about the interdependencies affects very much how it perceives the identity of the counterpart. In the relationship the two sides get to know each other's ambitions and perceptions, which increases the possibilities to utilize each other in some future situations.

Yet, neither mutual commitment nor identities are based on certainties; no amount of 'learning' can ever fully dissipate the uncertainties. There is always a margin for beliefs and trust that in the end become essential for the commitment. The development of trust is a social process typical for relationship development. Neither the beliefs nor the trust are dependent solely on the direct interaction experience; other clues are also used. Perceived relationships of the counterpart to other third parties are one of those clues.

The interaction behaviour of either of the parties thus depends also on other relationships in which they are involved, that is, on the whole set of different roles, or identities, that a company assumes in its various relationships. The existence of a certain relationship will have effects on how others perceive the

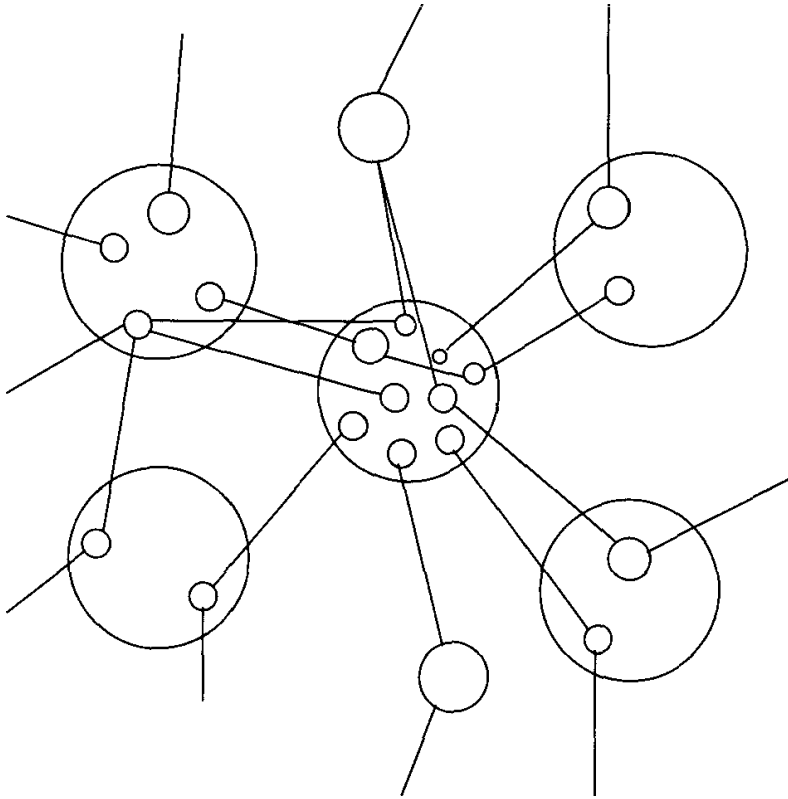


Figure 2.3 Actor bonds, organizations and the web of actors

two companies involved in the relationship. Each of the two, in their relationships to other parties, will to some extent represent also its counterpart. The relationship between them will be perceived by some others as a fact, as something to which one should adapt. The relationship acquires and constructs some kind of joint, or collective, identity of which the parties are an integral part and that becomes a phenomenon with a life of its own — if not wholly independent of its components, at least with a distinct identity.

Commitment, identity and trust are processes that constrain and at the same time enable the behaviour of the actors in relation to each other. To be committed, to have a certain identity, to be trusted, means that an actor has to comply with some specific rules. We use the notion of 'bonds' to indicate these restrictions.

As bonds are established between actors, an organized structure of actors emerges. Bonds in a relationship are but a portion of a wider web of actors. The bonds affect the actors' present and future interaction in the relationships. The peculiarity of the aggregated structure is its dependence on the processes of learning and perception and thus its continuing fluidity. The web of actors changes as the individual actors learn and adjust their bonds. At the same time, bonds affect the learning.

A particular property of the network form of organization is its indeterminateness. The set of actor bonds making up the structure is not given, as it is not related to some overriding purpose for the structure as a whole. Relationships arise for different and varying reasons; some evolve and others tend to decay.

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New relationships are created linking previously unconnected actors, others dissolve and cease to exist. Being a part in a larger structure, any relationship is both a source of change and a source of stability in the whole network structure.

When focusing on business relationships we have up to now abstracted organizations into a notion of a collective actor. This is not without problems. First, several individuals are usually involved in carrying out the activities that add up to a business relationship between two companies. Those involved pursue goals that are not identical and the interaction is subject to perceptual and other behavioural limits of the individuals involved. Individuals interact on the basis of their perceptions, they acquire their personal identity and position towards others as they learn and develop in conjunction. Second, all larger companies consist of several units. There are departments, business units, divisions, companies and groups of companies. As we will see later, relationships are influenced by who is defined as the 'actor'. In certain situations it is thus clear that a company must be seen as a multi-actor while in others it can be considered a single actor.

In summary, the bonds developed between companies in business relationships affect their behaviour and identities. The actor bonds are the third layer of substance of business relationships. In order to make any analysis of a certain relationship between two companies, the nature and strength of these bonds have to be taken into account.

2.2.4 Interplay between the layers of substance in business relationships

Every business relationship is an integrated entity and our ambition is not to decompose it into three different ones. When we propose to distinguish the three layers of substance it simply serves the purpose of identifying possible variations in the effects of intercompany relationships. Our ambition is to capture the differences in relationships important for the economic consequences.

There are relationships between companies which mainly consist of actor bonds. An example can be a customer who has a supplier of electronic components 'just to keep in touch', to monitor what is happening, with a limited volume of exchange and coordination. In other relationships both actor bonds and resource ties have been developed but without many activity links. An example can be from the same electronic component industry when a supplier relationship becomes critical for the customer because of the need to access the test or development facilities, and resource ties develop. Another type can be relationships where the activity links are strong while bonds between actors and resource ties are weak. An example here can be the type of relationships that sub-suppliers of relatively simple products in the automotive industry have to their customers. The differences may reflect the type of industrial activity or company-specific circumstances. Most often, however, they reflect a more or less conscious choice on the part of the companies involved, or just neglect of the existing possibilities.

The possibilities of developing closer and economically more effective links, ties and bonds in existing relationships are often large. Thus, every relationship

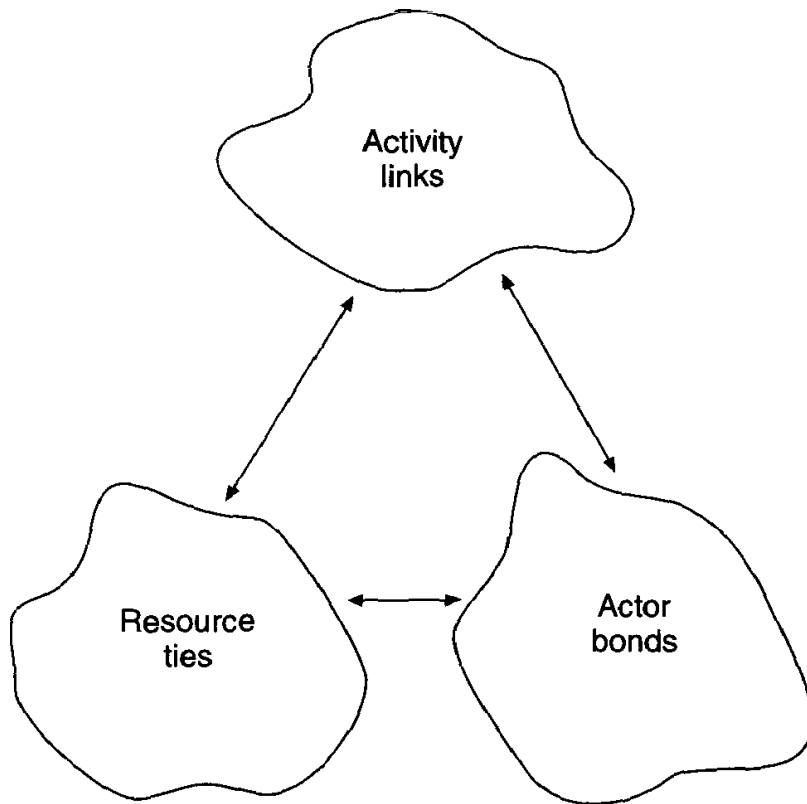


Figure 2.4 Interplay of the three substance layers of business relationships

can be developed in one or several of the substance dimensions. Links, bonds and ties existing between two companies are, as a rule, but a few of the possible connections. There are always potential interconnections, that can be substantiated as they become perceived and enacted.

The three layers are not independent; there is an interplay between the actor bonds, activity links and resource ties (see Figure 2.4). Actors carry out activities and activate resources. Activities are resource-consuming and evolve as the capabilities of actors develop. Resources limit the range of activities an actor can pursue. The existence of bonds between actors is a prerequisite for them to actively and consciously develop strong activity links and resource ties. Activity links make it likely that bonds can develop, and so on.

The interplay of bonds, ties and links is at the origin of change and development in relationships. Actor bonds evolve, resource ties and activity links change and the three become mutually adjusted. The interplay of the three dimensions is a driving force in the development of business relationships. Changes in connections account for much of the dynamics in business relationships.

Strong activity links direct the attention of actors to possible uses of resource elements that can be accessed at the other company or through it. Strong resource ties tend as a rule to lead to strengthening of activity links. There is a tendency towards some kind of balance in activity links, resource ties and actor bonds as

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the substance of a relationship develops in an incremental way and solutions are sought by the companies in the vicinity of the existing ones. The balance can, however, be on very different levels.

What connections will be acted upon and what level will be reached depends on different factors. First, it will depend on how the interaction evolves between the parties. Second, it will be influenced by the characteristics and ambitions of the actors that reflect their situation and circumstances. This will to large extent be an effect of the set of relationships these actors have developed. Third, there are the features of the aggregate structure – the network – and how the relationship is related to other exiting relationships to and between actors directly or indirectly connected. That brings us back to the issue of the functions of business relationships.

2.3 FUNCTIONS OF BUSINESS RELATIONSHIPS

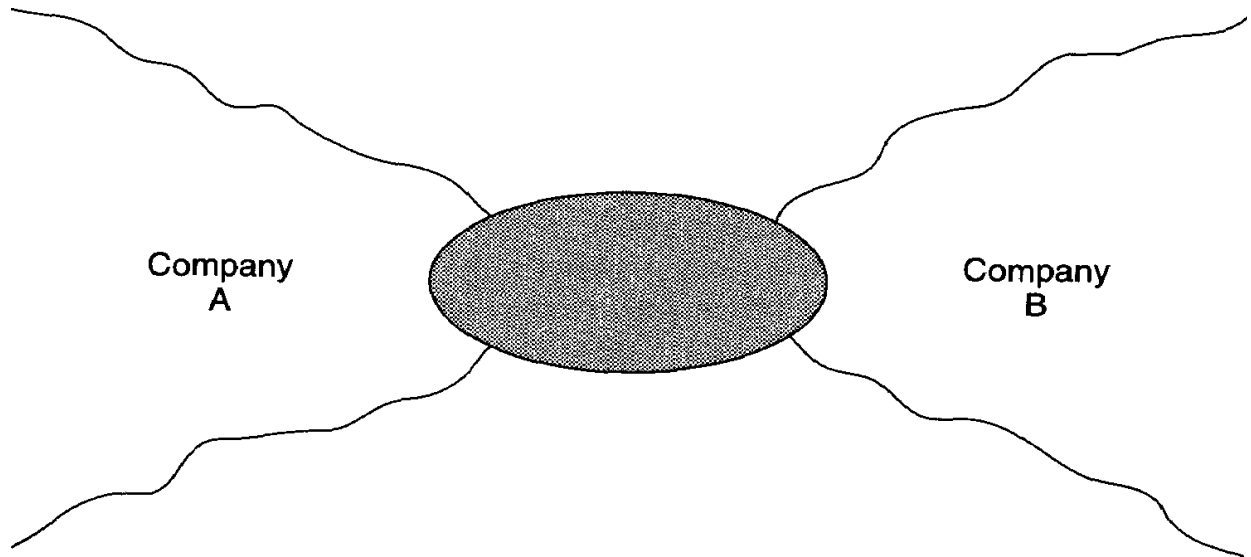
When discussing the substance of business relationships we concentrated on the various layers than can be used by different parties, for different purposes, under different circumstances. We thus came across what we will call different functions of business relationships.

A starting point for a discussion of the functions of business relationships is offered in the micro-functional perspective on market exchange proposed by Alderson (1965).¹ Adopting a micro-functional perspective on business relationships permits identification of at least three different functions of business relationships that were to some extent implied in our earlier discussion.

First, a relationship has a function as the junction of the two companies; it has a function for the dyad. Second, a relationship has a more or less clear function for each of the two parties involved, depending on how it connects to the other relationships they have. Third, a relationship between two companies can also have a function for some third parties either directly or indirectly connected to the two parties directly involved. We could use the notion of first-, second- and third-order functions of a business relationship in order to distinguish different levels of analysis. All the three levels are required to capture the factors affecting the development of the substance profile of a business relationship and the effects it has. They are thus needed in order to assess the economic consequences of a business relationship.'

2.3.1 The function for the dyad

A business relationship is developed as the two companies establish connections in the activity, resource and actor layer. If successful, the resources, activities and actors of the two companies are blended and melted together in a unique way. The substance of the dyad, the activity links, resource ties and actor bonds, will not be just the sum of what the two parties turn towards each other; it will become something qualitatively different. The relationship is a 'quasi-organization' that amounts to more than simply the sum of its elements because of the existing links,



The team effects of

- activity links
- resource ties
- actor bonds

Figure 2.5 Dyadic function of a business relationship

ties and bonds. There is a 'team effect' (Alchian and Demsetz 1972). Jointly, the two companies can perform activities and utilize resources which none of them could accomplish in isolation. What they can accomplish depends on how the relationship develops.

A relationship between two companies does not become automatically a perfect 'team' (or quasi-organization), but the potential is always there. The team effects have to be tried out. They develop as the parties involved experiment with various connections and learn about their effects. The quality of the relationship is the extent to which this function will be exploited.

The degree to which team effects will come into being depends on the substance of the relationship in all three dimensions. In order to carry into effect the dyadic function at least some substance is needed. There has to be a significant development of either activity links, resource ties or actor bonds if a relationship between two companies is to become a quasi-organization and the team effects are to materialize.

The function of a business relationship as a quasi-organization (i.e. for the dyad) acquires importance in proportion to how many new resources are created, novel combinations of activities emerge, knowledge is gained. Only the conjunction of the parties can produce these effects. As the activities, resources and actors become linked in a team it tends to provide a unique performance. The function of intercompany relationships for the dyad is its being the locus of the team effects.

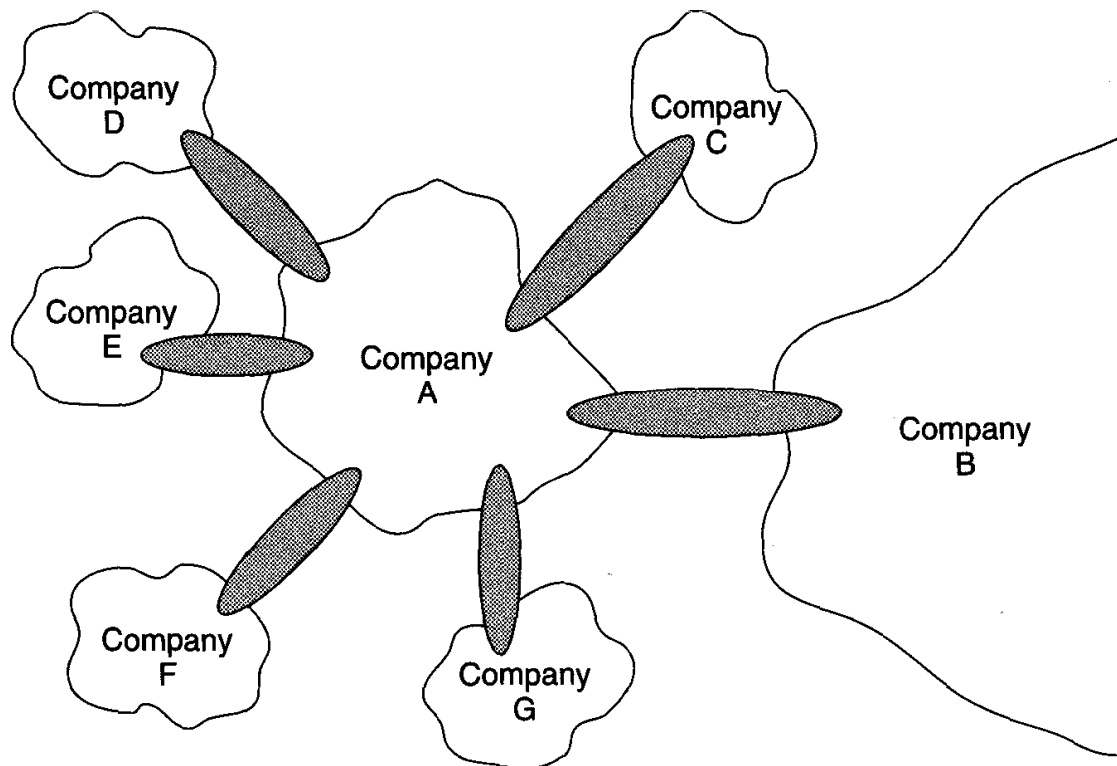
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From the above description it should be clear that the more the dyadic function of a relationship is understood and emphasized, the greater is the magnitude of the team effects that can be appropriated by the two companies. It provides either of the parties in the relationship with an opportunity to develop its capabilities, resources and/or activities. Exploiting these is a matter of tuning the marketing and purchasing function of the companies.

2.3.2 The single actor function

We argued that relationships are important for the performance of companies. Each of a company's main relationships offers some benefits but also entails substantial costs. A relationship affects the performance potential of a company by effects on its activity structure, the collection of resources it can use and its organizational structure. Given these effects relationships are an important factor in the development of capabilities of a company and thus for the economic outcomes of its operations.

For a business unit existing within a context where the counterparts are individually important, the impact of relationships is rather evident. Relationships



Development effects on

- activity structure
- resource collection
- organizational structure

Figure 2.6 Single actor function of a relationship

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affect the resource collection a company can use. They also affect the possibilities of carrying out certain production and development activities within the company, that is, its activity structure and its activity potential. Finally, each relationship affects the organization of the company. The total set of relationships to others a company has determines in this way the competence of the company as well as its productivity and innovativeness. Coping with relationships can be seen as a broad learning and attribute-developing process. Relationships offer the possibility of developing the competence, productivity and innovativeness of the company and are in this respect valuable assets.

The effects of a certain relationship stem from the combination (complementarity and relatedness) of the relationship with the activity structure, resource collection and organization of the company and with the set of other relationships it has. These effects are not simply cumulative of the dyadic effects of the single relationships. They originate in the quality and properties of the whole set of the relationships and their substance. That is, they depend on the type of activity links, resource ties and actor bonds that intersect the company. There are important synergies in some dimensions and contemporaneously important constraints in other dimensions.

Costs and benefits of engaging in a relationship are related to the consequences that a relationship has on the innovativeness, productivity and competence that stem from the impact it has on the activity structure, the set of resources that can be accessed, but also for the perceived goal structure of the actor.

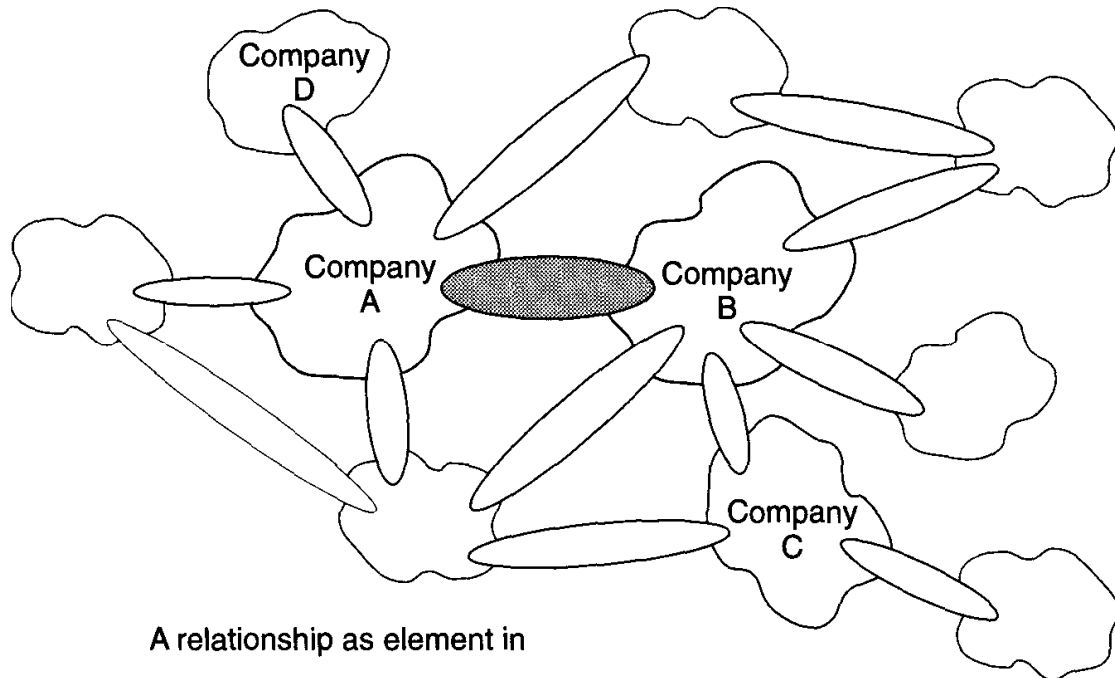
The company develops by exploiting the potential offered by the dyadic function. How successful it will be will depend on its ability to perceive and handle the connectedness in the relationships in which it is directly involved.

A business relationship has different effects on the two companies in a relationship. While the potential of effects cannot be overrated it may be, and often is, a source of possible tension and conflict in a relationship, especially when the goals of the two differ greatly and are imposed in the interaction.

23.3 The 'network function'

As relationships are connected, change in the substance of a relationship may affect other relationships and thus companies other than the two involved. Every relationship has the network function; activity links are important in the activity pattern, resource ties in the resource constellation and actor bonds in the web of actors. At the same time, opposite effects are possible from the network structure on the single relationship.

A third party (like the companies C and D in Figure 2.7) can react to the change in a relationship between two actors (companies A and B in the Figure 2.7) in different ways. They can try to exploit the development by adjusting their own activity links and resource ties in their own relationships in accordance with how the relationship between A and B looks like in these dimensions. Alternatively, they can choose to work against the connections created in the relationship (between A and B), attempting to adjust and develop their own relationships



- activity pattern
- resource constellation
- web of actors

Figure 2.7 Network function of a relationship

(bonds, links and ties) in such a way that the focal relationship will become less influential in the overall structure.

Any relationship is because of its substance a constituent element of the wider network in which relationships are interconnected. Activity links, resource ties and actor bonds in a relationship are connected, directly or indirectly, to some others. The aggregated structure is an organized web of conscious and goal-seeking actors; it is also an organized pattern of activities as well as an organized constellation of resources.

We observed that the structure of business networks has certain peculiar organizational attributes. The actors (companies) have no common goal, but there exist some shared beliefs about the activity pattern as well as the resource constellation. A network has no clear boundaries, nor any centre or apex. It exists as an 'organization' in terms of a certain logic affecting the ordering of activities, resources and actors. It can be seen as an 'organization' as it affects how companies are reciprocally related and positioned. As a form of organization it will only be kept together as long as the network logic is accepted by enough actors.

Change in the substance of any of the relationships affects the overall structure. Since a change in any relationship affects the position of those involved, the whole set of interrelated relationships is subject to change and that has consequences for the outcome of a relationship for those involved. A dyad, a relationship, is a source as well as a recipient of change in the network.

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The network is usually seen as a structure of actors. However, a challenging idea is to see it on a lower level. Then the position of all elements (actors, activities, resources and their bonds, links and ties) is given by the existing relations. The structure takes shape as relations between its elements evolve. It is thus a product of past connections between its elements and the emergent structure elicits developing connections. It impinges, directly and indirectly, on the possibilities to establish new and disrupt existing relations. It affects all layers of substance in a relationship. All relations get modified as structural constraints and possibilities are perceived (learned) by the actors.

The essence of the network function of business relationships is that as they arise they form a structure of actor bonds, activity links and resource ties where third parties are integrated. How the relationships develop and unfold is important for the features of the actors' organization, activity pattern and resource constellation and thus on the properties of the network structure such as its stability. The emergent structure has in any given moment a limiting effect on its actors at the same time as it provides the base for future development.

2.3.4 The balance of functions of business relationships

The different functions of business relationships reflect the various effects of the substance of a given relationship. What is implied is that the outcomes of a relationship for a company over time will not depend simply on its own acts in specific interaction episodes but also on how the counterpart acts and will react and on how others, third parties connected to the two parties, have been, are and will be acting. The effects of a business relationship originate in activity links, resource ties and actor bonds and affect the dyad, the individual company and the network.

The magnitude of the effects will vary, for the specific relationship, with the circumstances and be dependent on the substance of the relationship, on how central the relationship is for the two involved companies and on how tightly the network is structured. The dyadic function of business relationships is value-creating and is a condition for the positive effects for the single actor. The network functions reflect the interdependence of individual and collective action.

There is a problem of balance with regard to the functions of business relationships. Too much emphasis on the functions for the single actor may become counterproductive, as it may destroy the dyadic team function. Too much emphasis on the dyadic function could also turn out counterproductive; being overly altruistic may be harmful for the self-interest. Disregard for the network functions can produce disastrous effects or mean that a company does not recognize certain development opportunities being offered or constraints which arise. It is up to management in each company to handle and take care of the various business relationships in a way that is favourable not just for itself but for important counterparts and third parties. Thus, coping with the relationships requires some concern and control of who is benefiting from them.

2.4 DEVELOPMENT OF BUSINESS RELATIONSHIPS

The core of our argument is that business relationships are developed by the companies and thus voluntarily created, but when they come into existence they become a constraining element for the same companies. The development of relationships between companies in industrial markets cannot thus escape a pattern created by their own development. There is a path dependence in the development of business relationships and networks. Every actor within the network structure will have some discretion in certain areas and at the same time be entirely locked into others. The network of business relationships is both a prison and a tool.

Our discussion of the substance and functions of intercompany relationships exposed the complexity of effects that a relationship can produce and be subject to as it develops. All these have a bearing on the possibilities of a company to develop a relationship and may explain why certain relationships are weakened or interrupted. The complexity of effects and underlying factors of relationship development is difficult to reduce to manageable proportions. Yet it has to be done. It is needed in order to cope with relationship development. We will therefore outline an analytical scheme that sums up our earlier discussion and use it to identify the critical factors in the development of business relationships and the critical issues in coping with relationships. We will start by putting together the two dimensions of substance and function of business relationships.

2.4.1 Development and role of business relationships

A relationship develops between two companies as some activity links, resource ties or actor bonds are formed between two companies. These links, ties and bonds make up a relationship that can be conceived as a 'quasi-organization'. These connections are productive on their own merit; they are a source of value. How valuable they are depends on how each of the layers is taken care of and on their interplay. This can be schematically illustrated as shown in Figure 2.8.

The development of a relationship (of activity links, resource ties and actor bonds) between two companies cannot be unilateral, it requires co-alignment of two parties. How it will develop depends on how each of the parties act and react in the relationship. Once established, a relationship has a life of its own, it gets its own substance as a dyad. It is improved or deteriorates as a result of actions taken by the parties.

Every business relationship is developed by two companies with certain requirements and capabilities. Both the requirements and capabilities result from existing relationships of each of the companies. The activity links, resource ties and actor bonds in a relationship between two companies affect the activity structures, the collections of resources and the organizational structures of the companies involved. At the same time the activity structures, resource collections and organizational structures of the companies will influence what kinds of links, ties and bonds can develop in a relationship. This kind of reciprocal conditioning is schematically illustrated in Figure 2.9.

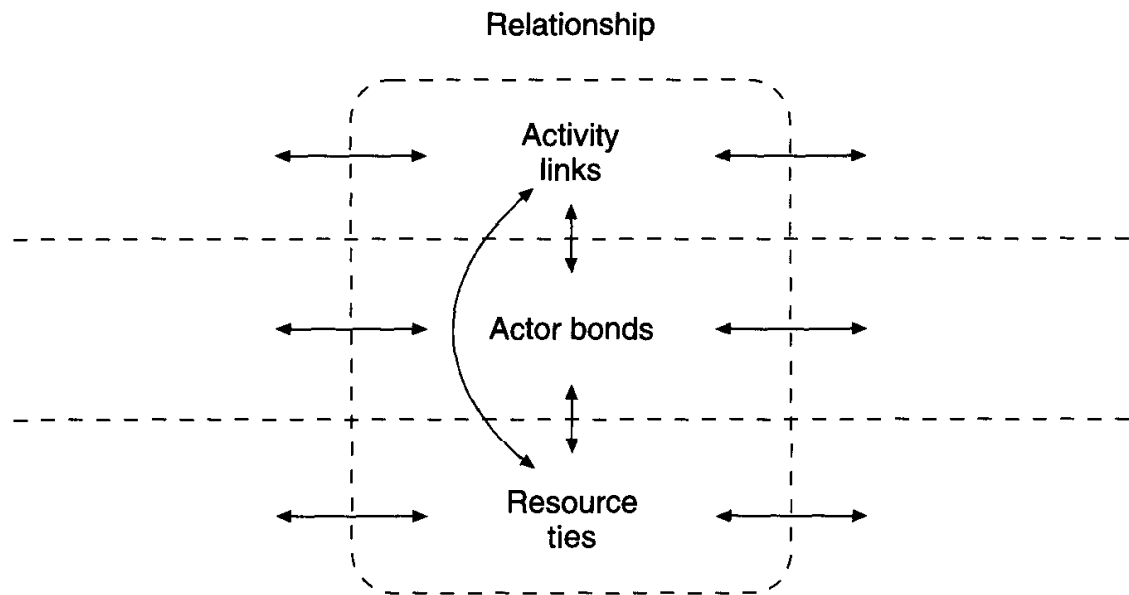


Figure 2.8 Relationship as a dyad

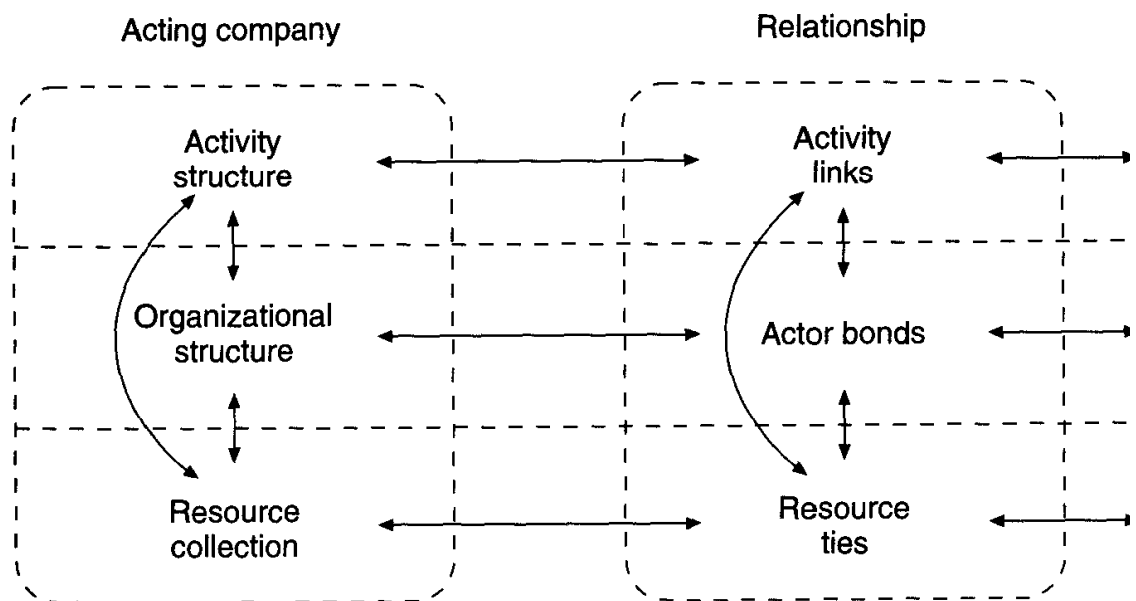


Figure 2.9 Relationships and the company

The effect of a relationship on the company will depend on its internal features, but also on the other relationships the company has. The economic consequences of a relationship will depend on how the productivity, innovativeness and competence of the company and thus its overall capabilities are affected by the activity links, resource ties and actor bonds that arise in a relationship. The development of a relationship has an effect on and at the same time is dependent on the capabilities of the company, that is, on its development potential.

The effects of a relationship between two companies are not limited to the two companies directly involved and their relationships. Other parties and

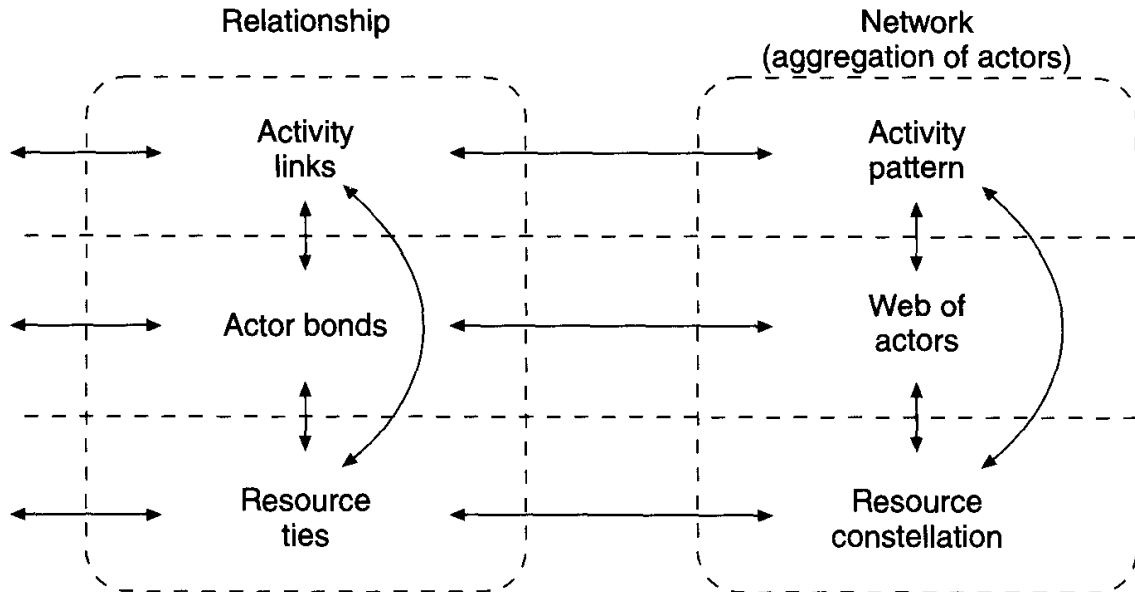


Figure 2.10 Relationships in a network

relationships may be affected. An activity link is but a link in a broader activity pattern spanning several companies, a resource tie is but an element of a broader resource constellation that companies can mobilize, and an actor bond is but a part of a web of actors. Again there is a two-way conditioning between the relationship and the network structure, illustrated in Figure 2.10. Development of a relationship between two companies thus has an organizing effect on the overall network structure and every relationship has a role in it.

2.4.2 The scheme of analysis

Putting together the two dimensions we can outline a broad analytical scheme to identify where and what effects are likely to occur as a relationship evolves, is established, develops or is interrupted. We believe the scheme outlined in Figure 2.11 can be used in two ways: first, it can be used as a conceptual framework to analyse the effects of change in a relationship and/or to identify the factors that affect the possibilities of development of a relationship. Second, it can be used as a heuristic device in coping with relationships in business. It can be used to single out the critical issues in coping with relationships, to assess the state of a relationship and its development potential. It can thus be used to identify where and how to intervene in relationships in order to get some desired effects. The scheme can be used to identify the dynamic effects in the development of a business relationship. It summarizes the main variables of relationship development discussed in this chapter.

It can be used in order to distinguish possible effects of change, for whatever reason, in a relationship. Any change in a relationship can have three types of effects. One is the direct effect changing the potential of the relationship. This will depend on how it affects the interplay of the different layers of the relationship

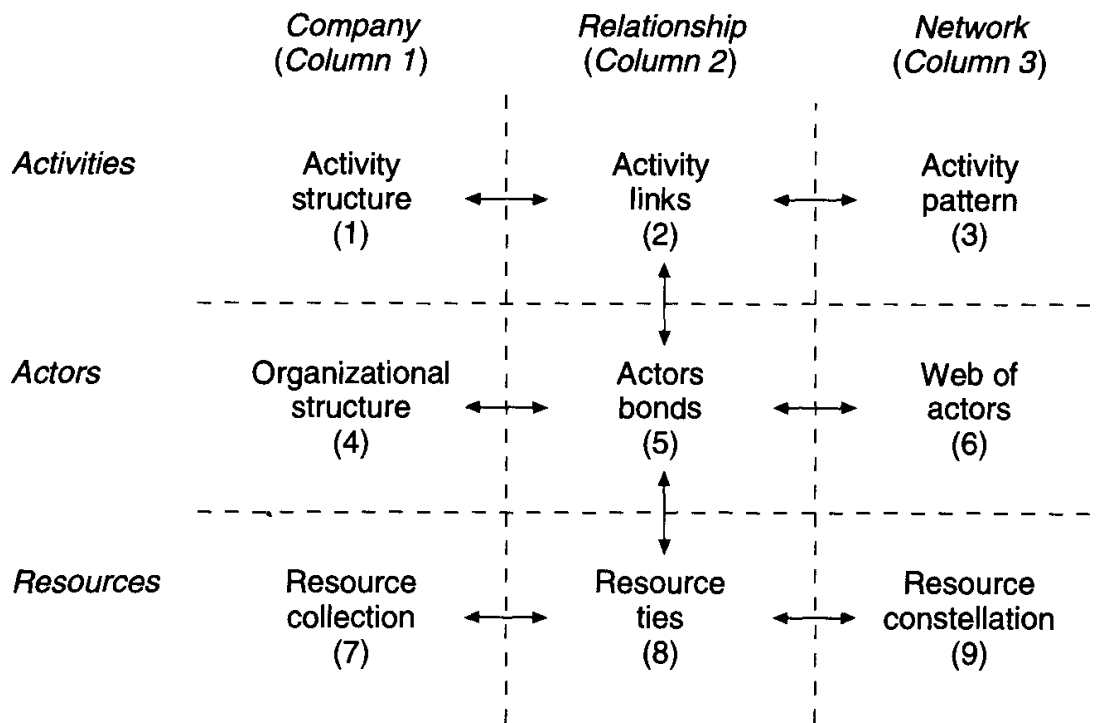


Figure 2.11 Scheme of analysis of development effects of business relationships

(column 2). Another type of effect is on the companies involved and their cost—revenue parameters (column 1). A third more indirect effect takes place as the change might lead to different reactions, causing more or less of an ‘explosion’ in the overall network (column 3). The scheme can be used for analysing all three types of effect.

The scheme can also be used to identify the impact of change on the development of a relationship. Any change (in any of the cells of the matrix) can affect the development of a certain relationship. If, for example, one or both of the companies are changing some activities this might have effects in both the horizontal and vertical dimensions of the scheme. It might have a direct effect in terms of increased or decreased efficiency in the performance of the internal activities of the company (cell 1). It might also have some direct effects for some third parties who have to adapt to the new link with accompanying positive or negative effects on its outcome (cell 3). The change might also have an indirect effect. It can give cause to make further changes within the relationship in terms of new ties (cell 8) or bonds (cell 5). It can also give cause to make adjustments in relationships to third parties (cell 3). One change can in this way cause a number of reactions which might be both expected (wanted) and unexpected (surprises) for the party initiating the change.

The value of the scheme in Figure 2.11 is limited from an explanatory point of view, as it only identifies where effects might occur. It does not say anything about which changes shall produce certain effects. It provides just the frame that indicates the main direction of effects and their type. The scheme does not provide guidance in order to assess the likelihood or the magnitude of impact of changes

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in a relationship or elsewhere in the network. These require a further analysis that permits to assess the strength of connections in the various layers of substance of the relationships and the economic consequences of these. However, it provides the guidance in directing such an analysis.'

2.5 COPING WITH RELATIONSHIPS

Coping with relationships, exploiting them economically, requires an awareness of their effects and insight to the interdependence that accounts for their dynamics. The conceptual framework developed in this chapter can, we believe, be of some help for this purpose. It can be used to formulate some broad normative implications for management.

Compared with the more traditional view of determinants of a company's performance, the relationship perspectives yield rather different implications. The main points in our argument so far are as follows:

- In numerous companies, relationships have an overwhelming impact on their economic performance. When that is the case, i.e. when single specific relationships matter, they have to be managed.
- Companies cannot unilaterally control and decide the development of a relationship; they are but part of relationships and of a larger whole that affects both their outcomes and their development potential. Awareness of this interdependence is needed in order to cope with relationships successfully.
- The time dimension becomes more important as conduct and its outcomes are rooted in the past and its effects become manifest in time. Inter-dependence and awareness of interdependence in the company and its counterparts will be decisive to the outcome of joint action. Insight into the dynamics of business networks is required in order to cope with relationships effectively.

The scheme of analysis developed from our discussion of the substance and functions of business relationships (see Figure 2.11) can be used to identify the critical issues in coping with relationships in business.

There are three areas where effects of relationships are important and need to be coped with: marketing and purchasing; capability development; and strategy development. These can be illustrated schematically, as in Figure 2.12. Marketing and purchasing is about relationship development. Capability development is about coping with the effect of relationships on the development potential of a company. Strategy development is about positioning the company in the overall network through the development of its relationships.

Marketing and purchasing

Critical relationships to customers, suppliers and eventually other third parties have to be maintained and possibly developed. The issue here is how 'team'

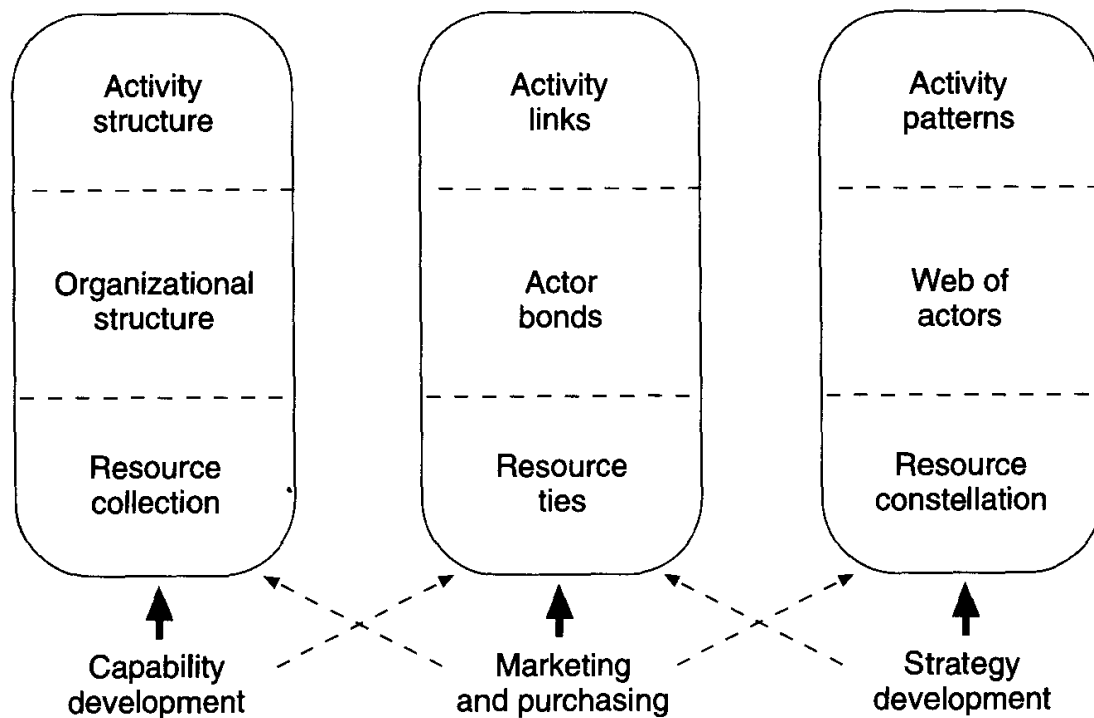


Figure 2.12 Critical issues in coping with business relationships

effects can be produced or, in other words, the functioning of the quasi-organization that the major relationships constitute.

The main management task is to keep the customer and supplier relationships 'productive'. In terms of our scheme of analysis it is matter of coping with the interplay of the various substance layers in relationships and the mutuality of the interaction process. To intervene in a relationship is to develop (or to interrupt) activity links, resource ties and actor bonds in interaction with the counterpart. That requires an understanding of connections and assessment of their effects, as well as monitoring of changes and their likely impact on the relationship.

The primary task of marketing and purchasing function is thus close to what we called development of the function of relationships as a dyad.

Capability development

This area is about exploiting the possible positive effects of business relationships on the activity structure, resource collection and organization of the company and on other relationships of the company. It also is about containing the possible negative effects in the same dimensions. The effects of relationships will depend on possible connections of links, ties and bond to those of other relationships.

Business relationships have, among other things, important effects on the development of the technical competence and capacity of the company. On the whole they seem to affect the productivity, innovativeness and competence — that is, all the components of a company's capability and thus its performance

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potential. The capabilities of a company reflect how successful it has been in combining relationships and its internal features.

Strategy development

This area is about manoeuvring for a favourable position for the company in the business network. The position affects the economic outcome of a company's relationships over time and the possibilities of developing and maintaining relationships to various other parties. The position of a company with respect to others (its relationships) reflects its capacity to provide values to others (productiveness, innovativeness, competence). It is also a determinant of the possibilities of developing its capability by drawing on the capacity of others.

The critical issue for management here is monitoring the changes in the network structure that affect the position and thus the capability and capacity of the company. Changes must be assessed in terms of their likely impact on the position of the company with respect to the wider activity pattern, resource constellation and web of actors. Strategies need to be devised to meet the changes or to produce changes in the network. The overall position of a company is a composite of position with respect to the relevant resource constellation, activity pattern and structure of actor bonds.

Handling the single relationships, that is, managing the dyadic function, is a condition for exploiting the potential of relationships and for taking economic advantage of business relationships. It is a condition for developing capabilities and for the strategy development in a company. Conversely, to pursue a change in the strategy of the company requires that the development effects on the relationships are monitored and adjusted.

Handling relationships, their development, their impact on the company and on its strategy affects the economic performance of companies, as we have stated several times. The problem is that the effects may offset one another and that they can become manifest at different times. The economic consequences of actions taken in a relationship can thus hardly be quantified precisely. What is evident, however, is that they are significant both in terms of impact on the short-term economic efficiency and in terms of the longer-term effectiveness. That calls for a final consideration on the use of the scheme. We have observed several times that the effects of relationships are complex and can hardly be mapped in detail. Dynamics of business relationships would make such a map, possible in principle, obsolete the moment it is produced.

An accurate assessment in every specific case and situation is beyond the capacity of any company. No company is likely to be able to assess all the effects of the interdependencies in a specific situation, even if aware of their nature. So much more so because the effect will depend on how others will choose to behave, and the effects that will become evident over time are highly uncertain. Yet, if the outcome of the relationships is somehow to be managed, that is, controlled and influenced in favour of the individual company, awareness of the effects and insight into the interdependence is needed. The problem we face is

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how to cope with complexity of factors affecting the outcomes when an *a priori* assessment of relevant effects is ruled out. In general terms it has been argued that purpose-directed behaviour under such circumstances calls for the adoption of behavioural rules that do not necessarily derive from a cognitive elaboration of the specific situation as it is met, but rather from an individual elaboration of past experience (e.g. Weick 1969, Starbuck 1985, March 1988) or from the generalized collective experience somehow transmitted to the subject (Hayek 1967, Kelley and Thibaut 1978).⁴

Awareness of the effects of and insight into the interdependencies can contribute to the formation of the behavioural rules that guide effective behaviour. The identification of the main variables of relationship development can serve to elaborate the experience and thus the adoption in a company of an effective 'relationship strategy'.

3 Activity links

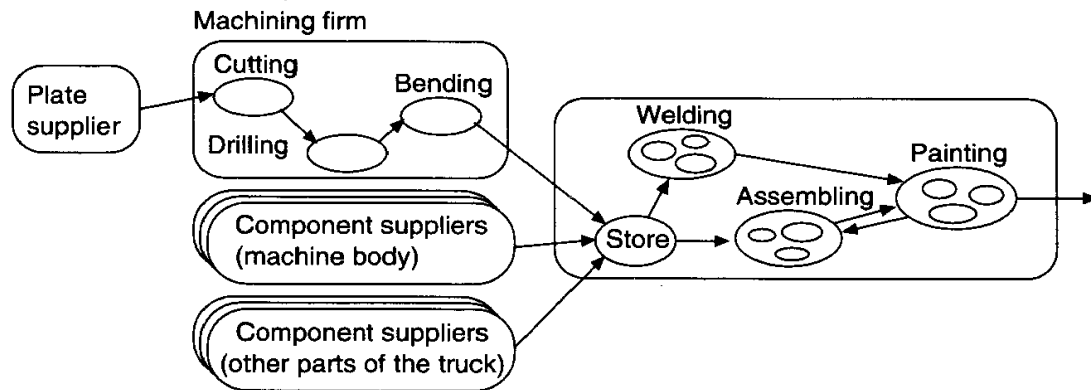
Companies do things, they perform various activities, develop products, produce and process information, purchase and sell. Numerous different activities are carried out in companies. Activities performed and the way they are carried out are determinants of the costs and revenues of a company. The discussion around 'doing things right versus doing right things' underpins much of the literature on business strategy. The activity dimension is obviously important. The traditional approach to the activity dimension in business revolves around the type of products and the way these should be produced. It draws attention to the production (transformation) activities in a company.

What is 'doing things right and doing the right things' in the relationship perspective? This perspective directs the attention to a somewhat different aspect of activities carried out in companies: the interdependence of activities between companies is highlighted. We touched upon this when formulating the concept of activity links in business relationships. Activities carried out by a company are related to those of others. Activity links that develop in certain business relationships have important consequences for the economics of the companies involved. The links affect the activity structures of the companies and the activity pattern in the business network. At the same time, activity links in a relationship between two companies are affected by adjustments in the activity structures of the companies involved. Linking activities entails adaptations and reallocation of activities between units. This is the kind of issue we are set to explore in more depth in this chapter.

Many industries could be taken as examples of the importance of the activity dimension and of the management issues involved. We can take, for example, a company called SweFork in the mechanical engineering industry and its supplier relationship to Systech. The supplier relationships of SweFork have changed from buying single components from several suppliers to buying whole systems from Systech. The change, driven mainly by cost considerations, caused a reallocation of activities between the companies involved; it provoked new activity links and adaptations in the activity structures in both companies; it affected not only the supplier but even the customer relationships of SweFork. The flow of activities and the main activity links before and after the change are represented in Figure 3.1. The SweFork case illustrates the kind of interdependencies that affect and are caused by

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Performed activities in phase 1.



Performed activities in phase 2.

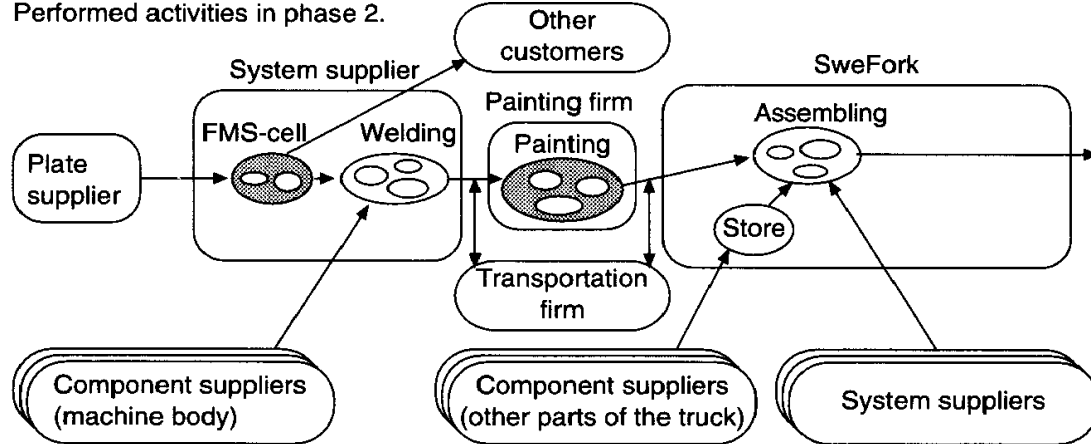


Figure 3.1 Change in activity chains in SweFork Co.

activity links in a business relationship. It also suggests how companies try to grapple with the activity dimension to take advantage of it, how they develop activity links and reallocate activities.

The example epitomizes the fact that the various activities in companies (developing products, producing, processing information, purchasing and selling) are not carried out in isolation. They are always dependent on the activities of others. They are related by activity links in business relationships to the other company's activity structure and to the wider activity pattern spanning several companies. Business relationships are the mechanism by which the activity interdependencies are handled. By means of the relationships the activities of a company are embedded into a broader activity pattern that lays the ground for what a company can do and how it can relate to others.

The impact of activity interdependencies on the economics of a company can hardly be overrated. We will therefore in this chapter explore further the activity dimension of business relationships. The chapter is organized in three sections. In the first we will discuss the activity dimension of business relationships from a theoretical perspective. In the second section, three company case histories are reported that illustrate the nature of activity links in business relationships and some of the management issues related to the activity dimension. Finally, in the third section of this chapter, we will discuss the management implications of handling the activity links.

3.1 THE ACTIVITY DIMENSION IN BUSINESS RELATIONSHIPS

The activity dimension is not easy to treat analytically. Economists and organization theorists have been concerned with it. Both have been dealing mainly with activities within companies. The relationship perspective can shed some light on other aspects – in particular, on the external aspect of activities in business.

In this section we will explore the concept of activity links as the specific connections in activities between companies. It starts with a brief discussion of the problems involved in activity analysis. We will then formulate the concept of activity links and examine how these work in a relationship and then pass to a section where we will explore the activity links at the aggregated level. We will conclude by discussing how a company can take advantage of activity links and cope with them.

3.1.1 Perspectives on activities

Activity can be defined broadly as a sequence of acts directed towards a purpose. Analysis of activities presents some difficulties: one is that there is no given activity unit. As a sequence of acts, activities can be partitioned in numerous ways. The partitioning of an activity sequence is always to some extent arbitrary, especially when we face a complex activity pattern. Another difficulty is to classify activities in analytically meaningful categories. When it comes to the picture of a company, a common distinction is to view some activities as 'internal', generally those that do not directly involve others outside the company, and some as 'external', generally activities directed to or involving others. The distinction can be deceptive, especially when it leads to the conviction that internal transformation activities of the company are its 'core activities'.

Activities such as production, research and administration are then as a rule viewed as internal, while purchasing, financing, personnel selection, and sales are considered external. In the relationship perspective all activities of a company have to be regarded as linked to those of other companies. Both types appear then to be 'core activities' in a business enterprise.

Two different perspectives on activities are emphasized in the management literature. They lead to different explanations of how activities become structured, that is, organized in a broad sense. In the first, the one taken from the microeconomic theory, production activities aimed at transformation of resources are considered primary and thus determinant of activity structuring in a company.' Other activities are thought of as being less important for the purpose of the firm. The focus of economists has been on activities performed in isolation. It has been recognized in applied economics, especially in the field of the so-called industrial organization, that other activities can be important and concur in 'creating value' (e.g. Porter 1985) and the role of 'joint' activities of different subjects has been pointed out (e.g. Alchian and Demsetz 1972). That notwithstanding, the mainstream economic theory focuses on resource transformation,

that is, production activities of the firm, and postulates that activity structures (such as those of a firm and of a market) reflect primarily the available technology of resource transformation. Despite the interest in relations between economic subjects, economists have not been really interested in interlocking of the activities between different actors (Richardson 1972). It is assumed to be taken care of by means of an impersonal 'price mechanism' of demand and supply.

Quite another perspective is offered in parts of organization theory that have been concerned mainly with interlocking of activities of individuals. It has led to different resolutions about activity structuring.' One that is of interest to us is the proposition that activity structures — organizations such as companies — are enacted (Weick 1969); it argues that activity structures emerge spontaneously, in the sense that various actors develop their own activities in reaction to how counterparts are performing theirs. Activity structures thus emerge over time as one's activities become modified, adapted and related to those of others. The emergent pattern is then somehow rationalized; given a meaning that keeps the activity structure together. The adaptations of activities in interaction with others are gradual, on the spot, often implicit while done but given a meaning with hindsight. The emergent empirical structures of activities (organizations) reflect therefore, broadly speaking, the knowledge and skills of the interacting parties.

The difference in the two perspectives is that the first leads to emphasis on the dependence of activities on resources (and thus the dimension of costs), while the second emphasizes the dependence of activities on the capabilities of the actors (and thus on the dimension of effectiveness). Neither of the two deals primarily with activity links between companies, both concentrate on what might be called internal activities in a company. We will be combining the two perspectives but will direct our attention to relationships, interaction between companies. We take

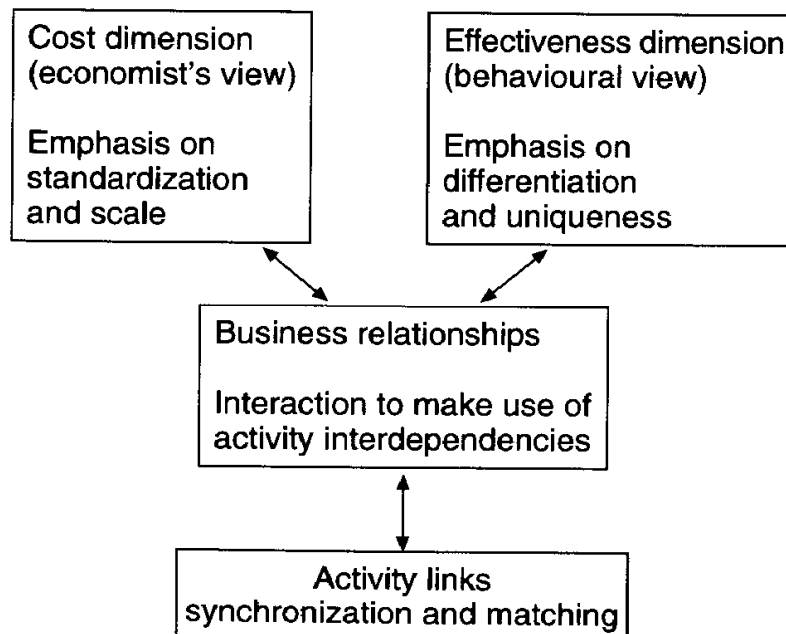


Figure 3.2 Theoretical bases of the activity link concept

the stance that activities of a company are performed in anticipation of and in response to activities performed by others, and both the cost and the effectiveness dimensions are equally important. The resulting theoretical concept is that of activity links (see Figure 3.2).

The economic consequences of activity structuring are important. They reflect the balance of standardization and differentiation of activities in the activity structure of a company. What the two perspectives have taught us is that activity standardization is related to 'economies of scale and scope' (Scherer 1970, Chandler 1990) and that activity differentiation is related to the possibility of realizing exchange and thus to 'economies of effectiveness' (that is, of differentiation) (Scott 1992).

3.1.2 The activity links

A relationship between two companies connects activity structures of the two units. It consists of activities that can link, more or less tightly, various parts of the activity structures. The number and type of activity links in a relationship can vary. Activity linking is a form of coordination and is achieved by mutual adjustments of activities, i.e. adaptations. Adaptations on either side are a condition and a consequence of activity linking. They can be regarded as both the activities performed jointly within the relationship and activities performed in the respective company (Håkansson 1982, Turnbull and Valla 1986, Hallen, Johanson and Sayed Mohamed 1989). Examples of the former are mutual adjustments in

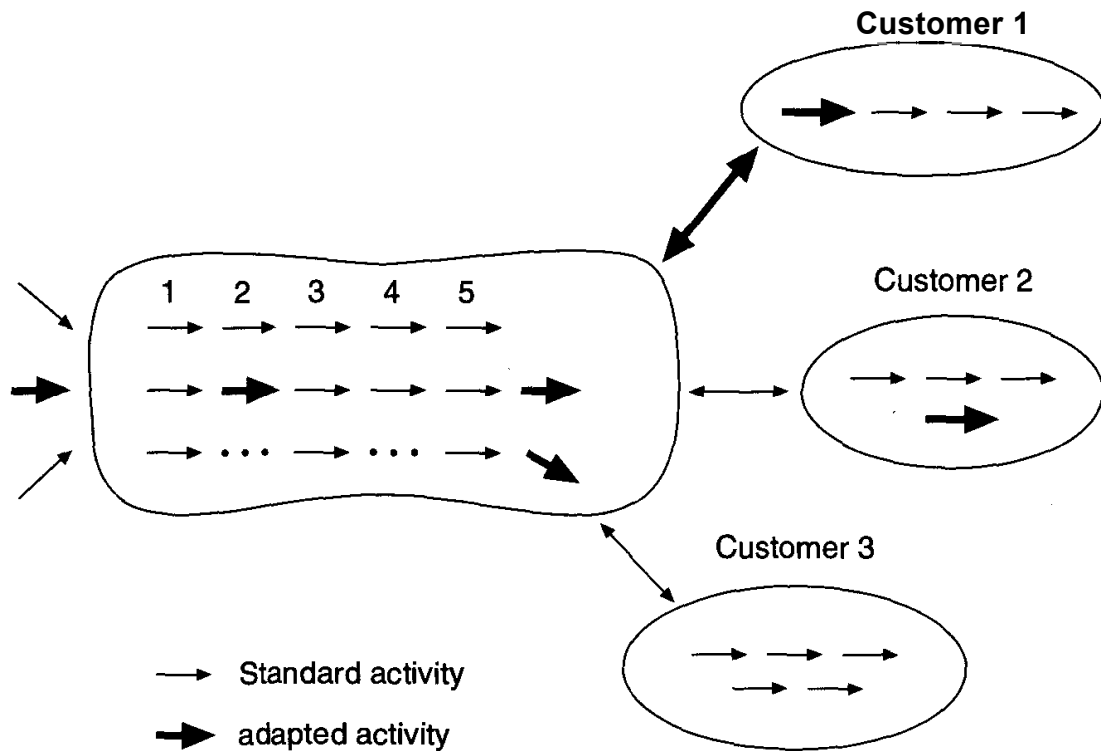


Figure 3.3 Activity linkages in a hypothetical situation in relation to three customers

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information exchange, transportation, physical handling and payment routines. Examples of the latter are rationalization and/or reallocation of production processes product adaptations, logistics.

Adaptations are the critical ingredient in intercompany relationships. The use of the word 'adaptation' indicates that there are some activities in a company which are the same for several counterparts and others that are adapted (differentiated and unique) with respect to a specific counterpart. This dual existence of similar and unique activities is important from an economic point of view. Highly standardized activities are combined with unique ones so as to achieve both positive scale effects and adapted effective customer solutions with accompanying positive impact on the revenues. The trade-off is effected by activity links. The problem of activity links and adaptations in a relationship is schematically illustrated in Figure 3.3.

Figure 3.3 illustrates a simplified case of a company facing three different customers with different activity structures and thus specific requirements on activity linkages. The company performs a series of operations, some of which need not to be differentiated to fit the activity structure of the counterparts while others need to be (or can be) adapted either in the supplier or in the customer company.

Adaptations made in or because of a relationship, can affect different types of activities; transformation as well as interaction activities. A product can be adapted to the production process in which it will be used as an input; a production process may need to be adapted in order to use input products from a particular supplier. Production and delivery schemes may need to be adapted to a certain customer, and so can the timing of the product development. Adaptations may be needed in administrative or in payment routines or in how information is exchanged.

The process by which the adaptations in activities are initiated and carried out is an important element in the development of a relationship.³ It usually starts as a request from one of the companies to the other: 'Could you do this or that in another way?', and eventually leads to some change. Adaptations, in or because of a relationship, can be made by either or both of the two parties, but they will always affect both companies. Adaptations in a certain relationship emerge over time as a way to solve problems. They are carried out by those directly involved, which is often middle management. The decisions to make or to accept a certain adaptation can be based on more or less extensive considerations. Typically they emerge in an 'organic', incremental, unplanned way and represent locally optimal solutions, that is, satisfactory solutions to problems in a certain relationship. They are often invisible and known only to those directly concerned. What and when adaptations have been done can thus be more or less well known within the company. Adaptations of this kind are seldom centrally monitored.

In carrying out activities in companies there is a tendency towards routinization and institutionalization (Nelson and Winter 1982). It regards internal activities as much as activities between companies. The individuals involved develop routines that are 'locally efficient', beneficial for the single relationship. The routinization

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is often important for the 'cost efficiency' of the single relationships. This tendency may, however, have negative effects on a company's activity structure as a whole. Major adaptations in a relationship may require substantial reallocation of activities, which requires the breaking up of certain routines. There is then a conflict with the tendency of the individual actors to institutionalize their mutual interaction.

Linking activities of two companies in a relationship entails adaptations and the effects of links will depend on the required adaptations. When activity links are developed the two companies conduct their activity structures to some extent in a common direction. Most importantly, however, establishing activity links permits novel structuring of activities which affect productivity. Activity links can be productive in two ways: first, on their own account as they bridge the physical and psychological distance between the companies; second, as they affect the activity structures of the involved companies. Both effects will depend on how activities are designed and organized; how they are reallocated in different respects, not least between the companies.

Strong activity links are not developed in all relationships; they are usually developed when the activities of the counterpart become visible and understandable, that is, when some amount of attention is aroused. That happens as a rule when the counterpart is important, when it is perceived as potentially affecting the achievement of desired outcome for a company. Typically, this occurs when the counterpart stands for a large volume of the exchange, but the counterpart may also become visible for other reasons that raise the attention such as peculiarity or uniqueness of the counterpart.

Activity links provide opportunities for an economically more advantageous balance of standardized and differentiated activities. At the same time they are binding and thus limit the discretion in changing the activity structure in a company.

3.1.3 Activity chains and activity pattern

Developing activity links in a relationship means that activities performed by a company become connected to the activities of others. Activity links are thus important for a company's capacity to be effective in exchange with others. They also make possible the reallocation of activities between companies. Because of the activity links the activities in a certain company can be seen as a part in a larger sequence of (transformation) activities spanning several companies. Also the activity links in a relationship can, in the same way, be seen as elements in a larger chain. Activities performed by a company build on activities undertaken by others and enter in those of some others; they are links in a wider activity chain.

We use the concept of activity chain in the backward linking of activities necessary to achieve a certain performance.' An activity chain can be traced as the sequence of activities preceding and making possible a certain activity. In an activity chain several companies are linked into a sequence where activities of a

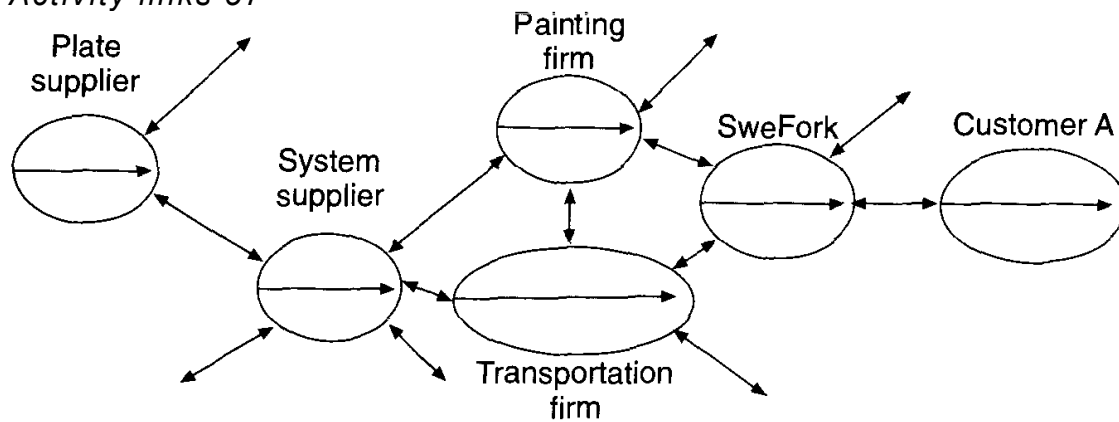


Figure 3.4 Activity chain over five companies — SweFork Co.

company build on those performed by some others and enter into those of yet others. Being part of an activity chain requires sequential coordination of the activities. An activity chain reflects the available technology of combining the specific different activities in order to accomplish something desirable. An activity chain has restrictive effects on what the single company can do at the same time as it creates a number of development possibilities. The notion of an activity chain with respect to a certain relationship is illustrated in Figure 3.4.

While activity chains have an instrumental logic there is no given allocation of activities between the companies. The partitioning of the chain is dependent on the companies' enactment. What share and type of activities a company will carry out in a chain, that is, how the chain will be allocated among companies, depends on how economically the companies can perform a set of activities. Different companies choose different approaches and mutually adapt. The position of a company in the chain will always be to some extent unique, despite apparent similarities. Companies are different with respect to the degree of vertical integration, with respect to the product differentiation and diversification.

The notion of activity chain can be fruitful when analysing interdependencies of activities. The sequential technical interdependencies often become obvious but other types of sequential interdependencies may also be strong. The technical interdependencies make it likely that dense activity links develop in relationships between companies along the chain. These can span several stages of the chain so that even indirect serial links can be identified. The existence of direct and indirect serial links in technical and other activities tends to limit the possibility of unilaterally induced changes in the activities of a company. They confine the development path for a company.⁵

To treat activities as units within chains opens up interesting possibilities. First, there is an opportunity to see how the interaction activities carried out between the companies are related to internal activities within the companies. Taking the chain perspective it becomes necessary to analyse the two activity types — those between companies and those taking place within companies — in an integrated way. Second, we can identify an interesting economic logic in these activity chains. Two activities that cannot be related directly can be linked

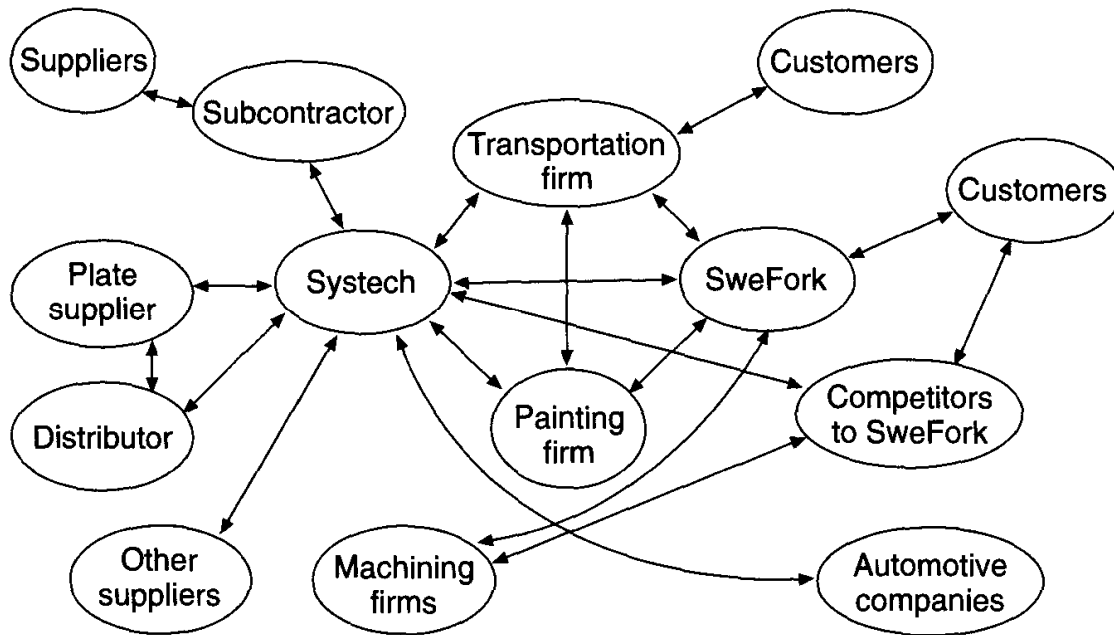


Figure 3.5 Examples of activity pattern - SweFork Co.

by a specific linking activity designed to fit the activities. A company can use, for example, a certain basic internal activity for several customers despite them having unique demands if specific linking activities to each of the customers are developed. Or it can be done by some other third party who carries out the linking activities.

Activity chains provide a structured context for a company's activities. Each company's activities acquire a certain specific meaning. Others are affected by the productiveness of activity links for their own purpose. The activity chain is an emergent empirical structure that because of its impact provides the direction as to how activities performed by a certain company can develop.

Activity chains always to some extent constrain the flexibility of the activity structures of the companies belonging to the chain, but they also facilitate the construction of an activity structure. It is easier, less costly and cumbersome, to develop an activity structure out of activity chains than to start from single activities to be combined. Each activity chain takes care of some of the interdependencies between the activities and a single company which undertakes to put together its unique activity structure can do so without finding out and taking care of all these. The company can always use pieces of existing chains.

Different activity chains coexist in the context of each company and the company becomes a nexus of various activity chains through relationships with different counterparts. Several activity chains cut through each company and become combined and connected to other chains thus forming an activity pattern.' The notion of the activity pattern is illustrated in the Figure 3.5.

Besides the sequential dependencies there are what we might call 'parallel interdependencies', both direct and indirect. Activity links in a certain relationship can reflect technical or other interdependencies to other types of activity

chains. In the SweFork case there is an important parallel interdependence in relation to other customers of Systech.

With respect to the activity pattern a business enterprise is a conjunction of different activity chains that form the pattern and shape the activity structure of a company. A company's activities are but a portion of the overall pattern. Business relationships are the mechanism by which a company acquires a certain position in the overall activity pattern. Activity links span organizational boundaries and integrate the activity structure of a company into the overall activity pattern.

While displaying remarkable continuity, both the activity chains and the activity pattern are highly dynamic. They change as a consequence of adaptations in activity links undertaken by the pairs of companies. Each company has a number of possibilities to find new combinations and each change will also influence some other; there will be reactions. Changes at a certain stage of the chain and in a certain portion of the pattern propagate other stages. The existing activity pattern linking various companies is the result of 'investments' in solutions developed in interaction between companies. Companies experiment as they develop and rationalize activity links. While there may be periods of radical changes, the development of the pattern is most often evolutionary. The reallocation of activities among companies during change is most often incremental and draws on the actual pattern in which much of the effort and resources of the companies has been invested. Stability and change are existing side by side; they can even be seen to be each other's base. The existing pattern reflects the experience of companies in finding solutions, their learning and knowledge.

Activity links developed in some of the business relationships between companies thus have an organizing effect on the overall activity pattern in business networks. What kind of links are established and their strength is decisive for the form of the organization of industrial activities — the shape of the activity pattern. At the same time, possibilities and opportunities to develop activity links in relationship to certain companies will be affected by the actual activity pattern, and the changes in the pattern can have repercussions on a certain relationship. This is the kind of broadening of the perspective on activities we get from the relationship perspective.

3.1.4 The impact of activity links on a company

Our argument has been that activity links integrate a single company into a wider activity pattern and have important economic consequences. Every company is involved in several business relationships that can contain activity links of various types and varying strength and each of these have some effect on the company.' The simultaneous involvement in several different relationships brings about potential combination effects. If we are to explore these we have to turn back to the issue of economic consequences of standardization and differentiation of activities raised earlier. If we accept the arguments from economics and organization theory that standardization of activities is important for the cost

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efficiency in a company and that differentiation of activities is important for their integration and thus the effectiveness in exchange with others, then the effects of activity links on a company will depend on the resulting balance of differentiation and standardization. Embracing the idea that both standardization and differentiation requirements are important, the activity links appear as a unique mechanism that companies use to strike an economically advantageous balance. They permit a company to pursue and exploit both contemporarily. Activity links permit a company to perform certain activities efficiently at the same time as integrating them into the activities of others.

The activity links in a relationship, the combination of links that the company develops and the position of the company in the overall activity pattern have structural (efficiency) and dynamic (development) effects. The efficiency of the two companies in a relationship will be affected and so will their development in terms of need and capacity to solve new problems or to seize opportunities. Every link has both structural and dynamic consequences.

Activity links in a relationship affect directly the efficiency within the relationship. They also have more indirect effects, consequent on the required adaptations, on the activity structure of the company as a whole. Conspicuous examples of how adaptations bring about major cost efficiency in a relationship, are changes in activities such as transportation, communication, storing and packaging. Thus, there are always some direct effects. The links can save money by reducing costs or they can increase the output of some operation on either side.

There are also more indirect effects from the impact an activity link has on the activity structure of the company. Substantial efficiency gains can be achieved through adaptations in activities such as production, research and development, quality control or administration, activities that have traditionally been perceived as 'internal' (e.g. Stalk and Hout 1990). Major adaptations resulting in activity links are mainly executed in the more important relationships of a company. They are done in order to solve some problem(s) or in order to achieve some specific advantages.

Other indirect effects are on effectiveness (possibilities to integrate into activities of others). These consequences of adaptations are relatively easy to identify. New opportunities are created when a company tries to find new ways of linking its own activities to those of some counterparts and develops new product/service concepts. One example is the flow of product innovation that can be traced back to mutual adaptations between suppliers and customers which has been argued to be substantial (e.g. von Hippel 1988, Burt 1989, Axelsson 1987, Håkansson 1989).

As the company is simultaneously engaged in several relationships, a number of activity links have been developed and the effects from the combination of different links are important. The situation is exemplified in Figure 3.6. The relationships and activity links can be parts of different activity chains.

The combining of different relationships, i.e. linking of the links, has both structural and dynamic consequences. The combination of activity links has direct

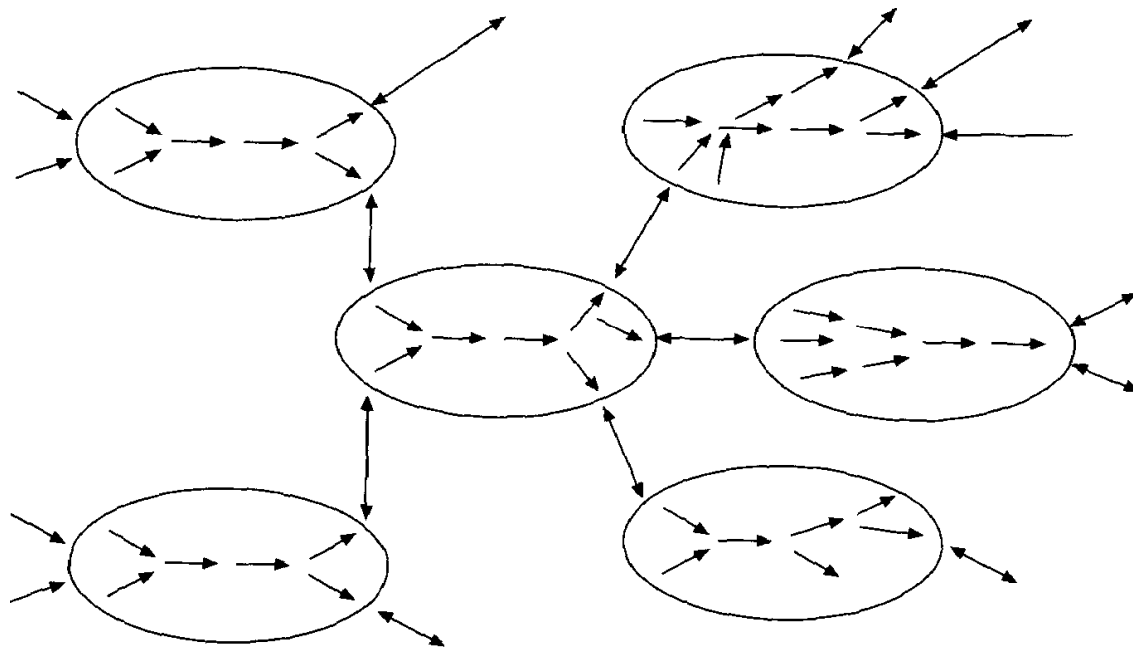


Figure 3.6 Activity links of a company

effects for the balance of standardized and differentiated activities in the activity structure of the company and thus for its productivity. A typical characteristic of this combination is that it will never be perfectly optimal or in balance. Changes in single relationships will demand adjustments. As there are so many ways the links can be combined there will always be reasons for the company to find new and better ways to connect activities in order to enhance their productivity. At the same time, all changes done within the company, all modifications in the activity structure of the company, are likely to require adjustments in the activity links in different relationships.

The company's position in the activity pattern has another effect on the company that is more difficult to qualify. It becomes visible only when we look at the company from the outside. What matters to the counterparts of the company is how it can contribute to their activities — the 'productiveness'. This productiveness of the activities and activity links is relative, dependent on how the activities fit into those of the others. The economic outcome of a company's activities is dependent on how it contributes to the broader activity pattern in its context. The contribution reflects how it can perform specialized transformation activities but also very much on the backward and forward links that are created. Productiveness is a function both of how the operations (the task) are performed and how they are locked (integrated) into others' operations. On a company level it means that its economic performance is not simply given by its production efficiency but rather by the effectiveness in relating its activity structure to the activity structures of others and thus to the overall activity pattern.

As every company is linked to a unique set of counterparts the activity structure

in itself emerges as unique. It is a result of interactions with its major counterparts and of the position with respect to the overall activity pattern. The capabilities and capacity of a company depend on the activity links to the broader activity pattern. There always is a series of adaptations and adjustments going on and they tend to change the combination of activity links. The process can be characterized in terms of how the company combines standardization *and* integration in the design of its activities.

3.1.5 Activities in networks

We conceive activities from a relationship perspective which have given us the following conclusions:

1. An activity is always arbitrarily delimited. It can always be decomposed in minor activities or integrated into larger. It is thus a result of how involved actors choose to define it.
2. The process whereby the activities are designed includes 'economic' considerations such as standardization and scale, behavioural considerations such as differentiation and uniqueness, and relationship considerations such as interdependencies. The process results in activities that are linked to each other in different ways.
3. Activity links lead to activities that are synchronized and matched. Activities performed by the two actors in a relationship become more or less linked due to the development of the relationship. They are productive as they can rationalize, i.e. decrease the costs for performing the activities and/or increase the outcome of the combined activities.
4. Activities in different relationships in a row are linked to each other which makes each activity become a part of an activity chain. There exist in this way both direct and indirect links.
5. Different activity chains are connected to each other and result in an overall activity pattern. Every link is in this way a piece in a larger whole. By changing one link the whole pattern may have to be changed and if the pattern is changed a certain link may have to be adapted.
6. Activity links are central for the single company as they determine how its internal activity structure fits into the overall activity pattern. They are decisive for the outcome of the company's performed activities.
7. The links are formed through the relationships primarily with customers and suppliers. They are thus a marketing and purchasing issue. The links in the different relationships must be combined with each other and with the internal structure of the single company. How this is done determines the capabilities of the company. Finally, there is the strategic issue of positioning the company within the broader activity pattern. All these managerial issues will be dealt with after we have presented three cases illustrating the earlier discussion.

3.2 CASE HISTORIES: SWEFORK, GLULAM AND SWELAG

The case histories in this section, Glulam, Swelag, and SweFork, illustrate the nature of activity links in business relationships and the effects of these on the activity structure of a company. The cases show in particular the complexity and strength of activity links in an activity chain, the rationalization and reallocation tendencies in the activity pattern, and the way the companies implicitly or explicitly cope with the activity links.

Critical factors and forces at work, rather than management practices, are illustrated. In all the cases the activity structuring is driven by the product and production technology. Changes in activity links are initiated by companies in reaction to the perceived activity interdependencies. The companies attempt to enact some perceived opportunities which in all the three cases lead to reallocation of activities between companies.

The case histories contain examples of links in production processes, product development, logistics and administrative activities between several companies in an activity chain and examples of adaptations that strengthen or weaken the activity links. The cases are suggestive of the magnitude of the effects that activity links and seemingly small and insignificant adaptations can have on the performance of a company. The cases raise the issue of diffused boundaries of a business enterprise once the activity perspective is taken.

The Swelag case, in particular, is an example of the tendency towards specialization in an activity chain that reverberates over several stages of the chain and of both direct and indirect serial interdependencies. A major issue in the case is the technological linking of activities over four different layers: from material suppliers, to sub-component producers, to component producers and original equipment manufacturers. It illustrates many of the constraints the structuring of an activity chain poses to a company. The strength of the activity links becomes evident from how apparently internal transformation activities of a company and its overall performance are dependent on those of others.

An issue that is highlighted in the case is the sequential dependence of activities in the chain and consequent need for close relationships between companies. Such is the strength of the activity links that the coordination needs do not diminish even when activities are reallocated between the supplier and the customer.

An interesting question is to what extent activity links constrain the management practices in the companies involved. When it comes to management practices the case illustrates a possible conflict in attempts to rationalize and restructure the operations disregarding the activity links. It is a case where severe constraints are imposed on managerial discretion.

The Glulam case, on the other hand, is an example of the opportunities offered by activity links in a chain. It shows how activity links in a relationship can be developed and exploited, and their impact on the activity structure of the company, as well as the other activity links it has in other relationships and the effects on the wider activity pattern. An interesting aspect of the Glulam case is how adaptations in a relationship in an activity chain affect not only the content

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of the relationship itself but the whole pattern of relationships of the company, as well as the relationships of other parties involved only indirectly. It shows how a change initiated in a certain relationship propagates not only vertically along the chain but also horizontally.

The case can be taken as emblematic of the effects on the wider activity pattern that usually is not considered; it describes the need to reallocate activities between a supplier and a customer. It can be considered an illustration of how tendencies like just-in-time, total quality and time-based management translate into adaptations in the activities carried out by the parties and reallocation of the activities among the parties.

Other issues raised in our discussion of activity links are present but perhaps less evident in the Glulam case. One is the mutuality of adaptations and the impossibility of carrying out the reallocation of activities between two companies unilaterally. One could ask with respect to the case why the development is taking place then and there, why not earlier or later. It points to the 'collective strategies' and the problem of mobilization of the counterparts.

The SweFork case describes the development of a company's supplier structure. It portrays, among other things, the process by which changes in activity links are initiated and carried out. The episodes described in the case stretch over a rather long period and stress the mutuality of the process. They illustrate the effects of adaptations on both sides of a relationship and on the other more indirect links with respect to the company.

The SweFork case permits us to look into the economic consequences of activity linking. On the whole it can be used as an example of how the economic consequences enter the management process. In particular it illustrates the issue of balance of standardization and differentiation in the activity structure of the company.

Other issues in the case are hinted at in the other cases as well: the reallocation of activities among the companies involved and the combination effects of activity links in different relationships on the capabilities of the company. The development effects of activity links are shown over a period of more than a decade.

3.2.1 SweFork AB, by Anna Dubois

SweFork, a producer of electric vehicles for loading, unloading and short distance transportation, manufactures a few thousand vehicles per year, in six basic models. An important section of these vehicles is the machine body, consisting of sixteen parts, some of which can be classified as raw material (steel plates), others as standard components and still others as custom designed components. Different vehicle models have different types of machine bodies, and different suppliers produce the components. Basically the same activities are needed, from the purchasing of the machine body parts to the final assembly during which the machine body is assembled together with other systems to make a complete vehicle. The other activities consist of several machining operations (such as

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cutting, drilling and bending) of some of the parts, a welding operation (in which the parts are put together) and a painting operation.

For one of the vehicle models of concern here, the machine bodies were made in-house by SweFork until the late 1980s (phase 1), when these were outsourced to a supplier, which, since then (phase 2) has been supplying the company with complete machine bodies. About five years later, the make-or-buy-decision was reconsidered and the machine bodies became subject to insourcing (phase 3). The impact of these choices on the organization of the activities is described below.

Phase 1: Component purchasing and in-house production

During phase 1 the chain of activities carried out by SweFork was divided into five steps:

1 Six pre-machined plates and ten additional components were bought from different suppliers.

2 The plates were manually welded together with the additional components.

3 The machine bodies were painted with primer.

4 The machine bodies were assembled together with other systems.

5 Top-coat painting including masking of certain areas was undertaken. Paint always had to be applied before assembly to cover all parts of the steel plates, in order to prevent corrosion. Two coats of paint, primer and top-coat, were necessary as ordinary paint was used at the time. Due to the low quality of the paint, a top-coat had to be added after assembly, since the painted surfaces would otherwise have been damaged.

The process was costly because the top-coat painting job required masking. The results suffered, quality-wise, since paint stuck into cavities, causing defects of different kinds. Furthermore, the in-house welding operations, which were manual at the time, were a constant source of trouble. Concerning purchasing and materials handling, the sixteen parts within the system were bought from about

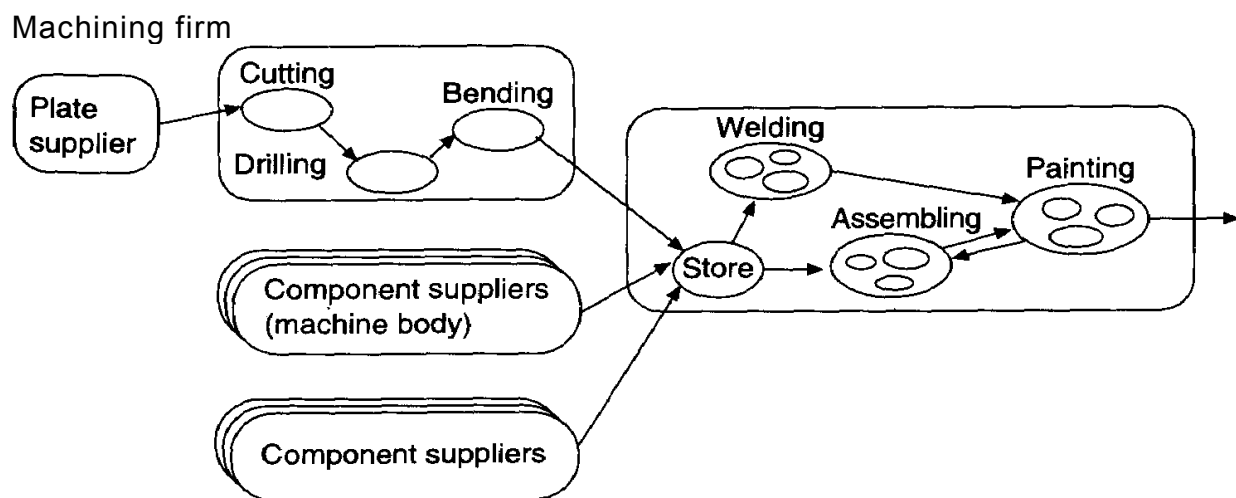


Figure 3.7 Organization of activities during phase 1

ten suppliers and were stocked within the central supply store. The supplier of the pre-machined plates used conventional machining equipment. Figure 3.7 shows the transformation activities undertaken by the companies involved and the flows between their respective work stations.

Phase 2: System sourcing

In the late 1980s, the machine body was outsourced to a system supplier – Systech – who had invested heavily in the installation of a flexible manufacturing system (FMS) and was at the time eager to fill this capacity. In addition, Systech could offer a so-called two-component painting job which, due to its high quality, required only one painting activity. In order to protect the painted surfaces from damage, and also to facilitate assembly, SweFork developed assembly jigs. One of the requisites of the two-component paint is a drying oven, since it would otherwise take days for the paint to dry. As it turned out, however, Systech in turn let an external painting firm do the work on SweFork's machine bodies because of lack of capacity within its own factory. The welding operations were done in exactly the same way by Systech as had previously been done by SweFork. The welding fixtures used by SweFork were thus transferred to Systech. Figure 3.8 shows how the activities were organized during phase 2.

Systech purchased fourteen of the components within the machine bodies. The remaining two components were bought from SweFork's suppliers on SweFork's contracts, since SweFork also bought large volumes of these components for use in other vehicle models. Concerning the fourteen components bought by Systech, Systech could, by using similar parts within the systems produced for other customers, achieve volume benefits in purchasing.

One problem arises when painted items are transported: they are easily damaged. When the machine bodies were outsourced, this problem was solved by using a special container offered at the time by a transportation firm. These small containers were a perfect fit since they made it possible to transport the right quantities at low costs without the need for wrapping. Packaging is otherwise very

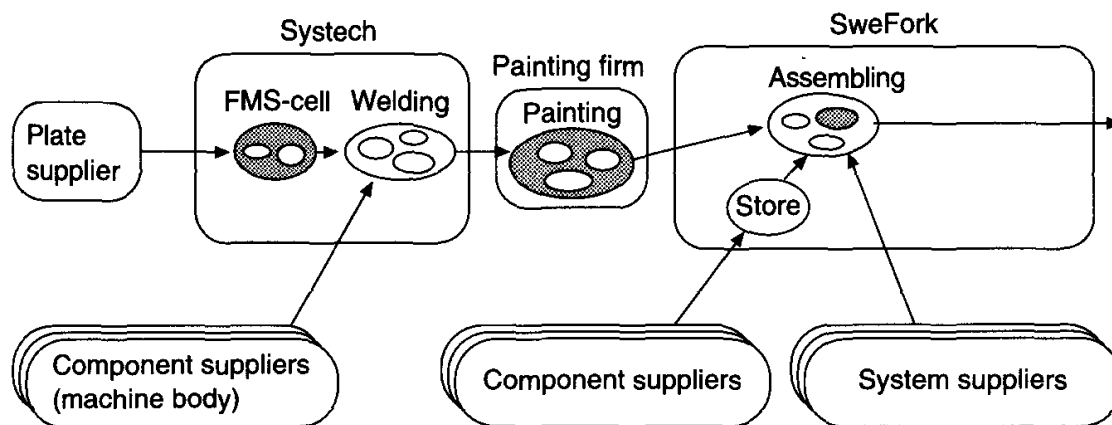


Figure 3.8 Organization of activities during phase 2

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costly, since the machine bodies are bulky and difficult to package.

A few years later, the transportation firm withdrew these containers due to general lack of demand. This made transportation, which now had to be undertaken by ordinary lorries, more costly because of additional wrapping material and packaging.

Phase 3: Insourcing (ongoing)

About five years after the decision to buy machine bodies from Systech, SweFork decided to insource some of the activities. In the early 1990s SweFork had invested in two-component painting equipment, including ovens. The machining activities could not be carried out within SweFork's operations, and since Systech handled them well, they were still to be purchased from Systech. It was also considered efficient to get whole sets of machine body parts from Systech. These sets could then go directly into SweFork's welding station without having to be handled within the central supply store. This would keep the internal logistics activities at a low level. When the insourcing decision was being discussed, the question of manual welding versus robot welding arose. Since there was excess capacity within the robot station and since robots would achieve faster welding, this alternative was chosen. However, some manual welding would still be required because welding spots had to be added within the welding fixture before robots could take over. Figure 3.9 shows this reorganization of the activities.

At about the same time as SweFork insourced the welding and painting activities, the demand for this particular vehicle model fluctuated and even decreased dramatically. Earlier on, the production volumes had been high and fairly constant. SweFork's delivery plans were based on sales forecasts and were updated every third month. The forecasts had previously matched the actual orders (which were based on end-customer orders) sent three weeks prior to delivery. When the volumes started decreasing, the gap between the delivery plans and the actual orders widened. This resulted in problems for Systech, which had adapted its purchases as well as its own production activities to the former

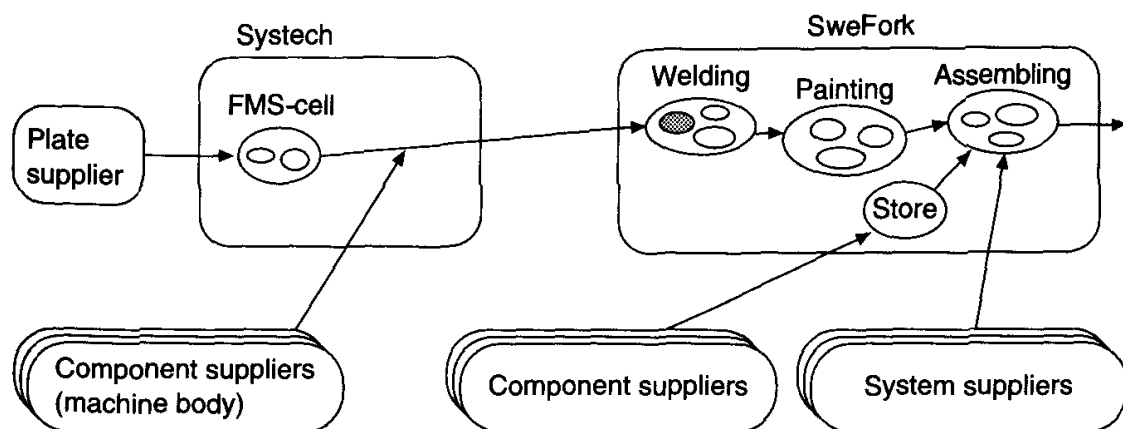


Figure 3.9 Organization of activities during phase 3

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volumes and delivery frequency. For one thing the plates, bought in special formats from a German steelworks, had to be ordered twelve weeks before delivery. The materials planner at Systech had continued to make the call-offs in accordance with the forecasts, i.e. based on SweFork's delivery plans, which resulted in an increasing stock of plates. Other parts within the machine bodies, even though of less value and subject to shorter lead times compared to the steel plates, were subcontracted by Systech. Also the subcontractors in their turn based their purchasing and production activities on SweFork's delivery plans. This led to a situation in which SweFork's machine-body-specific material and components were kept in stock for longer in several layers of suppliers. When this situation was revealed, Systech required that the ordering routines be revised.

First, the current production volumes were not considered to warrant special format steel plates to be purchased directly from the German steelworks. Instead, standard format plates stocked and delivered by a steel distributor could be used. Systech bought standard plates from this distributor on a regular basis with deliveries twice a week. Systech could thus keep the standard format plates in stock to further increase the availability. This decision would, however, require that the same steel plates in terms of material and thickness be used by other customers.

Second, the standard plates needed to be cut into the required format. This could be done either by the distributor or by Systech.

Third, the time from order to delivery needed to be lengthened from the present three weeks to six weeks so that all production and purchasing activities undertaken by Systech could be based on actual orders from SweFork. Since SweFork's delivery time to its customers was about four weeks this would result in a situation in which SweFork would have to handle a certain stock of machine body parts. As a consequence it would not be possible to send these parts straight into the welding unit as planned.

The companies involved

Other companies than SweFork and Systech influence the flow of events in the relationship of the two companies. The activities undertaken by these other companies affect the efficiency of the arrangements the two firms have *vis-a-vis* each other. Figure 3.10 shows the links that influence the relationship between SweFork and Systech.

SweFork's perspective

No efforts have been made to coordinate the sourcing of the different machine bodies, although basically the same activities are needed (the main differences between the machine bodies are differences of size). Sourcing solutions have up to now been chosen each time a major change has been made in a vehicle model. These major changes have been made one at the time. The situation on each such occasion in terms of, for instance, capacity within SweFork's different work

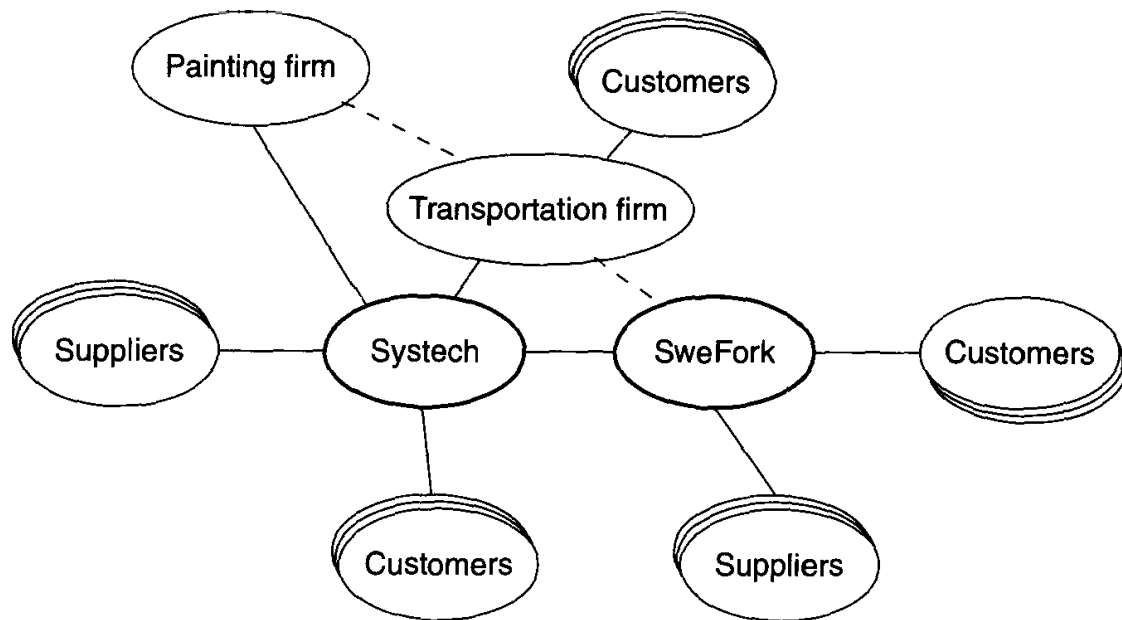


Figure 3.10 The companies involved and the relationships between them

stations, has determined what was to be done in-house and what was to be outsourced. When making the cost calculations, only the cost per unit has been taken into account; the costs incurred from making the changes were not considered. Furthermore, in times of excess capacity, the labour cost per hour was set at half the actual cost in favour of insourcing decisions.

All the work stations activated in order to produce Swefork's machine bodies are shared with activities performed on other parts of the vehicles. One of these parts is considered the core part of the vehicle and is therefore always produced in-house and ranks highest in priority. Therefore, in times of capacity shortage other parts or systems are outsourced.

As SweFork sees it, the supplier market has been developing over the years. There are numerous suppliers able to undertake the crucial activities. However, during recent years the suppliers have been divided into two categories: one consisting of rather small firms using conventional equipment (like the machining firm used in phase 1) and the other of comparatively larger firms using modern equipment and working methods (like Systech). The latter category, by focusing on large and demanding customers such as the Swedish heavy truck manufacturers, has been forced to offer JIT deliveries, guaranteeing high quality (ISO 9000 is required by the customers), and so on. The former category's resources are affected by the cost structure (low fixed cost), enabling these firms to be more flexible in reacting to variations in volumes. Therefore, a few of these firms have been able to offer lower prices for some of the machine bodies compared to the larger firms. Since the smaller firms are seldom able to offer two-component painting, this activity has to be undertaken either by SweFork or by an external painting firm. In one such case extensive delivery problems occurred, which were further complicated by the fact that the supplier and the painting firm blamed each

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other for the failings. In terms of the painting, one of the complications is getting the right shade on different surfaces. Therefore, one solution now considered by SweFork is to concentrate all the painting that cannot be done in-house to one or a few external painting firms, preferably close to the SweFork site. This firm could then also take on paint jobs for system suppliers with in-house painting problems. This solution would reduce the costs connected with solving the painting problems for several parties involved, and would also make it possible to better coordinate transportation.

The activities carried out by SweFork are subject to limitations in terms of capacity and also in the perceived need to control certain activities in-house. Concerning the machine bodies, the function of the suppliers is generally to handle variations in the production volume.

Systech's perspective

Systech was established in the 1950s and was acquired and restructured by the present owners in the mid-1980s. The most important customers today are among the largest manufacturing firms in Sweden, e.g. several companies within the Volvo group, Ericsson and ABB. Most of the present customer relationships were established in the late 1980s. Since then they have been developing mainly in terms of communication routines and of coordinated technical development. Information technology solutions are applied to facilitate the production planning, both internally (an MPS system is used) and externally (the customers are increasingly sending their delivery plans by EDI). Thus, the flow of information from the customers is, in a few cases, handled automatically all the way from the customers' planning functions to the FMS cell at Systech. CAD has been used internally for some time, and currently some of the customers have started sending their CAD drawings electronically. Hence, a main concern today is the integration of the information systems. This will entail less administration, reduced lead times and ensure less errors in the process. However, a prerequisite for making this integration throughout is the ability of the customers to adjust to the new procedures. To achieve a fully integrated information flow, delivery plans from the customers must be received by EDI files that can be updated more often than paper-based plans. Paper-based delivery plans are updated, as in SweFork's case, only every third month.

For the customers to be able to benefit from this working procedure they have to use the same means of communication with their other suppliers. This already is the case with several of the most important customers. Systech is, to an increasing extent, involved in these customers' new product development processes. In some instances Systech has even become fully responsible for the development of parts of the customers' products. This has contributed to reducing the customers' lead times concerning both development and production. The latter can be achieved by adapting the designs to fit the current production methods used by Systech.

Furthermore, the production techniques are constantly subject to development.

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Systech is investing in increased internal efficiency. Integrating the information flows, as has been described above, is one important means to rationalize the administrative part of the work. Other improvements aim at increasing the efficiency of individual activities or operations. As an example, spot welding has recently been replaced by butt (upset) riveting. Spot welding requires destructive tests, while riveting requires only the butts to be checked. A third type of efficiency improvement is the way in which Systech is constantly reconsidering what activities can be most efficiently taken care of in-house and what activities should be contracted to suppliers. Simple machining operations are subcontracted to smaller machining firms with less sophisticated production equipment. Hence, Systech has built its own network of sub-suppliers for capacity and cost reasons.

Other activities cannot be efficiently performed in-house, for volume/scale reasons. One such activity currently subject to reconsideration is painting. The painting facilities on the site consist of two painting lines, one of which was adapted to suit some customers whose products were produced in large volumes before the company was taken over by the present owners. Today production of these products has diminished, which has reduced the capacity utilization on this painting line from full utilization down to 1.5 days per week. The second painting line, used to paint several customers' products, necessitates investments in a filter system, among other things, to comply with the current environmental regulations. To be used efficiently modern painting facilities need to be run on a three-shift basis. The present volumes do not permit this, especially since some of Systech's most important customers have specific requirements which forces all their suppliers to send their products to be painted by certified painting specialists. Due to this, Systech already has developed relationships with a few painting specialists capable of meeting the requirements and able to perform the painting at lower costs. All these reasons favour a decision to outsource all painting activities to painting or surface-treatment specialists.

Analysis

One obvious reason for SweFork initiating changes in the division of work during the three phases was the improvements of the resources used to perform the activities. These improvements can be identified in both companies and are summarized in Figure 3.11. The resource improvements affect the activities in different ways. First, they affect the costs of the activities to which the resources are connected. Second, the chain of activities reflected by the flow between the work stations is affected in different ways. However, these rather straightforward effects of the improvements of the resources are not enough to explain the changes in the division of work in this case. In order to understand the whole picture we have to include the other 'users' of the resources, since these influence the level of efficiency of the activities carried out. Therefore, the third issue that will be dealt with in the analysis of what happened during the three phases is how the specific machine body activities are related to other activities sharing the same resources. The changes in volume and delivery frequency occurring in phase 3

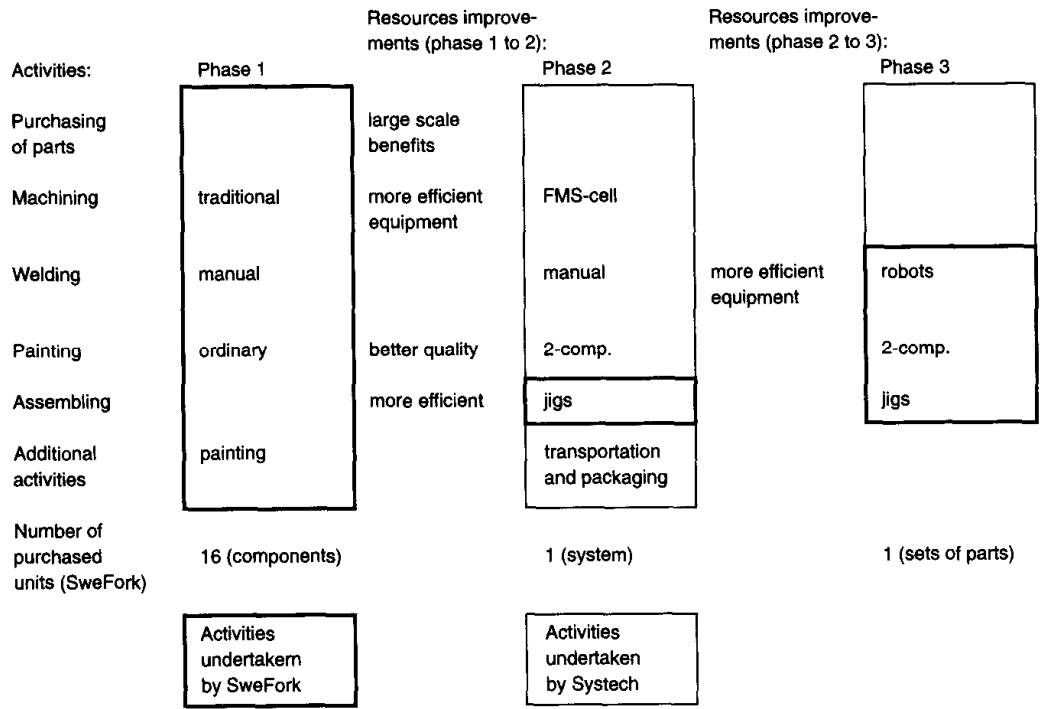


Figure 3.11 The activities performed and resources used by SweFork and Systech

revealed aspects of the activity structure which had not been so obvious previously.

Therefore, the fourth aspect that will be dealt with in the analysis concerns the question of how the reduction of the volume affected the activity chain and the individual activities of several actors. Fifth, the previous time dependencies within the activity structure could not be handled in a situation characterized by uncertainty and fluctuating demand. This also called for changes in the activity structure involving several actors.

Changes within the individual activities

If we look at the situation in phase 1, in which the machine bodies were manufactured in-house, and compare it with phase 3, we can see that all the individual activities have gone through changes of different kinds. First, purchasing could be made on a larger scale by Systech (from phase 1 to 2). Second, the machining operations could be made more efficient using Systech's FMS cell (from phase 1 to 2). The advantages achieved within these two activities could be maintained in phase 3, since Systech was still going to be responsible for these activities. Third, welding could be made more efficient due to the shift from manual to robot welding (from phase 2 to 3). Fourth, the painting activity became more efficient when a switch was made from ordinary to two-component painting (from phase 1 to 2), which was maintained in phase 3 due to the investments made by SweFork. Fifth, assembly could be made more efficient due

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to the jigs that were developed (from phase 1 to 2). Furthermore, additional activities could be eliminated successively; the extra painting activity (from phase 1 to 2) and the extra transportation and packaging activities (from phase 2 to 3). For SweFork the internal logistics were considerably reduced when the machine bodies were outsourced, since only one item had to be handled. This low degree of materials handling could be maintained almost entirely in phase 3, since Systech is supplying sets of parts.

Changes within the chain of activities and of the flow between the work stations

The activities are all sequentially dependent upon each other. That is, machining cannot be done after welding, and painting cannot be done before welding, and so forth. The main advantages of outsourcing the machine bodies in phase 2 were connected with Systech's resources: the FMS cell used for machining and the two-component painting facilities. Therefore, the welding also, coming in between the machining and the painting activities, was outsourced to Systech, even though the welding operation was done in exactly the same way as before. One major change in terms of sequential dependencies among the activities in this case is that by raising the quality of the paint, the chain of activities could be changed, i.e. the extra painting activity (including masking) could be eliminated. Thus, the chain of activities was altered as some activities were changed, others were moved and still others were eliminated.

Changes regarding connections between chains and sharing of resources

All the resources (related to the different work stations) used in this case are also used for other purposes than the machine bodies. For example, when the welding activities are performed by Systech, the welding unit is shared with activities performed for Systech's other customers. When the welding is done by SweFork the same resources are shared with the welding of other parts to be mounted into the same and other vehicle models.

SweFork may benefit from the scale advantages that Systech is able to achieve by purchasing steel plates as well as other components, and thus also from the relationships Systech managed to develop with its suppliers, including the painting firm. This, in turn, is naturally dependent on Systech's other customers which, due to the similarities in their needs, contribute by various degrees to these scale advantages. The degree to which each work station's capacity can be utilized will influence the production costs. However, in times of capacity shortage, the activities directed to different customers may compete to some extent, which will force Systech to choose between its customers. It seems natural that certain priorities will reflect the importance of the customers.

Some of Systech's other customers are considered to be very demanding. Among other things they try to pressure the suppliers into granting constant production cost reductions, many of which may also affect other customers. Although, in order for these other customers to take advantage of the cost

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reduction potentials, adaptations may be required. These adaptations can involve design changes and reconsiderations of raw material choices.

Another obvious linking effect in terms of efficiency in phase 2 was the transportation solution which had to be changed because of lack of demand. This resulted in higher transport costs for SweFork, and reduced the benefits of buying the machine bodies from Systech.

SweFork does not seem to exploit the high degree of similarity between the activities for the different machine bodies, either internally by coordination of the activities, or externally by, for instance, concentrating all activities to one system supplier. Both alternatives could contribute to an increase in the scale advantages and give SweFork a better bargaining position *vis-a-vis* the system supplier. What is not considered in the cost estimates are the costs involved in making the changes. These costs are related to finding feasible suppliers, to establishing relationships with them in order to make the links between the firms' activities function. The costs are also related to different adjustments in the internal production activities and, in many instances, to making design changes in order to adapt to the suppliers' production equipment. The latter might have an impact on other parts of the vehicle directly and indirectly connected to the machine bodies.

Volume dependencies

In order to cope with the lower production volume the activity chain and the individual activities have to be reorganized. The steel plate production has to be altered from special format plates to standard plates. Since the standard plates are already in continuous production, the real effect here is a rather marginal increase besides the elimination of the special format plate production. In order to benefit from the use of the standard plates, a distributor is used. This also results in shorter lead times *vis-a-vis* the system supplier. As a consequence, a purchasing activity has to be added to the chain, since one additional relationship – with the distributor – comes in between the steelworks and Systech. The use of standard plates requires the cutting activity to be moved from the steelworks, either to the distributor or to Systech.

On the whole, individual activities are either being changed, added, moved or eliminated as a result of the reorganization. As a consequence, the activities undertaken by the companies involved change as illustrated in Table 3.1. The change affects the activity structure because it alters the extent to which the activity chain is specific to SweFork's machine body. Prior to the change, the chain of activities had been specific for SweFork all the way from the production of the steel plates at the steelworks. After the change, the chain will become specific to SweFork either;

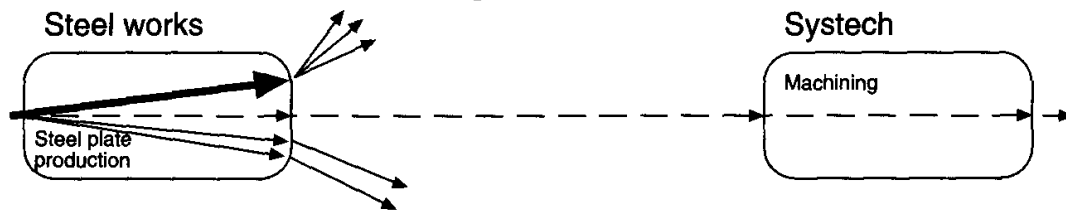
1 at the distributor – if the cutting activity is to be undertaken by the distributor, or at Systech if;

2(a) the standard plates bought by Systech are used only to produce SweFork's machine bodies, or if;

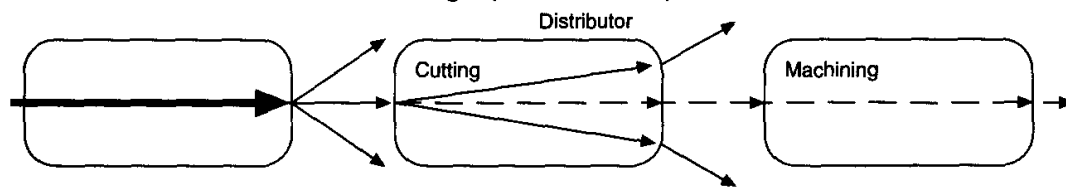
Table 3.1 Actors and activities influenced by the change

Activities	Before: (high volume) Activities:	After: (low volume) Activities:
Steelworks	Production of special format plates Cutting	Production of standard plates
Distributor	—————	Purchasing, storing etc. Cutting (1)
Systech	Purchasing	Purchasing Cutting (2)

Activities undertaken before the change



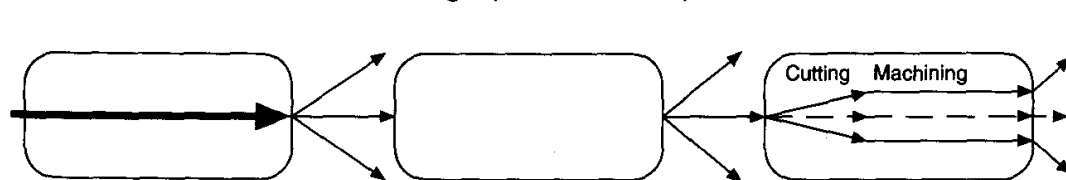
Activities undertaken after the change (alternative 1)



Activities undertaken after the change (alternative 2a)



Activities undertaken after the change (alternative 2b)



—————▶ Activities specific to SweFork's machine bodies. The thickness of the arrows illustrates the differences in scale among the activities

Figure 3.12 The activity chains before and after their reorganization

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2(b) the standard plates can be used for the production directed to other customers which would mean that the cutting activity undertaken by Systech would delimit the start of the specific part of the activity chain.

In Figure 3.12 the activity chains before and after (three alternatives are considered) the reorganization and the actors involved are presented. Concerning the specific activities, the work stations activated by them are used also for other purposes, but the activities themselves are specific to SweFork and the production of their machine bodies.

One important aspect of scale is to what other purposes the last general (non-specific) activity in the chain may be put. In (1) and (2a) this last general activity is the purchasing activity (including materials handling, etc.) undertaken by the distributor. One main consideration is then the extent to which the standard steel plates can be sold to other customers besides Systech. If no other customers to the distributor buy the same standard plates there could still be advantages (in materials handling but not storing) connected to using the distributor if Systech uses the distributor as a source for other purchases and/or if the distributor uses the steelworks as a source for other purchases. Another concern is who is best suited to cut the plates: the distributor or Systech? Once again this is a matter of whether and how the activity and the work station activated by the activity can be used for other purposes. In (2b) the last general activity, the purchasing, is done by Systech. This leads to the question of what other purposes these particular plates could be used for by Systech.

The activity chains depicted in Figure 3.12 may prove useful in the search for the advantages of making adjustments within the chain. Before the reorganization of the activity chain, the specific part of the chain started in the production of the plates at the steelworks. Hence, the choice of steel plates in terms of, for example, material composition and thickness, could be made on certain premisses related to the capabilities of the steel producer, the production methods used by Systech, and the connections between the steel plates' characteristics and other parts of the vehicle. After the reallocation, certain adjustments in the choice of plates may increase the advantages of having the specific part of the activity chain shortened. By adjusting the choice of steel plates in accordance with as many other of Systech's customers as possible, benefits may be gained immediately and/or in a longer perspective. These benefits may be related to the production methods used by Systech (related, in turn, to the flexibility of the work stations activated and the costs related to adjustments within the flexibility), and also to the availability which can be related to the time dependencies within the activity structure. Even though there were indirect connections to the other customers prior to the reallocation, due to the sharing of resources, these connections and thus the degree of similarity, may become more direct. Here the connections between the characteristics of the steel plates and the other parts of the vehicle can be seen as restrictions to the adjustments.

Time dependencies

In connection with the volume reduction, the delivery frequency decreased and became irregular. This focused attention on the time dependencies among the activities (and thus between the companies performing them) in the activity chain. In Figure 3.13, the time dependencies within the specific part of the activity structure are illustrated from order to delivery.

It is easy to see that the time dependencies within the activity structure require almost constant production volumes (or accurate forecasts) to make them manageable. The changes considered in order to cope with the problems caused by the time dependencies are of two kinds. By reducing the extent of the specific part of the activity structure, the time dependencies between some of the activities are eliminated while others are reduced. For instance, by using standard plates and buying them from a distributor, the time connected to the purchases of the plates can be cut down to one week, or even eliminated if the particular plates can be used on a scale permitting Systech to maintain its own stock. The other problem is that of adjusting the activity structure to being entirely based on actual end-customer orders. That means that the time from order (SweFork's) to delivery (from Systech) should increase from three to six weeks. The consequences of extending this time from SweFork's perspective are clearly negative. As a result, a stock of machine bodies (or rather sets of parts of the machine bodies) will be needed, which, in turn, makes it impossible to handle the flows as planned, i.e. having the machine body sets going directly into the welding unit. In order to avoid these inefficiencies, SweFork would have to increase their lead-times vis-a-vis their customers by two weeks. This is naturally not an issue.

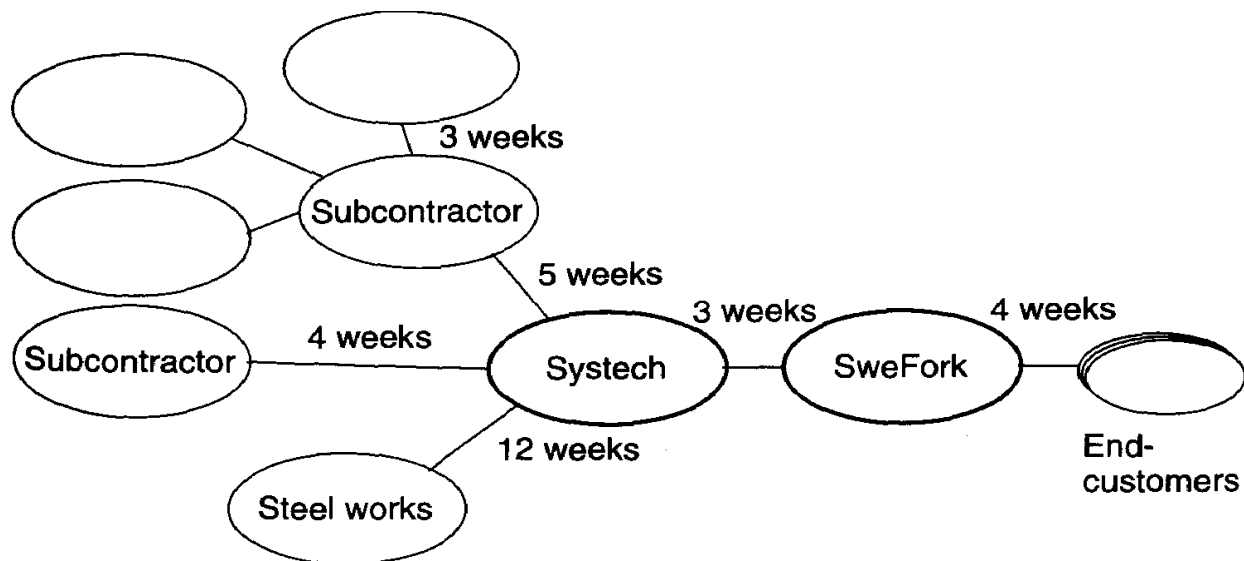


Figure 3.13 The time from order to delivery between the actors before the change

3.2.2 Glulam by Alexandra Waluszewski

Two years ago, Vallsjo AB, one of nine Swedish sawmills in the Forest Group, began to concentrate its sales of wood suitable for the production of Glulam to a single customer, the Dutch company Bussum BY. To that end, Vallsjo also changed their sorting practices, so that the qualities of timber achieved were more appropriate for the special demands set by the customer's production of Glulam components for the furniture industry. Vallsjo also began to deliver its products directly to the customer for the first time, although an agent was still involved in the affair.

For Vallsjo, to begin with this adaptation meant that the quality of a certain type of timber was increased, allowing them to extract a higher price. Further, the costs were decreased for stock-holding, at the same time as it was possible to rationalize production. For the customer, Bussum, the deliveries of quality-adapted wood were 'enormously meaningful', according to the company's managing director. The somewhat higher price that they had to pay was seen to be greatly outweighed by the advantages obtained in terms of 'tailor-made' raw materials and diminished waste.

However, it was not only Vallsjo and Bussum that were affected by this new way of working together. At the same time that Vallsjo decided to direct all its wood of laminating quality to Bussum, approximately 100 different customers and agents/wholesalers with customers in the construction and joinery industries were informed that they would no longer be able to purchase wood of this quality. The reaction from the intermediaries was moderately strong, and many purchased a decreased volume from Vallsjo, at least in the short term.

Two other sawmills within the same Group ended up in a similar situation when they too began to deliver customer-adapted wood products for lamination directly to Bussum. Further, within the Forest Group, there was a sawmill that converted laminating stock to Glulam, and in this way could be seen as a competitor for both the raw material and to the customer.

Background to the affair

The initiative for closer cooperation between the sawmill, Vallsjo and the glulam manufacturer, Bussum, was taken by the managing director of the Forest Group, Nils Akerberg. It can be seen as one step in a plan to renew the operations of the entire concern. The background to this plan was the Forest Group management's desire to move away from the situation that most sawmills have traditionally lived with, namely the sale of standard products through intermediaries to a large number of customers. It was thought that the characteristic low profitability of the sawmill industry could be improved in this way: 'To sell standard products on the international market, where price and not quality is seen as important, is not especially unique' (Nils Akerberg).

Altogether, the Forest Group sawmills were producing about 350,000 cu.m of sawn and planed timber and construction and joinery components, as well as

packaging. During the late 1980s, the Forest Group management began to formulate a new marketing strategy. This work started by identifying the lines of business in which the concern's sawmills 'had a chance to mean something in the market'. The area that crystallized as the most attractive was the production of high-quality pine products for the joinery and construction industries.

Managing director Nils Akerberg estimated that there was a total of about 1.5 million cu.m of high-quality pine in northern and western Sweden, as well as in Finland. As Skogsagarna, the main supplier of raw materials to the Forest Group sawmills, had large forests in these areas, a possibility was seen for expansion in this sphere.

The planned development also demanded access to a certain level of sawmill capacity in the region. Therefore, the Forest Group acquired two large sawmills in northern Varmland, Svanfors and Lundby, which had both earlier belonged to the Wood Concern. Through these acquisitions, the Forest Group increased their ownership to five sawmills in the area: Finnstrommens Tra, Moberg AB and Vasterbergasagen, as well as the two named above. In addition, they had two sawmills in Harjedalen, Vallsjo AB and Hede Tra, which both had access to equally good raw material.

It was not, however, simply measures for increasing the concern's capacity that were included in the work to strengthen the Forest Group's competitiveness. Extensive efforts were also directed at utilizing the capacity more fully than earlier, mostly through changing the way of working with customers.

Nils Akerberg points out that most decision-makers in the Group belonged to the generation that had learned to think of marketing as a kind of war, where both the competitors and customers were seen as opponents and where the important thing was to get the greatest return possible from each single exchange episode. This, in turn, resulted in 'jumping around,' or sales to those customers that could temporarily pay the most, as the most common way of working.

In contrast to the traditional way of operating, the development programme that the Forest Group started up included a strong 'peace-movement' component; the operations were to build on increased cooperation with certain selected customers, and each single affair was to be regarded as a part of a longer exchange relationship. Through technical development cooperation, product adaptation, adaptation in packaging and delivery, etc. the customer and supplier were both to increase their respective economic exchange and to develop stronger ties to each other.

All in all, the Forest Group management expected the change process to lead to a concentration of sales to a limited number of larger customers, as well as an increase in the percentage of direct sales. That was to lead, in turn, to the sawmills receiving a higher price for their products, and a rationalization of production, as well as an increased rate of inventory turnover.

By developing closer relationships with the customers, the Group management hoped that these would maintain a constant level of purchased volume and price, even during recessionary periods.

Naturally, changes of this nature cannot be implemented if the customers do not have something to gain. The advantage for them, from the Forest Group

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perspective, was that they would have access to wood of better and more even quality, meaning less waste, as well as biannual price guarantees.

Interest in Glulam manufacturers

For the Vallsjo sawmill, the Forest Group's new marketing philosophy resulted in a search for greater knowledge concerning how their own products were used in their customer's operations. Vallsjo was started in 1952 and by the time they were acquired by the Forest Group in 1975, had a production capacity of about 17,000 cu.m. In 1986 an extensive investment programme was begun. At a cost of about SEK 30 million, Vallsjo acquired a new lumber sorter with metal detector, a modernized wood-handling system, a completely new circular saw line, a new edger, two new kilns, and more. Through this, the Vallsjo production capacity rose to 35,000 cu.m of sawn timber products per year. This was based up to 70 per cent on pine from norther Harjedalen.

As with most other Swedish sawmills, until then Vallsjo had produced standard products which were sold via wholesalers in Sweden, as well as through agents and wholesalers abroad. The largest export markets were Norway, Denmark and the Netherlands.

The normal routine was that agents and wholesalers approached the sawmills twice a year with orders for desired quantities, qualities and dimensions. The products were then sawn by the mills, which were also responsible for keeping the stock until the customers placed their suborders. Generally there was no direct contact with the further manufacturers; Vallsjo learned about demands and desires through the intermediaries.

About a quarter of the volume produced was the highest quality of pine, called u/s. This quality is largely free from knots, coming from the lower trunk of the tree, and is sawn to high-quality standard products (which are called brand goods within the Forest Group) and sold via wholesalers to the construction and joinery industries. A significant part of this volume was exported.

The medium class, or fifths, constituted about 45 per cent of production. Fifths are used, among other things, for the production of Glulam. This grade of wood comes from the upper trunk of the tree, which includes the green knots acceptable in this quality class.

The lowest quality, sixths, accounted for about 30 per cent of production. Often the middle trunk of the tree has old, black dead knots which put the wood in a lower quality classification. By cutting out the defects, sixths wood can be used for the production of construction products. The very lowest qualities can be used in the production of packaging.

Discussions between the managing director of the Forest Group, Nils Akerberg, and Vallsjo's managing director, Anders Enberg, led to the production of Glulam being seen as an interesting special area for Vallsjo. First, the sales manager for the sawmill, Jan Svensson, had noted a type of 'lamination boom' during the late 1980s. Glulam, traditionally produced from 50 x 100–50 mm fifths, tended to be something of a commodity in short supply. Second, fifths were

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a product that it was possible to 'raise' in terms of quality, according to Vallsjo and the Forest Group's management. While u/s already had both a high quality and a high price, through special sorting and suitable trimming it would be possible to achieve fifths of significantly better quality than standard products.

Laminated timber is produced by gluing wood laminae together with the fibres oriented along the product length. In this way, a much higher strength and stability is achieved than that of normal wood of the same dimensions.

After collecting information about the larger Glulam manufacturers, both through annual reports and more informal sources, Anders Enberg and Nils Akerberg drew up a list of desired characteristics for potential partners. The criteria were: a large production volume, a strong position in the market, good financial shape and good management.

Three Dutch component manufacturers ended up in the spotlight: Bussum BY, Anneveldt and GNB. However, during information collection, it was found that Anneveldt seemed to have a weak market position and financial situation, and therefore the interest in this company cooled down. Attention fell on those particular Dutch producers, partly due to the fact that Vallsjo already sold a large proportion of their Glulam stock to these customers through agents and wholesalers, but also because these customers were relatively large and technically advanced. Together with the manufacture of packaging (pallets, etc.), the production of Glulam was the largest segment of the Dutch wood industry. Six large companies accounted for just over 70 per cent of the total Dutch use of Glulam stock. Of these, Bussum BV was the largest producer.

The right raw material to the right customer

One further step was made in the transformation of Vallsjo from a 'commodity sawmill' to one focusing on customer orientation. Under the initiative of Anders Enberg, cooperation was started between the sawmill and its largest raw material supplier, the Skogsagama's Forest Administration in northern Harjedalen, which accounted for about 60 per cent of the sawmill's supply needs.

The basic idea was that the steering of timber of different qualities towards different customers should already be started in the forest. There are, of course, variations within the standard quality classifications for wood. For example, wood that has grown in different geographic areas can have different quality characteristics. Vallsjo's management wanted to try and coordinate the timber from different geographic areas with different customer's demands by using the Forest Administration's knowledge of the characteristics of forest in various districts, as well as the long-term harvesting plans.

Vallsjo's idea was received with interest by the Forest Administration, although with the reservation that the cooperation between these two parties should not supplant work with other customers. The administration's head, Bertil Nilsson, emphasized, however, that a closer connection between the sawmill and the administration, and a better utilization of wood as a raw material, could give surplus value to both partners in time.

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The outcome of the negotiations between the Forest Administration and Vallsjo was, first, that a new long-term delivery schedule for three to five years was established, in comparison to the earlier one-year plan. A second measure was that the deliveries of wood, to the greatest possible extent, were to be spread evenly through the year. As wood is a fresh material, a continuous flow is essential for the sawmill. To the extent that the Forest Administration could maintain this delivery scheme, Vallsjo was to pay a certain premium. A third change was to direct the supply composition in terms of dimensions, qualities and species. In order to execute these changes, all the workers in the forest area were invited to Vallsjo, partly to go through further training in conversion and partly to learn more about the sawmill operations and how the wood was further manufactured by customers. Even if the forest workers did not receive higher pay for marking the cross-cutting according to the instructions specific for Vallsjo, all were in agreement about the importance of achieving the highest possible value from the wood.

The first direct contact between Vallsjo and Bussum

Nils Akerberg, managing director of the Forest Group, and Anders Enberg, managing director of Vallsjo, made that first trip to Holland in order to visit the Glulam producers GNB and Bussum. The contacts between the companies were mediated by BV Houthandel Schrooten (BVHS), Vallsjo's agent and wholesaler.

Jan Regensmortel, managing director and part owner in BVHS, was positive about his role as a mediating link leading to greater cooperation between Vallsjo and the manufacturers of Glulam. Regensmortel had noted increasing interest in customer-adapted products, mainly from furniture and furniture component manufacturers, as well as construction companies.

In addition to Vallsjo AB, BVHS bought wood from about twenty sawmills in Sweden, Norway, Finland and to a lesser extent the Soviet Union. With an annual turnover of SEK 125 million, BVHS was a medium-sized agent and wholesaler of primarily standard sawn timber products and construction material. Their customers included joineries and construction companies, as well as lumber yards. BVHS also manufactured some wood products themselves, for example, through pressure treatment.

The Forest Group's representatives, Anders Enberg and Nils Akerberg, thought that they were met with a certain level of interest, but also scepticism. This latter reaction was thought to result from the fact that there was a competitor to the Dutch manufacturers of Glulam within the firm, Moberg AB. At Bussum, the visitors neither saw the production facilities nor met the company managing director and owner. Instead, the discussions were with the head of purchasing, Gerrit Dekker. The impression that Anders Enberg and Nils Akerberg received from this first direct contact was that Bussum valued Vallsjo's products highly. An adaptation of these to the demands set by the production of Glulam was also seen as attractive. However, a closer interaction with other members of the Forest Group was not desired.

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For Vallsjo and the Forest Group, the visit to Holland meant that Bussum was more clearly perceived to be the most attractive cooperation partner. This company was regarded as being stronger than GNB in terms of size, technology, management and economy. In line with the plan to concentrate sales on a few, large customers, the last mentioned factors were important criteria.

At the same time, according to Bussum's own management, Vallsjo's invitation to closer cooperation was received with great interest by their customers. Ten years earlier, when the company was relatively new, the managing director, Jos der Veer, had tried to arrange custom-made deliveries from a number of sawmills. Jos der Veer believes that this did not succeed because the company was too small and new in the market to attract suppliers. For a sawmill, there is a certain risk in concentrating a large quantity of certain products to a single customer. By that, Bussum's managing director meant that the wholesalers had and have too much power over the development of the sawmill assortments. With respect to the wholesalers' operations, it is naturally practical if all the sawmills produce standardized products, which can be placed as required between different customers.

The classification system used by the sawmills, with division into the classes of u/s, fifths and sixths, was seen as completely obsolete within Bussum. It may have been a necessary system in the early decades of the century, when the sawmills' technical equipment didn't allow for especially great precision and variation in the manufacturing process. For the demands of the 1990s, however, the old classification system was thought to have played out its role, according to Jos der Veer and Gerrit Dekker.

The two-year lag until the customized deliveries really come into effect, according to the Bussum management, was due to the time required to reorganize production and deliveries: 'For Bussum, the Forest Group's idea of customer adaptation is extremely positive' (Jos der Veer).

Cooperation between the sawmill and Glulam producer begins

A year after the first visit, Anders Enberg and Nils Akerberg travelled down to Bussum again to discuss closer cooperation. This time the negotiations were opened by the managing director, Jos der Veer, the head of purchasing, Gerrit Dekker and the head of production, Carl Haegen. The meeting resulted in an agreement that Vallsjo would begin to deliver all its wood of laminating quality, involving up to about 10 per cent of their total production, directly to Bussum.

During the summer, the negotiations concerning the qualities and volumes that Vallsjo would deliver at what prices were concluded. The laminating wood that Vallsjo was to produce would be adapted to Bussum's special demands. Traditionally, the raw material for Glulam is produced from fifths which are cut in 30 cm pieces. For Bussum, Vallsjo was to simply trim the ends, after which the customer could execute the production-adapted final trim. Further, Vallsjo was to sort the wood according to specifications drawn up by Bussum. The customer was to pay a somewhat higher price for this 'Bussum quality' than for laminating

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stock of a standard quality. One final change in the exchange between Vallsjo AB and Bussum was that the deliveries of the adapted qualities were to go directly from the sawmill to the customer. Both within the Forest Group and Bussum, the opinion was that changes were essential in the relationships between the sawmill, agents/wholesalers and the users of wood.

Nils Akerberg, believed that none of the traditional roles in the forest, in the sawmill, at the agents, wholesalers, further manufacturers or at the final customers would remain unchanged when the wood products were adapted to the demands of the user to an even greater extent. Regarding the relationship between the sawmill and larger customers, direct interaction could come to be preferable, while the intermediaries' most important function would be in connection with the relations between the sawmill and smaller buyers, such as smaller joineries, construction companies, lumber yards and craftsmen.

Both the managing director of Bussum and the head of purchasing suggested that an agent or wholesaler could be essential if a buyer was new in the market. The role of the agent would then be as a sort of consultant who knows which suppliers exist and can arrange contact with these. When the relation between buyer and supplier has begun to develop, according to Bussum's management, it then becomes advantageous to be able to work directly with the sawmill. The agent more or less disappears out of the relationship — but continues, however, to pocket money for goods that it never handles.

Concerning the situation of customer adaptation, according to Jos der Veer and Gerrit Dekker, the intermediary can be more problematic than helpful. An agent/ wholesaler can never know the different customers' specific operations and needs exactly. Further, in the sawmill there is a special knowledge about the characteristics of the raw material that the wholesaler can't possess. When an agent/wholesaler is involved, it is easy to let them act as a sort of 'filter', which means that important information and knowledge never reaches the customers or suppliers.

Despite the fact that the wood was to be delivered directly from Vallsjo to Bussum, and that neither of these partners deemed it necessary to involve an intermediary, the business was still to be contracted for through one of Vallsjo's Dutch agents/wholesalers, BV Houthandel Schrooten. As BVHS accounted for a large portion of Vallsjo's sales of 'brand goods', construction and joinery products of u/s quality, the sawmill simply could not afford to end up in conflict with its agent. The turnover that BVHS handled in this area exceeded both the volume and value of the Bussum business.

The role of BVHS in the deliveries to Bussum consisted solely of contractual responsibility. For this, the agent received the normal remuneration, 2 per cent of Vallsjo's sales price. Neither the sawmill nor the Glulam manufacturer thought it fair that the BVHS earnings would also increase if the mutual efforts by Vallsjo and Bussum resulted in increased deliveries to Bussum.

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Three months later, Bussum's managing director, Jos der Veer and head of purchasing, Gerrit Dekker, visited the Vallsjo sawmill for the first time. In principle, almost the entire company was involved in the discussions concerning how Vallsjo's production should be adapted to Bussum's needs.

The Bussum representatives, together with the head of production and the sorters, went through which quality variations could not be accepted. For example, all stock with stain, checks, wane and loose knots was to be sorted out. In the process, Vallsjo obtained a by-product that still needed a market. By sawing and planing the rejected material into bolts for a prefabricated house manufacturer with demands on the wood other than appearance, Vallsjo was able to place that material.

'It is not really possible to divide wood into high or low quality. While knots may be perceived as a defect in certain situations, it is acceptable in products such as laminating stock, material for kitchen cupboards, and so on. It is simply a matter of matching the qualities available with the different end-uses.'

(Lars Bergkvist, planer, Vallsjo)

A month later, Vallsjo AB made the first trial sort and delivery to Bussum. The sawing of the laminating stock, according to Lars Bergkvist, was done in the traditional way. The changes consisted of special sorting and a modification to trimming of the beams. At the same time, Vallsjo AB began to use quality-directed deliveries of wood in northern Varmland, with the help of the Forest Administration. In practice, this meant that timber from areas with characteristics suitable for the production of laminating stock was earmarked for Bussum.

'Vallsjo's cooperation with the Forest Administration was a clear contribution to an already good raw material becoming even better. Both the Forest Administration and the sawmill began to see the wood in context, rather than as an isolated product.'

(Jos der Veer, managing director)

The first specially sorted deliveries were followed up by Lars Bergkvist, a planer, and two of the sorters, Jonny Larson and Tomas Jonsson, who travelled to Bussum and participated in the handling of the beams. By taking part in the use of their own products in the customer's production process and above all by seeing which quality variations were considered defective, Vallsjo's personnel were better able to make adjustments for Bussum.

This was the first time that either Vallsjo's head of production or the sorters had visited a user, or that the knowledge that existed in production could be directly used by the customers. For the sawmill, this contact was seen as valuable, contributing to both an increased understanding of the customer demands as well as the company's own process of conversion. Even the management at Bussum

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considered it to be essential that the sawmill and user personnel learned to know each other's operations, demands, and not least, possibilities.

'It is a completely different thing to see with one's own eyes wood that comes from us that the customer cannot use, compared with having it described by someone else.'

(Jonny Larsson, sorter, Vallsjo)

The importance of functional adaptation for Bussum

For Bussum, Vallsjo's direct delivery of the special 'Bussum qualities' primarily meant an increased exchange of raw material. According to Jos der Veer, the amount of waste involved in the traditional use of Glulam stock can be as high as about 15 per cent. (This waste is not completely without worth, as some of the rejected stock can be used for simpler products.) With Vallsjo's customized products, the level of waste fell to 5 per cent or less.

In the first stage, Bussum's management saw that cooperation with the sawmill led to a higher quality for their main input material for glulam. But when the new way of operating was established, the quality of the ready components was expected to improve so much that even the users of these would be able to see the difference. Jos der Veer believed that this would make it possible to achieve a higher price for the ready furniture components. He saw the cooperation with Vallsjo as being a major turning point.

Vallsjo's sister company in the Forest Group is involved in the cooperation with Bussum

One aim of the Forest Group's new marketing philosophy was that the sawmill should concentrate its sales to certain, selected, large customers. In order to be an important supplier to such customers, it was not only necessary to be able to deliver specially adapted products, but also to offer large volumes. By acting together, the sawmills could become the main supplier for medium-large customers, something that was completely impossible for small individual units.

In order to achieve this cooperation, the managing director for the Forest Group and the representatives for the eight sawmills met once every six months to inform each other about their respective operations and to discuss different ways to cooperate. According to the head of the sawmills, it was Nils Akerberg who set the pace for the group's joint actions.

The responsibility for brand goods, joinery products and construction products was divided among the different sawmills. For the Bussum business, it was Vallsjo's managing director, Anders Enberg, who acted as the contact person for the different units in the Group.

'Our group includes eight sawmills with at least as many individual wills. To coordinate us to work for the same goal, to cooperate and to think from the

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group's perspective is a part of the whole.'
(Sven Kvist, head of research, Svanfors)

Lundby AB initiates contact with Bussum

Lundby's first direct contacts with Bussum took place when the sawmill management initiated closer cooperation with the Glulam manufacturers. As per Vallsjo, Lundby had been delivering sawn timber of a standard quality for the production of Glulam to Bussum through intermediaries for a long time.

Through Lundby's agent in Holland, Bergner B^y, a meeting was arranged between the head of purchasing at Bussum, Gerrit Dekker, and Lundby's managing director Rune Hoglund. An additional representative of a sawmill in the Forest Group went along on the trip, the head of production and sales at Moberg AB, Rolf Nyberg.

The representatives from the Forest Group were somewhat uncertain as to how they would be received by the customer. After all, Moberg also procured green knot qualities from Lundby, and could be seen as both a competitor for raw material and a supplier to Bussum. The reception at Bussum was, however, positive and Gerrit Dekker began to outline a plan for direct exchange of customized green knot sorted wood.

Behind Lundby's new interest in a closer relationship to the users was the Forest Group's acquisition of the sawmill a year earlier. This did not only imply the acceptance of the Forest Group marketing strategy, but also the initiation of a programme of modernization that gave the sawmill the flexibility that customer-oriented operations demand.

The investment, at a level of SEK 85 million, provided Lundby with completely new kilns, a new wood handling system, and rebuilt and modernized bandsaw lines. The investment in the new kilns alone was worth SEK 35 million, and meant that the sawmill could offer several different moisture contents. Traditionally sawn timber was dried to 18 per cent moisture content, regardless of whether it was intended for construction or joinery products. This wood could be stored outside and transported without special climatization equipment, without regaining moisture content. However, to be able to use the wood, the customers were forced to dry it to 8–10 per cent, unless the sawmill offered further moisture content reduction. At this dryness, however, the wood had to be stored in specially climatized rooms and distributed in protective packaging so that it did not regain moisture from the environment.

With a production capacity of 130,000 cu.m, Lundby was significantly larger than its associated company, Vallsjo. Lundby only cut pine from the northern parts of Varmland. The main part of the raw material was delivered by the Forest Group. In contrast to the Vallsjo operations, Lundby was not involved in developing closer cooperation with the forest operations. According to Rune Hoglund, the larger sawmill, with almost double the production of Vallsjo, had a totally different raw material situation, where the only thing possible was to 'take what's available'. However, in the future Lundby would be interested in

coordinating the raw material supply with the customer's demands.

At a meeting with the Forest Group's marketing section, Lundby's management received information that Vallsjo had also begun to negotiate with Bussum concerning customized operations. The need for internal cooperation concerning this customer thus became more or less obvious.

Deliveries from Lundby to Bussum begin

At the same time as they visited Vallsjo for the first time Jos der Veer and Gerrit Dekker travelled to Lundby in order to lay down the general outlines for the first trial deliveries. Anders Enberg from Vallsjo and Sven Kvisdt, the head of sales for the Forest Group's Svanfors mill, also participated in the discussion on that occasion.

A trial delivery was scheduled and the head of purchasing for Bussum demonstrated the demands on Glulam stock quality for the sorters at Lundby. As when Vallsjo began delivery of customized wood, the trial deliveries were followed up by a visit to Bussum by Lundby's head of production, the sorting foreman and several sorters. There they observed how the products were handled in production.

In Holland, Lundby's representatives learned more about the demands that Bussum's operations placed on the stock, including the fact that the volume of wood with wane and tight knots was too high in the first deliveries. The direct contact between the decision-makers from the sawmill production and the customer was seen by the management at Lundby as being so positive that they thought all employees should eventually visit the user in order to gain knowledge and understanding.

In addition to Lundby being able to get a higher price for the adapted Glulam stock for Bussum, and the scope to rationalize production, this way of working also meant that stock that was previously considered to be suitable only for the production of pulp, for example top logs with a large number of knots, was now profitable to ship to the sawmill.

According to the management at Lundby, it was understandable that the smaller sawmills worked in the traditional way with standard products delivered through intermediaries for a long time; earlier they did not have the resources required to develop their market contacts. For the smaller sawmills, the intermediary often functioned as a buffer that played the small sawmills off each other. However, the fact that the largest forest companies, that had both personnel and economic resources, had not moved closer to the market earlier was seen as more surprising.

'The management in Swedish sawmills has long thought in terms of capital and labour. But it is not sufficient to simply invest and hire people. The transfer of knowledge from the sawmill to the end user is absolutely central. Each person who handles wood has developed important knowledge that is important to access.'

(Rune Hoglund, managing director, Lundby)

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The transition from functioning as a traditional commodity sawmill to a customer-oriented one involves a complete change in the work of the sawmill, according to Lundby's managing director, a change extending from raw material handling to sales. Rune Hoglund pointed out that it was a new way of working for everyone, which would take time to learn. This functional set could also demand a completely new type of organization. Instead of a traditional division between production and sales decision-making responsibility, Lundby changed the areas of responsibility so that a decision-maker became responsible for both production and sales in the areas of construction materials, brand goods, or joinery products. Through this, a better overview and control of the entire flow from raw material to customer, which is important in order to offer customized products, was developed.

Lundby cooperated closely with its sister company, Moberg AB, which had already been mainly working in this way for the past fifteen years, in order to transform the operations from functioning as a commodity sawmill to being customer-oriented.

'The internal transfer of knowledge is incredibly important. We have certainly made a large number of mistakes, but significantly fewer than we would have made without benefiting from Moberg's experience.'

(Rune Hoglund, managing director, Lundby)

Moberg AB – competitor or complement?

As far back as 1946, Moberg had begun to act in a somewhat different way from the other sawmills in the Forest Group. The Nyberg family, founders of the sawmill, ran a joinery workshop during the same period. In this way Moberg acted as a combination of sawmill and joinery, with strong connections to the user side, from the very beginning.

Consequently, the operations at Moberg were traditionally directed to further manufacturing and customer-adaptation. Of the annual production of 50,000 cu.m of timber, the sawmill produced about 35,000 cu.m planed products. The largest sales areas were in Norway and central Sweden. In addition to other products, Moberg had been making planed construction products for a prefabricated house manufacturer, Andersberg, for fifteen years. The deliveries of specially adapted rafters and joists had always been direct from the sawmill to the customer. Besides this, Moberg manufactured standard components for both the Swedish and Norwegian construction industries, which were sold both directly to house manufacturers in Malardalen, Smaland and Norrland, as well as via intermediaries for construction materials.

As Lundby had guaranteed to continue to satisfy Moberg's Glulam stock requirements in the future, the Nyberg brothers had nothing against them beginning to deliver raw materials to Bussum too. Moberg was 80 per cent self-sufficient in terms of Glulam stock, while Lundby provided the remaining 20 per cent.

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The managing director of Moberg, Sture Nyberg, could not see any reason to object to the other companies in the Forest Group cooperating with Bussum from a marketing view either. While the Dutch Glulam manufacturer mainly supplied the English, West German and Dutch markets, Moberg was mainly oriented to furniture manufacturers in Smaland and in the southern parts of Norway. Further, the buyers of Moberg Glulam, which account for about 20 per cent of the company's total sales, set higher demands on product quality and flexibility than offered by Bussum.

Rather, Moberg's management thought that the individual units such as Lundby and Vallsjo would gain from cooperation. Representatives from Moberg could visit users such as Bussum with more technically developed equipment and gain from their experience and knowledge. In return, Moberg could act as a type of development consultant to Lundby, to ease the transition from commodity production to function-adapted production.

During the development phase, Moberg's head of production and sales, Rolf Nyberg spent about a third of his working hours at Lundby, steering the production towards the qualities that Bussum demanded. At the same time, personnel were sent from Lundby to Moberg to learn more about the production of Glulam. Even the Bussum managing director, Jos der Veer, pointed out that Moberg was more a complement than a competitor. With customers in different areas and in different niches, according to Bussum's management, both partners could gain through cooperation.

'Moberg can learn a great deal from Bussum's technology, and at the same time can educate the Lundby personnel for Bussum's benefit.' (Jos der Veer)

Svanfors becomes Bussum's third customer-oriented supplier in the Forest Group

As was the case with Lundby, Svanfors entered into cooperative work with Bussum through the Forest Group's marketing group. Again similar to Vallsjo and Lundby, Svanfors had earlier sold Glulam stock of a standard type to Bussum, but through wholesalers and without being aware of it.

For Svanfors, the Forest Group takeover meant that a whole new way of working was initiated at the sawmill. Earlier they had produced standard products, and made no adaptations for the customers. Instead, the wholesalers had come to the sawmills with their requirements in terms of quantity, dimensions and quality.

'The sawmill itself had seldom worked with marketing, but rather had waited for telexes from its wholesalers. In the smaller sawmills it has traditionally been seen as unproductive to work with paper – in order to be useful one should stand at the saw and saw.'

(Sven Kvist, sales manager, Svanfors)

When the Forest Group took over Svanfors, ideas concerning market- and customer-orientation were conveyed in different ways. First, a new sales manager, Sven Kvist, was hired from a marketing-orientated sawmill without its own forests. Sawmills without forests must acquire their raw material from external suppliers, and are forced by tough competition from larger industry sawmills, with access to their own timber supply, to be sensitive to the users' demands and desires. Second, all the employees in the sawmill were educated in the new way of working.

To facilitate operations with flexible, customer-oriented production, the Forest Group carried out an extensive investment programme at the antiquated, worn-out Svanfors mill. At a cost of SEK 95 million, the sawmill was furnished with a thirty-slot timber sorter, a new cling saw line, computerized automatic canter, new raw material handling, new length-cutting equipment, new mobile kilns and slab resaw. The latter item is used to cut out the pith, which considerably decreases the risk of checking during drying.

Access to the new length-cutting equipment meant the end of an era in sorting that had been the same since the end of the 1800s. The increased sorting capacity meant that it was possible to sort out an additional 7–8 variants in relation to the earlier three qualities; u/s, fifths and sixths.

With the new production equipment, Svanfors could manufacture 50,000 cu.m of function-adapted wood per year, about the same as Vallsjo.

'It is necessary to get something sensible out of every log – to find a customer for every quality and a quality for every customer.' (Sven Kvist, sales manager, Svanfors)

In order to educate Svanfors about the demands placed on Glulam stock, Bussum's head of purchasing, Gerrit Dekker, and the head of sorting came up to Svanfors. Due to the experiences of the sister companies, Vallsjo and Lundby, the Svanfors sorters went down to Bussum and participated in production there even before the first trial deliveries. Even Bussum's sorters visited Svanfors in order to get to know the sawmill operations and to convey their own company's desires. As per the sister companies, Vallsjo and Lundby, Svanfors sent its products direct to Bussum.

Customized operations influence the work of all those who work in the sawmill, says sales manager Sven Kvist. Earlier, a limited number of standard products were sorted out for anonymous customers and uses. Following a move to customization, new demands were certainly placed on the sorters, but at the same time they got the opportunity to be involved in the creation of new products, and their knowledge was exploited in a totally different way.

'Everyone wants to create something. It is clearly positive for the sawmill if a group of workers are able to develop in their work.' (Sven Kvist, sales manager, Svanfors)

For the sawmill salespeople, the market-orientation meant that functions such as 'problem-solving' for the customers became even more important. Instead of

selling the maximum volume and gaining something in the short term, the new direction was to find the right quality for each customer. When the salespeople visited customers that were earlier only visited by the sawmill's wholesalers, it was often found that they were using inappropriate types of wood products. By suggesting adaptations in trimming, sorting, choice of dimensions and/or qualities, the sawmill representatives could contribute to decreased waste for the customer. The management of Svanfors hoped that this approach would result in the customers staying with Svanfors, even in periods of economic downturn.

The cooperation with the Forest Administration in the Forest Group, that Svanfors carries out in the same way as Vallsjo, meant that already from the marking of stems for cross-cutting, logs of different qualities and dimensions would be connected with different customer's demands.

'The traditional, standardized products have actually never suited anyone. To have a level of waste of 50 per cent, which is not uncommon with house building of loose timber, for example, is a gigantic waste of resources.'

(Sven Kvist, sales manager, Svanfors)

The Forest Group as main supplier to Bussum

The cooperation between the different sawmills in the Group made the Forest Group Bussum's largest supplier. For the first full year, Vallsjo alone accounted for about 10 per cent of Bussum's wood requirement for the production of Glulam. With Lundby and Svanfors as new suppliers, the Forest Group's share went up to 30 per cent, and was expected to rise further when the later units were worked in.

Vallsjo made one further adaptation on account of Bussum, investing SEK 7 million in a new kiln. Up to this point, Vallsjo had delivered wood with a moisture content of 18 per cent, and Bussum had dried this further to 8–10 per cent. With the new drying equipment, Vallsjo could carry out the later stage for Bussum. According to managing director Anders Enberg, the investment would have been necessary sooner or later, but the relationship with Bussum unequivocally brought the acquisition forward a number of years.

From Bussum's perspective, the cooperation with the sawmills in the Forest Group was seen as meaningful.

'The adaptations that the Forest Group sawmills have made are both long-awaited and very important for Bussum. We understand that small sawmills, with limited technical and personnel resources, don't always have the possibility to adapt to the customers' needs. However, it is surprising that so many sawmills in the larger forest industry groups still operate in a totally traditional way. Presumably they are locked in by tight bureaucracy and by the difficulties the older generation have in relearning.'

(Jos der Veer, managing director, Bussum)

Apart from the direct contact with the different units and the direct deliveries of

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specially adapted glulam stock, Jos der Veer also saw the exchange between sawmills in the group as essential. This is not only because of the larger volume of function-adapted raw material that is obtained in this way, but also because customer and market knowledge could be built up in the different sawmills.

Even if the Bussum management said that it would take time to teach all those in the sawmill a completely new way of working, and that certain mistakes must be accepted in the beginning, they felt that the Forest Group and especially Vallsjo had come a long way towards customer-oriented operations.

The intermediary view of the cooperation between Bussum and the sawmills in the Forest Group

The only sawmill in the Forest Group that continued to use an agent in its relationship with Bussum was Vallsjo. In practice, both the personal exchange and the deliveries of Glulam stock went directly from the sawmill to the customer.

Within BVHS, the agent/wholesaler that took care of invoicing for the business, the management, under managing director Jan Regensmortel, said that customer-adaptation was clearly something new in the branch, and something that was there to stay. Jan Regensmortel also felt that it was necessary for the sawmills to modernize their way of treating customers. An operation that gives the sawmills a better average price of its products and that can decrease the customers' waste from 10–15 per cent to 2–3 per cent was, according to the BVHS management, something that even the wholesalers were obliged to support and accept.

However, a customer-oriented operation sets new demands, pointed out Tom Houten, a purchaser at BVHS, who said that there were many in the branch who were opposed to the trend. The unease arose from the fact that the wholesalers could be forced to broaden their operations and take in new products, among other changes. It could also be more difficult to place goods between different purchasers. Both Jan Regensmortel and Tom Houten indicated, however, that customer-adaptation was something that sawmills in southern Sweden had been working with for a long time. As they had access to a raw material of lower quality than that in Norrland, these companies had been forced to find special niches in order to survive, as long as fifteen years ago. For example, the Forest Group's three sawmills in Smaland all produced an array of different purpose-adapted products. On the other hand, the sawmills in northern Sweden had remained unresponsive, over that period, to the increased demands for function-adapted wood for both furniture production and construction. As they could find other markets for their products, they had not chosen to make further sacrifices for their customers.

The BVHS representatives emphasized accordingly, that they were not against customer-adaptation in itself, quite the contrary. What the agents/wholesalers, on the other hand, did not appreciate was when the sawmills began to interact directly with the customers in these situations,

'It is we agents and wholesalers that are placed in the market and know the customers and the changes that happen here. It is very difficult for a sawmill that is located 2,000 kilometres from here to have the right market contacts.'

(Jan Regensmortel, managing director BVHS)

What Jan Regensmortel said was that while the wholesaler's role certainly changes with market-orientation from the sawmills, it by no means becomes unimportant. It is the intermediary that knows the customers' operations, how these change and develop. The BVHS representatives believed that the wholesalers should be involved and interpret the customers' demands, so that all the involved partners understood them.

Even if the managing director from BVHS emphasized that the relations to Vallsjo were good, they reacted with displeasure to the direct deliveries of Glulam stock from Lundby and Svanfors to Bussum. The management of BVHS was convinced that the change-over of these companies from commodity to customer-adapted operations would be easier if the wholesaler were actively involved. The intermediary's role was especially important with claims, not least in the shifting of qualities that were unsuitable for specific customers.

Bussum's management, however, took the opposite view and believed that it was precisely in the case of claims that it was good to have direct contact with the sawmill. Jos der Veer said, also, that direct exchange with the sawmill entailed a proportionately smaller number of claims, considering the adjustment process that the sawmills were undertaking. The head of purchasing, Gerrit Dekker, suggested further that with today's communication, with contact by telephone and fax, and with the possibility of reaching the most distant suppliers in three or four hours, the role of the wholesaler as contact facilitator was diminished even further.

When the management of the Forest Group described the new way of working in the internal newspaper as a closer connection between the forest, sawmill and customer, without mentioning the role of the intermediary, the managing director of BVHS sent a letter to the editor of the same journal. Jan Regensmortel agreed that it was appropriate to describe the path of wood products from the forest to Glulam production, but stated that the role of the local representative had been neglected;

It is important that the demands of the final customer are conveyed back through the system in the right way and in the right terms so that those who work in the sawmill and those who harvest the trees in the forest have an understanding for how the product will be used.

It is here that cooperation with the agent comes into the picture. It seems as if the Forest Group News has totally forgotten that there is a very important path, namely the information path from the user to the sawmill and from the sawmill to the forest.... We at BVHS have a great advantage in that we function both as an agent and wholesaler. We can therefore offer the supplier and customer optimal service. If the customer has an acute need, it can be covered from our three large central stocks. If there is a problem in production,

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we can also be of service. If there is a big claim, we are close to the customer and can quickly solve the problem and more importantly: we are conscious of our responsibility for the information we receive. The needs of the market change, and it is important that this information be conveyed through the system to the supplier.

(Jan Regensmortel, letter to the *Forest Group News*)

Vallsjo is threatened by a stop in purchases from the excluded wholesalers

As with BVHS, Vallsjo's two other Dutch wholesalers were positive to customer-adaptation *per se*, but both firmly asserted at the same time that the wholesaler's function was at least as important in this type of business as in the sale of standard products.

The smaller wholesaler, BV Houthandel Schagen, was certainly critical of Vallsjo's actions in relation to Bussum, but still continued to buy goods from them to as great an extent as before. Houthandel Schagen had dealt with Vallsjo since the middle of the 1980s. The products bought from them were conveyed further to lumber yards and building contractors, as well as furniture and window manufacturers.

When Vallsjo stopped delivering Glulam stock to Houthandel Schagen, due to their business with Bussum, the wholesaler had some problems in finding replacement volumes for its customers during the transition period. According to Houthandel Schagen's management, Vallsjo should have acted in another way: informed Bussum that they would continue to work together with other wholesalers; and continued to guarantee deliveries of Glulam stock:

'It is not possible to sell the cream to certain, selected customers and then leave the rest for the wholesaler.'

(Vincent Graf, managing director, Houthandel Schagen)

Despite the criticism, Vincent Graf saw Vallsjo's cooperation with Bussum as something of an exception, and hoped that the company would not shut the wholesaler out from certain products in the future. Precisely like BVHS, Houthandel Schagen's management said that it is the wholesalers who know the customer and who can create a dialogue between the sawmills and users. In the case of claims, the wholesaler is near the customer and can go in and, for example, shift the wood between buyers.

This last opinion was also expressed by Vallsjo's Dutch wholesaler, BV Houthandel CDK. This company, as with BVHS, acted both as an agent and a wholesaler, with customers in the Dutch construction and joinery industries as well as lumber yards. Houthandel CDK themselves further manufactured certain products, for example through pressure treatment.

Houthandel CDK's head of purchasing, Paul Velden, saw customer-adaptation as a noticeable trend, and something essential if the sawmills were to survive in the long run. Certainly it is easier for wholesalers with standard products that are easily transferred between different buyers. Houthandel CDK had, however,

noticed that in the last few years there had been a significant increase in the demand for function-adapted wood, mainly from the furniture industry.

Houthandel CDK's management believed, however, that Vallsjo had tackled the problem of market-orientation in the wrong way. To bypass the wholesaler and to work directly with the customers, according to Paul Velden, was negative both for the sawmill and the wholesaler. The sawmill had to employ someone who knew the demands of the users anyway, someone who could do the job already done by the wholesalers. Houthandel CDK's management emphasized that the wholesalers had well-educated people, in both purchasing and sales functions, who knew both the suppliers' and customers' operations.

Further, Paul Velden pointed out that Vallsjo was taking a big risk by concentrating all their sales of Glulam stock on Bussum. What would Vallsjo do if business started to go badly for Bussum? If the different Swedish sawmills took the same path as Vallsjo, CDK's management believed that the future looked bleak.

Houthandel CDK's managing director pointed to the Forest Group sawmills in southern Sweden as examples of successful customer-adapted sawmills that had chosen to work through wholesalers.

'The sawmills in southern Sweden work in a way that the other sawmills should adapt. Direct sales can go well in favourable years. But what happens when there are problems, when the small number of customers find it difficult to find markets for their products?'

(Paul Velden, managing director, Houthandel CDK)

Even if Vallsjo was only one of many suppliers to Houthandel CDK, their decision to send all Glulam to Bussum created certain problems. Fifts constituted an important product group for an array of joinery products in addition to Glulam.

As Houthandel CDK was both unhappy with Vallsjo's actions and found the other products that the sawmill had to offer not very interesting, the volume purchased from there decreased. It was not only the purchased volume that was affected, but the whole relation to Vallsjo changed, according to Houthandel CDK's management. The sawmill, for example, was no longer at the top of CDK's priority list of those suppliers that deserved their support.

'We have been wholesalers to Vallsjo for at least twenty years, maybe thirty. We should at least have received information about the changes before they were carried out, and a chance to make a counter offer.'

(Paul Velden, head of purchasing, CDK)

The person in Vallsjo who perhaps took the most knocks from upset intermediaries was the head of sales, Jan Svensson. **He** found that the transition to concentrated sales of Glulam stock to Bussum was not a completely simple process. The head of sales personally felt some doubt concerning the change. Certainly it was good business, but the risk of losing other customers was considerable. Of the total of about fifty sales agents that Vallsjo worked with,

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about ten protested rather sharply. Like Houthandel CDK and Houthandel Schagen, several said that if they could not buy all the required qualities and dimensions from Vallsjo, they wouldn't buy anything. The only wholesaler that had really acted on this threat and decreased their purchase from Vallsjo was CDK.

'It is very much thanks to the economic boom that the reaction to Vallsjo's actions has stayed at excited voices and a certain inertia to place orders. The question is what will happen when the economy swings, if the wholesalers take the opportunity to retaliate then'

(Jan Svensson, head of sales, Vallsjo)

The behaviour of Lundby and Svanfors to the wholesaler chain

As Svanfors had recently changed owners, made new investments and changed their whole operations at the same time as their transition to direct sales to Bussum, the sawmill escaped a great deal of the reaction that Vallsjo encountered.

Lundby's special sorting and direct delivery of timber to Bussum, however, met with strong reactions from several wholesalers, according to managing director Rune Hoglund. These threatened to quit buying timber from Lundby when the 'tidbits' were sorted out to Bussum. Quite simply, the wholesalers demanded delivery of the complete assortment that they specified.

The undertakings from the intermediaries remained, however, as threats. Lundby's managing director said that there was still a certain risk that these would be acted upon in a recession. This would be especially true if the downturn came while the sawmill was still in a transition period and had a large number of commodity products left.

'When the change-over has gone as far as it has at Moberg, when the main production is of function-adapted products and the little bit that is distributed as standard products via wholesalers is in itself still relatively special goods, then we will be more or less insensitive to threats from the wholesalers.'

(Rune Hoglund, managing director, Lundby)

3.2.3 Swelag by Maria Asberg and Håkan Håkansson

Introduction

This case is about what happens between a buying and selling company which earlier belonged to the same group of companies and worked closely together, when one of them is sold and thus becomes external. Swelag is the name of the customer. It is a large unit within a world-wide operating group of companies, the WSE group. The supplier is called Materials Ltd (Materials). It used to be a part of WSE but now, at least partly, belongs to another group of companies, the MTA

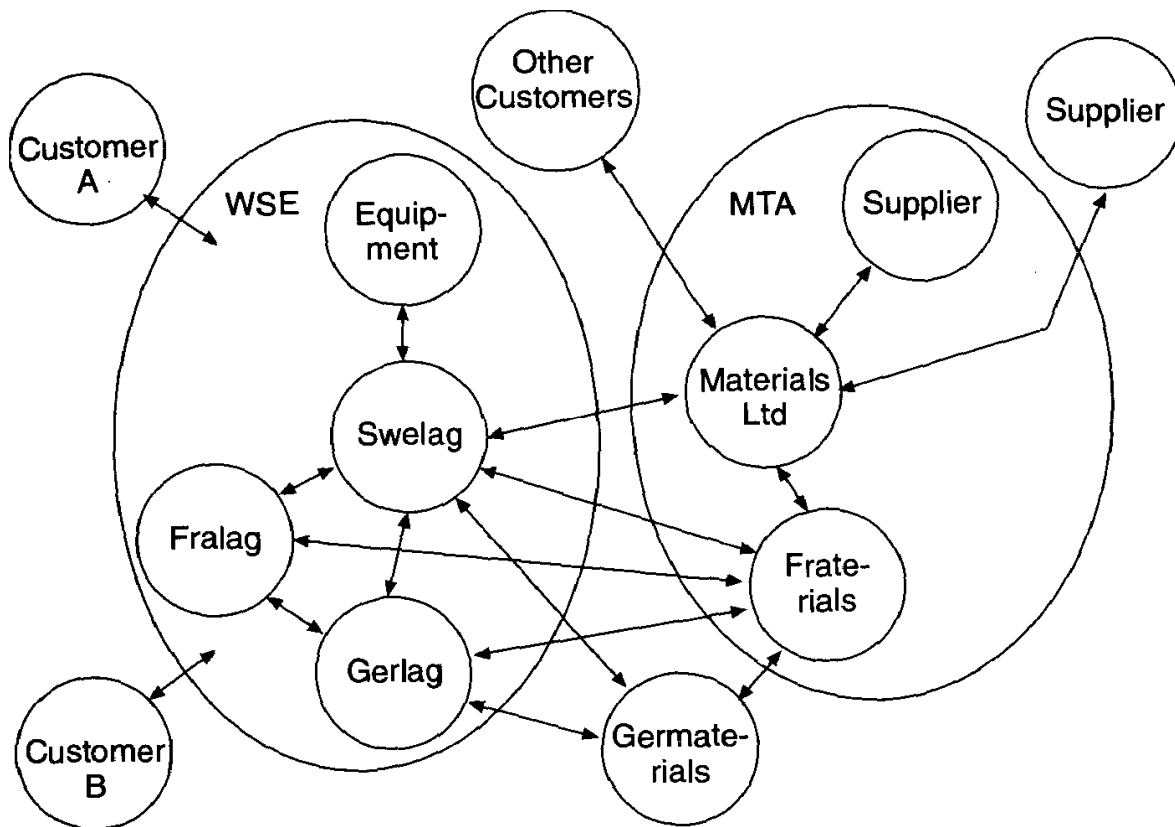


Figure 3.14 Relationships influencing the Swelag–Materials relationship

group. Apart from these main actors, the relationship between Swelag and Materials is also influenced by the development of a number of other relationships, as described in Figure 3.14.

As an internal supplier, Materials used to sell its entire production to units within the WSE group. Today it still sells two-thirds of the volume to WSE, of which more than two-thirds go to Swelag. Swelag in its turn buys more than 90 per cent of its needs of the material (in the following referred to as the component material), which is one of its major input products, from Materials. The exchange is extremely important to both customer and supplier.

The case will be presented in the following way. In the first section the whole production chain for the component material, where Swelag and Materials are two of the actors, is described. In the second section, Swelag is presented both in terms of how it is functioning internally and how it is related to the other units within WSE. The third section is focused on the relationship between Swelag and Materials. The fourth section provides a description of suppliers other than Materials, and their relationships with Swelag and a few other companies in the WSE group. The case is concluded by a discussion of some key issues evoked by the case material.

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Production structure

Swelag's product and production

Swelag is specialized in manufacturing a product which is used by the customer companies in many types of final products. The use of Swelag's products is widespread in that they are found in a number of different industries. The use is also characterized by a high degree of variability as Swelag's products are components in an infinite variety of final products. Not only is the use of the products characterized by variation, but the products themselves are manufactured in a number of variants, each variant being determined by the combination of components, material compositions, and dimensions. This multiplicity explains Swelag's broad product mix which consists of thousands of variants of the end-product. Irrespective of variant, the product is an important component in the final products.

Although many of the variants of the product, especially the smaller ones, are highly standardized, a significant share of Swelag's products is produced on customers' orders. The product consists of a few components and the manufacturing processes within the company are characterized by the production of these components and how they are put together. The WSE group has several production units all over the world but with a clear concentration in Europe and Swelag. In the manufacturing process, the demands on precision are high, and tolerances in the processing of the material are measured in thousandths of millimetres. This means that there are very high demands on the production equipment as well as on the input material, and the quality of the material processed within Swelag is thus critical for the quality and endurance of the end-product.

The extreme demands on the production and control equipment explain why so much of the equipment and control items are developed and produced within the WSE group. Tools are another important item and their quality is also of critical importance for the final result. The tools used in Swelag's machines are bought from both external companies and other units in the WSE group.

The total share of purchased material in the end-product is about 30–40 per cent. This means that the value which is added in-house within Swelag is rather high, and the degree to which the suppliers are used for production and development activities is lower than usual in the industry. A product consists of a few components and is in that way not very complex. These components can, however, be combined in a number of ways and each component can be designed and produced in different ways. This increases the complexity in the production and explains the large amount of variants in the company's product mix.

Some of the components in the product are produced within the group while others are bought as finished or semi-finished components from external sources. The semi-finished ones are then completed within the company. The product consists of three main components, here named A, B and C.

Both A and B are produced within Swelag out of different types of material bought from units belonging to the MTA group. In producing A, the 'A-material'

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is put through ten different operations in eight different machines. The component B, in its turn, is produced through processing the 'B-material' in six different steps in three machines. The production lines for these two components are automatic and computerized, involving no personnel except for supervising and, where necessary, resetting the machines for different types or dimensions of the products, or for random samples which are made all through the production process. The production of the third component C, will be described further later on in this section.

A, B and C are produced in different locations within Swelag. The three components are then brought together with a few smaller components to be integrated in an automatic assembly process. The performance of Swelag's end-product in the customers' final product is closely related to how the components work together. Even a very small deviation from prescribed measures for each component can cause large difficulties and make the product unusable. The product is cleaned and checked in a six-step operation. Before it is stored, pending delivery to customers, the product passes another three operations in the factory and is then packed in accordance with the specific customer demands.

Swelag's production of component C

In studying the relationship between Swelag and its supplier Materials, we have chosen to concentrate on the production of the component called C, and the exchange in terms of purchasing and selling activities connected to that.

The different stages in the production chain, from raw material produced by sub-suppliers to the end-product used by Swelag's customers, can be described as follows:

- 1 sub-suppliers produce raw material;
- 2 the supplier (Materials) processes the raw material and produces component material;
- 3 Swelag buys the component material from Materials, processes it and produces component C;
- 4 Swelag then produces an end-product through putting C together with components A and B;
- 5 customers buy Swelag's end-product and put it together with other products into final products.

The major dimensions of component C, and consequently of the end-product, are already determined when the component material is produced by Materials as the specific properties of the component are given in the physical transformation of the raw material. The logic in the production of C is thus as follows: a certain quality of the raw material can be used to produce a limited number of processed materials (variants of component material), which in turn can be used to produce a limited number of components (variants of component C). These components can then be used in a limited number of products, i.e. variants of end-products. A variant of the end-product is thus characterized by specific dimensions, specific

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components and specific material constituents. This logic determines the level of flexibility in the production structure which largely influences the production planning in Swelag.

Component C is produced within Swelag out of a component material bought from Materials. The component material accounts for about two-thirds of the total production costs for the component. Swelag purchases the component material in two different forms from the supplier, the differences in these forms being related to the size of the end-product and thus to the dimensions of the component to be manufactured. The two forms of material are treated in almost the same way in Swelag except for one operation being added to the production process for one of the types.

In Swelag's production unit the component material is to begin with put through one type of physical transformation process. For component material of larger dimensions this process is performed in machines which are specially produced for Swelag by domestic companies. The production process is identical independent of the size of the component material, although the amount of time required for the processing increases with an increased size. The smaller dimensions of the component material are processed in machines which are bought from European and American companies with no special design for Swelag.

Each machine is equipped with a certain number of tools. These tools have a limited lifetime and are thus subject to regular purchasing activities. The supplier of these tools is a domestic company, the contact with whom will not, however, be further described in this case.

The physical transformation process is followed by an automatic control of the material and then the material, which now begins to take the form of component C, is put through a thermal treatment. Some of the C components are to be used in final products where they will be exposed to great strain and stress. The material for these components is treated in a two-step thermal process. The first step is a special treatment to improve the durability of these 'exposed' components, and the second one is a step which all C components are put through. The special step in the thermal treatment has a materials-saving effect which implies that the time needed in the subsequent physical transformation of the components in question can be decreased. Because of the difficulty of predicting how the component material will change in the thermal treatment, some extra material has to be included in each component material. This special step makes it possible, however, to decrease the amount of extra material put into each component material. The disadvantage of the special treatment is that it is highly time-consuming and therefore costly.

The next phase in the production chain for component C is accordingly another physical transformation process. In this phase Swelag has organized the manufacturing in nine lines. Each line has four machines and is manned with four operators and one to two people responsible for the resetting of the machines for the different dimensions to be produced. An operator is responsible for loading the machine with material, changing tools and measuring the processed material.

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Every operation made is dependent on the operations made earlier in the production chain and the order is thus impossible to change. There is no difference between the lines, except for the dimensions of the material processed in the respective lines.

The processing of the component material into component C is then concluded with an automatic control of the product with regard to its measures and overall quality. C is then put together with A and B, as shown in Figure 3.15.

Materials' production of the component material

When processed into component material, the raw material is put through two different types of process. One, which corresponds to about 98 per cent of the total production time, is a thermal treatment. This part of the production involves important calculations regarding the constituents of the material, as these and the size of the material are affected and changed due to the thermal treatment. Together with the customers' orders, Materials gets specifications on which composition of constituents Swelag wants for each specific delivery. As indicated above, it is of critical importance that the material specification is fulfilled by the supplier, as the material in the thermal treatment within Swelag will change. It is not possible to fully predict the changes but producers and suppliers know this, and they also know in which way they are directly related to the composition of the material. Materials therefore has to guarantee the composition of the component material in each delivery.

In the second part of the manufacturing process the material is put through a physical transformation. Materials processes the raw material into component material in five parallel production lines. Four of the lines use one type of production method. Every operation made is identical between these parallel lines, the only difference being the dimensions of the material processed in each line. The raw material is here treated in six sequential steps. The fifth line uses a different production method which also is due to the dimensions of the material. In the fifth line, the material of the largest dimensions is processed. This second part of the production process within Materials includes control of surfaces and measures. Then the component material is packed on pallets for delivery to the customer Swelag and its production units for component C.

Not only the production method but also the composition of the material is influenced by the dimensions of the component material. The constituents in the raw material must be combined, taking the dimensions to be manufactured into consideration. Materials wishes to reduce the number of types of composition as this would enable the supplier to reduce costs and delivery times. A disadvantage with fewer types of composition is that a variant which due to its dimensions could be produced using a certain composition, would have to be produced using a more expensive type.

Usually it takes two to four weeks to produce the component material, although the actual processing time in the factory is about twenty to twenty-five hours. The amount of time required for the supplier's operations is affected by the

procurement of material and tools, and also by the scheduling of the production equipment, i.e. the work done in the factory. The delivery time for the raw material is a key problem for Materials and there is reason to believe that it will become even more serious, as one of the sub-suppliers is planning to close down the production.

The component material is produced in a number of variants. Most of these variants have been produced for a long time within Materials and consequently the production equipment, the tools and the personnel are adapted to and used to these 'known' variants. It also means that the costs for producing 'known' variants of the component material are relatively low and stable for the supplier. To develop a new variant is, however, costly. Generally a new variant cannot be produced within the existing production lines when a change in the equipment is needed. Furthermore, the production of a new variant requires a costly development of a new set of tools. Lastly the production of a new variant can cause problems for the production personnel and demands a certain training period before the manufacturing process gives results on a satisfactory level.

The design of component C, and thus the design of the component material, is adapted to the design of the end-product. Accordingly all producers of the end-product have unique requests on the component material and consequently it is impossible for the supplier, Materials, to produce and sell a specific variant of the component material to more than one producer. There can even, as is the case with Swelag, be differences in requests on the component material within one company if it has several production units. For Materials the production of the finished component material is thus highly customer-specific.

Requirements on the suppliers of the component material

Swelag is a company with high requirements on the quality level of the internal performance and it has high demands on the bought material as well as on the qualifications and competence in the supplier companies. But, not only the suppliers have a major impact on the end-product. Already the sub-suppliers set the quality level of the raw material, a level which will follow the material all through the production-chain to the end-user. The sub-suppliers are thus of equal importance to the production in the customer company. The WSE group has well-elaborated routines for control of both suppliers and sub-suppliers. No unit within the group is allowed to buy from suppliers which have not been controlled and accepted or which are using sub-suppliers that have not been approved by the group.

In order to become an approved supplier to Swelag and the WSE group, there are a number of conditions to fulfil. The basic philosophy of the group is however easily formulated: 'Our main competitor produces its own raw material. This implies that our suppliers have to be as good as we would be if we manufactured all our products from the very first operation.'

The component material in question is generally perceived to be difficult to produce. It requires qualified competence and specially developed and adapted

Sub-supplier:

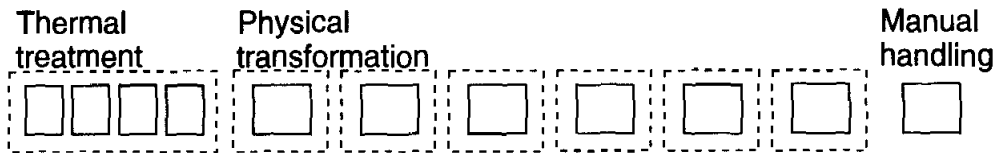
Material for raw material

Physical and thermal treatment

Raw material

Materials:

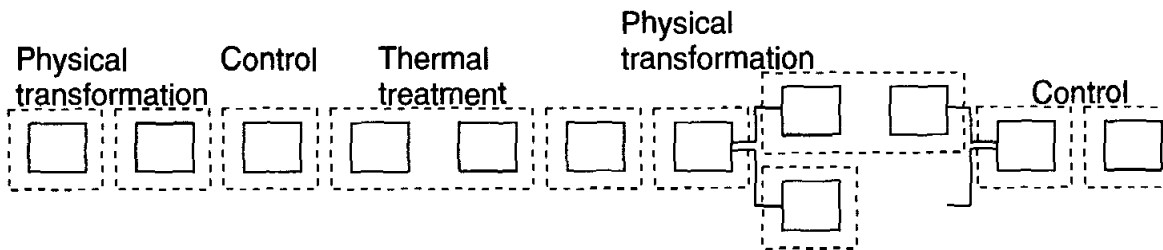
Raw material



Component material

Swelag:

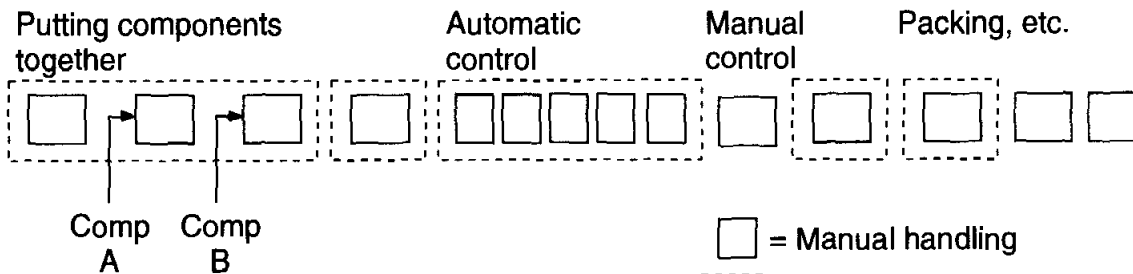
Component material



Component C

Assembly proc:

Component C



End-product

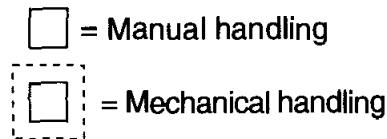


Figure 3.15 The production process for component C

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equipment. Scale effects in the production are therefore of critical importance. As a consequence the number of existing as well as potential suppliers is low. As mentioned earlier, Swelag buys 90 per cent of the component material from one supplier – Materials. Materials in its turn uses mainly four sub-suppliers for the delivery of raw material. These sub-suppliers all belong to the MTA group.

Swelag

Structure of the WSE group

Swelag is a unit within the WSE group, which is a world-wide operating group of companies with manufacturing and sales activities in a number of countries. WSE is a big group both in terms of turnover and in number of employees. Although mainly belonging to the same industry, the amount of different products manufactured within the WSE companies is large. The mix of products which is manufactured and sold is to a certain extent specific for each country.

The WSE group has several production units in Europe. The sales from these units are spread all over the world and the selling activities are performed by sales subsidiaries which can be found in most of the group's major markets. For its products, the group has a significant share of the world market.

Swelag is one of the European companies. It is a typical WSE company with units for production, sales, purchasing, and research and development, wholly owned by the WSE group.

Coordination within the WSE group

During the 1970s, WSE started to develop its production structure mainly for the European subsidiaries. The ambition was to reduce the number of places where the same products or components were manufactured – each unit should only produce a certain limited number of all variants. Through this specialization WSE would benefit in terms of effects of scale due to an increased volume of production in each production unit. The idea was also to take advantage of the companies' special competences. Each factory was allotted the production of the variants it had shown itself to be especially successful in producing.

The specialization put high demands on the coordination between the different units, and support in terms of two different systems was developed within the group. One system regarded the communication between the manufacturing WSE companies in Europe. A special computer network was installed with a central unit responsible for the development and maintenance of the system. The system also connected the European sales subsidiaries. Depending on which products a sales subsidiary would order, the request was automatically transferred via the computer system to the right country and factory.

A second system was installed to coordinate the physical transportation of raw material and components to, and components and goods from, the different production units in Europe. The transportation system connected the factories and

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their warehouses and coordinated transport all over the world. Internal calculations show that the increase in transportation costs due to the structural rationalization of the production is less than 1 per cent of the total cost for the product.

In order to make the internal exchange of material possible, a certain quality level has been made standard for the whole WSE group, as has the quality control between the sister companies. When each unit produces only a limited number of components, it has to buy other variants from other manufacturing units when producing an end-product. Another effect of the programme is accordingly that the companies have become more dependent on each other for the supply of input materials and complementary components.

Purchasing – organization and ambitions within WSE and Swelag

Purchasing coordination within WSE

During the last few years another coordination programme was initiated within the WSE group. The aim of the programme was to coordinate the different companies' purchasing activities and through creating uniform contracts and routines, to structure the supplier base and make the purchasing function more efficient. The basic idea was that within WSE there should only be one purchasing unit for each bought product, i.e. a programme with the same philosophy as we saw for the coordination of production. Earlier the procurement was characterized by decentralization – several production units belonging to WSE but located in different countries would make purchases from the same suppliers without any coordination. The 'feeling' within the purchasing function was that instead of benefiting from being one strong customer with possibilities to make profitable agreements with the suppliers and seeing WSE as a whole which they were all responsible for, the purchasers in the different companies were competing with each other.

In the new organization the responsibility for procurement of important product groups has been assigned to the purchasing units in some of the companies within WSE. The task for each unit is to keep an overview of all the suppliers by taking over the existing supplier contacts for a specific product. The purchasing unit is also to collect information from the producing companies in WSE regarding the specific product. The unit gets estimates on the needs from each WSE company which it uses for making a forecast on WSE's total need of the product. Based on this forecast and the overview over the supplier structure, the unit then develops purchasing strategies and negotiates on prices and volumes with the suppliers. Swelag, for instance, is responsible for the procurement of the component material for component C, and draws up the 'common agreements' on that product for all companies within WSE.

Through increasing the coordination, the ambition with this organization is to obtain scale effects. The belief is that global sourcing will provide possibilities for reducing the procurement costs. When suppliers are faced with larger orders at a time, they can in a better way plan their production and make it more efficient and less costly. Connected to this is WSE's ambition to increase the added value

bought from the suppliers. 'Why should we make operations which can be made at least as efficient by the suppliers?', is a typical reflection.

Yet another aim with the coordination is to create a 'united front' towards the suppliers. It is said within WSE that before this new coordinated purchasing organization, the supplier had more information on WSE and its different companies regarding purchasing conditions, orders, and production, than WSE itself. By acting as one instead of several customers, the WSE companies can also help in reducing administrative costs for the suppliers through using, for example, standardized order forms.

Problems connected to the purchasing coordination

The new organization is not yet fully implemented nor accepted. Today, both local and central purchasing is conducted, leaving neither the local nor the central purchaser with the bargaining power necessary. The idea to assign the central purchaser all the power is however met with resistance from the separate companies. For each company, the total costs associated with the purchasing activities are substantial and thus important to control. Hence, the special purchasing units will have to do a good job on prices and products in order to get acceptance by their 'customer' companies.

To take over the existing supplier contacts has also proved to be difficult — the contact is established between people who have got to know each other through cooperation over the years. Moreover, as all companies in the WSE group are differently organized with different routines and specifications, it is hard to unite them in a coordinated purchasing function.

In this industry the producing units are facing delivery times for material of up to one year from preliminary estimates of their needs to the actual delivery date. To order material a long time in advance creates problems —how much should you buy? Having the coordination unit then helps in evening out the deviations between the companies in the group. This means that WSE can avoid involving the suppliers in changes of order volumes, and thereby get a reputation among the suppliers as a good customer. However, if there would turn out to be a lack of the material to be divided among the WSE companies, the responsible purchasing units face a problem: who should they give priority to — the company in their own country?

Purchasing within Swelag

The reorganization of the overall purchasing activities in the WSE group has had effects on the internal organizations in the separate units, among them Swelag. The purchasing department in Swelag is today a central service department reporting directly to the general manager. It used to be subordinated to the production as well as the finance departments and has thus experienced a rise in rank.

Not only the formal organization but also the areas of responsibility are changing. Swelag's purchasing department is responsible for all procurement of any strategic or economic importance. Up to this recent organizational change the department has had a purely administrative function. Today, however, the department is trying to increase the commercial content in their part of the

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procurement activities in order to be considered a professional function with an attractive purchasing service, especially for the production departments.

The purchasing department's behaviour towards the suppliers is affected by its internal relationship to the production department. The relationship is described by the purchasing department as: there is a feeling of 'us-and-them' between the two departments which reduces the willingness for close cooperation. Also, the departments are located at a physical distance, which increases the feeling of not being associated with each other. The departments are not looked upon as parts of a flow but more as ends in themselves. Lastly there is a lack of interest and even reluctance towards buying the services provided by the purchasing department. For the production department a major share of the total costs are at stake and thus they want to control the purchasing activities themselves.

Although working in adverse conditions, the purchasing department emphasizes the importance of obtaining a closer internal cooperation. Their opinion is that only through an enlarged communication with the logistics department and the users of the purchased material within the production departments, will it be able to decrease the total costs for the procurement in Swelag.

The relationship to Materials

Being an actor within a large industrial network Swelag has several ties to a number of other actors in the network such as suppliers, customers, competitors, and sister companies within WSE. The ties to the supplier Materials date back a long time. Materials was earlier a wholly owned subsidiary within the WSE group. Today, although it belongs to another group of companies, Materials is still 70 per cent oriented towards WSE. The remaining 30 per cent of the production is delivered to customers within other types of industries than the one WSE represents. For a long time units within WSE were the only customers, which explains why most of the production equipment, production processes, delivery routines, administration and so forth is adapted to WSE. The adaptation to the products and processes of Swelag is here especially salient.

The overall quality level in Materials is in the same way adapted to the demands of the customer company. Swelag has always had an ambition to be considered a producer of high and uniform quality. As the quality of the component material determines the quality of the end-product, Swelag has very high requirements on the component material bought from Materials.

Technical contacts and administrative routines

Technical contacts The products which Swelag buys from Materials, i.e. the component material, are customer-specific – no variant can be sold but to the company which gave the order. Due to the complexity in the material, unique solutions developed in close cooperation between the buying and the selling companies are required.

Swelag and Materials used to work together on technical development issues

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in a special group. The group consisted of ten people who met three or four times a year. All participants were well acquainted with the products and the production flow in the two units and at the meetings the discussions were focused on topics such as selection of raw material, design of the product, structuring of operation sequences and efficiency in the manufacturing process. The goal for this group was to develop the quality of the products but also to reduce the production cost.

Besides this technical group the two parties also cooperated in a committee on purchasing and logistic questions. Members of this committee were managers being responsible for logistics, production and procurement in the respective units. The committee had meetings three times a year, and issues for cooperation were overall quality questions, lead times and delivery security.

The cooperation between Swelag and Materials in the form of these two groups ended when Materials became partly owned by an external group of companies (the MTA group). Today there is still cooperation going on between the two parties, although on a more informal level, comprising mainly technical matters. The cooperation involves the production personnel in each company and is characterized by an *ad hoc* behaviour. If a problem arises or if someone has ideas for changes, he or she directly contacts people in the other organization without consulting responsible managers. However, this behaviour does not appeal to the management of Swelag. As we will see in the following, the management has an ambition to formalize the relationship to the supplier. One way of doing that would be to reduce the personal contacts between people on the operational level in the two companies.

Administrative routines

For daily purchasing activities, Swelag is connected to Materials through a computer system. When giving orders, Swelag directly gets access to the supplier's order system by using the supplier's internal product numbers. Hence, the orders from Swelag are automatically transferred into Materials' systems without any manual handling. Every day, Materials brings its planning system up to date using data from the order system. The output of the planning system is the production planning documents for the factory and also documents for the sub-suppliers, i.e. orders of raw material, tools or other products or equipment necessary.

The computer system for giving orders to Materials is accessible also for other units within the WSE group. Generally, however, the other WSE units prefer to use a manual routine when purchasing the component material from Materials. Swelag is thus the only unit using the system.

More general day-to-day questions on purchasing and sales in the exchange between Swelag and Materials are handled by Materials' sales manager together with four people in Swelag's purchasing department. The relationship between these people is maintained mostly via several telephone calls every week but also in personal meetings which happen at least once a month. Issues discussed are, for instance, prices and volumes, delivery performance and changes in the administrative routines.

Swelag and Materials have agreed on a formal lead time of ten weeks. Of these

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ten weeks, three to six weeks are planned in order to get material and tools from the sub-suppliers, three weeks are planned for production and the final week has been included in order to cover administrative routines. Today, however, Swelag has to give its orders seventeen weeks ahead of delivery date which is when, at the latest, the raw material must be ordered from the sub-suppliers. In order to be able to shorten this period, Swelag wants to locate a stock of semi-finished component material to Materials (semi-finished component material can be sold to customers other than the specific orderer and can thus be kept in stock). In this way Swelag would not have to order long in advance but would be able to make the call-off when it wanted the material delivered.

Swelag and the other WSE units have problems keeping their end-products in stock as about 80 per cent of these products are customer-oriented which is why stock, if there is to be any, only can be kept earlier in the production chain, i.e. within Materials.

Restrictions due to earlier connections

The close relationship between Swelag and Materials has resulted in strong links both in technical and social terms, not to mention the ties developed in terms of knowledge about each other.

When belonging to the same group of companies, the two units were also strongly bound to one another through a formal agreement regulating their exchange. The agreement stated that Swelag and Materials were limited to doing business with each other, preventing Swelag from using other suppliers and Materials from selling to other customers. However, due to some serious capacity shortages in Materials, ten years ago Swelag had to start making complementary purchases from other suppliers.

The contract terms between Swelag and Materials were as a consequence changed, allowing Materials to sell to external customers also. Having Swelag as the only customer and accordingly being forced to adjust the production and selling activities to their sales trends, was perceived as an unsatisfactory situation. Hence, Materials wanted to spread the risks and believed that an extended customer stock would help them stabilize their business.

The extension of the business enabled Materials to increase its sales and it has now established closer relationships with some five to ten other customers. In Materials' opinion, that is the amount of relationships which is possible for it to handle, given the adaptations and efforts needed in each case. Technical development activities are costly, both in terms of capital and manpower, and it is thus necessary to have few but long-term customer relationships.

Formalizing the relationship

When Materials was sold to the MTA group a few years ago, two main reasons were given by the former owner WSE. First, WSE wanted to decrease the vertical integration in the group. Increased competition within the industry had forced

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WSE to restructure its business. In order to succeed in making the company-group profitable, it had to start focusing on a few areas of production, leaving out a number of related areas, including the one containing Materials. The second reason for selling out Materials was that the type of industry which Materials belonged to had had some bad years. Having enough problems already in keeping up the profitability level in its own industry, WSE wanted to avoid being connected with another unprofitable industry.

Despite the formal changes in the relationship between Swelag and Materials, the two units still have a comprehensive exchange, as described above. Today there is an ambition, especially within Swelag, to increase the commercial aspect of the relationship and formalize the exchange. In the eyes of the customer, Materials should be treated as an external counterpart facing the same demands from Swelag as other suppliers do.

One step in this direction is the new purchasing organization which is being built up in the WSE group. When the supplier contacts are to be taken over by one unit responsible for a specific product it will not be possible for the separate production unit to have an informal exchange with their suppliers of the kind that has existed between Swelag and Materials.

Also in the administrative routines there are signs of changes in the relationship towards a more formal exchange. When giving orders, Swelag does not want to use Materials' product numbers, which go directly into the system. In the future Swelag wants to use numbers from their own system.

Swelag has suggested changes also for the invoicing and payment routines. The customer receives a monthly invoice but would prefer to get one bill for each order. This change is related to the way Swelag makes its purchases from Materials. Today Materials sends a confirmation to Swelag when the ordered material is ready for delivery. Instead, Swelag has an ambition to call-off daily quantities from the supplier. To get one bill for each order will, however, create additional administrative costs for both sides. The reason is that the bills then must be handled in a manual instead of automatic way. The number of orders is today about eighty per week.

Opinions regarding the change and the future relationship

There are different views among people in the two companies regarding the increased commercialization. Some believe that both parties will benefit from the development. Others, in particular people in Materials, believe that a more commercially oriented relationship will decrease the cooperation between the two companies and consequently have negative effects. One negative effect anticipated is that it will become more difficult for Materials to acquire knowledge regarding Swelag's problems, ideas and wishes. A reason why Materials sees decreased cooperation as a result of an increased commercialization and formalization is that, to a greater extent than before, future development projects will be evaluated in terms of costs and revenues.

For Materials, a decrease in cooperation is negative as the company has an ambition to develop its abilities and competences and to be considered a good

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supplier to Swelag. The ambition is based first on the fact that most of the production equipment, processes and other routines are adapted to Swelag, and second on the belief in Materials that the company has better opportunities within this industry than any of the other it has been involved in through its 'new' customer relationships.

The close link between the two parties in terms of production and technical development has had a major impact on Materials. One effect is that Materials today operates on a very high technical level. Without the extensive development cooperation with Swelag this would not have been possible. This is a clear advantage for Materials in relation to its competitors which have not had the same kind of relationships with their customers.

The selling out of Materials is perceived by some people to have been fruitful for both companies. New customers will influence Materials in demanding solutions to their specific problems – things that can be beneficial also for Swelag. New customers will share fixed costs and contribute to an increased volume of production for Materials. But new customers will give Materials less time for cooperation with Swelag and less possibility for adaptations to Swelag. This might imply problems for Swelag as the company is in great need of close cooperation with the supplier of the advanced products.

The fact that the two parties have a common history gives some specific problems with the ambition to increase the commercial aspects. Until Materials established contacts with customers other than WSE, they had no formal marketing or sales department as WSE had been the only customer. At that time, WSE cooperated with the logistics function in Materials. According to the customer company, this has resulted in the situation that Materials today is a professional 'problem-hider' – instead of solving the actual problems it approaches and handles the symptoms through replanning and substitute deliveries from the logistics function. In addition there are still several people on both sides who due to the earlier history have close personal contacts through visits or telephone. The purchasing department is now trying to limit these contacts as they are perceived to decrease the scope for the central purchasers to control the relationship to the supplier.

The supplier structure

Swelag has different supplier structures for different product groups produced within the unit. For some of its components Swelag has a large number of suppliers of which there are a few big and many small ones. The aim is to reduce the total amount of suppliers to about 40 per cent of today's number. Today, however, Swelag lacks an instrument for selecting these suppliers. Furthermore, the supplier records are deficient and cannot provide good information about the current supplier structure. But 'with too few suppliers you easily end up in a bad negotiation position and with too many you get high costs for dealing with them all – the optimal amount of suppliers is a question of balancing', as one of Swelag's buyers puts it.

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For some groups of products, Swelag has a supplier structure with few suppliers – this concerns for instance the suppliers of the component material for component C. Here, Swelag wishes to have an increased number of suppliers. Today's situation is due to historical facts – as Swelag only used Materials for purchasing of the component material before, they have not been able to build a supplier structure consisting of more than one supplier.

Existing suppliers of the component material for C

During the 1980s the WSE group experienced a concentration of the supplier structure for the material for component C. Materials, for instance, bought two manufacturers which now are part of the MTA group. Yet another supplier group was created in Europe through a merger of three separate suppliers. These mergers and acquisitions have resulted in a supplier structure with less than ten companies for Swelag to 'choose' from. The short 'distance' between the few suppliers in the structure is also illustrated by the fact that one of today's managers at Germaterials used to work for the competitor Materials.

One of the new producers in the MTA group is Fraterials, a medium-sized, previously privately owned company located in another European country. Fraterials is considered to be a producer of relatively high-quality products at low prices. The acquisition of Fraterials, although negative from a concentration point of view, was beneficial to the supplier regarding its development. Today the MTA group invests in Fraterials in, for example, computer techniques, systems for materials handling and in training of personnel.

Fraterials has supplied component materials for the local WSE unit Fralag for many years. Not until the end of the 1970s was it asked to deliver products also to Swelag. The amount of component material purchased by Swelag is about 1,500 tons per year.

Another supplier used by Swelag is Germaterials. Germaterials is a middle-sized family-owned company, located in a third European country, long involved in the production of component material to the component C. As is the case with Fraterials, Germaterials has supplied component material for the local WSE company, Gerlag, for a long time and was thus familiar with the standards and requirements of the group when starting deliveries to Swelag in the end of the 1970s. Germaterials delivers about 1,500 tons component material per year to Swelag, i.e. the same amount as Fraterials.

An opinion within Gerlag is that the company has not given Germaterials much help in terms of sufficiently strong demands. There are several possible areas of improvement and rationalization which Gerlag could work on together with Germaterials. For instance, the supplier has problems purchasing its raw material at low prices and is thus forced to be more efficient in its production in order to be competitive. On this matter, Gerlag could actually be of help, as the company through the WSE group has connections in the raw materials industry. Gerlag is in fact one of Germaterials' main customers, with a purchased volume of about 8,000 tons per year.

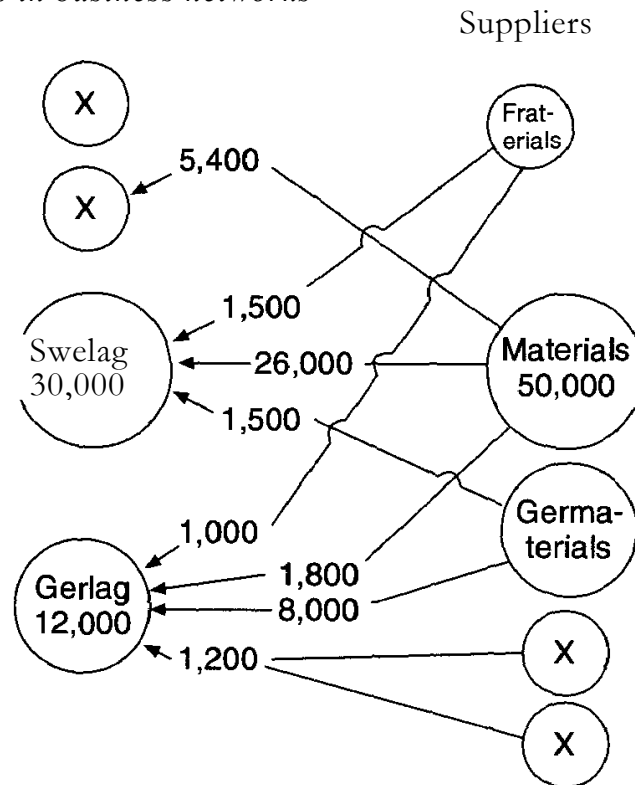


Figure 3.16 Volumes of purchasing and production in tons

The advantages for Swelag when using these two new suppliers have mainly been due to these suppliers' special technical skills. These skills in production and processing have made it possible for Swelag to get component material of a wider range of dimensions than Materials has been able to deliver.

As both Frat-erials and Germa-terials have been supplying material for the WSE group for many years, they were, when engaged as suppliers also to Swelag, well acquainted with the requirements and standards within the customer group. Despite these established relationships, the exchange with the two new suppliers has implied some logistic problems for Swelag. According to Swelag, the suppliers have for instance no respect for the lead times agreed upon by the two parties. However, people within Swelag point out what they consider possible explanations to these problems. The two suppliers and Swelag have not made any technical adaptations to each other. Nor have they had any cooperation on technical issues of the kind described earlier between Swelag and Materials. Furthermore they have not established any closer social contact — only the necessary telephone calls are made and the parties seldom visit each other. But, as neither of the suppliers is more than marginal to Swelag, each of them supplying about 5 per cent of Swelag's total need, their incentives to improve the delivery activities and develop the relationships are weak. This is to be compared to the remaining 90 per cent, or 26,000 tons, which are purchased every year from Materials. For a list of volumes of purchasing and production, see Figure 3.16.

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In spite of this non-optimal performance, according to some people in Swelag, the suppliers would want to improve the relationships with the customer if possible.

Potential suppliers of the component material for C

In Swelag's opinion the supplier structure illustrates a kind of cartel situation, where all suppliers are connected to each other in one way or another. Swelag also believes that the only way to handle this supplier cartel is to create a new purchasing strategy within Swelag for the whole of the WSE group (for the component material for C). The reasons why the customer company is the only actor which actually can do anything about the cartel situation are its dominant position as a buyer and the fact that today there is no need in the market for new suppliers or for a change in structure.

Possible courses of action for Swelag, if altering the supplier situation, would be searching for new suppliers, starting in-house production of component material, or writing long-term contracts with the suppliers. Considering the alternative 'new suppliers' there are only small companies to be found today in Europe and the United States. If Swelag is to find an interesting new supplier it would thus have to take a small supplier 'under its wing' and give it help to develop, supplying the necessary resources. This need for resources is due to the high costs connected to the business. The business is capital intensive because of the need for highly sophisticated equipment of constantly increasing performance and because of the need for highly qualified personnel.

Swelag could search for new suppliers in countries outside Europe or the United States, but there have turned out to be problems connected to that. Usually the producers have difficulties fulfilling the quality requirements or else they have insufficiently advanced manufacturing methods; both limitations resulting in products of little or no interest to the WSE group.

Discussion

Recapitulation of the Swelag case

In the case we described the relationship between a customer and a supplier which had belonged to the same group of companies, and what happened when the supplier was sold to another group of companies.

Our analysis of the case points out two dominant actors and a few other actors involved in the activities performed in the industry in focus. Swelag is an important producer of the end-product on the world market and is consequently an important customer of the material for component C. Through the exchange with Swelag and the activities performed within this relationship, Materials has become an important producer and supplier of the component material on the world market. There is no doubt that, without Swelag, Materials would not be what they are today. But would Swelag have been what they are without Materials? The answer is most certainly no. The relationship between Swelag and

Materials is based on an exchange characterized by extensive interdependence and mutual adaptations.

To produce component C demands close cooperation between customer and supplier, both in the daily production activities and in the long-term planning and development. In describing the daily activities we tried to give a picture of the flow in the production structure, a flow in which each operation has to be performed in a logical sequence and where there is, whether formally or informally, need for a close contact between people in operative functions within the customer and supplier units involved. We also tried to show how important it is that the material used has the right properties in terms of components, dimensions, constituents, etc. This will influence the performance of the daily activities. As mentioned above, tolerances of the components are measured in milliparts of millimetres and the smallest deviation can make the product unusable. There are thus, in both the products and the processes, possibilities for development and improvement. However, as one of the most salient features of this production process is the sequential flow consisting of a number of operations technically dependent on each other, the necessary development activities cannot be performed in the customer and supplier units separately. They have to be coordinated between the companies, thus requiring a high degree of cooperation.

In the case we also gave a brief description of the restructuring of the customer's internal organization. The responsibility for the purchasing of material for component C to all WSE units has been assigned Swelag. This implies that the purchasing department in Swelag will get a closer contact with the sister units in the WSE group. However, it also implies that these units' contact with their suppliers in the future can be characterized as 'arms-length' – at least regarding the purchasing activities. Quite likely it should, however, not affect the technical contacts between supplier and customer. For Swelag this new situation is not yet settled. Their problem is in fact to keep the supplier, Materials, at arms-length on a purchasing basis while maintaining a close technical exchange with comprehensive development activities. In the discussion below we will focus on two 'dreams' which we have identified in the Swelag case, but which we believe are common phenomena for most companies of a larger size where the question of coordination is salient.

Two dreams

Integration or disintegration

A dilemma constantly challenging the management of a company is where to draw the formal boundary of the company. The issue is related to the question of control. By integrating activities through adding *external units*, the company can expand its control to comprise a wider range of activities, for instance an increased number of steps in a production chain. The opposite alternative would be to disintegrate certain activities. By separating and selling out some activities from the company, it can specialize and focus all its efforts on a specific area. The question of integrating or disintegrating activities can also be discussed in regard to the purchasing function in a company. Here the

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choice is between make and buy — should we integrate certain manufacturing activities within the frame of the company in order to get control over the process, or should we separate these activities from the company and buy the products from external units? However, the case illustrates that the distinction between make and buy is not at all as clear as is sometimes suggested. The typical situation is much more network-like and the choice is rather diffuse and unclear. A relationship with a formally independent company can be more 'integrated' in reality than a relationship with formally owned subsidiaries.

As the presented company is large with production units and sales subsidiaries in several countries, it also has problems with the coordination of *internal units*. This became obvious a couple of years ago when during a shortage of materials the different units competed with each other in getting the product. The company has in other words both an internal and an external network to manage. A typical problem if the company chooses disintegration in order to focus its activities is how to handle the technical coordination. At the time Swelag and Materials were integrated it was easy for them to handle the coordination through joint problem solving. Now this must be done in a much more formalized and standardized way unless the formal integration is followed by an informal integration of the same strength.

This case can from the buying company's point of view be discussed in terms of two dreams. These two dreams are often found in larger companies' purchasing departments. The first dream is to be an important buyer but at the same time be free to choose which supplier to buy from. One ambition in the buying companies in order to become more important has been to try to increase their volumes and thereby get more power. But that there are clear limitations to this ambition is illustrated by this case — *freedom of choice causes inefficiency*. Swelag is the largest buyer in Europe and consequently it is Swelag who determines the supplier structure, and thus the production structure, for the component C material, through the direction of its procurement activities. If Swelag decided to change suppliers, the new one would become the major producer in Europe. If Swelag on the other hand decided to divide the volumes between several producers, there would be increased competition. However, each of the producers would produce less and thus perceive negative scale effects and have less opportunities to specialize the production process and make adaptations to the customer. This implies that one company cannot change its behaviour regarding, for instance, purchasing and expect the supplier structure to remain unaffected, at least not if the company is an important actor in the market. The supplier that Swelag chooses will inevitably become the major one in the market due to the large purchasing volumes.

Furthermore, there are not very many suppliers to choose from as the technology is highly advanced and difficult to get access to. The price the buyer has to pay for freedom of choice is a more inefficient production structure. A lower degree of adaptation from each supplier will inevitably lead to a decrease in efficiency, at least in terms of production structure. The buyer thus has the power to determine the structure but is at the same time the prisoner of that very

structure. One aspect on the same theme is that the buying firm believes that, by gaining more distance from the main supplier, it can put greater pressure on the supplier. However, an increase in the distance also makes it more difficult to get the right direction of the pressure. The increased distance from the supplier is also meant to give the latter possibilities to develop relationships with other customers. This might improve the supplier's capabilities to innovate and to develop its production facilities. One important restriction is that the supplier's new abilities also improve its function *vis-a-vis* the buying company. Consequently it is very important for the buying company which the other customers of the supplier are, i.e. that the supplier's functions are improved in areas which can be of use to the buyer. An effect for the buying company regarding the use of several suppliers is that the customer can benefit from their various developments, their rationalization processes, etc. but again this might go in a direction not at all desirable for the buying company.

A closely related effect is that by increasing the number of suppliers the customer gets opportunities to increase the degree of internationalization which in turn might result in improved contacts in foreign markets with increased marketing opportunities for the final product. This first dream seldom becomes more than a dream. A more fruitful way seems to be to try to develop the existing relationship even further, to increase technical cooperation, to demand different rationalization activities and so on. We must not forget that an established relationship between a buying and a selling company, as with Swelag and Materials, represents years of investment in knowledge about the other party, in technical adaptations to the other party, etc. To accomplish a similar situation with another counterpart, whether customer or supplier, would demand heavy investment in terms of time, knowledge, financial resources, etc. That is the reason why the best alternative often is to try to improve the existing relationship and search for new ways of cooperation.

Internal coordination

The second dream has to do with the coordination within an international company group. Again the dream is to combine two different and contradictory dimensions. The first wish that is expressed in the WSE group is to obtain a close coordination between different units within the company group regarding the purchasing activities. The second one is to keep relationships with suppliers on the same quality level as before. The problem is that each unit within the company group has developed its own supplier relationships in accordance with its needs and internal way of functioning. To coordinate the purchasing activities is to have some units taking over other units' supplier contacts. Two types of integration are then confronted and if the internal coordination is successful the external relationships with suppliers are often more or less destroyed. A relationship is to a large extent built on personal contacts between people from the buying and the selling units or companies. Transferring a well-functioning supplier relationship to a central purchasing unit is almost comparable to establishing a new relationship and is not always a successful solution.

Usually the local units defend their relationships and the internal coordination

becomes more of a paper tiger. This is especially the case when the coordination is combined with centralization. In the Swelag case, the mother company tried not to get into the centralization by dividing out the purchasing responsibility for different product groups to different units. Still, the problem with the two contradictory integrations remains and actions have been taken by the local units to remain as decision-makers concerning their own purchasing operations.

3.3 MANAGEMENT IMPLICATIONS

The activity dimension of business relationships deserves major attention from management. In this section we will try to articulate the main issues for management as they can be extracted from our previous discussion and from the cases in this chapter. We will confine our discussion to the activity dimension although it is in practice difficult to separate from those of actors and resources that will be commented upon in the next two chapters. We will try to outline some normative implications for how companies could, and should, handle activity links and their effects on the company and relate these to the more traditional indications in the current management literature.

The main issues in coping with the activity dimension of business relationships can be put under three headings:

- 1 how to develop and handle activity links in single relationships;
- 2 how to exploit the whole set of relationships and activity links in which a company is simultaneously involved;
- 3 what problems need to be handled in order to develop the position of a company in the overall activity pattern.

The first concerns mainly the marketing and purchasing functions in the company which have the primary responsibility for handling customer and supplier relationships. Other functions may be concerned, often production and R&D functions. The second regards the development of the capabilities and capacity of a company and concerns as a rule several functions in the company as their activities are either affected by activity links or affect the possibilities to establish them. The third is pertinent to the development of a company's business strategy and clearly concerns the general management as much as the functions concerned with the former two.

The activity dimension has received increasing attention in the management literature during the last decade. Concern with total quality and time management indicates the importance attributed to synchronizing and matching of activities in scope between companies. As we see it, the discussions of TQ and time management have clearly shown the importance of the activity dimension and its impact on the economic performance of companies (e.g. Stalk and Hout 1990).

3.3.1 Handling the activity links in a relationship – how to do things together

The single dominant issue in handling the activity links in a relationship is how to synchronize and match the activities so as to make them more productive for either or both of the companies involved. To develop activity links means to achieve better synchronization of activities in time and space and better matching of two activities in their 'quality' (content and scope). The difficulties in handling the activity links lie in (a) the identification and assessment of likely effects of activity linking and (b) the nature of the interaction process that brings about the adaptations in activities. Both make the monitoring of changes in a relationship and intervention in order to direct their development problematic. Yet, the economic impact of activity links is of such a magnitude that the difficulties cannot be taken as an excuse for lack of management. All three focal relationships in the cases in this chapter, Swelag–Materials, Vallsjo–Bussum and SweFork–Systech, illustrate clearly the issues involved in handling activity links in a relationship, attempts to develop links and the difficulties.

There are different pay-offs from activity linking in a relationship: short-term economic benefits (or costs), long-term benefits (or disadvantages) from impacts on development potential and productiveness of the company. There is a complexity of effects of activity interdependencies. In the Glulam case the activities became linked more closely in scope as the activities between the two companies (Vallsjo–Bussum) became adapted. It was achieved by Vallsjo taking over some of the activities previously carried out by the customer. The reallocation of activities between the two companies has consequences for the activity structuring in both Vallsjo and Bussum. It causes cost savings in the customer's production process that more than offset the cost increase in Vallsjo. Successively other effects are discovered by the two companies; in Bussum the effects on quality seem to affect the relationships of the company to its own customers; in Vallsjo it affects requirements with respect to its suppliers. The chain interdependencies make the adaptation within the focal relationship reverberate on other relationships with, in that case positive, economic consequences for the costs of handling the relationship activities, costs of other activities within the two companies and in handling relationships with other third parties.

The SweFork case is in many respect similar to the Glulam case. It describes the development and changes in activity links in relation to a supplier (Systech) over a long period of time. The company goes through two sequences of reallocation of activities in a supplier relationship in order to achieve savings in costs of handling the relationship. Benefits that can be obtained through improved synchronization are elucidated. Systech's relationship to the steel producer creates a time dependency which makes the production and delivery scheduling difficult for SweFork and Systech. The way to solve it is to change the technical links through a reallocation of production activities between the steel producer and Systech. The case also shows that not only technical activities are linked but

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order processing routines and other information exchange routines are established between the two companies. Effects of administrative activity links on order cycle and processing cycle are described. Other adaptations are carried out to enhance the value of suppliers' activities (the paint-coating operations reallocation leads to quality improvements), that is, to match the activities in quality. Even these are shown to have more indirect effects on the activity structure in both companies. The SweFork case illustrates also other types of indirect effects on third parties not within the same activity chain. As the substance of the relationship to Systech is adapted, transportation companies and painting specialists are being used to make the relationship more productive. These episodes are an example of the impact of the parallel dependencies.

The Swelag case shows the breadth in activity links with respect to the activity structure of the companies involved. It shows some of the various operations carried out by the supplier and the customer respectively that need matching in quality. The chain effects are nicely revealed in the case over more stages than in the other cases. In other respects it illustrates the same type of effects as Glulam and SweFork.

In this respect all the three cases show the difficulties in identification of the activity interdependencies and their effects. What is undertaken in a relationship is subject to influence from the activity structure of the companies and also from other relationships. Awareness of the three functions of relationship — for the dyad, for the company, for the network, can help to direct the attention of management when changes in activity links in a relationship are being considered. They cannot be mapped fully; they are often discovered gradually as various adjustments in a relationship are attempted. In all the three cases the impression is that the various effects are not clearly perceived by management at the outset and the awareness of the interdependencies seems only limited. Only the Vallsjo case indicates a conscious attempt to exploit activity links. Both SweFork and Swelag seem to cope with the adaptations in activity links when they become a problem. That brings us to the second type of difficulties, those related to the nature of the interaction process.

The intricacies of handling activity links in a relationship stem from the nature of the interaction process between companies. The interlocking of activities of two actors is always a gradual process, a succession of episodes of reciprocal adaptations. The next act is always dependent on the outcome of the previous one and on what is happening simultaneously in other relationships. There is always a need to adjust to what is happening over time and adaptations are made for different reasons by different individuals. The process of linking of activities always includes both conscious and unconscious elements on both sides. The SweFork case describes a series of episodes of solutions adopted to problems that generate other problems and need for solutions in terms of adaptations in activity links. Activities are reciprocally adjusted for different reasons; to save costs, to improve the quality, to shorten the delivery lead-times, and so on. These may span from pursuit of local cost-efficiency, as in the SweFork case, to some more long-term expectations, as in the Swelag or Glulam cases, or for reasons that only the

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individuals interacting know. Adapting activities in one direction may produce unexpected effects in other directions that will be recognized only as the links become developed.

It is impossible to plan such a sequence of acts and counteractions in advance. However knowledgeable the companies involved, there are limits to their foresight. The adaptations that result in activity links in a relationship are decided and carried out by the individuals involved and often little known elsewhere in the company. The incremental changes and adjustments in activity links are inspired by 'problemistic search'. There are sediments of solutions that reflect a logic long forgotten. A nice example is the Swelag case, involving seventy years of interaction with Materials where thousands of adaptations have been made. The purchasers in Swelag are not aware, do not recognize, all the technical links that have grown from adaptations done earlier in order to link Swelag's and Material's activities. They may have been obvious to those involved, but others, in this case the purchasing department, are unaware of them. The organizational complexity in the Swelag case makes these problems even more difficult to handle. This type of problem can be found in all the cases.

There is finally the mutuality aspect. It is through interaction that a company can try to influence the others, make them adapt. Developing activity links that are productive for both parties can be undertaken by only one of the parties, that just absorbs all the effects of the change. Typically, however, both parties become involved. There are limits to unilateral adaptations, at least if their impact on the economic outcome is considered. A good example is the Glulam case that describes how the idea and the solution between Vallsjo and Bussum grow up from an interplay of both. Once it materializes the arrangement becomes 'obvious', but before it is initiated both parties have to be aware of the consequences and act accordingly. A partner that is alert and fast in exploiting the positive effects and in taking care of the negative effects is, of course, much more appreciated than one who is not. Swelag is making, for example, a conscious attempt to influence Materials' activity structure, with the exception of reaping some longer-term benefits from what they term competitive pressure. By literally taking a step backwards and questioning the existing relationship, by making attempts to decrease and cut some activity links, Swelag tries to achieve positive effects from pushing Materials to become more alert and efficient. As the change in the existing activity links is inspired by a unilateral rather than shared logic, the question is whether this will be successful. There are clear indications in the case that the opposite is likely to happen as the changed expectations drive Materials to increase its interest in developing relationships with other customers and lowering the priorities given to the Swelag company.

How could and should monitoring and intervention in activity linking be improved? Two types of solutions seem to work for companies. The first is to institutionalize the monitoring process to some extent. Formal periodical reviews of what has happened may take care of possible undesired effects and thus confine the risk of setting the development on a wrong track. If done jointly it becomes an intervention at the same time. Different arrangements have been adopted in

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companies. Periodical review meetings of the group of individuals involved in both companies, that assess the past performance and outline future directions or principles, are one common arrangement.

The solutions that advocate some generalized organizational arrangements such as instituting account managers or formalizing committees do not seem to guarantee monitoring or corrective action. They might help to channel the information better but do not help in keeping the organic process on the right track. It is doubtful whether monitoring and corrective action can be ameliorated by improving `the information system . Such solutions often tend to propose that more information should be circulated more broadly. The problem does not seem to be one of more exhaustive and broader information; rather the problem seems to be one of attention arousal and timing. The relationship development in the SweFork case provides some hints in this respect. The substantial reallocation of activities between the two companies is experimented with on occasions as a consequence of broader contacts. The problem is not to gain and divulge more information, rather to direct attention and interpret the situations in a certain way. This is achieved more effectively by institutionalization because of its symbolic effects in both companies rather than by other unilateral organizational or systemic arrangements.

The second solution is to promote the logic of `looking beyond' when interpreting what the counterpart is doing. It means not being concerned simply with the buying or supplying behaviour of the other party but also with further activity connections. It means being concerned with the operations of the counterpart and with its standing as a company with respect to third parties. Again it does not call for more extensive information. It is a matter of how to look at the counterparts. Some of the most common negative effects of adaptations in activity links depend on disregard for effects on the activity structure of the counterpart and its other relationships. The Swelag case is a good example here. No further information is required to guess what the consequences of the proposed changes in activity links to Materials might be; raising the question of what activity connections exist might have made the management more clearly aware of the drawbacks of the proposed solution.

The nature of the interaction process in relationships is such that the activity linking is a continuous process; it never reaches an end or equilibrium. Companies have to work continuously with their counterparts. There will always be the question of what to do next. Should the next adaptations regard technical links, administrative links or what? Organizational arrangements are thus important. For the most important counterparts every company should assign the responsibility for controlling and monitoring the continuous efforts. All three cases give good demonstrations of this. In particular in the Swelag case: the companies involved have been working together for nearly a century but there is still so much to do with regard to various types of activities. The potential for increases in efficiency seems to be quite substantial in all cases. Showing the own activity structure and the activity links effects in different dimensions to the counterpart as well as concern with the activity structure of the counterpart are

necessary ingredients in handling activity links in any relationship.

There are problems that cannot be handled within the frame of a single relationship alone. We observed the effects of activity links in a relationship on other relationships and on the activity structure of the company. Solutions brought to activity links in a single relationship cannot always be guided by considerations confined to the effects on the dyad in isolation. The impact on the company of activity links in a relationship depends on how these are combined with others. Therefore, there is no standard solution to the activity linking in a relationship except solutions inspired by reaching the 'local efficiency', which can be in conflict with other effects of relationships combined. In other words, what is needed is some kind of overriding criteria that can only be provided by looking at the whole set of relationships and activity linkages and that take into account the different roles the counterparts may be used for. That is our next problem.

3.3.2 Capability development and activity links – to become a 'team' player

Activity links in the relationship to Materials are essential for Swelag' s capacity to offer its customers a high-quality product. In the same way Vallsjo is opening up a possibility for Bussum to develop its capabilities. As the relationship develops between them Systech is gradually becoming an important part of SweFork's production capacity. All three cases are clear examples of how important a single relationship can be for the capabilities of a company. Two management problems arise: how to relate relationships systematically to the activity structure of the company, and how to combine, that is connect, the single relationships with each other.

The issue is how to use activity links in some relationships in order to improve performance in others. Companies have as a rule several relationships with important activity links. Every activity link is dependent on some other links. When SweFork links its activities with Systech's a condition in order to achieve positive effects is to combine them with those to the painting firm. As Vallsjo tries to develop the activity links with Bussum a necessary condition turns out to be to adapt the activity links with the suppliers of the raw materials.

All the companies involved in the three cases are simultaneously involved in a number of relationships to different parties. Raw or processed materials bought from one supplier must be processed in equipment bought from some other suppliers. The raw materials bought from a supplier must be compatible with the use customers of the buying company make of the product in combination with other materials. This is, for example, illustrated in the Swelag case. The combination effects of the relationship to Systech, the painting company and the transportation company enhance SweFork's product quality, presumably offered in relation to its main customers. Links to different suppliers can be combined, links to different customers can be combined and links to suppliers can be combined with links to customers. The task of management is to take care of and possibly to exploit these connections between activity links in different relationships, to improve the matching and synchronization between relationships. They

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are important to the capabilities of the company.

Not all relationships are equally important; some are more critical than others. How important a relationship is depends on the connections that exist to other relationships and on the magnitude of impact on the activity structure of the company. With respect to the major relationships there are always opportunities to exploit potential connections between the links to achieve cost efficiency, special performance, or future development of the company's capabilities. The critical issue is how to reinforce the positive effects of activity links and to contain the negative ones; how to transfer what is going on in a certain relationship to others and how to balance the ongoing adaptations in the single relationships that may be pushing the company in different directions. It entails assignment of priorities to particular parties and relationships.

To assign priorities to certain relationships is not easy. It is made difficult also because most adaptations are done 'locally' and are not much known in the company. In the three cases we can see examples of multi-dimensional interdependencies and activity links with often contradictory impact on the companies and their other relationships. Generally, these are so many and changing that they never can be all fully kept under control. Yet, without some insight about which links are critical in a certain situation, management actions can become counter-productive and produce undesired effects. Swelag trying to change the relationship with Materials without realizing how central and critical are the activity links in this relationship, is likely to experience negative effects when these links are cut. A similar problem of priority is faced by Vallsjo; developing the activity links to Bussum is likely to affect its relationships to distributors who are important customers in many respects. The Vallsjo case also brings up the question of different types of effect to be weighed against each other. Apart from the fact that strengthening the relationship to Bussum may provide short-term advantages, the development in the relationship is an important way to experiment and learn, and thus to develop new areas of know-how. The opportunities to do so need to be weighed against possible immediate economic losses consequent to likely reactions from distributors.

In trying to identify the critical relationships and to assign priorities, different kinds of effects have to be considered, all possibly important for the development of a company's capabilities. The first are of course the technical activity links richly exemplified, for instance, in all the technical links between Swelag and Materials. These can without any doubt be considered central for Swelag's capability and thereby a condition for its exchange with customers and others. Technical links are essential in the two other cases too. But there are other links that are important for the capability development too. Logistic links that require synchronization in time are nicely described in both the SweFork and the Swelag cases. In both cases the focal companies are to a large extent imprisoned within the time structure determined by their counterparts. Administrative links are hinted in the Swelag case and described in more detail in the SweFork case where order-processing and information exchange routines are developed that become critical to the firm's capability to respond timely to its customer requests. In order

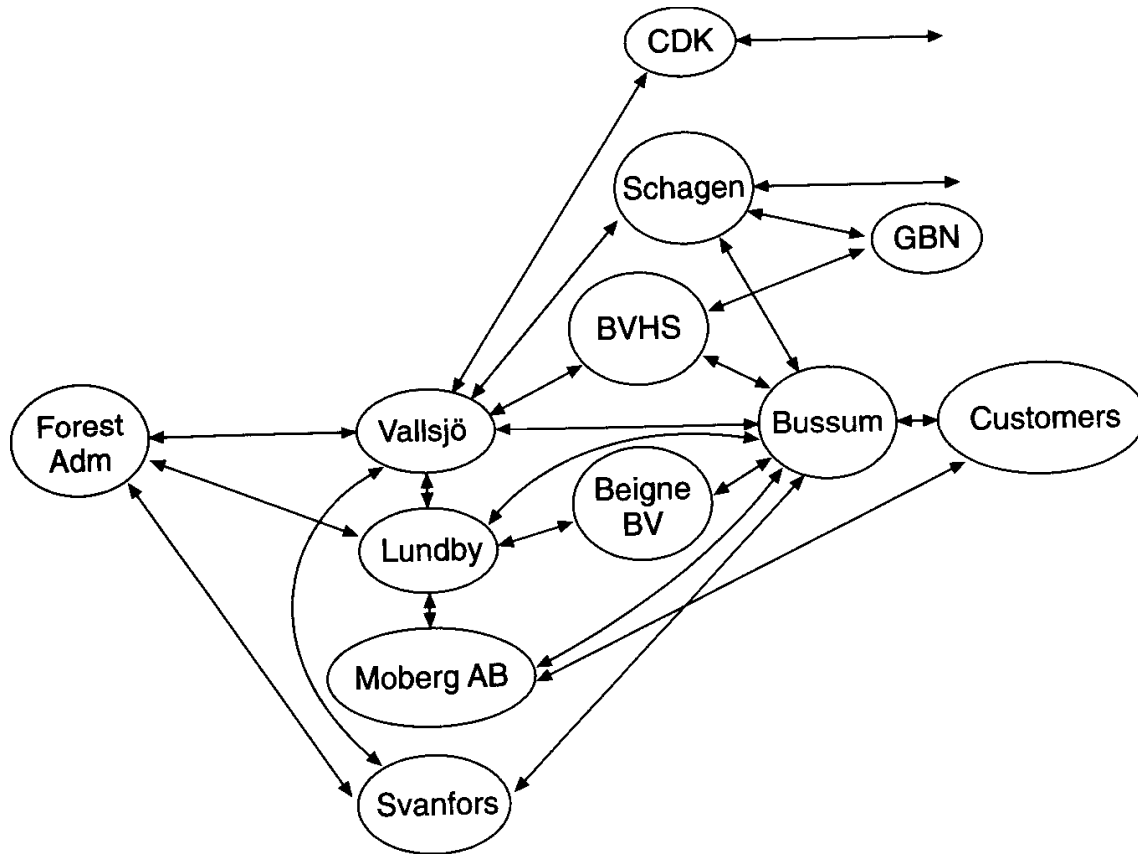


Figure 3.17 Activity structure of Vallsjo Co. and the critical activity links

to attribute priorities, to single out the critical relationships, not only the technical links must be judged.

The cases show how activity links in various relationships can affect nearly every aspect of a company's operations. They affect the production processes, product development, administrative routines, logistics, but also organizing and information handling. Combined they can be exploited to achieve a better balance of standardized and differentiated activities in the activity structure of the company and over time used to develop its current capabilities. It requires, however, that some broad picture of connections and of the magnitude of the effects has to be available. Again, the problem here is that continuous monitoring is probably too exacting and impossible. To have such a map updated continuously would be certainly too costly. The only practical solution seems to be periodical reviews that assess the existing linkages prior to major changes in the activity structure of the company.

The case of the Vallsjo company can be used to sum up the issue of capability development and activity links. In Figure 3.17 some of the relationships affecting the capability of Vallsjo are put together. The main relationships Vallsjo has with customers are reflected in its way of designing and organizing the internal activities and other relationships. The internal activity structure was designed to take advantage of more or less standardized inputs. Production activities were designed to cope with variations in raw material inputs and at the same time to

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use capital and manpower in an efficient way. The output side was seen as a market demanding certain standardized qualities. When the company attempts to develop its customer relationships, to begin with Bussum, other customer relationships, its production system and some other relationships need to be adapted. Supplier relationships and some horizontal relationships to other units within the same group need to be modified. There are severe negative reactions in existing customer relationships that must be dealt with. Capability development tends to involve activity links in several relationships of the company and entails changes in activity structure. Clearly some of the activity links can be mobilized to achieve the desired development, while others need to be protected and the negative effects to be contained. Mobilizing others requires development of activity links that are productive to the extent that they offer increased value to those directly involved.

3.3.3 Strategy development and the activity pattern – you have to do something special for the others!

The performance of a company in the business network is determined by how 'useful' it is perceived to be by others; it reflects its contribution to activities of those directly but also indirectly related. There is no value *per se* in what a company is doing, apart from its productiveness 'in the eyes of others'. Productiveness of the company to others is a matter of how its activities 'lock in' those of others, of the position in the wider activity pattern. Strategy development is a matter of manoeuvring for a favourable position as the activity pattern evolves. Activity links in business relationships are a tool of position development and a channel that relays the impact on changes in the activity pattern on the company.

Developments in relationships indirectly connected to those of the company have far-reaching effects. This is illustrated in the Glulam case by the impact of Bussum's customer relationships (their quality requirements) providing an opportunity to redesign the substance of the relationship between Vallsjo and Bussum. Either way, whether the relationship is developed as described in the case, or kept with the traditional content, the effects on the performance of Bussum's suppliers (and on Vallsjo) will be pervasive. Volume variations in orders from SweFork customers that become a feature of their business makes buffering or changes to major volume flexibility a necessity for the company if its productiveness for customers is to be maintained. More indirectly in the Swelag case we can see the cost pressure from Swelag customers to affect the relationship to Materials and other suppliers.

Productiveness of the company is thus affected by developments in the wider activity pattern as the relative position of the company to its customers changes as a consequence of developments elsewhere in the activity pattern. Productiveness is a matter of capacity to 'be of use' that in part depends on the capabilities of the company, in part on how the capability is perceived (the capacity) by others. Also the capability of the company is subject to effects from change in activity

links in the wider activity pattern. A nice example is the SweFork case, where some of the potential suppliers of the company are developing new types of links to the car industry which offers possibilities for SweFork to develop activity links (information and order processing systems) that turn out to be rather important for SweFork's capacity to offer more efficient routines to customers and suppliers.

An important component in strategy development is to develop the activity links and the own activity structure so as to maintain and possibly reinforce the productiveness of the company in the overall activity pattern. It is important because there is no steady state of the activity pattern in the context of the company. Both the capabilities of the company and the use others can make of it depend on tendencies in the activity pattern. The main issue for a company is how to prevent strategic drift and to develop a favourable position. It entails two main problems, both highlighted in the cases: awareness and interpretation of the tendencies in the activity pattern, and design of the activity structure of the company and links to counterparts.

Position development requires monitoring and interpreting the changes in the activity pattern relevant for the company. It becomes necessary to broaden the analysis from the relationships the company is directly involved in to the whole activity pattern. A large number of indirect interdependencies, both serial and parallel, become vital. Indirect serial interdependencies are best seen in the Swelag and the SweFork cases when looking back along the supplier chain, in particular the sub-supplier–supplier relationships. These tend to limit the possibilities of unilaterally induced changes by Swelag and SweFork. They are most often of a technical or a time nature. Their importance can be quite severe as is seen in the SweFork case regarding time and in a lot of situations they are creating very narrow development paths for the company.

To assess the direction of change requires that management focus on the development of the activity pattern rather than on what other companies that engage in similar activities (competitors) are doing. In particular there is a concern with those links and portions of the activity pattern that are only indirectly connected. All the three cases can be used to underscore this point. Their network position is undergoing significant changes induced by developments along the activity chain and not from attempts to emulate what direct competitors are doing. The Vallsjo company is initiating a change in its relationship to Bussum by following a logic not shared within its industry, breaking with the established practices. It even has to cope with the problem of breaking with industry standard product classification. In a similar way SweFork is apparently experimenting with solutions that fit the state of the relevant supplier network 'then and there'.

On the marketing side it is important for a company to identify important restrictions in these terms, for example regarding different technical features, in order to get realistic forecasts for development of new products. In purchasing it is the other way around. There it is vital to try to market the company's limitations in terms of, for example, technical features not just to suppliers but to all producers and organizations which are indirectly linked to the company (for

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example companies selling to their suppliers).

What we can learn from the activity perspective on business relationships is that the interpretation of the tendencies and trends in the activity pattern of relevance to the company and assessment of the opportunities to develop the position in the overall activity pattern is more important for the strategy development of a company than a close and thorough analysis of the presumptive competitors.

The cases show how companies try to combine and knot together relationships and various activity chains so as to develop the position. The three cases are interesting as they show quite different strategies when it comes to how to cope with these. In the Swelag case the choice has for a long time been a high degree of integration with the supplier, while in the Glulam case it has been standardization of activities in relationship to customers. The SweFork case contains elements of both. The Glulam case is interesting if we look at it using some of our terminology on standardization and differentiation of activities. The activity dependencies have been traditionally handled through the hierarchy and the market respectively: standardized activities, standardized products, little need to differentiate the activity dimension forward to customers. Vallsjo is now trying to devise a different solution; differentiation of activity links to customers. It requires rethinking the activity structure of the company and even different types of activity links to suppliers. It experiences rather emblematic problems in finding adequate solutions. The team pushing for the new arrangement does that in the hope of exploiting economically some of the opportunities offered by developing strong activity links. Risks are present and give cause for concern.

The Swelag–Materials relationship is the opposite of that of Vallsjo–Bussum. Swelag has been fully integrated with Materials for fifty years. During the whole period the two units have kept their own identities partly because they are situated in two different geographical locations. For most of the time the two units also have had to buy and sell all of the material in question to and from each other. There is nearly full differentiation of activity structure of Materials to fit with that of Swelag. The last ten years have seen a gradual loosening up of the relationship but the two counterparts are still the dominant actors in relation to each other. Swelag is, during the time period covered by the case, trying to go one step further and disintegrate the links more completely. The company attempts to substitute the full integration solution by promoting a major activity standardization. It is experimenting with reintroducing market and hierarchy, which is a solution that goes in the opposite direction of the one described in the Glulam case. The case offers a good description of how difficult this is and of the risks implicated in disregarding certain strong activity links. The process is easy to initiate but as the task force behind the change has limited or vague knowledge about all the connections, due to handling interdependencies between activities, it gets into trouble. While the opportunities for doing so are voiced by the members of the team, the problems of going from almost full integration to a relationship characterized by a standardized solution and an arm's-length distance are not anticipated.

The SweFork case shows the circumstances of incremental changes of an intermediate situation. The company has worked closely with the suppliers in the past, but is now trying to do this in a more systematic way. The policy in procurement has been to buy components and to take care of the whole integrating process itself. An obvious effect is that the company has got a large number of suppliers and a heavy internal process of production and coordination. During a period of high demand SweFork had to rationalize the internal structure and this requires a change in position *vis-a-vis* the suppliers. SweFork has to change its supplier relationships and the change forces it at least partly to become part of a new activity pattern. On the whole it seems that the company has been, during the period described in the case, trying to strike the economically advantageous balance of standardized and differentiated activities. It does not seem to be done in a planned way but the outcome seems to work. The adjustments in the activity structure in SweFork company have been made as opportunities and problems arise in different supplier relationships. The case shows how the balance in standardization and integration of activities in business relationships can be used to develop the position of the company and how it is likely to affect its performance over time. To what extent the design of the activity structure has been conscious can be debated; nevertheless it seems to achieve satisfactory performance on one of the dimensions of concern of management, namely, the flexibility or mobility of the structure. It seems to permit, among other things, taking care of the volume variation in orders in a way that would be difficult with an activity structure of a more standardized type.

The problem faced by companies in strategy development is to manage, to the extent possible, the position of the company in the overall activity pattern. The final issue is that there are two extremes conceivable in order to achieve that. One is to adapt to the existing activity pattern and to cope with changes as their impact becomes manifest in the activity links of the company. Swelag and to some extent SweFork seem to adopt this posture. Another is to seek actively to play a role in the development of the activity pattern, initiating the changes. Neither of the two ways to handle position development is without risks and both can produce positive economic performance. The latter is more uncommon and perhaps more intricate. As no single company can change the pattern on its own, it requires alliances and mobilization of at least some other players. It requires apparently a different type of skills and resources. That, however, transcends our analysis of the activity dimension here and will be discussed further in chapter 6.

3.3.4 Managing the activity linking

In this section we have argued that companies need to manage the activity dimension as relationships develop and make use of the interdependencies existing between their own and other's activities. Our arguments can be summarized in the following:

1 In every relationship activity links tend to arise regarding the synchronization

and matching of activities of the two counterparts with regard to technical attributes, time or administration.

2 The linking of activities in a relationship is never 'optimal'. There is always scope to develop them further which is done by those involved (often middle management), gradually in a process we could call 'problemistic search', adopting locally effective solutions.

3 How the activity linking is done is therefore difficult to monitor, but its effects are such that they need to be kept under control.

4 Activity links in relationships impact on the activity structure of the company and thus its productivity; their combination effects are critical to the balance in standardization—differentiation and thus on the economies in a company's activities.

5 Because of the connectedness in activity links in different relationships some of the activity links are more critical than others; there is a need for giving certain relationships priority over others.

6 Activity links in different relationships lock the activity structure of the company into those of others and in the wider activity pattern in the network. Their impact on a company's economy will depend on how productive they are for the others.

7 Activity links are an important tool for companies in order to 'position' themselves within the network. Linking, in this strategic sense, means to take advantage of the links developed by others as well as to develop links which will enhance the position in the future.

4 Resource ties

Companies make use of resources; a combination of technical, personal financial and other resources is always needed in a business enterprise. No company has all the resources needed; some have to be acquired from others. At the same time the products and services of a company become resources for others — companies provide resources to others. For these reasons the resource dimension of business relationships is an important one.

Resources are usually identified with given (and tangible) entities that are not free in supply. That has led to an emphasis on resource availability and control. It has been suggested that better access to and control over resources offers an advantage. The wealth of the oil companies has been related to their control of oil fields and the wealth of the forest industry to their control of the forests.

On a closer scrutiny the concept of resource becomes more problematic. It is a relative concept. Whether an element is to be considered a resource, depends on the known use for it. Various elements, tangible or intangible, material or symbolic, can be considered as resources when use can be made of them. No element without known use is a resource and the value of resources lies, of course, in their use potential. A resource can thus be regarded as a relation rather than an element in itself. The relationship perspective points to a specific aspect of resources. It directs the attention to what we will call the double-faced nature of resources. Resources always have a provision side and a use side. Provision determines the features of resource elements that can, but need not to be, of use. The value of resources is dependent on the use of their features and thus on the relationship between the provider and the user. As a consequence, in the relationship perspective resources are a result of activities as much as a condition that makes certain activities possible.

Empirical studies of business relationships show that companies can, and do, develop resources and resource combinations. Companies develop new products and new applications, use a product in new combinations with other products. These changes often originate in relationships with other companies because it is in a relationship that the use of a resource is confronted with how it is produced. There always seems to be potential both to change and develop the resource itself and/or to change the way in which it is used. A resource element can be developed in two ways: it can be given new or different features by the provider, or the

existing features can be used in a new way or for a different purpose by the user. The provision and use, and thus the value, of resources hinge on the knowledge of resource use and on how it is spread and coordinated among the providers and users in the existing business network. Relationships activate and develop specific resource elements and different resource constellations. Therefore, resources are not entities given once and for all but variables.

Resources have meaning only in constellations, that is, combinations that have known use. Resource elements are tied to meaningful wholes from known ways to accomplish something valued by somebody (a certain activity pattern). The notion of resource constellation can be applied from different angles. One can conceive resource constellations related to an activity chain or to a certain activity pattern that embraces several companies but also to a certain business enterprise. We will use the notion of resource collection when referring to the resources tied together by a company.

What are the implications of the double-faced nature of resources for the individual company? First, resources become critical to economic performances in two ways: an obvious one is that the costs sustained are a function of the resources used up. Another one, perhaps less obvious but possibly even more important, is that the revenues of a company depend on how the resources (for others) are developed. Second, the performance of the company is bounded by the available resource collection. The collection of resources needed by a company consists of many different types of resources and is tied to a whole set of resource providers. Some of the resources can be provided internally but a substantial part must be secured from external providers through relationships. Third, access to a meaningful set of resources limits what a company can do. The company has to consider, therefore, both how it uses the available resources (externally or internally provided) and how it is itself used as a resource provider by others. It is thus important for a company to use the resources available in an efficient way but also to have demanding partners who will direct and pull the company to develop its products or services.

Questions that we will address in this chapter regard the resource ties arising in business relationships. In the first section we will discuss how resource ties are developed in business relationships; what consequences they have for the industrial network and the effects they have on companies. The second section contains three company case histories that illustrate some of the issues related to resource ties in business relationships. In the third section we will turn our attention to the main issues for management when coping with the resource dimension of business relationships.

4.1 THE RESOURCE DIMENSION IN BUSINESS RELATIONSHIPS

The resource dimension of business relationships is, because of its impact on the performance of the company, an important one. In and through relationships to suppliers, customers and others, resources are acquired or in other ways accessed, provided and developed. Inter-company relationships tie together resources of

different companies. A relationship ties certain specific resources of the provider to certain specific resources of the user. Handling resource ties in relationships between companies is critical not only in order to secure access and the transfer of existing resources – the sales and procurement – but also for the development of resources – their use and production.

The substance of a relationship in terms of resources can vary greatly and the resource ties that arise in a relationship have different consequences; they affect the availability of resources and the innovativeness of a company. As the way we treat resources is somewhat different from several other research traditions we will start by discussing briefly the resource concept before going to explore the concepts of resource ties, resource constellations and their impact on the companies.

4.1.1 Analysis of resources

Given the importance of resources in business enterprise it is not surprising that resources are central in several theoretical traditions that deal with business behaviour. The view of a firm as essentially a resource entity, as being dependent on resources, is common to the microeconomic theory (e.g. Penrose 1959, Alchian and Demsetz 1972) and its applications in the field of industrial organization (e.g. Scherer 1970). The importance of resources has been recognized in organization theory (e.g. Pfeffer and Salancik 1978) and of course in the management literature. Recently it has inspired the so-called resource-based view of the firm among those concerned with business strategy development (e.g. Barney 1986, Itami 1987, Grant 1991).

Economics emphasizes resource scarcity whenever it comes to the discussion of the value of resources and to some extent derives from resource scarcity the purpose of the firm. It is held that the very purpose of the firm is economizing on scarce resources and the control of resources is emphasized (e.g. Coase 1937). We tend to add and emphasize another dimension of resources in business enterprise. Companies not only economize on use of resources. They use resources, their own and others', in order to provide resources for others. Thus they also create and develop resources and it may well be that creating and developing resources rather than economizing on resources is their primary purpose.

Different types of resources are usually distinguished in a business enterprise; manpower, technical facilities, know-how, financial resources, materials, etc. Some of these are highly tangible, others are more intangible. The intangible elements, such as know-how, skills, goodwill, trust, customer base, supplier base or company image, are important resources in business (e.g. Itami 1987). Every business firm combines a unique set of resources as much as it carries out a unique set of activities; it is a collection of different resource elements. Resources are related to activities performed. They tend to persist over time as activities are continued.

The resource concept is apparently straightforward as long as we think of resources as given elements to be combined and transformed in a production

process into other resource elements (products). As long as resources are viewed as homogeneous in their use, their value will be independent of what other resources they are combined with when used and seemingly they have value in themselves. The resource concept becomes more complex if the resources are regarded as heterogeneous in the meaning that their value depends on which other resources they are combined with. Once we accept the heterogeneity in use, resources must be evaluated in different combinations and constellations. The double-faced nature of the resources will then become apparent.

The notion of resource heterogeneity in use is not new. Alchian and Demsetz (1972) argued, for example, that the very existence of firms could be explained by resource heterogeneity. They defined heterogeneous resources as resources which give different marginal returns dependent on what other resources they are combined with. Their argument is that resource elements have a number of properties and the relative importance of those will depend on what combinations they are used in. Therefore the value of the different resource elements also depends on the use made of those and that will tend to differ — be heterogeneous.

This resource heterogeneity assumption puts the experiential learning in focus when using resources (Lundvall 1988). Alchian and Demsetz (1972) argued that the results of a combination of resources that are heterogeneous are impossible to know in advance and have to be learned. The combinations have to be tried out in what they call 'teamwork'. Joint learning can be accomplished through interaction of resource providers and users. The more that is known about how the different dimensions of resources can be used together, the more effectively they can be combined. In this way resources are developed.

Penrose (1959) expressed a similar view emphasizing the close relation between the resources of the firm and those in its environment. As the individual firms are collections of heterogeneous resources, a business relationship relates the resources of the two firms and allows their combined effectiveness to be increased. That is achieved as actors learn how to best relate their resources to each other. Thus, while Alchian and Demsetz explain the existence of firms from the resource heterogeneity, Penrose uses the same type of argument on the relation between the firm and its context. We believe the resource heterogeneity is highly relevant to resource ties in business relationships; we also believe it explains to a large extent why intercompany relationships often tend to be relatively broad in content and stable over time.

The main themes in the analysis of the resource dimension of intercompany relationships are presented schematically in Figure 4.1. Our discussion of resources departed from a commonly accepted problem of resource scarcity and consequent concern with resource availability and control over resources on which much of the traditional theorizing in economics and business concur. We observed further that once we accept the notion of resources as variable and not given, another aspect of resources deserves major attention, namely, the resource development. We introduced the notion of relativity of resources: resources as relations between the provision and usage of resource elements. In the light of this argument, business relationships can be viewed as a mechanism that permits

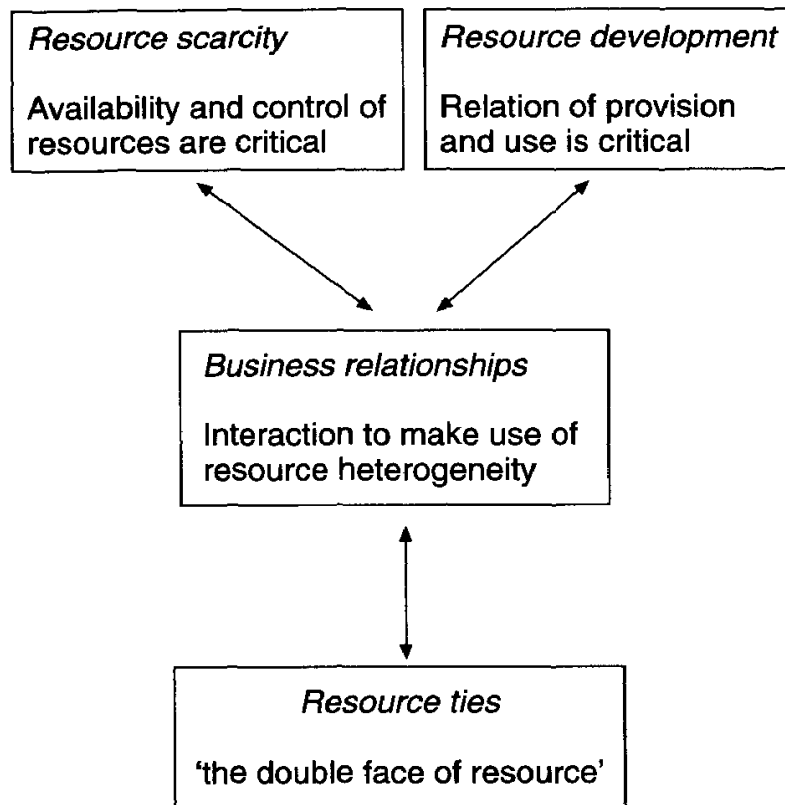


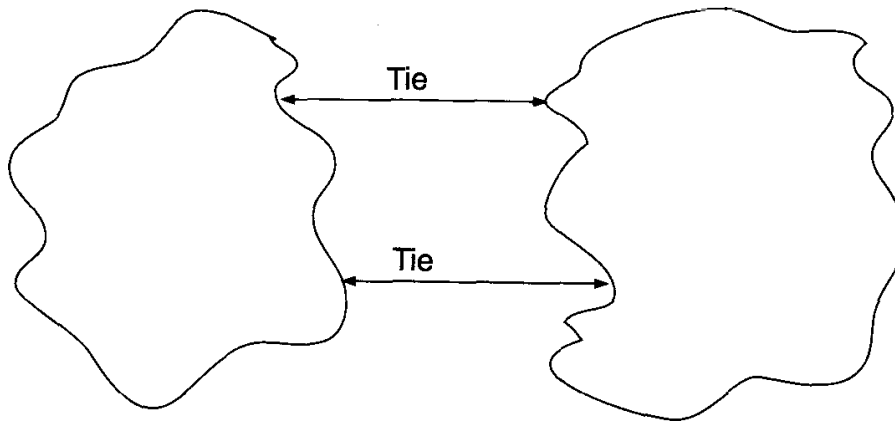
Figure 4.1 The concept of resource ties

companies both to access and to develop resources. That brings us to the concept of resource ties in relationships between companies that reflect the double-faced nature of resources.

4.1.2 Resource ties

Business relationships between two companies connect their resources. Some of the resources are as a rule exchanged and transferred between the companies, others are accessed and reciprocally used in other ways. A relationship connects two heterogeneous collections of resources of the two parties. As it develops, the two companies direct and orient some of their resources towards each other. Adaptations are made in resource features and in the use combinations. A relationship between two companies can tie together more or less tightly some of their resources in a specific way.'

In a relationship, resources are made available to the user but also 'the using' becomes available to the provider (producer). The two companies in a relation-ship invest in the use of each other's resources: the seller in the customer's use of the product today and its potential to develop that use, and the buyer in the seller's ability to produce and develop the product. As resource ties develop between two companies they become mutually and increasingly interdependent. As a consequence the borderline between the internal and external resources becomes blurred. The potency of the resource collection of a company depends



Unit A

Unit B *Figure 4.2 Ties*

within a relationship between two resource units

on how it is tied into those of others. It is through relationships that different resources can be mobilized, made available and offered to others. The notion of resource ties is schematically represented in Figure 4.2.

Resource ties that arise in a relationship reflect the knowledge and skills in the use and production of resources; they reflect the technology in use in the companies involved. As resource ties arise, the knowledge of how to provide and how to use different resources and their features develops. Business relationships are not only means to make the production and the use of a resource accessible; a company can, in interaction with others, learn how and for what purpose different resource elements can be used. Existing elements can be used as resources for some previously unknown purpose. Relationships can thus be productive and have an effect on innovation in the use of resources. The production of the resource can be directly influenced through the relationship so that the produced resource will be given added or different features valuable for the user (e.g. von Hippel 1988, Håkansson 1989). Novel resource ties tend to emerge in relationships as new uses for resources are discovered and as new resources for actual purposes are developed. Resources can thus be developed in and through relationships. Both tangible and intangible resource elements can be developed in relationships between companies. Relationships tie company's resources into other resource sets and that is determinant for the value of the company's resource collection over time. Resource ties in a relationship are thus important for resource development.

Besides the resource development consequences of resource ties there is yet another point that we believe important. Relationships themselves can be considered and used as resources or assets, since they are productive and thus a source of value to the parties. Existing relationships are valuable assets in business, despite the difficulty in assessing and measuring their value. Relationships may well be, and we argue that they are, the most significant resource in what makes a company capable of unique performance. They are the kind of asset that is difficult to reproduce and emulate for others and therefore critical for a

company's performance (e.g. Itami 1987).

The difficulty of quantifying the value of relationships as resources arises partly through their 'intangibility', but there is also another reason for this difficulty, hinted at earlier when discussing the resource heterogeneity. The value of a resource element lies in its use in combination with other resource elements. In a relationship certain specific resources of a company are tied into another company's resource collection. The value of these will not depend simply on their amount and type but on the use the counterpart makes of them. A company's relationships, in particular those to suppliers and customers, tie its resource collection to those of the counterparts. The value of a relationship for a company will depend on how it is combined with other resources. Relationships are a peculiar type of resource as they cannot be controlled by any single party in isolation but are controlled jointly by the parties involved. A relationship is jointly owned by those who have 'invested' in it. That contributes further to difficulties in quantifying their value as assets.

As we touched upon the issue of investments it can be noted that development of a relationship follows a rather typical investment cycle. It takes time and effort to build up a relationship while benefits tend to lie ahead in time. Costs and revenues from an exchange relationship in business tend to appear in different time periods (Johanson and Wootz 1986) as in any typical investment project.

Relationships are resources of a peculiar type as their value does not diminish with use — they cannot be used up, they can only decay. Extensive use of a relationship does not lead to lowering of its value; it often can enhance its value. A relationship is a resource just as long as the two counterparts keep it alive. As soon as one of them does not find it worthwhile, its value starts vanishing even if it is not dissipated immediately because of the investments made. The development of resource ties and their value can thus never be controlled unilaterally but only jointly by the two parties involved.

4.1.3. Resource constellations

Resource ties in a relationship connect some of the resources of one company to some of the resources in another company. As resource ties arise, the same resource elements become tied to other resources in the resource collection on each side and, to resources of some third parties. As the same resource element can be involved in several ties (and relationships) these will be connected in the sense that they affect each other. Connected resource ties form a structure we labelled a resource constellation² (see Figure 4.3). The notion of resource constellation points to the fact that resources a company provides or uses are tied directly to those with which the company has direct relationships and also to those that are 'indirectly connected'.

Resource ties in a relationship are but a part of a resource constellation that can be directly or indirectly accessed and used. The resource constellation reflects the overlay of knowledge of resource use (technology) in the business network. It develops as the knowledge evolves and makes the development of knowledge

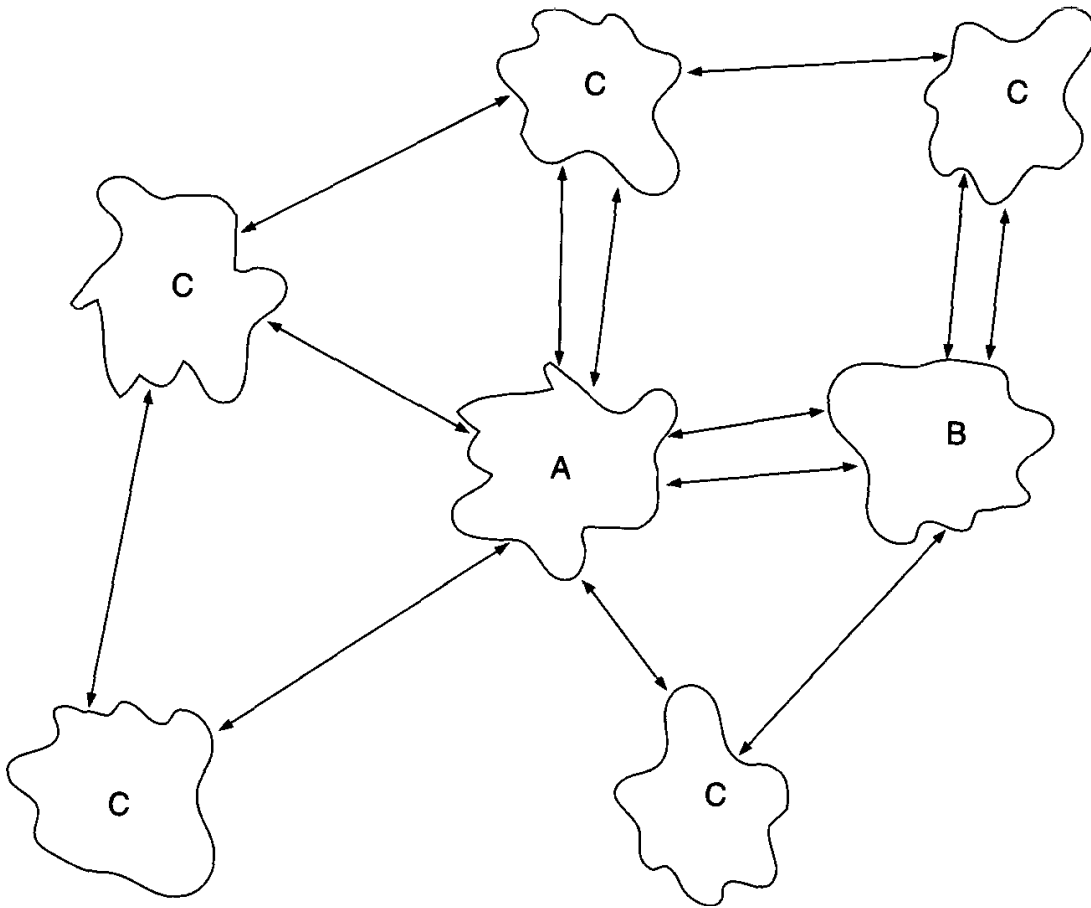


Figure 4.3 Connected ties between resource units forming a resource constellation

possible. The resource constellation develops as a consequence of resource ties being established jointly by the companies. This has a number of consequences for the resource development, that is, for the development of knowledge about providing and using resources. A first is that the value of a certain resource element depends on multiple ties. It will be both better utilized and more difficult to substitute the more and the stronger resource ties there are. A second consequence regards the multi-dimensionality of the ties. The ties can connect very different resource items; two products, a product and a machine, or a product and the knowledge of a certain person. Changes in one type of resource element have to be coordinated with changes in quite other types. A third consequence is the importance of joint action. Change in use of a certain resource will involve all those who use or provide resources with specific ties to that resource.

There is a need for coordinated learning in order to handle the ties in a resource constellation, to get adjustments and to develop it. Learning with respect to use and provision of resources can be accomplished by companies in three different ways. First, by the single actor developing ability through experimentation (learning by doing); second, by actors using each other's knowledge and experience; third, by joint learning based on several actors' knowledge and

experimentation. The first type is quite obvious and clear but the second and third types need to be looked at more closely.

A company can take advantage and make use of others' knowledge and experience in different ways. One is to acquire the same knowledge as the provider of the knowledge. This is what Demsetz (1988) argued to be an uneconomical and costly use of learning specialization. Other, more economical ways to achieve that are to take 'directions' from the knowledge provider or to acquire products or services which require less knowledge to use than to produce (Demsetz 1988:157). To take directions is to accept rules of conduct without knowing the exact reasons for them. To buy and use products without knowing how they are produced but being able to use them is also to accept items of conduct without knowing the reasons for them. In both cases the user can thus take advantage of the knowledge of the provider without the costs of developing the knowledge.

The third type of learning — joint learning — can be seen as the effect caused by team management. Two resource holders will in an interaction process develop the knowledge and skills to utilize each other's resources. Joint learning is a double (or mutual) specialization which includes adaptations. The two parties become specialists in producing some joint values.

Resource ties are interesting from the point of view of learning. They suggest that all three different modes of learning can be combined to various extent. Ties develop as resources are combined in a better way and adapted. In principle this can be accomplished through own experimentation by a single actor, through learning from others, and through joint learning. The capability to combine internal resources can be developed through own experimentation. As other resources are provided by external actors there seem to be good reasons for taking advantage by learning from the counterparts and joint learning. One important way to acquire knowledge is to buy 'knowledge-intensive' products, but often this is not enough and the company needs both to get directions and acquire some knowledge on its own. Joint learning with some counterparts can be a profitable investment.

Two conditions in the resource collection favour coordinated learning: stability and variety. Business networks and thus resource constellations as consequence of resource ties seem to provide both. Learning is closely connected to time — learning can be defined as a change in the behaviour over time. For all human beings it takes time to learn (Pasinetti 1981). Time and repetition create possibilities for learning. A company can learn more about the use of resources through continuous interaction with resource providers. In order to get the time for learning a certain stability in relation to resource providers is needed. For example, for a company to take advantage of the heterogeneity of the input resources there is a need for a certain stability in the relationships with the suppliers. In order to learn what a supplier knows and can do a company has to have contacts with the supplier over a certain time period. There are probably learning curves in relation to specific counterparts. Continuity in relationships enhances companies' possibilities to learn. The learning will, however, seldom

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result in all knowledge being transferred. The reason is partly that the knowledge of resource use is tacit and thus difficult to transfer, partly that the counterparts continuously develop their knowledge in their relationships with other actors. The learning is never fully accomplished. The need for stability becomes even more accentuated for joint learning. Thus stability in certain relationships between resource providers and users can be seen as a necessary condition for collective learning.

The need for variety has some effects in the opposite direction. Learning is closely related to variety, which has consequences for collective learning. Researchers within different areas have pointed out important aspects of variety. One is a distinction between search and discovery made by Kirzner (1992). Discovery is defined as finding the unexpected, while search is looking for something already identified. Learning embraces both search and discovery, it entails looking for the unknown. Consequently, a resource provider or user must be open to new aspects which, of course, can be done together with established partners but will probably be further enhanced by contacts with new partners. Learning often occurs through combinations of different already existing knowledge areas. One example is looking for complementarities, discussed by Richardson (1972) and Teece (1988). This will certainly be a key issue in the learning process among the established partners but due to the existence of heterogeneity there will also exist an enormous number of hidden possibilities to find such complementarities with previously unknown companies. Again variety in the structure might be beneficial.

Granovetter (1973) raises questions about variety in terms of the strength of weak ties. His argument is that information regarding, for example, innovations is passed on from group to group through weak ties. Applied to business relationships it indicates that a structure of strong resource ties between some companies has to be complemented by a set of weak resource ties. This calls for a certain variety in number and types of counterparts for the individual resource provider or user.

Nonaka (1991) has discussed the need for redundant information to increase creativity. Variety in counterparts can be one way to increase this redundancy. A similar argument is developed by Lundvall (1990) who concludes that the learning interface in vertically integrated systems often tends to become too narrow. There is a need for a certain degree of variety among the resource providers and users developing relationships which can be problematic to keep over time because of the stability in resource ties to a certain set of others.

A resource constellation based on a network of business relationships is a structure that has features of both stability and variety. Within such a constellation each resource unit (a company) can gain stability through the ties to some other units over a longer period of time so that ties and the own resources can be developed. Each of the resource units tied to a certain company can also be tied to others. In this way it becomes possible to exploit the benefits of resource connectedness. The resource units can be combined, put together and changed in an 'efficient' and 'innovative' way. A resource constellation in the network of

business relationships provides the stability that favours coordinated collective learning.

Resource constellations combine stability with variety. Each single resource unit can be connected with a set of 'new' resource elements. Let us take a simple example. A resource unit is tied to ten important other resource units and of these only one is changed every year. If we also assume that all the other resource units are tied up with other resource units in the same way (ten resource units each) we can calculate the changes that will appear in such a resource constellation as seen from one focal resource unit over one year. Furthermore, let us look at three layers. In the first layer one resource unit is changed. In the second layer, the ten resource units have together ninety other ties of which nine (one for each of the remaining nine) plus nine (for the new unit) — eighteen in all — are changed. These ninety have altogether 810 other ties of which 234 are changed. Together $1 + 18 + 234 = 253$ ties will be changed every year. This produces substantial variety — it means that more than one-quarter of all units within the constellation (253 out of 911 = 28 per cent) is exchanged every year (if we had chosen to change two counterparts for each of the units then half of all units within three layers as seen from one focal resource unit would be changed every year). A resource collection, stable because of the continuity in the direct relationships, can in this way be combined with a substantial variety and variability in the resource constellation, which offers good scope for learning. However, and very importantly, a network constellation structure does not automatically lead to, create or include this variety; rather it offers the potential.

A resource constellation provides a favourable setting for the learning, in other words, we would expect developments in the resource constellation that will never be static. There will always be tensions that work towards improvements in the use and production of resources, towards innovation. With respect to resource ties in a relationship between two companies it means that this will either be the origin of the developments or be exposed to the effects of such developments elsewhere in the constellation. The constellation provides the base that can be exploited by companies. Development of resource ties has an organizing effect on the constellation as a whole.

4.1.4 Resource ties and company resource collection

The type and amount of resources that can be mobilized internally or through relationships is important for what a company can do and achieve. It affects its capabilities and performance, that is, to what extent the company shall become a resource provider appreciated by others. It also affects how efficient the company shall be in the use of resources and thus its costs. Capabilities and the capacity of a business enterprise reflect the nature and amount of resources it can access and mobilize. Given the resource heterogeneity it is the mix rather than simply the amount of resources that explains the value of resources in a business enterprise. Any business enterprise makes use of a unique collection of resource elements in order to carry out certain activities. Relationships are means to tie

together the resources and thus to organize the collection. Relationships affect both the availability of assorted resource elements and how resources are provided and used. The latter is critical for a company's capability to innovate.

Availability is commonly thought of in terms of resources over which a company has some kind of 'property rights'. No business enterprise has a direct (ownership) control of all the resources necessary for its activities. There are always resources, external to the company, that need to be acquired. The bulk of these are made available through exchange with others. Some of the relationships of a company obviously serve mainly this purpose. There are other valuable resources, however, that cannot be simply transferred but can nevertheless be utilized. These can be accessed, made available, only through relationships; generally these are the more 'soft' resources not embedded in physical products such as material know-how, knowledge of the market, application know-how or technology. The control of these is indirect, joint control shared with the counterpart. Other relationships of a company may serve the purpose of accessing these. Business relationships are means to acquire or access specific resources possessed by others and to tie the different resources into the assortment (collection) of resources required to sustain a certain activity structure. They are thus means to ensure availability of resources and thereby gain a certain degree of control over the resources needed.

The control of resources through relationships can be compared to the ownership control in terms of costs and benefits. Ownership control is generally regarded as more costly but more effective than the partial, joint control through relationships. This claim deserves to be examined more closely.

Tight direct control of resources is considered desirable as it makes it easier, so it is argued, to mobilize such resources. The benefits of direct control are believed to outweigh the major costs of ownership control and the burden of their full exploitation. Direct and close control is thus considered beneficial to what might be called 'short-term coordination efficiency' (Eliasson 1990). Given the dynamics of market networks, a problem of trade-off arises, however, between the short-term coordination efficiency and the long-term innovation effectiveness (ibid.). It has been pointed out that loose couplings have significant advantages when it comes to effective resource allocation over time in a complex and unpredictable context (Weick 1969). The resource development might be more intensive when two different parties take responsibility. When resources are controlled directly the effort may be directed in one specific direction. It may in the short run lead to an effective use of the resource but in the long run may become ineffective for the development of the resource. The tension in a freely agreed connection (relationship) between two resource units can be balanced by other relationships. That is why joint control is likely to produce a more effective dynamic allocation of resources. Indirect resource control through relationships is thus beneficial in terms of the flexibility or strategic mobility of a company over time. Also it may be easier to expand the resource collection through exchange relationships rather than by means of ownership control.

Still, a company's strategic mobility is constrained by the resource collection

it can mobilize. Resource ties take time to develop, therefore a radical short-term change in the resource collection is difficult to achieve. Developing a resource collection takes time because of the experimentation and learning that development of new resource ties requires. There is a considerable inertial force in resource collections that can be explained from organizational routines (Nelson and Winter 1982). Resource ties account for what a company will be capable of doing; at the same time they reflect what a company has been accustomed to do. As the actual resource ties determine, by and large, a company's strategic mobility, resources rather than market opportunities can be argued to be the foundation of its long-term strategy (Grant 1991:95).

We observed that the use of resources can always be improved, that there is no resource element that is used in a 'an accomplished and final' way. Relationships and resource ties make the use of resources differentiated and changing over time. Resource ties that arise in business relationships are determinants of the innovation potential of a company. We have seen an example from one of the largest producers of a certain (technologically rather mature) material in the world and the second-largest user of it. The two companies are conducting technical development on a continuous basis. More than ten projects are as a rule going on at the same time and the top management meet regularly twice a year in order to review the progress. If there is so much to do in this case of a very well-researched material by two of the most competent producers and users in the world, the chances are that opportunities exist in all other intercompany relationships.

The costs and benefits of ownership control over resources versus indirect control over resources through relationships seem thus to be more compounded than earlier suggested. On the side of the benefits, relationship control seems to offer advantages both from the point of view of availability and of resource development. It provides opportunities to expand the resource collection of the company, to modify and keep the desired variety. It appears positive for the innovation potential of the company and its innovativeness as perceived by others. On the cost side the advantages of the relationship control may be even more pronounced if we consider that slack in use of resources controlled directly is more likely than when the control is joint.

Different companies have resource collections with different characteristics. Every collection can be described in a number of dimensions. Two of those actualized by the earlier discussion are closely related to the innovation potential of the company. The provider can either be the company itself (for the resources over which it has hierarchical control) or an external unit (a supplier, etc.). The user of the resource can in the same way be either the company itself or some external unit (a customer). A typology of resource ties in a company's resource collection based on these two dimensions is outlined in Figure 4.4.

Four different types of resource ties are identified in the matrix of the Figure 4.4. Each of these has its own characteristic problems. All four situations can be found in every company's resource collection and the matrix can be used to assess its innovation potential. The first situation is when the resource is both produced and used within the company. In principle the access to and mobilization of

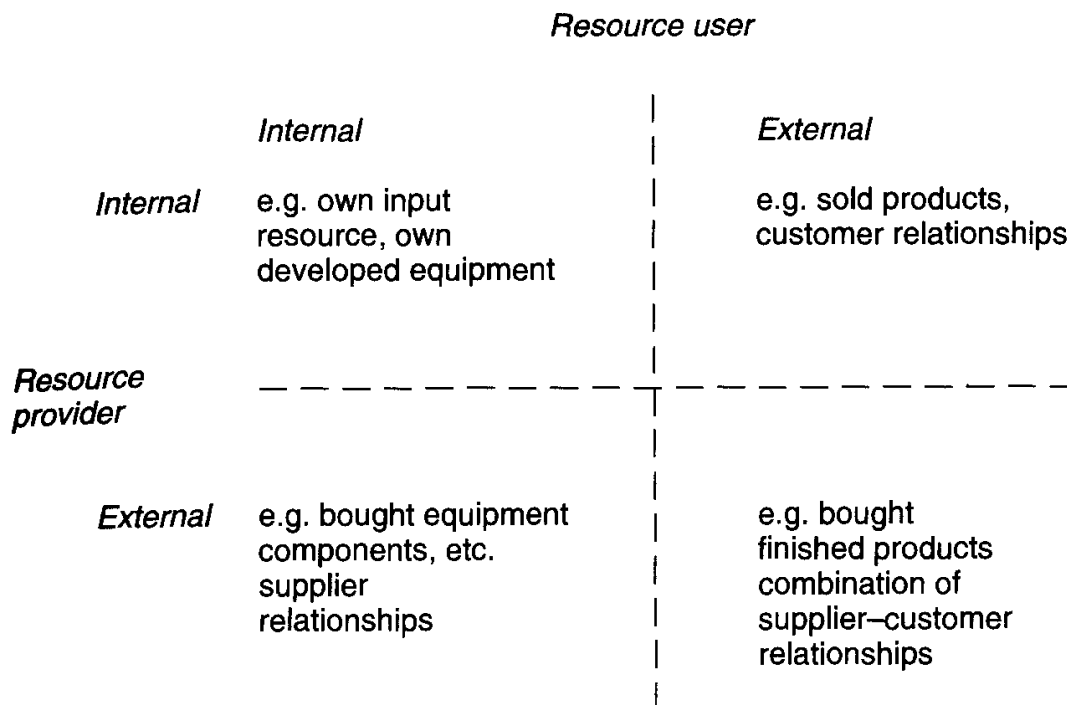


Figure 4.4 Resource ties in the resource collection of a company

resources is a minor problem. Efficiency in use and resource development may be a problem as the two sides determining the value of resources (the provider and the user) belong to the same company. It can easily happen that one side — either the production or the use — will come to dominate and thus make the interaction one-sided and the search for new resource features become too directed; unquestioned ‘truths’ might develop. Companies realize these problems and use different means to handle them, such as to organize in such a way that different organizational units get the responsibility, i.e. to create two sides. A more doubtful solution is to circulate people between departments responsible for the two sides. This can improve the communication but at the same time takes away some of the tension needed.

The second situation is when the provider is internal and the user external (i.e. a customer). The resource access aspect may be less important, although there are notable exceptions. Sometimes it can be very difficult to get the customer to be interested and involved. The main issue here is, however, the resource development. Different users may pull resource development (innovation) in different directions; priority to some potential users is often needed. Another issue is how to get the interaction going in an efficient way, how to get personnel involved in the ‘production and development’ to work together with the ‘using’ people in the customer company.

In the third situation, when the provider is external and the user internal, both the availability and development aspects seem to be important. The issue is how to secure the access to valued resources, or in other words how to enhance the joint control. To select a resource provider as an interesting development partner

is not enough; the problem can be to get attention and priority. It can be a question of being able to market the company's own needs in combination with a good receptive ability.

The fourth situation is both more problematic and more simple for the focal company. The company will try to be seen as the representative of the provider in relation to the user and of the user in relation to the provider. This double-sided situation is problematic as the company itself has no obvious role to play but at the same time it gives the company a wide range of opportunities as it can combine the use and the production sides in a much more open way.

Every company is facing all the four situations and in each of these there are some important questions. Development is always possible and also very much needed. There might be possibilities to develop new external resource providers or to start to produce a certain resource internally. In the same way there are always reasons to develop the user side, both internally as well as externally.

The importance of resource ties in some of the relationships of the company leads thus to the conclusion that the external resources are important in a company's resource collection and that relationships are valuable resources both for the availability and development of the resource collection a company can mobilize. This has implications for how we should draw the boundaries of a business enterprise. Legally, the boundaries of a business are defined by the ownership of (property rights over) resources and the distinction between internal and external resources is relatively clear. Once we consider the actual possibilities for mobilizing assorted resources, the drawing of a boundary line becomes more problematic. If an enterprise is a collection of resources that can be mobilized and used, then the relevant resource collection is considerably broader than that conferred by the property rights, and the boundaries of a company become diffused.

4.1.5 Resources in business networks

Considering resources from the relationship perspective leads thus to emphasis on a few features and effects on business enterprise that can be summarized in the following:

1 Resources are not given entities but rather a variable. Their value lies in their use which evolves over time. Not only availability but development of resources becomes an important issue in business.

2 The value of resources lies in their use that is always made in combination with other resources. Resources are heterogeneous in use and value.

3 Business relationships are not simply means of acquiring resources. In a relationship, provision and use of resources become connected. As the two become adapted, resource ties arise that affect the value of resources.

4 In a relationship involving the use of resource elements, adaptations can lead to the emergence of unique combinations. Tying of resources has both direct and indirect innovative functions, as parties to the relationship learn about the use and provision of resources.

5 Resource ties in relationships blur up the traditional clear division between internal and external resources. Relationships can be viewed as resources in themselves. Their value depends on how they are combined with other resource ties that form the resource collection of a company and the resource constellation in the network.

6 A company's ability to handle the ties might be more important for its results than the amount and type of resources it possesses. A company's total capability is determined by the total resources it can mobilize through relationships.

7 The use of a resource can always be developed further. New ties being developed in a relationship might lead to development of ties in other relationships, thus becoming the impulse to a further development through network reactions.

4.2 CASE HISTORIES: VEGAN, NME AND RADEX

The three case histories included in this section — Vegan, NME and Radex — illustrate the nature and effects of resource ties on the market behaviour of the companies. In all three cases the issue of resource control and development appears rather clearly in the background. The role of resource ties is highlighted in different situations.

The use of relationships as a resource to be exploited is well illustrated in both Vegan and NME. The Vegan case in particular reports several episodes showing how existing relationships to suppliers, customers and other parties are mobilized to enhance the performance and bargaining position with respect to a certain customer. Several of these episodes illustrate deliberate attempts to develop and use specific resource ties in relationships.

Another aspect of building resource collections is clearly present in the Vegan case; it is how the actual resource base of the subsidiary can be enhanced by developing resource ties in relationships with local partners in order to complete the required resource base. The problem of connectedness of external and internal resource ties and the problem of balance in resource ties is highlighted.

The NME case describes how the resource collection of a company develops over time and illustrates the problem of coping with ties of both tangible and intangible resources in a resource collection. The case exemplifies also the problem of investment in development of new resource ties and of acquiring and maintaining control over the critical elements in the resource collection of the company as the wider resource constellation changes and develops.

Yet, it is perhaps the Radex case that shows most clearly the role of relationships as assets and their importance for the resource collection of a business enterprise. The resource logic seems to direct the efforts of the company in securing access to critical resource elements — equipment supplier, product suppliers, market. There are changes undertaken to develop access to intangible assets as 'the knowledge of the market'. Difficulties in assessing relationship resources are discussed in the case as well as attempts to develop the resource

base by relating both backwards to equipment and material suppliers and forwards to distributors.

All three cases show how the strategic mobility of the company is constrained by the ties in the resource constellation they are part of. While none of the cases is concerned directly with management practices, there are some hints in the three case histories. There seems to be considerable differences in the awareness of the effects of resource ties and in the way the resource ties are managed. There is only intuitive understanding of the problem in the Radex case, while the issue is considered explicitly in the NME and Vegan cases. Vegan appears clearly a case of a rather effective handling of resource ties in business relationships.

4.2.1. The Vegan case by R. Spencer and F. Mazet

'Given that we don't have unlimited resources, we have to be selective in our approach to the market. In any case, we can't advance too quickly, because if we took too large a market share in too short a time from PPM, our competitor, we would start a price war, and that would be in no one's interests.'

Such is the point of view of Vegan, subsidiary of the V.E. Group, on the Swedish market responsible for production and commercialization of V.E.'s product range.

This will become increasingly evident as we delve into a more detailed examination of Vegan's dealings in the market, via analysis of its overall situation, key players identified in the market as a whole and its relationships with four customers in particular, all customers for metal processing applications: Screwco, Contours Ltd, Carco and S.S.S. This analysis reveals the complex web of relationships which prevails both on the Swedish market and abroad, conditioning Vegan's way of doing business.

Setting the scene: history, strategy, structure and market, and an overview of key market players

Vegan has its origins back in the early 1900s. Originally a firm jointly set up by the V.E. Group (75 per cent) and a well-known local Swedish family (25 per cent), it had the mission of distributing and, later on, producing the parent company's products – chemicals – on the Swedish market. Towards the end of the 1960s Vegan became a 100 per cent owned subsidiary of the V.E. Group. The V.E. Group is a world-wide organization, composed of a head office in France, subsidiaries (production and sales) in different countries world-wide, and R&D centres in France – the major one – the USA and Japan.

One of Vegan's essential characteristics is its organization. Preference has been given to the creation of small, competent, cohesive, technical/sales teams based at subsidiary head offices, within each category of the company's activities, thus privileging Vegan's approach strategy to the market. This strategy consists of optimizing implementation of technical knowledge, know-how and competency

to ensure a competitive edge for customers.

These centralized teams have the advantage of being in direct contact with customers on the one hand, and with centralized services (logistics, finance, etc.) at Vegan head office on the other. This centralization facilitates the communication and coordination process. The different teams compare and exchange informationⁿ on customers, and a given customer with needs catered for by several Vegan teams is allocated a 'pilot team' responsible for coordinating all aspects of the relationship.

In this way emphasis within Vegan is placed on satisfying as far as possible a customer's total requirements, all activities combined, and exploiting the relationship with the customer to the full, i.e. using the total relationship with the customer as resource potential.

With a turnover of SKr 300 million and an overall market share estimated at 25 per cent, Vegan is behind the market leader and the only other serious competitor – PPM – which has a 70 per cent share.

This market share is evolving in Vegan's favour, however, with a regular increase of 20 per cent in turnover each year over the past ten years for Vegan, and gradual erosion of PPM's hold over the market. To give some idea of the concentration of Vegan's position relative to its customer base, Vegan's ten leading customers represent 20 per cent of total turnover.

Two production plants exist, one in the southern industrial sector of Sweden and the other near Stockholm. The siting of these plants is important as proximity to source of supply is often required by customers. Set up of plant, then, is often an important element in the commercial development process. The typical scenario is that of plant being set up to serve one or two major customers. This then triggers off a process of systematic commercial action in the surrounding area to supply other customers, with a view to soaking up excess capacity, reducing dependence on the major customers and thus lowering risk, optimizing return on investment and increasing market share.

Vegan has a commercial approach which focuses not on the chemical products they produce but rather on providing customers with know-how on how to apply them in their production process. Worth noting here is the joint venture between FPM and V.E. in Japan, with a view to jointly attacking the Japanese market, which proved to be an extremely difficult one, which has had as a direct result transmission of essential V.E. know-how in this domain to PPM. PPM in Sweden, and indeed worldwide, began applying the V.E. 'application' approach, thus considerably countering Vegan's competitive advantage and, according to Vegan, slowing down their progression on the market.

Nonetheless, one of the major strengths declared by Vegan remains that of its capacity to exploit the resources represented by the V.E. Group's 'application' know-how in the Swedish market. It is worth noting here, too, that for Vegan this is a two-way process in that they consider they also have know-how from the Swedish market to be developed and/or exploited at Group level. Contacts with the V.E. Group are thus encouraged and actively promoted by Vegan's general management.

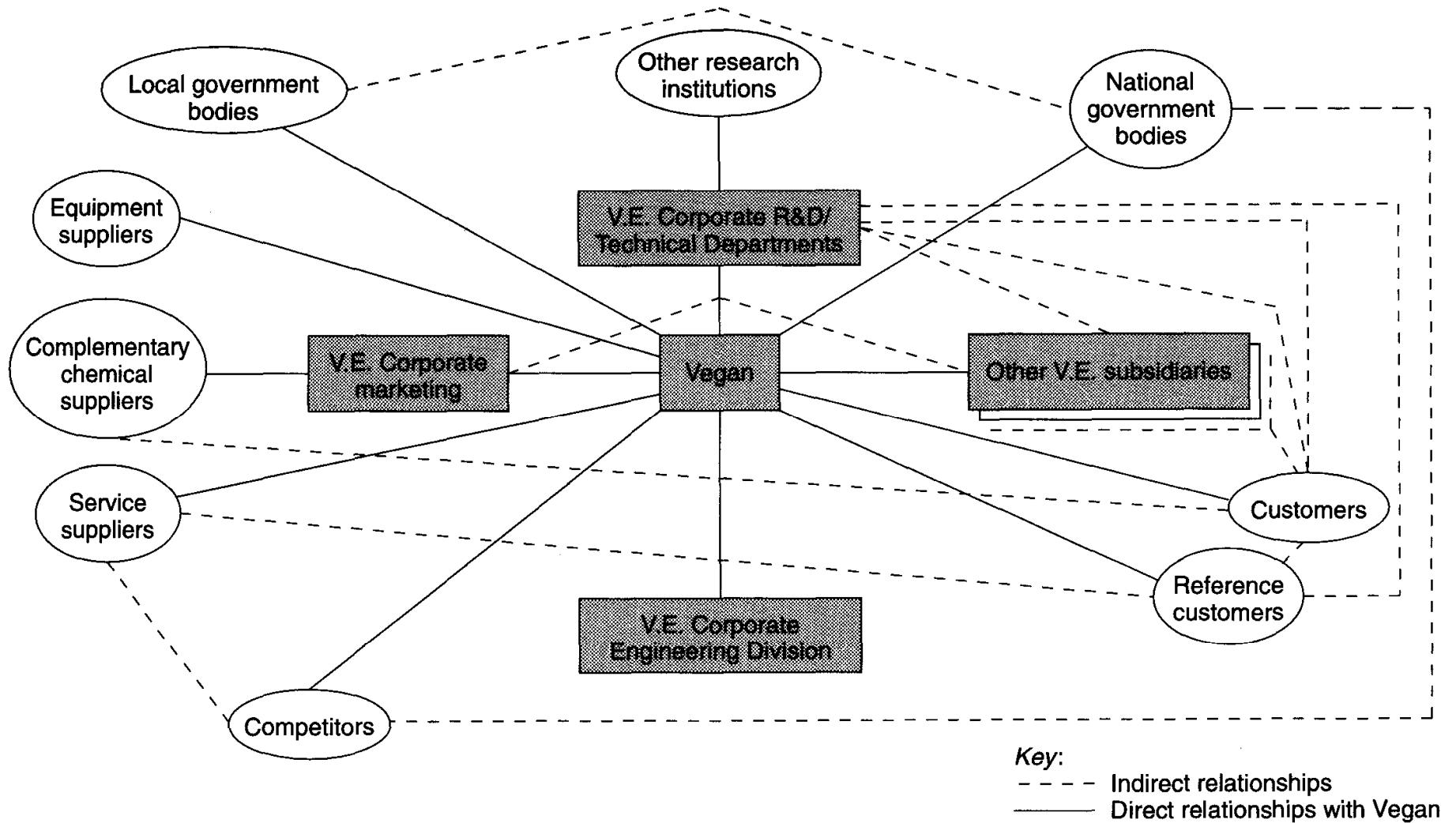


Figure 4.5 Vegan's network backcloth

An overview in terms of operating context – some key market players

Over the years Vegan has developed relationships with a certain number of actors in the market-place exerting a wide variety of influences on the way it operates, and its position on the Swedish market. An overview is given in Figure 4.5. Each of the players is commented on below.

VeganN.E. corporate R&D

Perhaps the most important link Vegan has within the V.E. Group is that with corporate R&D in France. In the absence of R&D resources of any importance in the Swedish market, the link with the French-based R&D department is crucial for Vegan, serving as a veritable umbilical cord, feeding Vegan with a permanent supply of new products and applications to fuel their activities in the Swedish market, and providing essential technical and technological back-up to handle problems posed by Vegan customers. Corporate R&D resources are, in fact, generated internally, but are equally the result of a 'pooling' phenomenon via relationships corporate R&D have with various other R&D centres (universities, private R&D organizations, etc.), and via technological information and experience coming from interaction with customers world-wide.

VeganN.E. corporate promotions department

Another important dimension to the V.E. corporate link, is the relationship with the promotions department. This link, essentially set up with the corporate objective of promoting new applications of products on international markets, is used by Vegan to identify V.E. customers in other markets internationally who have already implemented a given V.E. application. This is obviously done with the cooperation of the other V.E. subsidiaries to a large degree. The advantages of this system of 'reference customers' – be they national or international – for Vegan are multiple: first, this provides a concrete example of the product application proposed to the customer, which has proved its effectiveness. Second, this serves in lowering perceived risk associated with Vegan's offering, and third, this consolidates V.E.'s and Vegan's overall image as a technically competent, innovative, reliable supplier, with the interests of its customers at heart. In other words, this is an invaluable element in the firm's communication strategy. At the same time there is a positive effect on the reference customer used in this process, proud of demonstrating technical prowess and leadership on the one hand, and pleased with the special attention received from V.E. and Vegan on the other.

VeganN.E. corporate engineering division

V.E. and Vegan produce commodity goods for industrial use. For these goods to be fully effective in any customer application requires the supply of various complementary elements of equipment (tanks, piping, etc.) also proposed by V.E.

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or Vegan, with a view to providing the customer with a complete offering. Most of these parts are produced by the corporate engineering division, based in France. Vegan, however, has been rather disappointed with the way the relationship with corporate engineering has evolved in the past, finding it difficult to work with them for several reasons, namely:

- the perceived technological inferiority of the equipment as compared to local Swedish equivalents;
- the relatively high cost of the equipment, even to Vegan, a subsidiary;
- the extremely long delivery deadlines and generally expensive service and maintenance costs on the equipment.

For these reasons the relationship with corporate engineering is very little used by Vegan, who have spent time and effort establishing what they consider more viable working relationships with suppliers outside of V.E. on the national and international market. These relationships with 'external' suppliers provide Vegan, in effect, with a more flexible, real-time offering adapted to local Swedish requirements.

VeganIV.E. corporate marketing

The department plays a role of organizer of international 'theme' meetings between V.E. subsidiaries worldwide, giving Vegan the chance of exchanging information of various kinds concerning applications, customers, competitors' actions, etc.

Vegan/other world-wide subsidiaries of the V.E. Group

Direct relationships between subsidiaries are few. This is partly the result of the operational autonomy of each subsidiary on its country market, but also the result of deliberate policy by corporate H.Q. to limit and control this phenomenon for fear of diminished corporate control.

The state, local and national public authorities

Vegan has established ongoing relationships with government bodies of different types. These relationships can be multipartite in nature to the extent that other actors may be involved (e.g. PPM, the main competitor, participates in various meetings with national standards organizations to jointly define and discuss standards), and they often develop into what the respondents in Vegan termed as personal or friendly relationships.

Supplier firms to Vegan providing complementary chemical substances

Two companies are important. First there is P.D. Chemicals, a supplier of a complementary chemical frequently used by many customers alongside the base product supplied by Vegan, an essential component in the customers' production process. Vegan has established solid ties with this specific supplier with various resultant advantages:

- deliveries of chemicals by P.D. Chemicals either via Vegan, or direct to their common customers, with Vegan receiving a significant commission on these sales;
- exchange of information on the state of the market as a whole (technology, competition, etc.) and on common or potential customers in particular;
- technical cooperation between P.D. Chemicals and Vegan in the case of problems occurring in the customer's production process;
- guaranteed quality of the complementary product, and assured respect of delivery deadlines to the customers.

The second such company is PPM, the main competitor! PPM and Vegan have a long-standing, informal agreement to help each other out in the case of shortage of base product to the point where, on one particular emergency occasion, a Vegan customer was supplied using a PPM truck, whilst being invoiced by Vegan! PPM is also a supplier of another complementary chemical to Vegan (5 to 10 per cent of Vegan's total sales) as Vegan does not produce this item locally but imports. This apparent out-and-out competitor thus also reveals itself as a supplier, as a customer, and even as an ally, albeit an ally with whom all necessary precautions are taken!

Supplier firms to Vegan, providing complementary equipment and services

Among various equipment suppliers, the most interesting case is that of PPM Fittings. As the name suggests, this is indeed a branch of Vegan's main competitor on the market, specialized in the manufacture of complementary equipment, purchased by the customer for their production process. PPM is one of the local suppliers preferred by Vegan to V.E.'s corporate engineering division mentioned earlier.

Among service suppliers there are various companies, such as the delivery fleet composed of owner-drivers across the country, self-employed and working under contract. This solution, according to Vegan, provides more motivation and increased flexibility to Vegan's delivery capacities than would a Vegan-owned fleet. Similar essential long-term relationships have also been established with chemical flow-regulation cabinet installers and electrical installation experts, all necessary to provide efficient installation of complementary equipment to Vegan's customers.

Screwco: getting a foothold in the market

Specialized in the manufacturing of screws and washers of all types, Screwco, as part of its strategy to gain a competitive edge over its competitors, is constantly on the look-out for means of improving its technological prowess.

Vegan, via constant technical follow-up and exchange with Screwco over the years — which Vegan describes as being 'quite a costly process' — has been one of the major forces helping Screwco to improve their technical competency and know-how, and thus improve their control over their production process. Vegan's help, as well as involving simple exchange on technical matters, went as far as providing regular training of Screwco staff in the use of special chemical injection equipment supplied. Vegan at present considers itself to have a 'non-risk' situation with Screwco, in that the customer recognizes the considerable effort Vegan has made toward them, and it is considered highly unlikely that Screwco would switch to a competing supplier.

With the setting up of its new production plant near Stockholm, Vegan set about contacting all possible users of their chemicals including, inevitably, a majority of PPM customers. Screwco was amongst these, purchasing small quantities of a chemical for special applications. This action, incidentally, provoked a reaction by PPM, who systematically prospected Vegan's customers in retaliation.

Technical advices, testing and numerous visits by Vegan led to Screwco signing a four-year contract with Vegan for the supply of chemicals for its production plant. Subsequent contact between Vegan and Screwco was limited to meetings once or twice a year, and test proposals on new application techniques by Vegan, which were refused as Screwco did not feel 'ready' for them.

For the first ten years the only event of any consequence noted was a competitive offer by PPM at the end of the four-year contract with Vegan. In doing this, PPM was faithful to its strategy of bidding systematically, on a low-price basis, to Vegan customers at 'end of contract', thus obliging Vegan, at the least, to drop prices.

Some years ago with the arrival of a new metal processing market manager at Vegan, things began to change. This manager based his strategy on first developing the potential existing with key Vegan customers, and in subsequently identifying new high-potential customers. Screwco was in the former category.

All Vegan customers in the metal processing field were thus systematically contacted and an appraisal made of their development potential. Screwco was identified as high-potential and after study, a new technical production solution was put to them in writing. This was quite far-reaching insofar as it involved total replacement of certain items of heavy equipment owned by Screwco and supply of chemicals by Vegan. The advantages for Screwco were first that it provided greater production flexibility and second that it freed factory space for other use. The new technical solution — incidentally, developed essentially in Sweden — was later taken up by V.E. corporate R&D in France and diffused world-wide. An agreement was reached in which Screwco undertook to make some tests. As part of the process Screwco was invited to visit another ex-customer of Vegan, Rislon,

who had installed a similar system designed also by Vegan and which served as reference. Of interest here is that, through a complex chain of takeovers, Rislon was owned by PPM. This had meant the loss of Rislon as a customer for Vegan but, due to the good personal relationships existing between staff from Vegan and Rislon, authorization was given by Rislon for Vegan to visit their installation with Screwco. A perfect example of past investment, in this case with an ex-customer, paying off in other ways. Despite the loss of Rislon as a customer, Vegan was able to use them as a communication tool, and as a way of increasing Screwco's confidence in Vegan's technical competencies and in the technical solution proposed.

Vegan thus successfully became supplier of chemicals to Screwco on a large scale, having succeeded in convincing Screwco to modify their production process on the basis of a new technical solution. Vegan also negotiated a one-year contract to supply a complementary chemical used in the process, manufactured by their partner firm, P.D. Chemicals. The latter delivered direct to the customer, invoicing Vegan who subsequently re-invoiced. This arrangement on the one hand helped to 'tie down' the customer, and provided Vegan with an additional indirect source of information via the contacts between P.D. Chemicals and Screwco.

However, this contract for the complementary chemical was lost due to the departure of the workshop manager at Screwco, who was replaced by a new engineer from the same engineering school as Vegan's metal processing activity manager. This illustrates one case of this type of relationship having a strangely negative effect. The new engineer acted in this way, cancelling the contract, mainly as a means of demonstrating to his company that the relationship was 'clean and above board' and that no underhand dealings would take place. Having demonstrated his 'honesty' to management, the engineer in question was free to continue business as usual with Vegan on the base chemical product, with no questions asked.

Vegan maintained, then, its position as supplier of chemicals, and performed further technical tests with Screwco. These tests lasted a total of six months and required monthly visits by Vegan staff and technicians, but also equivalent investment in terms of time by Screwco staff. As a result of the tests, Screwco purchased equipment from Vegan for integration of this new chemical application solution into their production process. Vegan thus confirmed their position not only as supplier of chemicals, but also as supplier of complementary equipment, and especially of technical solutions to Screwco.

Since then, Vegan visits Screwco once or twice a year to maintain contact and discuss technical matters. These include new proposals as to technical solutions to Screwco based on information collected during the visits, and on several occasions staff from V.E. corporate R&D and the corporate promotions department have been present (thus consolidating Vegan's status as a multinational company, reassuring Screwco as to their interest in them as a customer and at the same time collecting interesting market data for V.E. corporate).

Several changes in staff have also occurred at Screwco, in particular the departure of the production engineer replaced by a friend of Vegan's metal

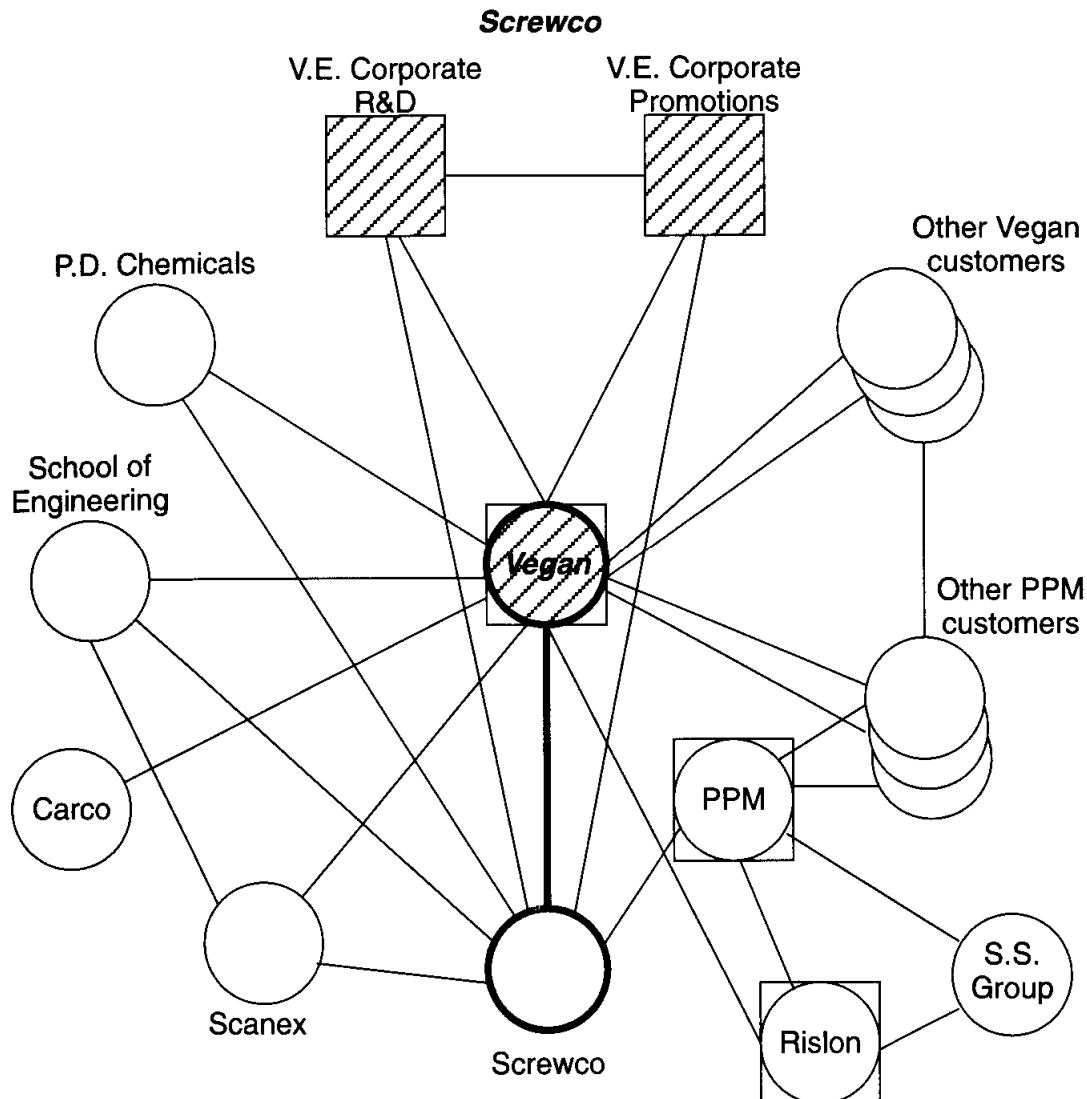


Figure 4.6 The main identified links and relationships in the Vegan/Screwco relationship

processing manager, from the same engineering school once again. This time this greatly facilitated the relationship on both sides. This new production manager left Screwco two years ago, to be replaced by yet another ex-colleague from the same engineering school. And perhaps of greater interest still, the production manager had just left Scanex, the key potential customer on the market in Vegan's eyes – a resource Vegan has no intention of leaving unused in the not too distant future in its coordinated assaults on Scanex, along with other resources, the nature of which will become clearer over the following pages.

Contours: a strategic link in the networking process

Contours is one of Sweden's leading specialists in aluminium profile manufacture. The relationship between Vegan and Contours Ltd started thanks to frequent contact with another prospective customer, SKP, and in particular with

the SKP production manager, later to become Contours Ltd's production manager. This personal relationship paved the way for Vegan in their initial dealings with Contours. But this situation was reinforced by the fact that the technical and general manager of Contours likewise also knew of Vegan and its competencies, due to having previously worked for another Vegan customer company – quite an important fact as Vegan was little known on the market at the time of the first contact with Contours.

At that time, Contours did not use chemicals in its production process. After numerous visits, Vegan suggested that they carry out free trials for Contours, using a chemical-based solution. Contours accepted, and business between the two firms got off to a happy start with the tests proving to be successful, providing Contours with a cheaper production process and improved quality parts. The help and presence of technical staff from V.E.'s R&D and technical departments in France in setting up and running the tests – albeit at the expense of flying in head office staff – was one of the key deciding factors in these early stages. It was the suggestion of these same R&D and technical departments for Contours to visit an Italian customer of V.E.'s Italian subsidiary, known to them for having a similar technical production solution in place, set up by V.E.'s technical division and the subsidiary. This visit – costly both for Vegan and for Contours, as this implied two of Contours' Production Managers devoting virtually a full week of their time to the trip – was one of the elements which tipped the balance. It effectively provided proof of the technical feasibility of the proposal made, of the technical competencies of V.E. and Vegan, and of a 'totally satisfied customer using this new process', not just on a national Swedish level, but internationally.

Once Vegan had established itself as a capable supplier of chemical products and technical know-how, a solid relationship built up between the two companies, with frequent exchange on technical matters and regular visits to Contours. This translated in parallel by the sales to Contours doubling over a five-year period and new technical solutions proposed by Vegan being adopted by Contours. One such solution, for example, applied not only to the treatment of products Contours manufactured for its own customers, but also of tools for use in its own production process. This enabled Contours to eliminate the need to call upon a subcontractor for this particular operation, giving them lower cost on the one hand but, more importantly in their eyes, increased production flexibility and guaranteed quality of their own production tool.

In terms of customer value, Contours was of minor importance, consuming relatively low quantities of chemicals. Contours' real value to Vegan – a fact Vegan had been aware of since the outset – was that Contours represented, as specialists in their field on the market, an ideal reference customer. In fact, Vegan were targeting the market in general, and in an initial phase Carco – a major car manufacturer – in particular, and Contours represented in this sense a means to an end, out of proportion to their size and potential as actual customers. Vegan's choice of Contours as a future reference customer was also stimulated by the fact that Vegan knew Contours to be a company which had a deliberate policy of 'developing' those suppliers which would provide them with technical know-

how. This lined up nicely with Vegan's own policy of technical development with the customer.

Carco: consolidating positions

The initial stimulus to the start-up of the relationship between Vegan and Carco in the metal processing field came from two main sources. On the one hand Carco was fitted out with ageing, heavy production equipment which was coming up for replacement. This meant that more modern equipment, integrating the use of chemicals in the process, could be installed. At the same time Vegan had recently lost its 'star' reference customer – Rislon – to PPM, who had purely and simply bought Rislon out.

Carco, then, were looking for a safer, more economical solution, providing them with reduced down-time and an improved technology production process giving better quality results. Vegan, on the other hand, were looking for a prestigious reference customer capable of promoting Vegan's position in the market in general, but in particular relative to one very special Swedish company – Scanex – Vegan's priority target in the market. Carco was, of course, at the same time an interesting customer in its own right.

Carco's production capacity included two independent sites where metal processing took place, one in Stockholm and the other in Gothenburg. The replacement of the heavy production equipment concerned plant on the latter site, but Stockholm already had some experience of chemical supply from Vegan's major competitor, PPM. The start-up of the installation by PPM at the Stockholm site had not, in fact, been incident-free, with a good number of technical problems arising, resulting in a rather dissatisfied PPM customer. Given the close and frequent contact between technical and production staff on the two Carco sites, this obviously placed PPM in rather an unfavourable position as potential supplier to the Gothenburg site.

Nonetheless Carco Gothenburg consulted both Vegan and PPM. This generated initial exchanges with both PPM and Vegan. PPM responded with an offer to install an original pressurized chemical supply system,. This system had in fact, ironically, been developed jointly with the V.E. Group within the context of the Japanese joint venture subsidiary operation between PPM and V.E. The know-how – largely supplied by V.E. – had been channelled back to PPM head office and was now being used against Vegan on the Swedish Market.

Vegan, however, aware of the technical characteristics and limitations of the system proposed by PPM, had recently developed an improved system based on pump technology, which provided more consistent pressure conditions and hence improved production results. Following a first visit to the Carco Gothenburg plant, Vegan took Carco technical staff to see Screwco, who were equipped with this pump technology. Seeing that Carco were not fully convinced, due to the difference in sophistication between the Screwco and the Carco context and production requirements, Vegan set up a joint visit with the corporate promotions department at head office in France and the French V.E. national sales subsidiary,

to the Glass Spicer installation in France. Glass Spicer is a major French customer to V.E., fitted out with a sophisticated version of the pump technology system. At the same time a visit was arranged between the Carco metal processing staff and V.E. corporate R&D, where a full day's discussions took place.

Once back in Sweden, Vegan's staff entered into full discussions on the type of equipment Carco required. The outcome of these discussions led to an agreement to develop with Carco a totally customized solution, with Carco providing their know-how, and Vegan theirs. This know-how was not limited to providing technical knowledge but went as far as providing, for example, special equipment manufactured by a specialized German producer known to Vegan from past experience.

PPM maintained their original technical proposal and towards the end of 1987 both PPM and Vegan put in price quotations for equipment and chemical supply. Carco selected Vegan — for a three-year contract — on the basis of their technical competence and potential. The purchasing department, involved only at the very end of the process, played a minor role in the selection process with decision-making power lying in the hands of the customer's technical staff. Given the sophistication of the system, technical staff from corporate R&D in France were flown in to assist local Vegan staff with installation. The chemical storage tank installed as part of the system — for reasons related to adaptation of height and bulk of the tank dimensions to meet customer requirements — was of PPM Fittings manufacture, a PPM subsidiary!

For the two years since production start-up with this system, Vegan have supplied Carco production staff with free training on the system's characteristics and operating principles — twenty or so Carco staff so far — to help 'cement' the relationship, and additional production plant has been connected up to the main system, increasing the customer's requirements for chemicals considerably. So as to provide continued technical input into the relationship Vegan has placed at Carco's disposal — free of charge for a trial period, and as a means of field testing the equipment — a special telemonitoring system allowed for in the original design of the system. This eliminates the risk of running dry of chemical product and interrupting production. This telemonitoring system is the one designed by Vegan to better meet market requirements, in preference to a similar system of French V.E. corporate design.

Among the problems arising since start-up with Carco, of which there have been relatively few, is that of difficulties with the local government agent responsible for annual testing and approval of Vegan equipment set up at Carco. This local problem, which could have had serious consequences both for the relationship with Carco itself and for other customers in the same region, hampering or momentarily compromising the supply of chemicals and halting production, was solved thanks to good personal and professional relationships between Vegan's head office and national-level government agents.

Another problem area related to the supply of complementary chemicals required in the installation, manufactured by P.D. Chemicals. Initial supply was with natural forms of product, which led to some production problems for Carco

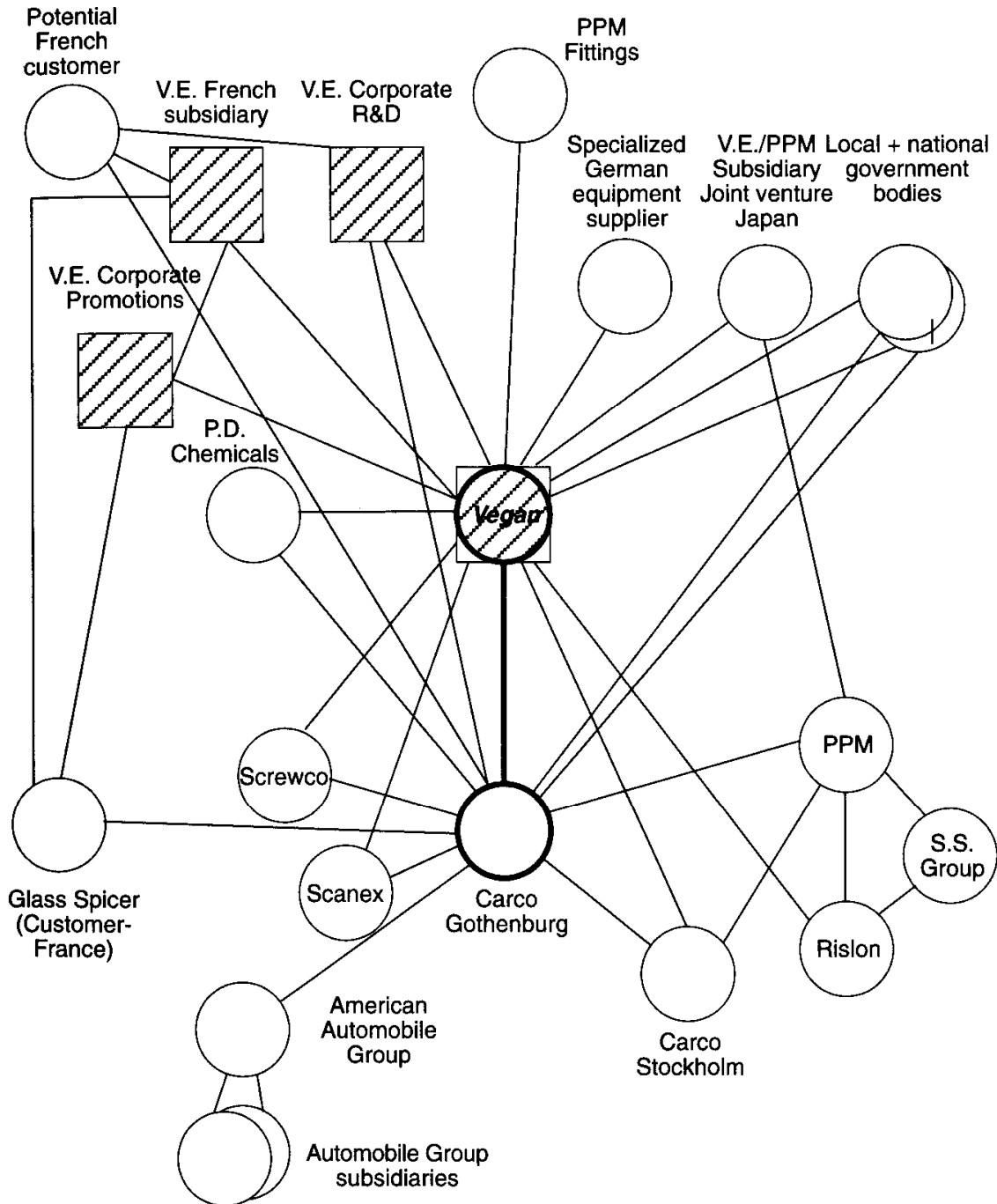
Carco

Figure 4.7 The main identified links and relationships in the Vegan/Carco relationship

due to lack of sufficient purity, resulting in deposits being formed in flow meters in the system. Several days of permanent checking on the installation were required to trace the source of the problem, with P.D. Chemicals participating fully in the process, alongside Vegan, at the customer's site. The problem-solving, then, was a joint operation, much appreciated by the customer, who was comforted in the wisdom of selecting Vegan for coordinating both base chemical and complementary chemical supply (two individual suppliers could have led to problems in establishing supplier responsibility, and perhaps more importantly

delays for Carco in rectifying the problem). Vegan's effective handling of the problem resulted in fact in an even stronger relationship between Vegan and Carco. Strong to the extent, for example, that technical staff from Carco have recently left to work for Vegan, thus providing Vegan with in-depth up-to-date data on Carco's needs and practices as a customer.

A satisfied, important customer is obviously a good result in itself, but Vegan had no intention of stopping there and letting resources stand idle. Scanex and the Swedish metal processing market were the original end-target, and Vegan has already had Scanex visit Carco with them on several occasions to examine the joint Vegan/Carco technology set-up there. Direct discussions between Carco and Scanex, without Vegan, have even taken place, with Carco extremely happy to demonstrate its technological competency. Screwco, too, have visited the sophisticated Carco installation at Vegan's invitation, with a view to reinforcing their relationship via further technological cooperation and contribution. Similarly, with Carco's agreement, a major potential French customer company was flown to Sweden to visit the Carco installation, along with staff from corporate R&D and the French V.E. sales subsidiary. Not forgetting the S.S.S. company (see the following section) and various others, of course, including for example Carco's Stockholm site where, for the moment, the manager is happy with his present situation but, when the time comes, and Vegan being well informed via the Gothenburg plant . . .

With Carco's takeover, however, by a major American manufacturer, some shift in buying behaviour has been noted, with a certain tendency to centralize coordination by the American group, for example, and this is being monitored carefully by Vegan. On the other hand, in Vegan's eyes, this may offer opportunities to enter this American group on an international scale, and Vegan declares itself ready to provide all possible help to other V.E. subsidiaries abroad should they desire it.

Swedish Strip Steel: the 'penultimate' step

Swedish Strip Steel (S.S.S.) is one of the leading steel firms on the Swedish market and was the parent company to Rislon, one of Sweden's leading metal processing specialists and an ex-Vegan customer. S.S.S. itself was bought out by PPM, Vegan's main competitor, along with other companies in the Swedish Steel Group – parent company to S.S.S. – in the early 1980s, only to be sold off to a private investor, for reasons linked to low profitability, in 1988. PPM, however, stripped the S.S.S. group of its profitable power production subsidiaries in the process, abandoning S.S.S. to its fate. This sale was important to subsequent events not only for the fact that it freed S.S.S. from obligations of purchasing chemicals from PPM, but especially in that, resenting the circumstances of the sale, S.S.S. managers had few qualms about replacing PPM as supplier should an alternative source of supply arise, especially given that PPM now provides power to S.S.S. at a price S.S.S. considers somewhat excessive.

Knowing of this situation, and realizing that S.S.S. promised to be a customer

of some interest, the manager of Vegan's metal processing team got in touch with S.S.S.'s metal processing technical development manager. This S.S.S. manager, confirming their high potential, pointed out that chemicals were little used at that time, as they were entirely fitted out with heavy equipment not requiring chemical additives. This equipment, however, was old, inflexible, costly and demonstrated rather low performance, which resulted in medium-quality end-products. He confirmed that, with a view to improving end-product quality for customers, tests were being carried out on one immersion tunnel, with PPM, and accepted a proposed visit by Vegan's manager.

A meeting was arranged with, in all, twenty or so S.S.S. staff, including production, maintenance, and marketing, where a guided factory visit was performed to provide the Vegan manager with full details on S.S.S.'s production plant, activities and requirements. Subsequent to the visit, Vegan was asked to quote for price based on a similar technical solution as PPM had offered. Vegan declined. This would have placed them in a situation of competition based purely on price with PPM. Instead, Vegan, now knowing the technical characteristics of S.S.S.'s production process in some detail, quoted for one specific part of the production plant only – one for which S.S.S. had not even asked for a quote! That part, in fact, lent itself to adaptation to a specific, original, technical package offered by Vegan which yielded considerable potential chemical consumption, as well as production cost savings for S.S.S. This technical package was the fruit of collaboration between V.E. corporate R&D and another V.E. national subsidiary. Vegan got to know of this package via the yearly meeting organized by V.E. corporate marketing.

Vegan further mastered the situation by advising S.S.S. that there were potential ways of subsequently tying in the rest of the production plant to this initial system, thus resulting in quite considerable consumption savings (25 to 50 per cent), though this meant some investment in new piping to the plant. This would require, however, research into certain aspects of feasibility which would have to be carried out by V.E. corporate R&D.

S.S.S. could only agree, given the potential savings at stake, and thus Vegan blocked the negotiations with PPM, in their favour. Vegan, in fact, had shifted the emphasis from one of pure price and product considerations to that of technical competency and overall production efficiency for the customer. Vegan and V.E. corporate R&D set to work on the customer's problem – involving visits by corporate R&D France to the customer – and proposed a solution, after test-runs in France, in July of that year.

Corporate R&D had meanwhile developed in parallel a new chemical mixture for this technical package which eliminated the need for a complementary chemical product in the process. This had two results; first, the old piping could be used, with consequently no need for new investment there, and second, elimination of the complementary chemical, with added savings on costs. This represented, in fact, very substantial potential savings in all for the customer.

Prompted by the offer made integrating these two technological developments Vegan and the technical and production managers from S.S.S. visited Aeronautics

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and ELF – two French reference customers – in France, and the corporate R&D unit near Paris. This led to the decision to carry out trials – calling for three Vegan staff full-time on site – at S.S.S. to measure actual savings.

S.S.S. agreed to sign a protocol related to confidentiality of the technical details of the process. These trials were performed in August of the same year, with staff from V.E. corporate R&D having developed the process, and revealed savings of 30 to 40 per cent in consumption. No tests have yet been performed to test end-product quality although these are planned. S.S.S. installed the equipment required for the process themselves, which included, amongst other items, special pumps provided by V.E. corporate headquarters.

But the story does not end there. S.S.S. is not only a high-volume customer in its own right, but another good, effective reference customer to be used in the process of getting into Scanex, the target customer on the market. But to use Vegan's terms,

'if we get both the S.S.S. *and* the Scanex contract immediately afterwards we'll have problems in handling them both at once, installing the equipment, etc.... We will probably have to call upon corporate head office for help. And we can expect a violent reaction from PPM, too, should that happen.'

Against all expectations, and in spite of the quite considerable investment made by Vegan, subsequent information confirmed that the S.S.S. board turned down the Vegan proposal in favour of PPM. The reasons for this, at the present time, are not quite clear. Which only serves to demonstrate that the best laid plans ...

Final remarks

The Vegan case illustrates the complexity and interdependency of networks of relationships which can dominate business-to-business markets. It likewise demonstrates Vegan's awareness of this and its virtually explicit – although perpetually revised and adjusted – strategy to cope with it in an integrated manner, linking up relationships in time and space to achieve a global objective.

Network consideration can be seen to be a necessary, integral part of marketing strategy formulation and implementation processes which both seem to occur on a real-time basis, and in parallel. Indeed, the art of network management would seem to lie both in prior knowledge of network 'reality', network potential, and potential networks, and in subsequent appropriate action by relationship selection and management skills. This obviously is an ongoing process and flexibility to adjust to evolution in the network is an essential factor for any marketing firm.

4.2.2 Nordic Mechanical Engineering Ltd: developing resource constellations, by Haan Hfikansson and Karin Ljungmark

Nordic Mechanical Engineering Ltd (NME) (a pseudonym) is a medium-sized Swedish company consisting of four business units. The units are interrelated (as shown in Figure 4.8) but situated in different geographical locations. The two

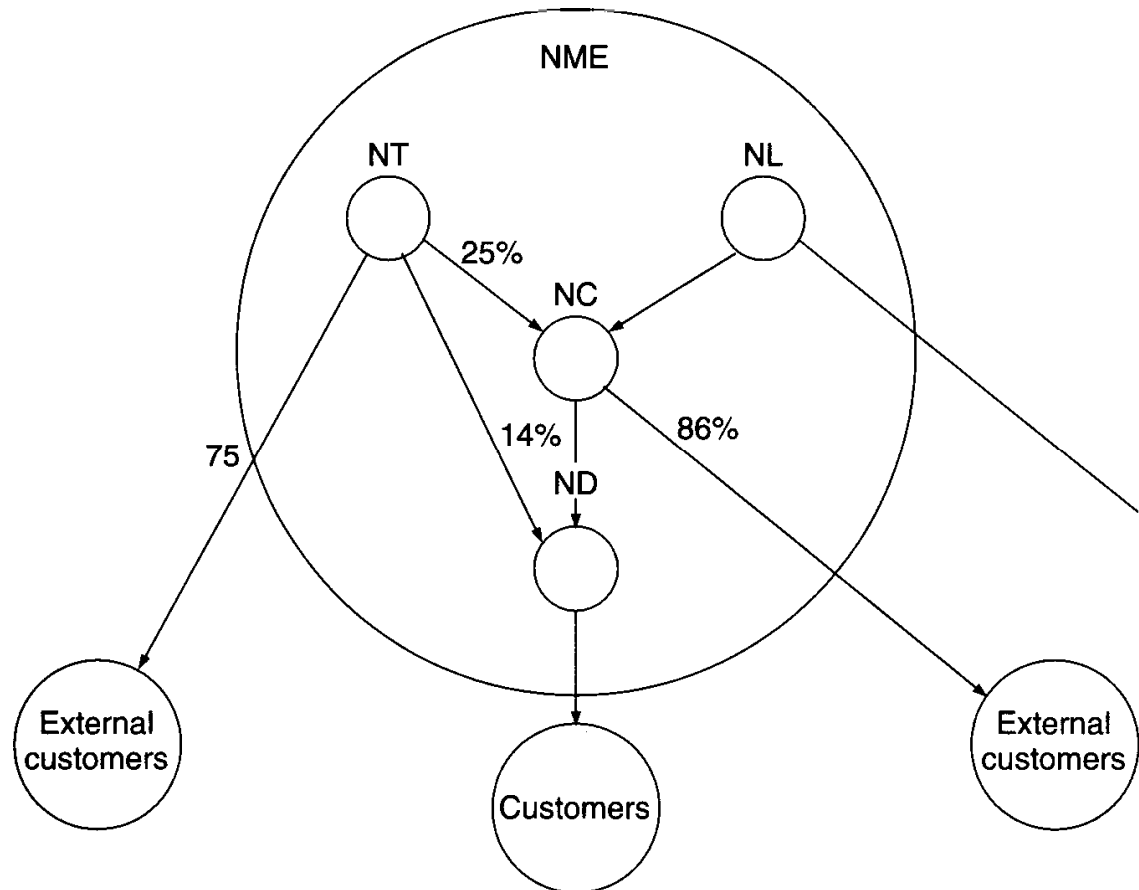


Figure 4.8 The NME Group

most closely related units, Nordic Tools (NT) and Nordic Components (NC), are very complementary, as the tools produced by NT are used when the components produced by NC are fitted into the end-product by a customer. Thus, when NC is selling its products it is also selling tools from NT. The components as well as the tools are sold to large users directly (mostly original equipment manufacture (OEM) producers) but distributors are used to reach a lot of minor customers. One of these distributors is Nordic Distribution (ND), a wholly owned subsidiary of NME.

The interrelationships between these three units are important, which is not the case for the fourth unit Nordic Lego (NL). It only sells small quantities of a rather simple product to NC. NT is the most important supplier to NC both in commercial as well as in technical terms. NT has some other customers with which they also work closely, but NC is in volume terms their largest customer (taking 25 per cent of their output). ND is NC's largest customer and takes approximately 14 per cent of the latter's turnover. ND is also selling tools. One special group is delivered directly from NT to ND, but the main flow of the tools comes through NC.

Even if the units are important to each other, all of them also have external counterparts who are as important as the internal ones. It is easy to understand that this causes some problems. For example, NT has important customers in

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Germany, the UK and the US who at the same time are important competitors to NC. The latter has in the same way important distributors as customers who are main competitors to ND.

As indicated in the description above, the internal structure within the group is related to the external one as the different units have the same type of relationships internally and externally. Thus, there are both competitive and coordinating elements between the activities taking place within relationships of both categories which give rise to problems but also to possibilities. Let us now have a closer look at the activities performed within the different units and their main counterparts.

The companies

The activities performed within the three closely interrelated units of NME are sequential and complementary. They are stages in a value chain. The tools are designed in such a way that the components appointed with the use of the tools will be fitted in an appropriate way to each other and to other components in the end product. As a matter of fact the tools are used in the most critical sequence in the production process of the customers. The better adapted the tools and the components are to each other, the better the function of the end product will be. Consequently, it is an advantage when selling the component – even for a distributor – to have the complementary tools. Looking at the three units there is no doubt that the technical capabilities in NT up to now have been the most important strength of the whole group.

NT is developing, producing and selling tools. It has been very successful during the last five years and has had annual growth of more than 40 per cent. There are a few very important customers. The ten biggest account for 70 per cent of the total volume and they are concentrated in four countries – Sweden, Germany, the UK and the US. All the major customers are producers of components or tools, and they all buy adapted products. These are often also sold further as 'private brands' (i.e. the customers put their names on the tools). These customers are regarded by NT, with few exceptions, to have a high competence and also high requirements in technical design and reliability. NT strives to be a very competent supplier (cooperation partner) to them. As the customers resell the tools, i.e. they include the tools in their own deliveries, the length and reliability of delivery times is also significant. Other customers, for example, the distributors, need to be backed up in quite another way – these need more product and use instructions.

The tools are thus getting to the end-users in several different ways. Some are sold directly from the tool producers to the end-users, some are sold through the component producers and some are sold through distributors. Several of the companies, both producers and distributors, are active in several countries, which brings in a further complication. For NT it gets every more complicated as one of the component producers and one of the distributors belong to NME.

NC had a turnover that last year was double the turnover of NT. Its main market

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is the Nordic countries: Sweden accounts for 46 per cent and the other Nordic countries for 26 per cent of sales. Two other important markets are Germany (11 per cent) and the UK (10 per cent). The ten biggest customers, as in the Nordic Tool case, accounting for a very large share (80 per cent) of the total sales volume. Distributors are the most important segment but some OEM manufacturers, especially in the Nordic countries, are also large customers. The products sold can be divided into 'light' and 'heavy' segments. In the light segment all products are standardized and there is seldom any need for technical discussions with the customers. These products are generally sold through distributors. The heavy segment is much less standardized and there are often reasons to get involved in technical matters with the customers. The competition between different component producers is fierce, especially in the light segment where there is a clear overcapacity both in Europe and the rest of the world.

Some key relationships for NT

Four customer relationships will be described and analysed. The four customers are situated in the US, the UK, Germany and Japan. The three first are included as they all take a large share of NT's volume and the fourth because it is perceived to be maybe the most promising one. There are also connections between all four.

The first relationship is with the most important customer after NC. It is a huge American company — here named MPA; a multinational company with production and sales subsidiaries around the world. It accounts for 20 per cent of NT's turnover. NT has worked very hard to develop a close relationship. For example, NT established a sales subsidiary in the US in order to handle this relationship better from technical as well as delivery point of view. MPA is a very demanding customer and requires that NT adapts to its technical solutions and formal routines. NT even had to change its transportation system, including changing the transportation company used in order to become acceptable in guaranteeing the delivery. The main volume regards a product which NT has especially designed for MPA and for which MPA has the sales rights for the whole world. MPA US demands that the whole volume must go through US, while several daughter companies, for example, MPA Japan and MPA UK would like to buy directly from NT (which they do with other tools). They are interested in buying directly, as this would decrease the price they have to pay by 25 per cent, since MPA US is adding this amount when passing on the tools. NT's subsidiaries in Japan and the UK would also like to get the volumes through them as it would increase their volumes in a substantive way.

MPA is believed to be the opinion leader within the field and it is very strong in relation to the major OEM producers. The leadership position is not limited to the US but is equally strong in Europe, including Sweden. MPA is in this way one of the major competitors to NC in relation to large OEM customers in the Nordic countries. In the US, NT has a couple of other customers who are competing with MPA. The largest of these is Exmol.

The second relationship is with the most important UK customer — here named

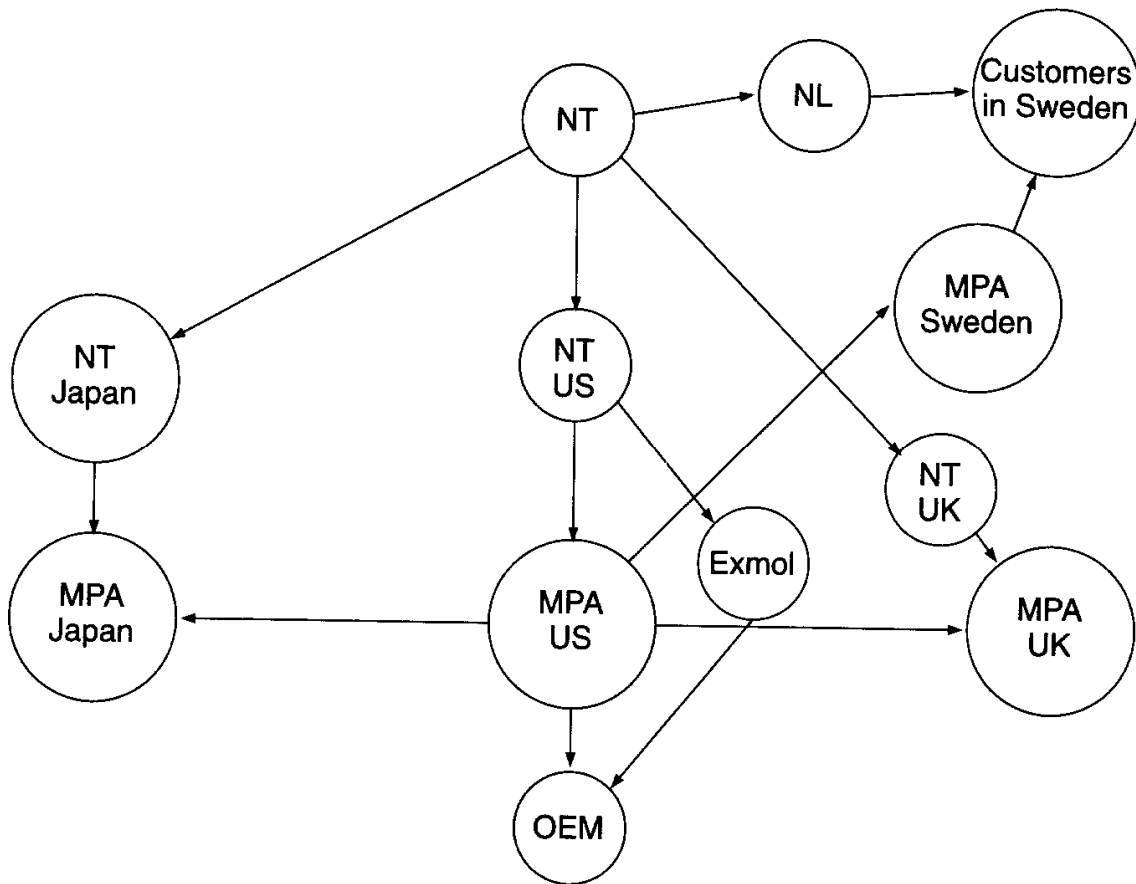


Figure 4.9 NT's relationship with MPA

UKOL. The relationship was started in the early 1970s but was broken in the late 1970s due to a shift in ownership in NT. A German company — GEI — took over the relationship in accordance with an agreement included in the ownership (more about this later). However, GEI was not able to solve some difficult technical problems that arose for the customer and NT once again took over the relationship. UKOL is now one of NT's most important customers and it buys approximately 80 per cent of its total needs from NT. The remaining 20 per cent is delivered by the British company MEA. One of the reasons why NT cannot be the single source for UKOL is that it cannot fulfil all requirements according to British Standards. NT is now doing its best to become certified and has therefore got two of its best technicians involved in two different committees responsible for the future standards in Britain.

UKOL is one of the largest companies in Europe within the field and has substantial market shares in the UK, France, Germany and Sweden. UKOL is an old company and it has been regarded as something of a 'sleeping giant', with a passive marketing approach. A new general manager, coming from MPA US, has during the last two years activated the company and it is now perceived by other companies as a future winner. One special event that has helped to create this situation is a strategic alliance signed during the last year with the above-mentioned American company, Exmol. NT does not yet know how the alliance

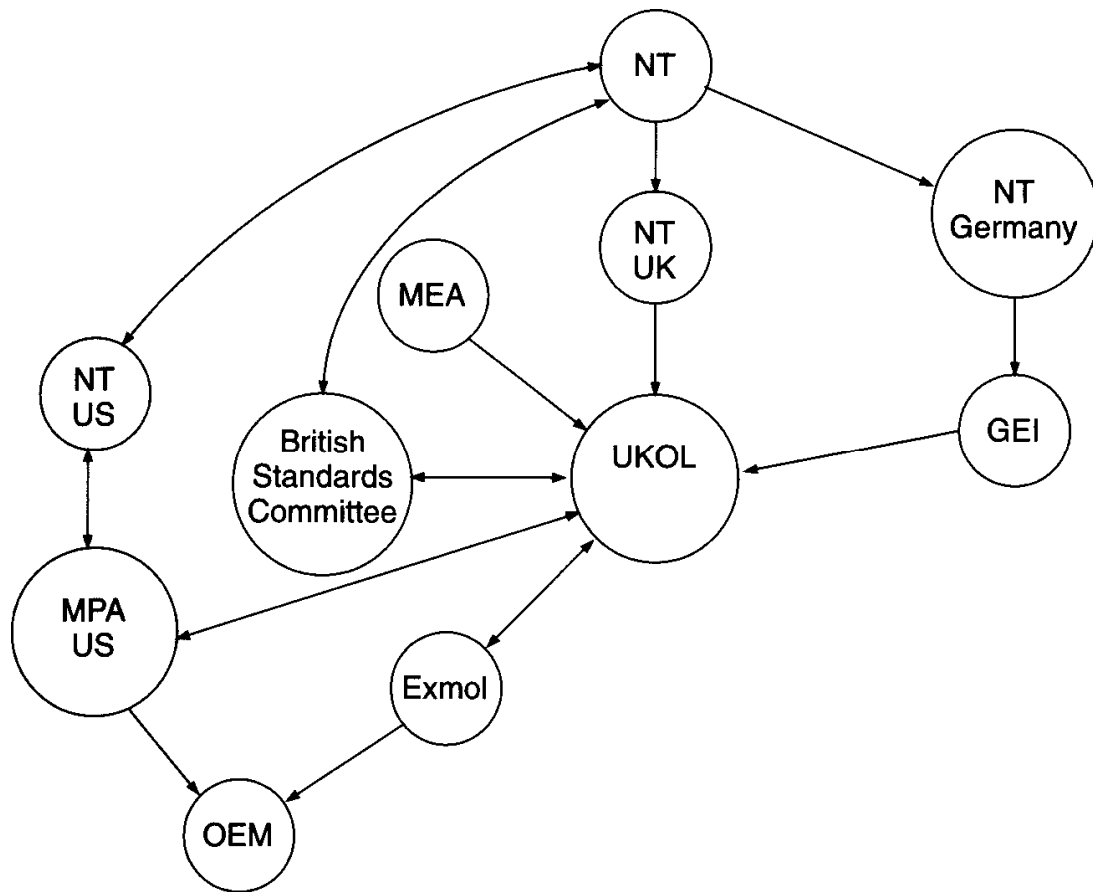


Figure 4.10 NT's relationship with UKOL

will affect its relationships with Exmol and UKOL, which up to now have been independent. One possibility is that Exmol will buy through UKOL in combination with a technical cooperation between the two customers. Furthermore, the alliance may also affect NT's relationship with MPA.

The first two relationships analysed are rather typical for important customer relationships of NT. The third is not. It is a relationship with a German company — GEI (mentioned earlier in the UKOL relationship) — which is not just one of NT's largest customers but also one of its most aggressive competitors. All the contacts with GEI are handled through NT's subsidiary in Germany. GEI is only buying one very special product for which NT has the patent but GEI has the sales licence. The agreement is a remnant from an earlier period when a previous owner of NT started a separate company that developed the product together with NT. That company was later bought up by GEI, that at the same time also took over UKOL as a customer. In the same deal GEI also bought an American distributor (PAN) which earlier had been selling NT's products in the US. GEI together with PAN is now one of the main competitors to NT especially in relation to distributors. GEI does not have the technical competence required when selling to OEMs but it is constantly trying to become accepted. There are no contacts between NT and GEI except for orders, shipments and payments. But GEI complicates the situation for NT in other relationships. NT would like to end the

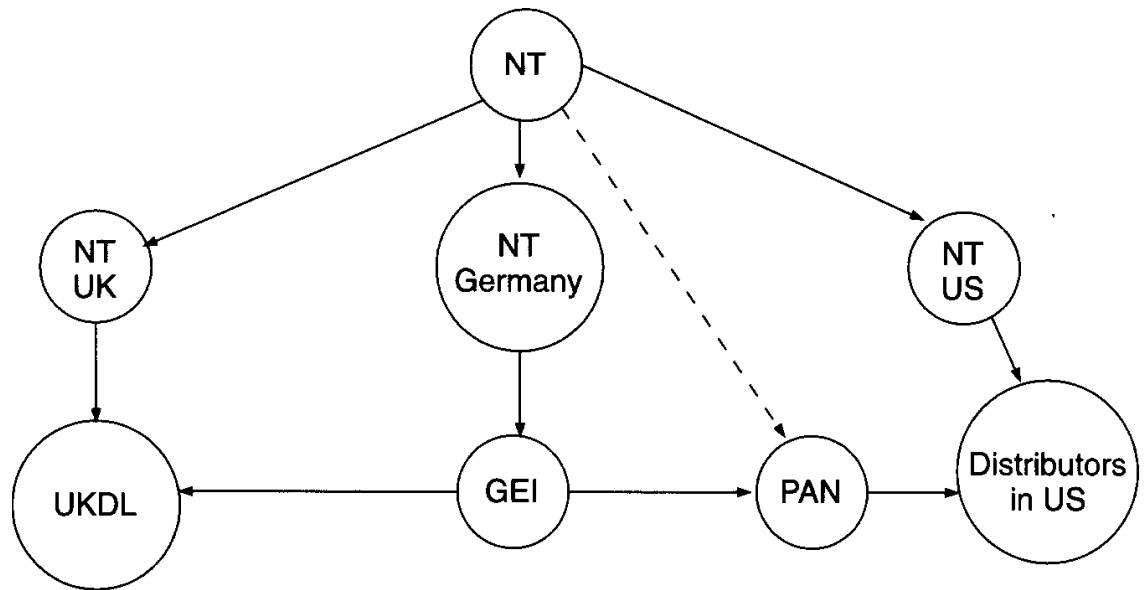


Figure 4.11 NT's relationship with GEI

relationship as fast as possible if it was not for the large volume involved. The legal agreement could be broken, but NT is afraid that it would not be possible to compensate for the volume lost in that case. Such a loss of volume would increase the production costs also for other customers and reduce NT's profit considerably.

The fourth relationship regards the development of a new customer in Japan – here named JAN. NT claims it is very hard (read impossible) to break into well-

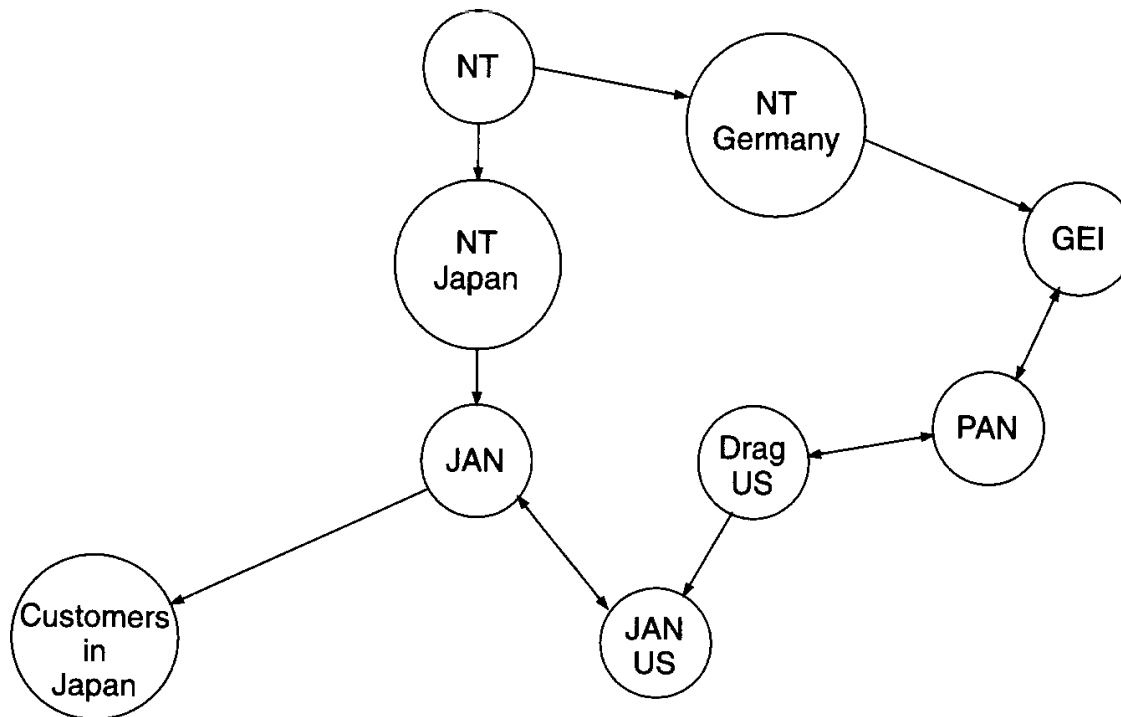


Figure 4.12 NT's relationship with JAN

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established relationships in Japan. JAN is, however, quite new within this field and it is trying to build up its position. NT is used by JAN as an external development resource as all domestic suppliers already were heavily committed with other Japanese customers. Extensive technical discussions have taken place during the three years the relationship has existed. NT has adapted the product in several ways and the relationship has developed nicely. However, there is one problem caused by an American supplier – Drag who has approached the American subsidiary of JAN and proposed a low price product. Drag is a lowprice/low-quality producer which has very limited technical development resources but which has a very good knowledge about NT and its products and technology. It has got the knowledge through a close relationship with PAN, which in turn as we have already described has a close relationship with GEI in Germany. Drag is now offering a similar product to NT and at a significantly lower price. Up to now the proposal has not been seriously considered by JAN (at least that is what NT believes) but it is used by JAN as an argument in all commercial discussions with NT.

The four relationships we have investigated for NT are all related to each other in different ways. Some of the connections can be identified by starting in NT's activities and the costs and revenues caused by these. The production of tools is – as with most production processes – sensitive for use of fixed resources, i.e. there are substantial scale effects. The total volume is dominated by a few customers which makes it necessary to adapt the planning of the production for each of them to that for the others. The production for GEI – even if this customer is disliked – must be coordinated with the production for MPA. The design of the tools for MPA must in the same way be related to the design of the tools for JAN. If some part of the tools can be designed in exactly the same way this offers possibilities to get longer production runs for that part and consequently lower costs. Each of the four relationships must be handled in accordance with these connections. Furthermore, what NT is doing in relation to Exmol affects its relationships with MPA and UKOL, and what it is doing in relation to GEI might affect its relationships with JAN and UKOL. None of the relationships can for these reasons be handled in isolation; the development of one of them will have to be compensated by different activities in the other. But this is not enough, the relationships NT has with its counterparts have also some connections to those of NC.

Some key relationships for NC

NC's relationships to three customers will be described and analysed. One concerns a major Swedish OEM customer that consists of several divisions. The two others are relationships to one German and one French customer, where some other companies are also important actors.

The first relationship has a clear connection to the relationship between NT and MPA. The relationship is with a large multinational OEM customer in Sweden. The customer is divided into several quite independent divisions and NC has close

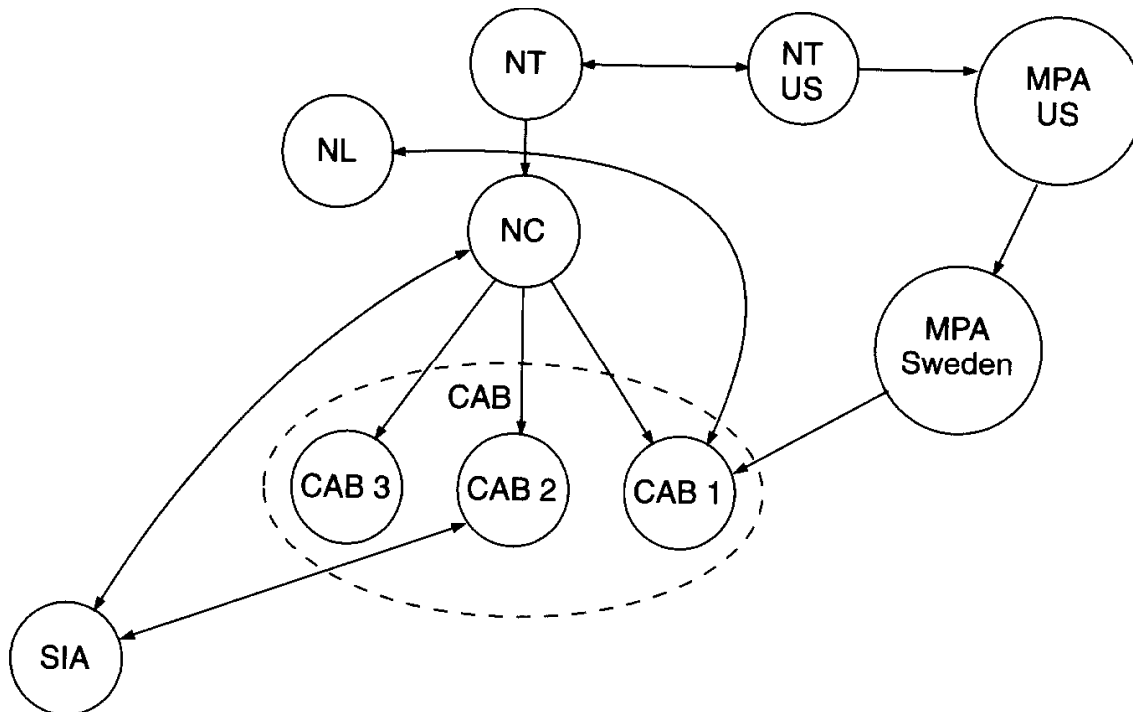


Figure 4.13 NT' s relationship with CAB

relationships with three of those. Each is in principle treated separately but there are certain contacts between the three divisions and if NC should fail to take care of one of them in the right way, it would also affect the relationships to the other two. However, there is no central unit in the customer company (CAB) that actively monitors the relationships. In the relationship to one of the divisions — CAB 1 — a single individual is playing a key role. It is a purchaser at CAB 1 who earlier worked for NME (not in the NC unit), and is actively supporting the relationship. NC has delivered earlier some special products in small volumes but there has been no attempt to make NC the major supplier. The competitor that is now the main supply source in CAB 1 is MPA Sweden, the sales subsidiary of MPA US, the main customer to NT in the US. An investigation within CAB 1 has been initiated by the previously mentioned purchaser with the aim of calculating the costs for switching from MPA to NC. The costs will be substantial and the question is what NC can do in order to reduce these. Another key question is how MPA US will react if the change should take place.

The relationship to the second division — CAB 2 — is very much influenced by a relationship to another customer, SIA, who is an important customer to CAB 2 but also to NC. Some years ago, SIA had problems with the use of a standardized product in a certain application. NC managed to solve this problem by altering the product. The adapted product has proven to be very useful for SIA and the latter is now requiring that CAB 2 must use the same product in the application sold to SIA. Without the support of SIA, NC believes it would never have succeeded in becoming an approved supplier to CAB 2 (see Figure 4.13).

The relationship with CAB 3 — a division selling customer ordered systems —

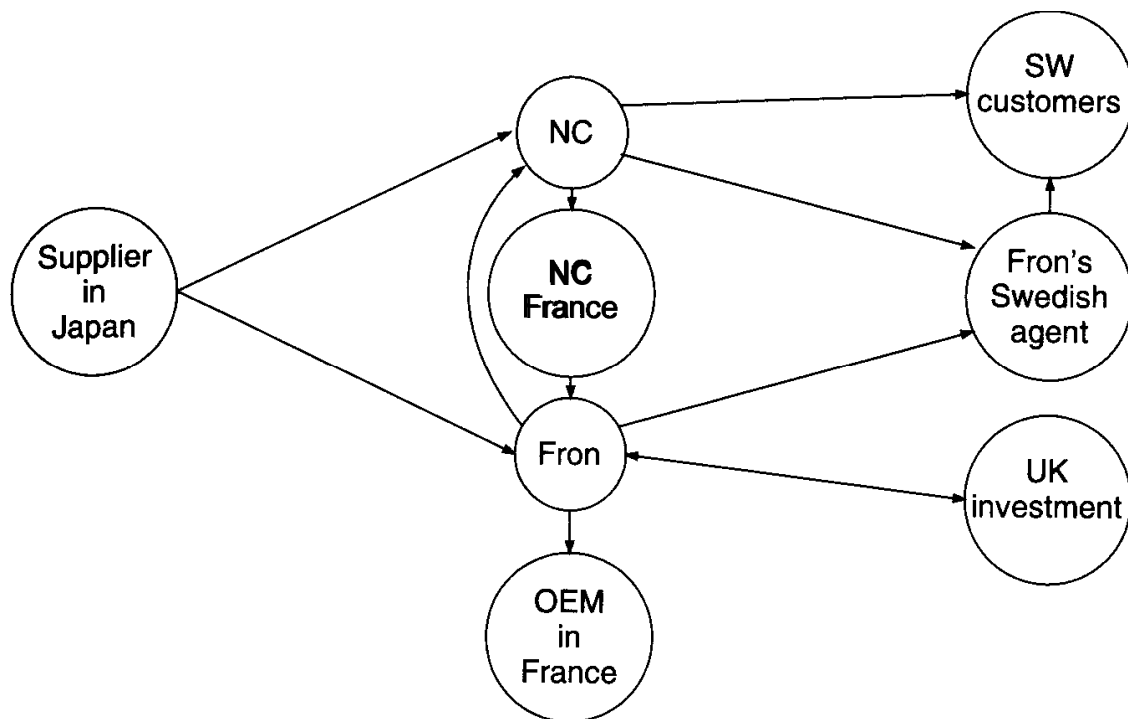


Figure 4.14 NT' s relationship with Fron

is rather simple and is handled order by order. The second customer — if we see CAB as one — is the French company Fron. Fron is basically a competitor to NC and is just a little bigger (30 per cent). It has a very good position in France and is primarily selling to some big OEMs. NC is not selling to this customer group in France, so competition between the two companies is not perceived to be a problem for either side. Two years ago Fron was for sale and NC was one of the potential buyers. In the end, Fron was bought by a UK investment company, which was a disappointment not only for NC but to the people in Fron as well. The negotiations between NC and Fron had revealed several cooperation opportunities and both sides saw large benefits from closer cooperation. The discussions continued even after it was clear that NC would not become the new owner, and after another half year, a cooperation agreement was signed. Fron agreed to stop the production of certain products and instead to start buying them from NC. In return, NC would buy some plastic components which Fron produces in large quantities. Fron's Swedish agent will also coordinate its marketing activities in Sweden with NC's domestic activities. Another area where cooperation has developed concerns procurement. Fron and NC are, for example, buying from the same supplier in Japan. Each of them is buying too little to have any influence on the supplier, but through coordination they will become one of the larger customers. The people in NC are very enthusiastic over the cooperation with Fron because it shows how a competitor can become a combined customer/ supplier/partner (see Figure 4.14).

The final relationship we will describe is with the German company GER. NC has a cooperative agreement with this company regarding marketing in Denmark,

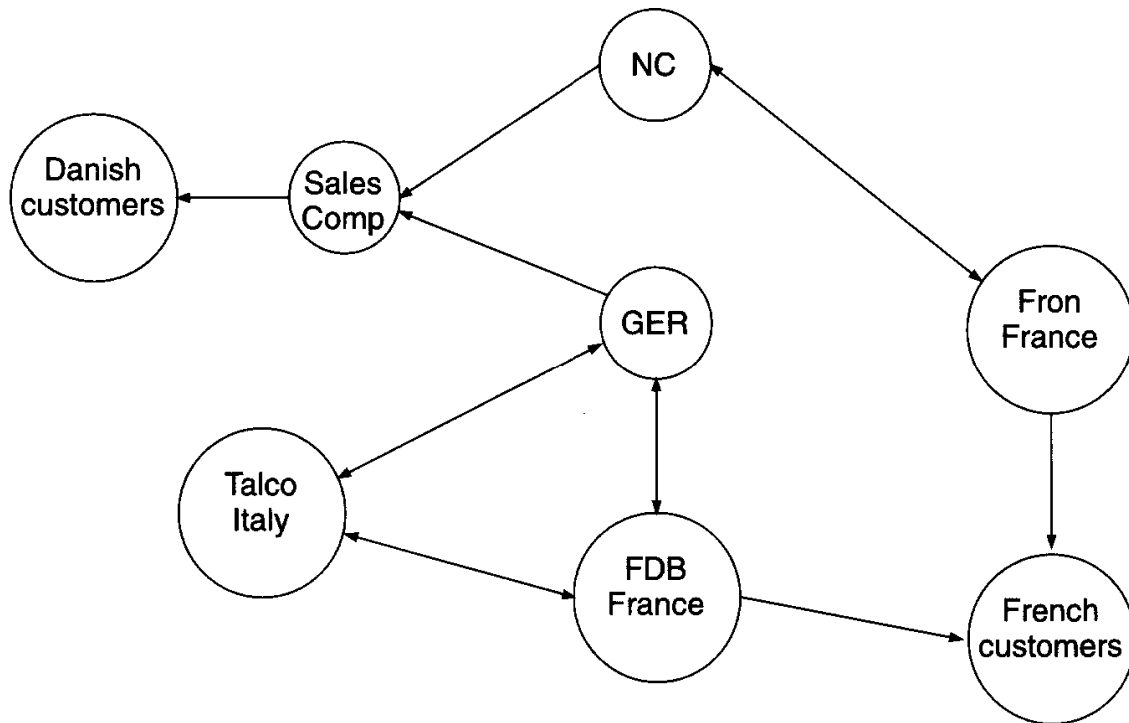


Figure 4.15 NT's relationship with GER

where the two companies have a joint sales company. The companies compete in all other markets, for example in Sweden and Germany. Through the cooperation in Denmark, NC has now learned that GER has an agreement covering development, production and marketing with an Italian company, Talco, and a French company, FDB. These three companies have been working together in accordance with the agreement for a couple of years and the cooperation seems to be developing and becoming an important factor for all of them. The question for NC is how to behave in relation to that agreement. One possibility is to try to get involved and gradually become a full partner. Such a move would, however, have a lot of effects, not least on the Fron relationship (see Figure 4.15).

Development patterns

The previous analysis of the seven relationships will be used as a basis for identification of some more general development patterns in the larger network which could be critical for NME, at least in the long run. In general, three tendencies seem to be dominating the development. All can be related to resources. One regards resource control, one the specialization in the use of resources and the third the structuring of resources through the development of the network.

174 *Relationships in business networks* Resource control

The actors involved certainly show an increased orientation and interest in becoming international. Many of them are to an increasing extent acting, connecting and relating resources internationally. Several of the relationships are characterized by this tendency and it creates both possibilities and problems for the NME. It can be seen in how certain customers act but also in the increased awareness among competitors of the possibilities to join forces. The two focal business units will both be affected, but in different ways. One obvious result is that NT will get more and more troubles with the close connection to NC.

Another aspect of the resource control, partly related to the internationalization issue, regards how the large producers of components will act in relation to the suppliers with regards to integration. Some of them already have internal units for development and production of tools – like NME – while others have preferred to utilize external suppliers. One force that works for increased integration is the importance of the tools in the fitting of components into different end-products (systems). Today the solution has been the use of 'private brands' for those customers that do not have internal suppliers. The question is whether this solution is good enough in the long run. An influencing factor will be whether the technical connections will increase or decrease in importance. The tendency today is for the connections to become less important, which should lead to a decreased interest in vertical integration.

Use of resources – specialization

The production activities in tool manufacturing are quite different from the production activities of components. Thus, there is no reason from this point of view to integrate these two resource bodies. However, there are other important tendencies which are related to the connection between tool and component production. First, there is a tendency among the OEM customers to gradually specialize their resources to more narrow segments. A consequence is increased demands on technical service and design assistance from suppliers. At the same time, and having the opposite effect, there is a specialization tendency among the low-cost producers of tools (for example Drag) that is supported by at least certain OEM producers. For quite broad categories of applications there are attempts to increase the degree of standardization so that tools from different producers can be used for the same components. Some producers of tools have taken this as a specialization base and try to produce acceptable tools at a low price. In combination with increased internationalization, this standardization creates possibilities to reach quite another scale in the production, with consequently lower costs. The two tendencies are working in opposite directions and might at the end result in the emergence of two separate networks and all actors will have to choose to which to belong.

Resource ties 175 Structuring of resources

NT is very much involved in combining product technology knowledge and customer needs (applications). Its key resources both in development and production are, thus, highly integrated into relationships with customers. In the general structure there is a tendency that the connections between resources and activities successively become clearer and more structured. The changes in specialization discussed above can be seen in this light. Some actors try to separate the development and production to a larger extent, thereby also changing the content of the customer relationships. One effect of this is increased importance of forming the production resources in a more structured way. Within the component area this has already taken place for the main application areas just leaving out the larger sizes of the products. The formation of the production resources is consequently a key question in several of NC's relationships. Coordination with other producers in combination with developments of the supplier network is a necessary ingredient. NC is at the beginning of the process and its ability to handle it will probably decide its future. The same tendencies can now also be identified for the tools – the question is for how large a part of the different applications. NT will need to deal with this issue shortly.

The structuring process includes also a tendency to create special sub-networks around the big producers. NC can be said to take part in the special network that is evolving around the Swedish company, CAB. These sub-networks might increase in importance and one example is NT, which is considering locating a production unit in the US in order to become a 'fully accepted' member of the MPA network. The cooperation between NC and Fron is a similar example. Such a cooperation is the only chance, as perceived by NC, to become accepted by some of the large OEM producers in France.

4.2.3 The Radex case: developing market resources, by Krzysztof Fonfara *Short*

history of Torun Enterprise

The predecessor of the present Radex Co., Torun Enterprise Refrigeration Industry, was established as a state-owned organization in 1951. It specialized in processing fruits, vegetables and cooking products. It had been founded as a regional enterprise in the refrigeration industry and for years it had been the exclusive supplier of frozen food in its region, consisting of three counties (Torun, Bydgoszcz and Wloclawek). Its main customers had been state-owned chains of retail shops, small private shops and other enterprises in the refrigeration industry operating outside the region which purchased Torun Enterprise's products for their local distribution. As in many other industries in Poland, the territorial and product specialization of the different state-owned enterprises had been determined centrally by the competent ministry. Torun Enterprise had its regional network of distribution defined, but because of its specialization part of its production had been transferred to other regional enterprises in the refrigeration industry.

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The main suppliers to Torun Enterprise were individual farmers and regional horticultural cooperatives. Torun Enterprise was maintaining contacts with more than 100 farmers, located mostly in the three counties of its region. The volume of supplies from the farmers varied from a few tonnes to several hundred tonnes each. Also the horticultural cooperatives were based in the same region.

Products of Torun Enterprise began being exported in 1971. The first shipments abroad were made to other East European countries (belonging to CMEA) – in particular to East Germany and the USSR. They were made through a 'compulsory' intermediary, Wotex, one of the foreign trade organizations that, at that time, had exclusive control of foreign trade activities. In 1975 the Torun Enterprise shipped, via Wotex, its first supplies to West Germany. From that time, the German market, including West Berlin, became more and more important for the Torun Enterprise.

Torun Enterprise had been forced to follow the only possible mode of entering foreign markets – via state-owned foreign trade organizations. For years it has been using Wotex and another two similar organizations. Again, it was established in detail by the ministry which of Torun Enterprise's products would be sold and where, and who (which foreign trade organization) should be responsible for the exports. Under these circumstances it was even difficult to consider Torun Enterprise as an exporter. Rather it was selling its products to foreign trade enterprises which had handled all the activities and duties connected with selling abroad, including of course contacts with foreign importers. Under such conditions it was impossible to identify any real internationalization strategy being followed by the enterprise. Torun Enterprise, like most Polish companies, had tried to respond to the requests, suggestions and offers coming from the foreign trade organizations. These were often rather short-term and *ad hoc* in character. The outcome of that was more a distribution of surpluses than any strategy.

In the middle of the 1980s, the more dogmatic concept of state monopoly in foreign trade was gradually replaced by a more pragmatic one. In practice this meant that Torun Enterprise could itself select a representative from among the different foreign trade organizations. However, it had no concession to operate on their own behalf independently in foreign markets. The concession to operate directly in foreign markets has been obtained only by some forty of the strongest companies in Poland who managed to go through the extremely complicated and bureaucratic procedures required.

Relationship to KPL

The relationship between Torun Enterprise and a German company, KPL, started in the 1970s. Since about the mid-1960s KPL had been importing frozen fruit and vegetables from Poland via Wotex. The contacts between Wotex and KPL were so good that the German company was for several years the exclusive agent of Wotex in Germany. The first contacts between Torun Enterprise and KPL were created by Wotex. At the beginning the contacts had been purely social and of a

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personal character, rather than professional. Representatives of Torun Enterprise, as guests of Wotex, took part in informal meetings (such as banquets) organized by Wotex for the foreign partners. Then at the beginning of the 1980s directors of Torun Enterprise started to visit KPL as part of a team set up by Wotex. Since 1986 KPL began to visit Torun Enterprise in Poland.

From the formal point of view, Wotex rather than KPL was a counterpart of Torun Enterprise in the transactions. Torun Enterprise had signed an agreement with Wotex to sell its products to KPL. Each year, by the end of March both sides agreed upon and signed a season's 'list of goods' planned to be shipped abroad. The list was based on crops foreseen for the current year. The list of goods described classes and categories of products as well as their markets of destination. As a rule Wotex had been signing a long-term agreement with a foreign client (for instance KPL) and the future deliveries agreed upon were automatically included in the 'list of goods' discussed with Wotex's suppliers. The list became a base for Torun Enterprise to prepare and produce goods for exports and for Wotex to sign a contract with the foreign partner. Torun Enterprise was obliged to deliver, and Wotex to accept, no less than 80 per cent of the volume agreed under the list of goods in different product categories. Both parties (Torun Enterprise and Wotex) could propose additional deliveries not previously included in the 'list of goods'. The German customer (KPL) could always check the Torun Enterprise products before shipment. Torun Enterprise normally suggested to Wotex the prices before the season. As a rule, each year after the crops were harvested, a meeting took place among foreign trade organizations exporting similar products. Based on the actual crops, opportunities in the foreign markets and other conditions, the participants agreed on the level of prices to be offered to their domestic suppliers. Taking these into account Wotex could, but was not obliged to, accept the prices suggested by Torun Enterprise before the actual crops were known.

The relationship between Torun Enterprise and KPL was thus rather weak, one could say second rate. It had no legal or formal meaning, it was limited to personal and social contacts that produced, however, some mutual adaptations of needs and possibilities.

Company in transition

In 1989, as a result of the decision of the Ministry of Agriculture, Torun Enterprise took over two state-owned farms and has in this way established its own supply base. As a consequence of the merger, Torun Enterprise changed its name to Radex. The company decided to use the name also as a brand name. The product mix of Radex consisted in a line of frozen fruits (strawberries, plums, cherries, blackcurrants), frozen vegetables (beans, peas, carrots and leeks) and frozen cooking products (fried potatoes, noodles, giblets).

The main markets for Radex products have been outside Poland. Gradually, from 1983, more and more of its fruit and vegetables have been shipped abroad: 1983–22.1 per cent, 1984 – 36.7 per cent, 1985 – 46.4 per cent, 1986 – 48.6 per

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cent, 1987– 44.0 per cent, 1988 – 54.3 per cent, 1989 – 62.5 per cent, 1990 – 67.1 per cent. The most important market for Radex has been and remains Germany, taking about 70 per cent of the turnover.

Nineteen eighty-nine was the first year of dramatic changes in the geographical direction of Polish exports. These changes were relevant also in the Radex case. In 1989 the level of prices that other CMEA countries were ready to pay became so low that it did not even cover the costs of Polish companies. Then in 1990 two additional factors appeared: the very low exchange rate of the Russian rouble against the Polish currency, and a withdrawal of subsidies to Polish exports . This resulted in a substantial decrease of Radex exports to the USSR and other CMEA countries. These supplies fell rapidly: 1988 – 8,371 tonnes, 1989 – 3,446 tonnes, 1990 – 2,750 tonnes.

Since 1989 relationships between suppliers and buyers have progressively developed based on commercial premises. This new situation has resulted in more active involvement with present and prospective suppliers to ensure the quantity and quality of deliveries necessary. In order to avoid the risk of being insufficiently supplied, Radex has taken over several state-owned farms.

Radex has been a leading enterprise of the refrigeration industry in its region and it has had to some extent a monopolistic position in the field of ready cooked frozen food. It has been facing quite a different situation with frozen fruits and vegetables. At least four big and a number of smaller competitors have been offering higher prices to their suppliers and lower prices to their customers. Especially for the less processed products this has been a serious challenge for Radex. Previously, other enterprises in the refrigeration industry had not been competing directly with Radex in its own territory. They had accepted the division of market created previously by the ministry.

In export markets the strongest competitors to Radex remained the Polish foreign trade organizations. They have been operating in overseas markets for years. They have more experience and have developed long-lasting relationships with foreign customers. The second group of competitors consisted of other enterprises in the refrigeration industry. These have been looking very actively for possibilities to sell their products abroad as the domestic demand has been gradually decreasing. Smaller companies have also been trying to export and have become, at least potentially, competitors to Radex. They have not been optimal partners for foreign importers, however, as the latter have been looking for rather more stable, long-lasting relationships and larger volumes of supplies.

The critical event in the relationships between Radex and KPL occurred during 1988–9. It was at that period that Polish enterprises, including Radex, were allowed to operate directly in foreign markets. They have been allowed to choose for themselves their way of operating abroad (direct or indirect exports, use of agents, etc.). Radex has proposed to KPL to trade directly without any Polish middleman's services and the Germans have accepted the proposal. The direct transactions between the two parties have changed the nature of their contacts. All aspects of transactions (the negotiations, formalization of contracts, etc.) have

been carried out without the participation of any third party. The relationship has become close and direct.

In the course of these direct transactions, representatives of Radex and KPL met in June during the Poznan International Fair and prepared a preliminary list of goods to be shipped to Germany over the period of the next twelve months. The meeting took place before harvesting of crops and it was difficult to determine precisely the supply. Therefore a so-called 'crop clause' was adopted (it has underlined the correlation between supplies and crops). During the harvest, from mid-June to October, exact quantities and timing of deliveries were agreed upon. Because of the high level of inflation in Poland and the stable exchange rate policy pursued, it has been very important to maintain permanent close contacts with foreign partners in order to inform them about necessary price changes. This had to be done carefully – there was always a risk that the foreign client would find another Polish supplier who offered lower prices.

In 1990 most of Radex export operations were still conducted through middlemen – foreign trade organizations. Only slightly more than 10 per cent of Radex' s exports were handled directly by Radex and foreign clients. The remaining exports were handled by ten different Polish foreign trade organizations; among those the major have been Ares (27 per cent), Poles (25 per cent), Interpex (15 per cent) and Wotex (6 per cent).

In Germany, Radex has identified five companies as potential partners for its exports. The key partner became KPL. The key product has been frozen strawberries. In 1988 over 500 tonnes of fruit and vegetable were exported to the German . client, while a year later more than 1,000 tonnes, about 10 per cent of all exports of Radex, were shipped. Products sold to KPL have been of high quality, free from chemicals and additives. Prices offered by the Polish exporter have been quite competitive, set at a reasonably low level. The relationship between the partners has been flexible and open to changes. It has resulted from the specificity of the products being shipped. The crops depend strongly on weather conditions in Poland, as the products have been for the most part naturally grown. Direct exporting has been considered by Radex crucial for its further expansion in foreign markets.

In practice, the mutual trust between the parties has been limited. The whole network of KPL's customers has been a secret to Radex. KPL preferred to receive its client's complaints rather than to transfer this responsibility to Radex enabling the Polish enterprise to get in contact directly with 'its' customers.

Both Radex and KPL in value terms have not been most important partners for each other. Only about 8 per cent of Radex exports have gone to KPL. But KPL was the largest individual client of Radex in foreign markets. KPL itself has been maintaining a number of contacts with different Polish companies. Some of them (e.g. foreign trade enterprises) have been in value terms much larger than Radex. But Radex, representing the production level, has offered stability and closeness of the relationship.

Specificity of the trade in the fruit and vegetable industry requires a certain level of mutual trust. This is especially important when deliveries vary due to the

natural system of cultivation. Crops are to some extent determined by climate conditions during the season. KPL has to be convinced that a decrease of an earlier negotiated level of supplies is caused by poorer crops, and not by a temptation to sell a part of the production to other buyers at better prices. Of course in practice this is difficult to check. KPL is also assuming that in the case of better than expected crops Radex will offer these surpluses first of all to KPL. Quite often the final level of deliveries and prices is established just after the season. An adaptation on both sides to changing conditions — often independent of the parties, such as climate, inflation in Poland and the like — makes the closeness of the relationship essential.

Potential conflicts can be connected to the above variation of deliveries but also to a quite different attitude on both sides as to the frequency of shipments. Radex would prefer to deliver the contracted quantities of frozen products immediately after crops, while KPL wants them to be shipped gradually in smaller quantities. The German company has in this way tried to decrease its costs of storage of frozen fruits and vegetables by distributing them directly to its final clients.

During this period the main suppliers of Radex are still the individual farmers who account for 55 per cent, the directly owned farms (25 per cent) and regional agricultural cooperatives (20 per cent) of the total volume. The individual farmers are important. Radex has signed long-term contracts with them, which are advantageous to both sides. Farmers achieve a stable outlet for their products and are furthermore supplied with seedlings and plant protection means by Radex. Radex has in this way ensured the stability of supplies. There is also a long-term agreement with horticultural cooperatives that Radex will take steps to overtake farms and to build up its own production base and thus to strengthen and stabilize continuous deliveries. The stability of the supplier network is a key element of Radex's strategy. More and more domestic and overseas companies are looking for new sources of supply in Poland. If Radex loses its suppliers, that would influence negatively its customer relationships, decreasing its reliability and it could destroy the direct contacts with KPL.

In 1990 the Polish government stopped subsidies to most of the state-owned enterprises, trying thus to force them to act according to the rules of market economy. Profits, costs, competition, searching for clients have become after forty-five years again very basic and essential considerations for Polish enterprises. At the same time the domestic demand for most products has decreased dramatically, partly as a result of the freezing of salaries in the state-owned sector. Competition from imported goods has become stronger. It has become more difficult to sell products in the Polish market. Exports seem to be quite often the only possibility to find buyers. In 1990 the Polish government started to privatize state-owned enterprises, trying thus to make them more effective and competitive. This process has become manifest even in the changes undertaken by Radex.

Until August 1991 Radex consisted of several production units (refrigeration plants) located, besides the one in Torun, in several towns around Torun. The sudden lack of subsidies made it necessary to divide Radex into several autonomously operating units. The Torun unit maintained the name and brand of

Radex and can be considered the successor of Radex. Its size and the relatively high competence of the staff had an essential influence on the character and direction of changes in the company. Radex has decided to eliminate all parts of the enterprise which were ineffective and which were creating more problems than profits. The once state-owned farms overtaken by Radex have been taken out of the new enterprise, as well as most of the social facilities belonging previously to Radex (workers' hotels, summer houses for employees, etc.). Besides organizational changes, Radex is considering a rather dramatic shift in its product line offering. Radex believes that it will be easier to compete in 'cooking products' rather than in fruits and vegetables. They believe that their competence in this field will give the more chance to survive in domestic and foreign markets and to develop a less risky business, compared to fruits and vegetables. The company still wants to export some fruits, but only as a minor part of its exports.

For most Polish companies, to become a serious actor in the international market, considerable investments in technology are needed. Following privatization, Radex is to become a private company based on a least 20 per cent participation by foreign investors. Several German companies are negotiating conditions of their participation in this joint venture. One of these is KPL, which has decided to maintain its already strong position in Poland. The restructuring of the company under way is likely to change essentially the shape of the customer – supplier network, built up over the last few years.

Concluding remarks

Looking at the Radex network of relationship, we see that it has been shaped for years by the administrative forces (ministries, unions of enterprises) and not by the market. A tendency to act independently, breaking down all vertical administrative relationships of the enterprises, becomes now very evident. Relationships to foreign partners, when they existed, were of an indirect and informal character.

Relationships to foreign customers based on market transactions have been developing in Poland during the last years. The determination to eliminate the formerly compulsory domestic middlemen – the foreign trade enterprises – is very strong. Sometimes a more emotional than rational behaviour can be observed. Nevertheless, more and more Polish companies are following the path of Radex – assuming more risks but also possibilities to more profits and to gain some commercial experience. Offers of direct contact, however, are not always accepted by foreign partners. This negative attitude can be linked to an unwillingness to stop relatively long-lasting and stable collaboration with foreign trade enterprises, often based on personal contacts and mutual trust. There are also other obstacles to developing direct exports by the manufacturing companies, namely their financial dependence on foreign trade enterprises and their lack of skills and experience in operating directly in overseas markets. Nevertheless, more and more producers have started to build up their own network of relationships but they are at a very early stage of development. Construction of

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a net of relationships will take some time. After a period of strict state control, enterprises are developing very carefully their formal contacts with outside organizations.

As a rule, contacts between the manufacturers and their foreign clients are short-term oriented and the configuration of customers is quite flexible. There are several reasons for such a state of affairs. First of all it is a consequence of the administrative character of the contacts. For many years the manufacturing companies have not been allowed to develop any form of export strategy, as it was entirely in foreign trade enterprises' hands. Partners have been chosen and changed by domestic middlemen, not by the will of producers. Even foreign trade enterprises have been conducting export operations more as an *ad hoc* activity than in order to develop a long-term strategy. One of the main reasons for such an attitude was the tendency to sell abroad on surpluses of goods. Marketing strategy based on long-term goals, assumptions and investigations has been exceptionally seldom implemented. Companies have been motivated to export only to gain hard currency for necessary imports, or to fulfil governmental agreements with other socialist countries.

The Polish internal situation in the early 1990s has done little to stimulate the development of long-lasting contacts with overseas partners. Relatively high levels of inflation and a flexible interest rate made it very risky to establish longer-term relationships with exporters and importers. It was difficult to predict real inflation indicators and possible interest rates shifted. Such an unstable condition motivated partners to escape from longer-term commitments in order to avoid possible costs of dramatic price decreases or increases. Additionally, privatization and restructuring processes in Poland created new companies, dividing old ones into smaller units and liquidating unprofitable state-owned enterprises. Such dynamic changes within existing networks of relationships make it very difficult or even impossible to foresee the speed and direction of future developments.

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The main theme of this chapter is that the resource dimension of business relationships is important for business performance as it affects the availability and development of the resources of companies. The effects of resource ties in various relationships of a company will depend on how these are managed. The critical issues in handling the resource dimension reflect the double-faced nature of resources; resource ties in relationships arise from the interaction between provision and use of resources. The main argument in our discussion of the resource substance in business relationships has been that relationships are not only a way to acquire resources but also a way to develop resources.

From a company's point of view the problem of handling the resource ties is how to develop new or reduce the existing resource ties, how to exploit them better and how to contain the possible negative effects of resource ties developed among other companies. The problem comes from the fact that resource ties in a relationship are embedded into a broader resource constellation that can be

exploited to a company's own advantage but at the same time presents major constraints. Resource ties of a company are not given, they evolve and can be developed. Relationships themselves can be seen as a resource the value of which depends on the use being made of it.

These arguments used in our previous discussion raise the question of how companies can, and should, handle the resource dimension of business relationship. There are three aspects of resource management that we would like to unravel further. The first one concerns the handling of resource ties in a certain relationship; how they can be developed and used. The second one concerns the possibilities to exploit the various resource ties in relationships to different counterparts in order to enhance the development capabilities of the company. Finally, the third aspect that we will be addressing regards the role of a company as resource provider to others, directly or indirectly connected. While the first issue is mainly a matter for the marketing and purchasing functions in a company, the other two have broader implications.

4.3.1 Handling resource ties in a relationship

In every relationship, to customers, suppliers or other parties, the resource dimension can be exploited better. Existing ties can be utilized more extensively and new ties can be developed. Only a minor portion of the resource collection of the parties is as a rule reciprocally tied. The cases in this chapter illustrate some of the possibilities to improve the resource exploitation in a relationship and some of the problems involved in this. Handling resource ties properly requires them to be made productive for both parties, which usually involves renewal and innovation in the resource collection. Insight and knowledge of the use of a resource at the counterpart is a condition for managing the resource dimension in business relationships.

The Vegan case describes a number of customer relationships with strong resource ties and illustrates nicely, in particular, the effects of connectedness in resource ties when attempts are made to develop a relationship. In developing a relationship to Swedish Strip Steel Co. (S.S.S.), or to Carco, Vegan uses various resource ties in other relationships; both internal resource ties (to other units within the group) and external resource ties in relationships to suppliers and other customers are used. Examples of what existing resource ties the company exploits are given in Figure 4.16. Vegan exploits rather systematically the existing resource ties in building new resource ties. Gradually new ties are developed and strengthened in the relationship to S.S.S.

The development of resource ties takes time. Both companies gradually learn how to take advantage of each other's specific abilities and requirements and eventually enlarge the resource substance of the relationship. Again, Vegan's relationship to S.S.S. and Carco illustrates this gradual process of resource tie development. What is required in order to exploit the possibilities in a relationship becomes also rather clearly illustrated; the company has to learn more about the use made of resources in question in the customer's company and to teach the

	<i>Internal users</i>	<i>External users</i>
<i>Internal providers</i>	Vegan is drawing on resource ties to other internal units (within mother company)	R & D resources and other internal units are tied to customer resources
<i>External providers</i>	Uses resource ties to customer/local suppliers	Resources of complementary producers (and competitors) are tied to customer

Figure 4.16 Resource ties activated by Vegan in relationships to new customers

Figure 4.16 Resource ties activated by Vegan in relationships to new customers

customer some of the problems involved in the production of its products. As resource ties develop, several benefits can be reaped by both parties; in the Vegan—Contours case, customers' costs are reduced, quality improved, production made more flexible.

Many of the benefits result from knowledge about the use of resources that has been acquired in other relationships. In developing the relationship to Carco, Vegan makes use of several different solutions developed earlier in relationships to a Japanese, a German and a French customer in different industries. On several occasions resource ties developed in one relationship produce something unique, an innovative way to combine resources. This is what has been described in Vegan's relationships to Screwco and Contours.

The ambition to exploit relationships is similar in the Radex case but as there are very few existing resource ties the potential is low and not much can be done. The case shows how helpless a company is when the relationships it has developed collapse. Its internal resources then suddenly lose much of their value. Also, the company seems to lack much of the necessary insight and understanding of how resource ties in a relationship can be developed. While interested and concerned to develop customer relationships, Radex seems to oscillate between taking direction from Wotex, being totally subdued and trying to exploit unilaterally the relationship with KPL. Radex seems to fail in reaping potential benefits from resource ties as these are not very well understood or developed. In a way it hints at the necessity to achieve a positive response from the counterpart and the need to work jointly if the benefits from resource ties are to be exploited better.

To take advantage of the resource dimension in a relationships is a matter of developing resources through resource ties, i.e. of making investments that can

have both positive and negative effects on the resource collection of either or both the own company and the counterpart. The effects of ties in a relationship can thus be of different type. First, there are always possibilities to take advantage of earlier non-realized cooperative opportunities by developing new resource ties connecting other resource elements. This is clearly the case as Vegan gradually builds the resource ties to S.S.S. Second, resource ties in established relationships can be used for internal purposes; to build up knowledge regarding a certain category of counterparts, to build up an image or to systematically develop and adapt a company's own technical resources. That seems to be what Radex is trying to achieve in the relationship to KPL. That is typically the case of relationships to suppliers and other third parties. In the NME case there is one extreme situation of this kind with respect to a customer, illustrated by the relationship the Swedish NT company has to the German customer, GEI. Third, internal resources can be utilized better in an established relationship. Sometimes it is enough to make the counterparts aware of the possibilities, in other situations there is a need to teach them how to take advantage of the possibilities. This possibility is attempted in the Radex case with respect to KPL without much success, but is nicely illustrated in the way Vegan systematically goes about developing its new customer relationships.

Development of relationship resources seems to require two types of investment: 'product exchange investments' and 'information exchange investments' (Johanson & Wootz 1986). There is a large variation in the three cases in this respect. Radex is completely focused on the second type while both Vegan and NME are much more involved in the first one. Clearly there is a need of some investment in the information exchange before investments in the product exchange can take place, but the latter is a necessary condition in order to build up stronger relationships.

The cases show how difficult, if not impossible, it is to foresee or in any analytical way identify all possibilities to develop existing resource ties in a certain relationship. To some extent it is about innovation and that can hardly be achieved in a programmed way. Resources are developed by joint learning, by trial and error, in which both companies have to participate. The company has to keep going the process where different combinations are tried out. As resource ties are developed, different unique connections tend to arise, resources in the relationship but also other elements in the company's total resource collection can be developed. Saying that it is done by trial and error does not mean that the process is completely random; quite the contrary. Vegan is developing each relationship systematically, step by step and connecting them with each other. There are, however, some positive effects of keeping a certain 'randomness'. The company must be prepared to take advantage of possibilities coming up, it should not just wait for opportunities to actively try to create them. It is important to be capable to learn from and to adapt to the counterpart but also to be capable of teaching the counterpart.

Maintenance of resource ties in a relationship is also an issue. It is easy to accept the idea that production equipment needs maintenance. The same notion

is less readily accepted for intangible resources such as relationships. Yet, it seems to be equally needed. Relationship maintenance is illustrated in the efforts Vegan puts into maintaining information exchange between the Swedish subsidiary and the equipment division of the mother company and the routines established in order to exchange technical information with Screwco at occasions of personnel turnover. With intangible resources it may be difficult to draw a line between maintenance and development.

We can conclude that every main relationship of a company should be assessed, reviewed and monitored for its resource dimension. More systematic procedures can be recommended but the reciprocity of relationships must be kept in mind. A company can never plan a relationship, it can only take part in the development of it. In order to exploit the opportunities of the resource dimension in a relationship, mutual learning of the parties has to be secured. Handling resource ties in a relationship requires that questions can be answered like: can the provision or use be modified, and if so, with what effects on the own company and that of the counterpart? That in turn requires some insight into the connections in the resource collection of the own company and of the counterpart; what use is being made of the resources. Only this kind of knowledge seems to produce impulses to renewal and innovation in the resource base and its use.

4.3.2 Capability development and resource ties

The performance a company can achieve always depends on the combinations of elements in its collection of resources. The resource base a company can mobilize limits its capabilities. The broader and more varied the resource base, the better the conditions to develop the capabilities of a company. External resource ties both provide the variety and broaden the resource base of a company. The resource base of a company is never optimal, it can always be improved. Developing the resource base is a matter of investments. It applies to both internal and external resources, to the production as well as to the use of resources. It takes time to experiment with effective resource combinations that enhance the potency of the resource collection of a company and thus are beneficial to the development of its capabilities.

The Vegan and NME cases are good examples of how the available resource base of a company can be broadened and developed drawing on external resource ties in relationships to customers, suppliers and other third parties. The Radex case is on the other hand a good example of the negative side; it exemplifies some of the consequences of very weak external resource ties. Together the cases show how the innovation potential of a company is affected by the resource ties it develops.

Given the importance of external resource ties in the development of the resource collection of a company, the issue of balance of internal and external resource providers as well as of the internal and external use of the resources becomes a critical one. An important task for management is to control the balance and coordination of the investments in the different relationships of a

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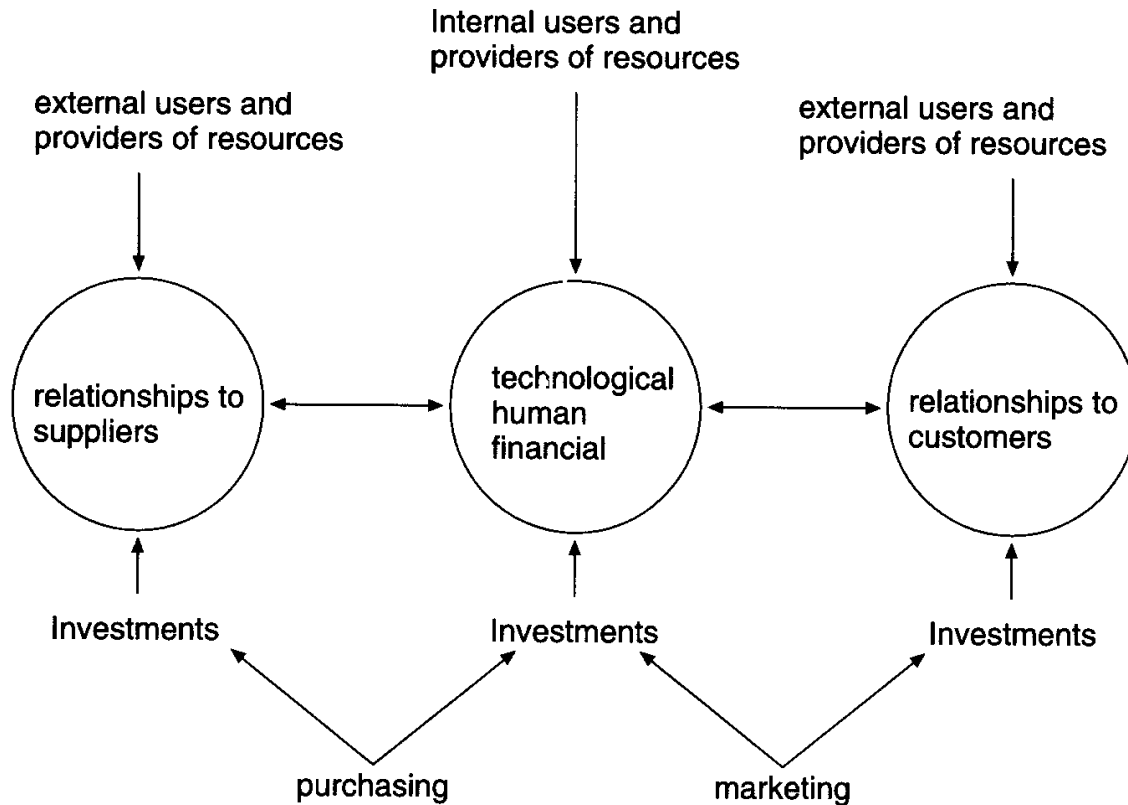


Figure 4.17 Balance of resource ties to different users/providers

company. The problem is schematically illustrated in Figure 4.17. The Vegan and NME cases provide examples of the different problems in the balancing of investments.

The NME case is interesting with respect to the balance of internal and external resource ties and their combination. One unit within the NME group, Nordic Tools, has during recent years been successful due to some carefully completed investments in a few customer relationships. Resource ties in these have been matching the existing internal resources in an effective way: production capacity has been saturated through the relationship to GEI, complementary resources have been made accessible and developed in the relationship to Nordic Components (NC), market know-how has been acquired through ND, and so on. Despite this care, NT is facing difficulties as there are conflicting interests among the relationships. When, for example, the main competitor – Exmol, of NT's largest customer – MPA becomes tied to UKOL, another large customer to NT, problems are in sight for NT. An earlier positive tie to the German company GEI is now considered a burden but is still a necessary condition for getting an economic production scale, that is, an efficient use of the internal resources. This example shows that it is difficult to make investments in relationships in such a way that they are fully complementary. There will always be conflicting elements that the company has to live with.

Vegan is gradually investing in customer relationships, one at a time, in order to get use of the internal resources. Customer relationships are seen and handled

as investment opportunities. Vegan tries to establish the relationships so that earlier investments in relationships are used and the future opportunities in relation to potential customers positively affected. Established relationships are used to provide the kind of service required by new customers.

Radex faces some major problems as it tries to reconstruct all internal and external resource ties in order to become an accepted actor within the new resource constellation. All its previous investments more or less lost their value. It has to restructure its supplier relationships and its internal resources in order to become a valuable supplier to important buyers. A problem is that it does not know enough to direct the investments.

On the whole the three cases illustrate well the role of balance in investments in capability development when the company is the provider of resources. The typical situation when the company is the user of the resources is covered only indirectly even though the impact of resource ties on, for example, the cost efficiency in companies is rather obvious. The three cases in chapter 3 portray the effects of resource ties on the capabilities of the buyer in more detail. Swelag, Swefork and Glulam all exemplify how resource ties to suppliers affect their capabilities.

We can conclude that relationship development is costly. It requires investment and the outcome is not certain. Resource ties in relationships to external providers and users are likely to produce effects on the resource collection of the company. They cause some innovation in the use of resources and are important to the innovation potential of the company. They make the company unique, difficult to reproduce and at the same time contribute to making the company versatile — its own resources can be used for different purposes on different occasions. Weak external resource ties tend to limit the development potential of a company.

4.3.3 Resource constellations and strategy development

The revenues of a company over time depend on its being perceived as a provider of resources valued by others. To what extent that will be the case depends on its position in the resource constellation in the network. The performance differential in this respect is the key strategic issue. It is linked to the capability to innovate, that is to demonstrate innovativeness with respect to other companies (resource users) in the resource constellation. The problem of strategy development with respect to resources is that there are always developments in the resource constellation that impact on the position of the company in it. These developments in resource ties, in the relationships of the company, but also in the relationships between other third parties, make the resource constellation in a state of continuous change. Effective strategy development requires coping with these developments in resource ties.

Some of the problems of strategy development are illustrated nicely in the NME case. The NT unit has a relationship with GEI that is important for the production volumes but which causes numerous problems. GEI is systematically trying — at least that is NT's view — to compete with NT in relation to, for

example, UKOL, which is NT's most important customer in the UK. The scope to develop the relationship with the Japanese customer JAN has been affected by GEI being, through a number of ownership links, supplier to one of the competitors for JAN's business, the American company, Drag, which among other things seems to establish strong resource ties with distributors that are an important customer category for NT. The takeover of CAB 2, one of the customers of NC, by SIA, another customer of NC, makes the outlook for future business with CAB 2 much brighter as CAB 2 adopts the SIA's solutions for which the NC products worked so well.

Similar complexities and developments that affect the position of a company as provider are exemplified in the Vegan case. Cooperation with the competitor in Japan results in an increased technical competition in Sweden where Vegan suddenly faces a competitor offering to one of its major potential customers a product which Vegan itself has been involved in developing. Problems in a certain relationship can thus result from positive development in some other relationship.

Within the relevant network there are tendencies such as internationalization, changes in the vertical integration, increased specialization and a continuous structuring of resource units. New ties are being developed. In the NME case there is a discussion of how NT and NC could handle some of the changes in the resource constellation. Clearly, NME has to consider those tendencies and decide how to react. Some of the developments are favourable for NME, others must be seen as a threat.

The discussion indicates some of the issues in coping with developments in the resource constellation. One is the monitoring of the developments, not only in the own relationships but also in a wider perspective. What is happening in the resource constellation? Are some resource ties becoming more important or is a certain combination of resources developing? What is happening in terms of resource control? Are there some special companies which are becoming more powerful? How is it likely to affect the position of NME as a valuable resource provider on one hand and similarly as a resource user? The Vegan case illustrates similar developments but, at least apparently, to a larger extent generated and controlled by the company itself. Vegan is playing on the connecting of resources and development of resource ties to strengthen its position as a unique resource provider. More than the main competitor, PPM, it seems to generate new resource ties and takes an active role in organizing the resource constellation.

Of course both NME and Vegan, and even more so Radex, show the importance of 'allies' in developing the position in the resource constellation. No company can maintain and develop its position without cooperation from other parties to which it has developed strong resource ties. This seems to explain the difficulties of Radex and provides a further argument for the importance of external resource ties.

A much discussed issue is the role of the current resource base of the company in the strategy development. How can its resource collection be developed? Can we find combination possibilities with other collections of resources? The process

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can be characterized by taking advantage of the opportunities to exploit resource heterogeneity on the company level. The reason for a company to develop a relationship with another unit is the latter's capacity to contribute to heterogeneity, to offer the counterpart possible improvements. The value of having resource ties with a company depends on its relative innovativeness, what resources it can mobilize and make accessible for a counterpart. External resource ties can be developed to provide the resources needed to complement those already part of the own resource collection. As the needs change, the strategic flexibility – versatility – becomes important. Strong resource ties, especially internal ones, may prove advantageous but tend to limit the flexibility in coping with change generated elsewhere in the resource constellation. They are resources that can be mobilized but also are to be taken care of. This is what may be the difference in the NME and Vegan cases; there seem to be fewer and stronger resource ties in NME than in Vegan.

The implications of resource ties for the strategy development of companies are important. There is the necessity to consider the resource ties in relationships where it is resource provider in relation to the position of the resource user. The dynamics of ties in a resource constellation are such that it always is likely to change and develop. Some of the direction in the development can be assessed. If a company is to maintain the role of a privileged resource provider it has to follow the changes in the resource constellation and try to maintain a certain degree of flexibility in its resource ties.

4.3.4 Managing relationships as resources

Throughout this chapter we have argued that relationships can, because of the possible resource ties and effects on the resource collection that a company can mobilize and use, be considered valuable resources that can be used for various purposes. This requires that the resource ties in business relationships are managed. The managerial implications of the resource dimension of business relationships can be summarized in the following:

1 The resource dimension of business relationships can in most companies be exploited better. In order to do so in a relationship it is important to learn about the counterpart but equally important to teach the counterpart about the company's own resources. The continuous process of knowledge exchange must be taken care of and combined with more time-limited development projects.

2 Since relationships are resources, their development, as with all other resources, requires investment. Also the existing relationships should be considered as investments. This is important when starting up a new relationships, when assessing existing ones and when considering ending troublesome ones.

3 Because of the resource ties and the effects these have on other company resources, relationships play an important role in the resource collection of

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the company. They not only represent a way to acquire resources but broaden the collection of resources that can be mobilized by the company and represent an important source of innovation.

4 There must be a balance in the investments in internal and external resource ties. Investments in relationships must be matched by investments in more internal resources. In the same way there are also reasons to balance investments in customer relationships against each other and against investments in supplier relationships.

5 To tap the innovation potential various resource combinations have to be tried out. There are always undeveloped resource ties among the already used resources that could be tried out. The heterogeneity makes it impossible to forecast which will be the right ones when the company has to have a systematic trial and error process going on.

6 The company is exposed to changes in the resources ties among the actors involved in the wider resource constellation. These changes might open up possibilities or become threats to the company. Thus, these changes must be monitored and require different reactions — to develop resource ties to new actors or to a combination of actors.

7 In reacting to the changes or promoting change in resource ties in the resource constellation the company has to mobilize others. It cannot alone give the ties a content and direction which is in accordance with its objectives.

5 Actor bonds

It is individuals who endow business networks with life. What happens in a network stems from the behaviour of individuals who bring into the relationships between companies their intentions and interpretations upon which they act. But, the individuals are not acting in isolation, they interact and their action becomes organized. Companies, as all organizations, are units of interlocking behaviours.

What can be done in a certain network is closely related to the structure of activity links and resource ties. The resource and activity dimensions confine the actor dimension. We have started our discussion looking at the activity and resource dimensions because it is only too easy to concentrate on the actor dimension. Yet, the activity and resource dimensions are dominating in many industries. There are industries where more important changes in relationships and actor structure can take decades because of resource conditions and activity inertia.

The actor dimension goes beyond those of activities and resources. Companies and individuals as actors in business networks are bounded in their perceptions, knowledge and capabilities and therefore different from each other. Their behaviours change as their perceptions, knowledge, capabilities and intent change. Both companies and individuals actors in business networks are never independent, isolated or alone; they are formed in their perceptions, knowledge, capabilities and intents by others.

Looking at business networks one cannot avoid the impression of 'idiosyncrasies' in companies' behaviour. There are actions that cannot be explained from resource and activity dimensions alone. Customer and supplier structures of quite similar companies operating in similar industries can differ greatly. The relationships that companies develop to suppliers, customers and other bodies are always company specific. How, for example, can the propensity of a German company to use Italian suppliers be explained when domestic suppliers have analogous resources and technology? What makes two companies develop a close relationship and cooperate on technical development issues while attempts to cooperate with others fail despite them having similar resource and activity structures? Being an approved supplier, however obscure, of a major Japanese car producer, can open many procurement departments' doors. Those are some of the issues we will address in this chapter.

Much of how companies in business markets become related can be explained from how individuals perceive their own and other companies. We will, in this chapter, elaborate the concepts of actors' identity and actor bonds that seem to help in understanding how companies interact and develop their relationships in business markets. We will focus on the process by which actors' bonds develop and the role they have in shaping their identity.

Individuals can be viewed as actors as they can be ascribed motives and intentions and thus be claimed purposeful in their behaviour. Can that be said about companies? We will use the concept of actor with respect to companies because they are perceived to have an identity and thus ascribed purposeful action. While treating companies as actors, it has to be kept in mind that they act through individuals. Their behaviour reflects therefore the constraints and mechanisms that impinge on the behaviour of individuals.

Considering companies as actors in business relationships and networks has important consequences for our further discussion:

1 we will discuss how the identity of a company is shaped as bonds develop in a relationship and how the identity of a company affects its performance;

2 the issue of bonds arising between actors will become central not only because it is linked to the identity of actors in the network but also because it leads to emphasis on actors' specificity in business networks where all 'others' are individual and unique actors;

3 once we admit that the identity of actors is 'in the eye of the beholder', that is, dependent on others, then actors have to be treated as a result of the networking processes. Changes in the network lead to changes in the identities of actors and can even cause new actors to emerge.

This chapter is divided into three parts. In the first part we will discuss the problem of considering a company as an actor in business networks, the concept of bonds and how these develop in business relationships, and the effects they have on the network structure and on the single company. In the second part, five company case histories are presented that illustrate different aspects of the actor dimension of business relationships. Finally, in the third part, we will discuss the main issues in managing actor bonds in companies.

It will be argued that a company's identity not only reflects the bonds it develops with others but is a result of previous bonds and a base for future ones. An actor's bonds confer on the actor an identity because they matter for its capabilities and how these are perceived by individuals in and thereby used by its counterparts.

5.1 ACTOR DIMENSION IN BUSINESS RELATIONSHIPS

The actor dimension in business is an important one, yet it is somewhat controversial. In much of the economic theory business firms are considered free to interact with whom they want; they are limited only by the type and nature of resources possessed. It is assumed that no bonds exist between the firms and that

the direction of the interaction will follow the type and nature of resources they and others possess.

We will argue that a special type of connections exist between companies which we refer to as bonds and that these are important for how they are perceived by others and thus for what they are. We will argue that bonds determine the identity of companies as actors for the others with whom they interact. Being determinant of its identity, bonds are an integral factor of an actor's capability to interact with and to relate with others; they are thus important for an actor's development and performance.

The key to understanding the nature and function of what we came to call actors' bonds is that no actor (company) is an island but is always an arbitrary part of a mainland. Every company is not only dependent on its environment, it is integrated into a context. This applies to the activities it performs, to the resources it controls, but also to the individuals who represent the company. A company is a unit within a larger organized context consisting of other actors. The actors are selectively bound together and every actor is defined by the surrounding actors. They are thus a product of their bonds and are never completely free.

Bonds between companies arise because of bonding between individuals. Individuals bring into relationships the 'bounded rationality', that is, their limits as to the capacity not only to get and process information but also limits to their capacity to specify what is needed and why is it needed. Bonds to others have an important role for the 'boundedly rational' individuals. They relate their intentions and understanding to those of others making it thus possible to transcend their limits.

We face thus a broad issue. Focusing on actors' bonds we are set to explore how the individual's capacity to recognize, communicate, learn, teach and develop is transferred to a collective level. All purpose-directed behaviour – acting – requires some framing of the situations by the actor. Intentions and interpretations, the frame of ends and means, are guiding the behaviour of actors, collective and individual, despite the obvious limits of their validity.' The intentions and interpretations held by actors are the result of bonds to others as much as they are determinant of their behaviour.

In this section we will develop the concept of actor bonds in business relationships and explore their effects on the network of business relationships as well as on the companies. We will start by considering briefly the concept of collective and individual actors.

5.1.1 Companies as actors

The notion that companies are actors, in the sense that they act purposefully, is common to most of the literature on business management. It rests, however, on assumptions different from those we will arrive at from the relationship perspective. It is based on the assumption that companies have some goals, shared and pursued by individuals in the organization, and that those goals guide the behaviour of individuals. This assumption stems from the perspective that

considers acting as facing an environment on which they depend but of which they are not part; an environment to which they adapt and that they can eventually dominate. It reflects the view that actors, collective or individual, are independent of their context, and their behaviour is determined by their own characteristics and properties.

Considering companies from the relationship perspective we regard them as actors but on quite a different ground. Our argument that companies can be considered actors is based on the notion of identity they acquire in interaction with others, rather than on a claim that companies have clear-cut collective goals (or purposes) to which the individual behaviours of its members are subordinate. The notion is not new, especially not to certain schools of organization theory.²

A company, as all organizations, is only a 'mental construction' by people who get together – organize their activities – in order to overcome their individual limitations in resource terms. In order to perform certain activities there is need of a resource combination which only can be accomplished if several individuals join or are persuaded in one way or another to join. To what extent it is done consciously or unconsciously is debated in organization theory (e.g. Weick 1969, Brunsson 1982) and need not be discussed here. What is of interest for us is the need for a collective unit to have a certain identity as an actor for others. Units such as companies depend for their survival and growth on exchange with others. In order to survive and develop they have to attract interest and resources and to elicit action from others. To achieve that they must be perceived by others as a distinct, intelligible entity; a company has to acquire the identity (the meaning) of an actor in the eyes of others. Without being attributed an identity it will not attract the interest and resources it needs, nor will it elicit action from others. It will then fall apart and cease to exist. Companies are actors because they are attributed the identity of an actor by those who interact with the company.

In this perspective bonds between actors become important as they are critical in shaping the identities of the actors. The identity is not simply a product of features or characteristics of the actor but of interpretations by others. Therefore, companies as actors are part of their context which they mould and by which they in turn are shaped. Again, as with activities and resources, it leads us to raise the issue of boundaries of a business enterprise that become diffused.

Once we conceive the organization as an activity structure that has a meaning and identity to others it becomes difficult to draw its boundaries as it locks into the activities and meaning of other entities. Looked at in this way a company has no natural boundary. It is difficult to conceive its identity without including some of its relationships to suppliers, customers and others. As a consequence the boundary of a company is always drawn arbitrarily and can change over time. This fact is rather obvious for anyone taking part in an organization for any period of time. How can an entity with unclear boundaries have an identity? It does in the eye of the beholder. However, we have to accept that identity is relative to the counterpart and therefore will tend to differ with the counterpart. It will remain relative even though the resource and activity dimensions do play an important role in shaping the identity of an industrial company and thus contribute to it

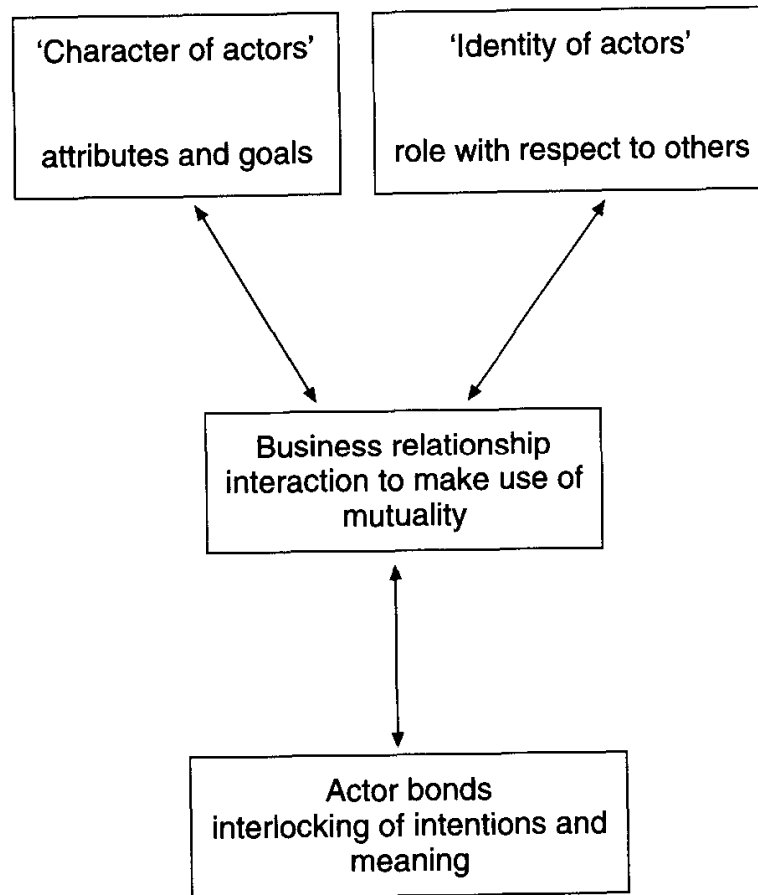


Figure 5.1 The actor dimension in business relationships

being given an identity that to some extent is shared or overlapping for the different counterparts of a company.³

A related question is whether a company has to have just one identity, or can it have several? It is partly an academic question as the answer depends on the definition of identity. However, the question is also an empirical one. A company consists, at least when it is of a certain size, of different units built up of a subset of resources and performing a subset of activities. Each can have a distinct identity to counterparts. When a unit like a division or profit centre of a company controls resources and/or performs activities which are identifiable as an entity for other actors it will be identified as an actor with a distinct identity. As a consequence, larger companies will almost always be seen as multi-actors. Every such unit within a company will be seen as an actor with its own identity and with bonds to other units belonging to the same company and with perceived links and ties to the activity structure and the resource collection of other counterparts.

Our argument for considering companies as actors in business networks is schematically summarized in Figure 5.1. Companies will be treated as actors not because of them having some unitary goal that makes monolithic the behaviour of the various individuals belonging to the company but mainly on the ground that in business relationships companies are attributed identities by those they interact with. Actor bonds play an important role in shaping the identity of a company as

an actor. What the relationship perspective brings into the picture is the dependence of what companies can achieve in relationships to others not only on their attributes in terms of resources and activities (their 'character') but on the bonds they develop and maintain with others and thus their identity.

The broader issue we thus touch upon is the one of individual as opposed to collective rationality and of 'free will' as opposed to 'structurally determined behaviour'. We believe both are intertwined in the concept of actor bonds and impact on the mechanism of the relationship development.

5.1.2 Actor bonds in business relationships

Bonds arise in business relationships as two related actors mutually acquire meaning in their reciprocal acts and interpretations. What we mean by actor bonds and how these develop in a relationship has to do with at least two different but closely intertwined processes which characterize social relationships in general and which also can be observed in business relationships. One is the construction of identity, the other the formation of trust and commitment as relationships develop.

Any relationship means, by definition, that two actors become mutually oriented and identified in relation to each other. In these situations individuals will not just be perceived as individuals but as representatives of the units to which they belong. Individuals will integrate what they know and perceive to form some kind of picture of the counterpart as a whole. A mutual identification will take place through the interaction and as the interaction is task-oriented it will be a matter of reciprocal perception of attributes, such as capabilities, as well as of intentions. A relationship entails interdependence, a more or less vague expectation of certain outcomes from reciprocal interaction. As an actor is perceived to act and react it is attributed intentions and attributes – it is given an identity. This process works, of course, both ways and such an identity attribution is mutual. The identity of an actor thus forms and reflects the interpretation of the actor's own and other's behaviours.

The attribution of identity is made from previous experience projected onto the situations actually met. It is always based on only a limited number of clues, on an approximate assessment of the situation and the counterparts' attributes. The identification is ambivalent; on one side it regards what the counterpart can do, on the other what it cannot do. To be one thing always means that you are not something else. Every identification can thus be interpreted as development of a set of constraints between the two parties in which they attribute each other with certain characteristics. These reciprocally attributed features and lack of features, i.e. potentialities and restrictions, will here be treated as actor bonds.

This general mechanism of identity creation is at work also in business relationships. Given the complexity of business relationships the interaction in these takes place under considerable uncertainty and ambiguity. Companies become mutually oriented, they start dealing with each other on bases of some supposed identity of the counterpart. In business relationships mutual orientation

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requires shared interests related to the activity and resource aspects of the relationship that often are complex. The actions that a company directs towards others (customers or suppliers) are reciprocated by others on the basis of the supposed identity of the company. Identities, to begin with diffused, are shaped by the mutual interaction and its interpretation by the individuals within the two parties over time. To a large extent the mutually attributed identities result from earlier relationship of the counterparts.

How identities develop in a business relationship between two companies is closely related to the process of development of mutual trust and commitment (e.g. Gambetta 1988, Wilson and Mummeleni 1986). As the mutual pictures are always incomplete and uncertain, development of a business relationship always requires some degree of commitment and trust. Commitment is a tendency to persist with courses of action, often without an apparent causal motive, on bases of vague expectations; it always is to some extent an 'act of faith' by which the actors handle uncertainty and the complexities of situations. Commitment is central to the development of relationships between two companies which brings us to the issue of trust and the time dimension of the relationships.

Trust is a necessary condition for commitment and commitment only makes sense if tomorrow matters. Trust, on the other hand, takes time to develop between two actors. The trust-building process has been labelled social exchange and it has been characterized in the following way:

[S]ince the recipient is the one who decides when and how to reciprocate for a favor, or whether to reciprocate at all, social exchange requires trusting others, whereas the immediate transfer of goods or the formal contract that can be enforced obviates such trust in economic exchange. Typically, however, 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 relations and engage in major transactions.

(Blau 1964: 454)

From all our studies of business relationships we believe that this description of social exchange gives a picture of the exchange as it takes place in business relationships.

The need for development of mutual trust means that no business relationship can ever be established instantaneously. It grows over time as trust between actors develops, and there is a considerable amount of inertia in it. Trust is a necessary condition for commitment but the latter has also a more distinct priority dimension. In a lot of situations it is not enough to know that the other is trustworthy but also that the other will actively support oneself – reciprocate the commitment. The commitment is a result of actions and counteractions. Mutual orientation and commitment are matters of shared interpretations. Both require change and generate change. History and future are joined in those shared interpretations. Dependence on time (history and future) makes relationships unique. It makes what is produced in the relationship unique. Unique bonds do

thus arise between any two interacting parties as they learn to deal with each other.

The interaction process that characterizes relationships can be said to be productive for the actors involved in the sense that they correct and develop their knowledge (picture of attributes) of the counterpart and learn to exploit each other (and the relationship) better. What an actor can and will do depends on the reactions of the counterpart, and vice versa. What they can do for each other is reflected in their mutual identities and what they will do for each other is reflected in their mutual commitments. Both are here summarized as bonds that arise and exist between the parties. The bonds that develop in a relationship limit or empower the parties. An actor's bonds are important as they orient the other's behaviour and thus limit and empower the actor's own behaviour. The point is that what usually is thought of as image becomes in the interaction context actual, tangible factors of behaviour.'

Bonds, that in this section have been described as the results of two intertwined relationship processes, one regarding the creation or formation of the identities of the two actors in relation to each other and the other the development of mutual trust and commitment, are limiting in terms of what the actors can achieve as much as they are empowering. Reactions of the counterpart to one's actions reflect always the identities attributed mutually by the actors.

As numerous individuals interact as the interface between two companies, bonds develop in an intricate interplay of the individual and the collective level. Bonds arise from the interaction of individuals; their development requires time and they always entail a discretionary mutual orientation.

5.1.3 The web of bonds

Bonds in a relationship between two actors can be connected to bonds that either actor has to third parties, or to bonds between third parties. First, the bonds that an actor develops to two different counterparts may be interdependent because they compete in the sense that they are demanding in terms of commitments and thus not compatible. The other way in which bonds between two actors become interdependent is when they are perceived as being connected. Supposed bonds between two actors may affect whether and what bonds will arise between third parties. This applies to bonds between the individuals as well as between the collective actors (companies). Furthermore, individuals in the two companies in a business relationship have personal bonds that may affect and connect different relationships of the company. Actor bonds in a certain relationship between two companies become thus an element in a broader web of bonds among actors.

Bonds between actors have an *organizing effect* on the web of actors and thus on the business network as a whole. They are important in two respects: first, for the identity of the actors, second, for their actual orientation and commitment. The first effect can be characterized by the old adage 'tell me who your friends are and I will tell you who you are'. On company level it can be translated to the statement 'no business is better than its customers and suppliers'. Third parties

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may be interested in, and affected by, the existence of bonds in a certain relationship. The second effect is the one that has a direct bearing on an actor's possibilities. Identity, given by bonds, is not only imaginary. Bonds reflect, but are also a cause of, commitments between some and not other actors. Bonds, especially at a company level, do influence the orientation of activities and resources of the company and thus its actual behaviour. The shape and properties of the web of bonds affect in this way the relationship between two companies and its development potential. They are, therefore, an important factor in the development of the actual 'character' of a company. A company's position in the overall web of bonds, whom it is committed with, its existing bonds, affects its identity as well as its character.

Companies engage simultaneously in several relationships. In at least some of these there are important strong bonds. These tend to be central to an actor's identity with respect to others and are not easy to change. Instead they require adaptations and sometimes they even have to be 'suffered'. As a consequence only a limited number of relationships can be developed in a more extensive way by an actor, as developing such extensive bonds is exacting. Connections between bonds make the identity and commitment with time to become successively more unique which, of course, also make the position of an actor in the web of bonds unique. That provides a base for distinct unique identities that, however, may change over time. It is the uniqueness of identities that makes actors become committed selectively.

The effects of bonds to third parties are important in two ways for each of the two companies in a relationship. There are effects in both an outward and an inward direction. They have an organizing effect on both how individuals within a company will look at the world and, how others (the world) will look at the company. The meaning that the environment acquires for the company and the company for others affects the actual behaviour.

The outward effect is interesting because of the complexity of the business environment that by far exceeds the cognitive capacity of any individual or collective actor. Only a minor portion of the opportunities and constraints can be perceived and acted upon. There is always a horizon in different dimensions beyond which the state of the environment becomes imaginary. The immediate acts are guided by the horizon, the imaginary world beyond the horizon can only become known from accounts of others, friends or strangers. No actor can embrace all the complexities of the environment of which it is a part. The web of bonds of an actor to others, important counterparts, provides a frame for knowledge development with respect to what exists and is happening beyond the horizon (provided that a common language exists). The knowledge of the overall network is always limited and selective but as relationships to others also indirectly relate the actor to the counterparts of the counterparts, they increase the potential for an actor to learn what is going on in the distant portions of the context relevant to the actor's own performance. Thus, the outward organizing aspect is closely related to an active form of learning through which actors learn, that is, modify their set of intentions and interpretations and consequently their

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behaviour. Actor bonds are important for learning as they make the learning, at least to a certain extent, collective (e.g. Van de Ven *et al.* 1975).⁵

Changes made as a consequence of learning in a single relationship will propagate throughout the network. By modifying their behaviour in a relationship due to a change in another relationship the actors execute an organizing function in the network. The fluidity of the network puts constraints on the actor but at the same time it presents possibilities. Portions of the network can be mobilized to shelter an actor from changes or to help that actor to exploit the changes. Trends and tendencies in the network can be 'played' to advantage. Bonds between actors provides clues for such a learning and are the frame within which the learning takes place.

The inward organizing effect has to do with the identity of the actor both in terms of actual capabilities but also how its capacity is perceived by others. In a network perspective it becomes evident that the single actor always is seen in relation to others, i.e. it will partly be seen as being associated with some others. Perceived bonds will affect opportunities to develop new bonds and open the way to learn and develop. They will thus be a factor in the actual productiveness and innovativeness discussed in the earlier chapters. The only way to be seen in this situation as a distinct actor by the others is to combine the relationships or the internal activities in an interesting way. In order to be 'seen' by the others an actor has to have (or at least be perceived to have) a certain capacity. Bonds, direct and indirect, are an important mechanism in this respect; they do not just make the actor appear to be part of a group, they will also actually be the mechanism through which the actor is seen.

5.1.4 Actors in interaction

Actors act and develop bonds; at the same time they are a product of their bonds. The picture of an actor tied in the numerous strings of a network easily suggests that he is but a lifeless puppet set in motion by others pulling the strings. Yet, looking at how companies work this is clearly not the case. The strings are there, links, ties and bonds direct companies, but the strings are enacted, actor generated. There is discretion and a voluntaristic element in the networking process. The strings and ties do matter for the outcome but they are to some extent pulled by the actor himself. An actor's bonds are important to the direction in which they are pulled.

Bonds are the mechanisms through which the individuals within companies learn about the environment and possibly develop the organization of the company, that thus acquires certain characteristics and capabilities. They are also the mechanism through which a company is looked upon by individuals in other companies. An actor can influence the bonds and thus create its own world. At the same time the actor is to achieve that, other actors must become aware, convinced and committed about it — they have to cooperate. Everything is possible if an actor gets the support of the network, while at the same time nothing can be done if the network goes against the actor. Therefore, bonds to others affect the possibilities

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for action. They both create and reflect interdependencies; they can be exploited for different purposes and at the same time they are a limiting factor.

Companies are simultaneously involved in several relationships and develop bonds to various actors. The commitment represented by bonds can be conflicting. Extensive bonds can be developed only to some and not all counterparts. Bonds result in priorities in the actual behaviour and above a certain level become difficult to handle. At the same time, because of the role they have in the learning of actors, variety in bonds is important. The selectiveness in developing bonds requires attention as it affects both the identity and character of the company.

The effect of actor bonds in business relationships revolves around three themes. First, bonds are a prerequisite of mutual learning and development of actors; a necessity in a context of change. Second, the bonds are necessary in order to acquire a meaning, being considered, in other actors' perceptions and behaviours. Third, the bonds are necessary since other actors need to be mobilized in any attempt to accomplish something.

The first aspect is the one that has major implications. In the preceding chapters regarding activities and resources we discussed how relationships are a way to learn. Intentions and interpretations are an important factor of development for actors acting on purpose. Bonds between actors are an integral part in the combined learning/technical process by which meaning is elaborated. Faced with ambiguity from task complexity actors need to reduce the complexity to understandable and manageable proportions. It seems to be done, successfully, by adopting norms and rules of behaviour. Generating action from norms, rules and routines seems to be an effective way to cope with complex situations (e.g. Singer and Benassi 1981, Starbuck 1985). Norms and rules of behaviour are either' generated from elaboration of past experience or by socialization, that is, transferred from others.

This affects bonds in a relationships in two ways: one is that bonds develop against the background of shared meaning, another that they are a means to acquire meaning. Development of bonds thus calls on some commonality of rules and norms in interaction between parties in a business relationship. Bonds are also the source of meaning important in framing the situations met. The notion here is, however, that there is a two-way relationship between action and purpose; not only do the intentions guide behaviour, they are generated from the behaviour. Learning from others requires some interaction as only interaction provides the bases to receive new knowledge.

This aspect of actor bonds is encountered frequently by companies. Successful cooperation is developed between companies dependent on the 'psychic distance' perceived by individuals in the companies involved in a relationship. The value of a relationship in terms of its effect on the competence of a company depends on the commonality of meaning. On the negative side, especially in international business, the differences in meaning of various behaviours may make the development of relationships very difficult despite an apparent match of resources and activities between the two companies.'

The second aspect concerns the need for bonds if a company is to be seen as

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an interesting (i.e. value providing) 'partner'. Actor bonds in a relationship are both a source for developing (framing) the purpose for an actor and a means to reach evolved purposes. Earlier we discussed the activity and resource dimension of business relationships. The framing process is closely interwoven with the designing of activities as well as utilization of resources. Capabilities have to do with the competence in designing and handling activities as well as controlling and utilizing resources, not only unilaterally but also for how the own activities and resources are linked and related to those of important counterparts. A distinct identity is a condition for that to be achieved.

If opportunities do have a meaning in business relationships it is when a company is approached by others with different types of suggestion. Identity is a key factor in such opportunities. In order to be approached by others, identity as a 'member' needs to be documented by the existing social bonds with other 'members'. The company has to have capacity in terms of resources and activities but these alone are not enough; bonding is important. The type and strength of bonds on which the attributed identity is based will also very much determine the type of suggestions.

The importance of referrals and testimonials in the evaluation of potential suppliers and the supposed role of company image and efforts to improve it through better management of communication only testify the importance of this aspect of actor bonds.

The third aspect regards the possibility to elicit the necessary cooperation, that is, to mobilize others. On several occasions earlier we have argued that in order to achieve things in a relationship some amount of cooperation is necessary. No company can develop a relationship, and much less to acquire a position within a business network, independently of at least some others. Its behaviour is never independent as it locks into and interferes with that of others.

There are a lot of situations when an actor wants another actor to 'behave' in a certain way. It can be with regard to develop activity links or resources ties in a certain relationship. It can also be with regard to joint action, in a positive or negative way, in relation to a third party. Friends and acquaintances are needed also in business. Existing bonds are a resource that can be exploited.

There are a number of examples of this in the cases presented earlier and in those included in this chapter. The greater the uncertainty and complexity, the greater the reliance on mobilizing others. Among the cases in earlier chapters the Vegan, Glulam and NME cases provide good examples. In the Vegan case, bonds with established customers were systemically mobilized when approaching new customers. In the same way Glulam and NME were very conscious of the need to successively build up bonds with different counterparts before moving on to the next step.

5.1.5 Actor bonds in business networks

The considerations so far about the actor dimension of business relationships could be summarized in the following:

1. As individuals act within relationships between two companies they bring in their limits ('the bounded rationality') but also their capabilities to learn and reflect. They develop bonds to overcome their limits.
2. Actors, both individual and collective (such as companies), develop bonds when they mutually develop trust, attribute to each other certain identities and become committed.
3. On a company level the bonds are important as they orient resources and activities of the company towards specific others.
4. Bonds between two companies, and the perception of these by third parties, affect the actual development of the companies; they impact on their scope to learn and to develop their character.
5. Bonds have an organizing effect on the network; as they shape the identities of the actors they account for the selective commitment between them.
6. Actor bonds can be useful in company development as they can be utilized in order to learn and develop a company's capabilities and to mobilize external resources.
7. The actual capabilities of a company (its 'character') are as much a product of its bonds as of its resources and performed activities.

5.2 CASE HISTORIES: MTF, OMEGA, MEASURETRON, SUNDS AND SVITOLA

Five different case histories in this chapter portray the actor dimension in business relationships and the role of actor bonds. The first, of a French company MTF, illustrates how a company will be perceived as a multi-actor in certain situations. It describes the development of a relationship between MTF and one of its suppliers, Chimior-North, over a five-year period. The relationship changes as different units within each of the two companies become successively involved with the counterpart. It starts as a relationship between two local units that are each part of a nationwide group. The change is introduced by the supplier attempting to introduce within its group an integrated market strategy. The development of the relationship follows six different stages in which the relationship becomes more and more complex as the different units intervene in the relationship and assume different roles. The interference from other units affects deeply the relationship between the two units who after a certain period regain control over the relationship.

The second case concerns an English company, Omega Components, and describes how the management of the company perceive its role and position within the network compared to how it is perceived by its customers and suppliers. The main relationships of the company are to three customers in the automotive industry, to the sister company and to some of its suppliers. Despite the fact that these relationships have existed over a long period of time, substantial differences persist in how the actors view each other. The differences in perception are even more evident when it comes to explaining the reasons for earlier development. The case is a good illustration of how a company's identity is shaped in a business network.

The story of the Measuretron company, an American equipment manufacturer, deals with how the identity of suppliers is seen by Measuretron's management. The company has adopted the 'just-in-time' philosophy and is attempting to implement this in its purchasing. The case illustrates how suppliers' identities are dependent on their perceived bonds and raises the issue of difficulties in assessing supplier's performance on single criteria such as product quality, rather than from an overall relationship performance. More specifically, the case deals with how trust develops between the parties and the difficulty in distinguishing product-trust from a wider company-trust dimension. The case shows how buyers' interest in maintaining close relationships with known partners results in the traditional suppliers facing little if any competition.

The fourth case shows how a shift in the perceived identity can affect the outcome of a business deal. It describes the attempt of a Swedish company – Sunds – to sell a major item of equipment to an American paper and pulp company, Champion. Despite its record in the international market the company is, in an early phase of negotiations, not seen as a serious alternative simply because Champion does not know about it. The situation is changed dramatically when Sunds mobilizes some of its bonds to change the view of the customer.

The last case in this section is an illustration of how important a key relationship can be for a company's identity and performance. The case concerns an Italian company, La Svitola. It describes a history of a far-reaching joint venture with a Japanese partner, Buki, and the effects that development of a strong relationship has not only on the company but also on its other relationships. The case highlights the impact of learning from a relationship on both the way to run business and the set of relationships to customers and suppliers.

5.2.1 MTF: understanding complex relationship dynamics between industrial groups – power play and positions, by Florence Mazet, Robert Salle and Robert Spencer

Introduction

By illustrating how the content of the relationship between local units of two industrial groups can be explained through the analysis of the relationship between other actors in their own group, this paper intends to contribute to the global understanding of supplier/customer relationships in the business-to-business marketing field.

The case describes the relationship between a local factory of a French group – MTF – with a local branch office of a supplier's group – Chimior – over a given period of time, and the various connected relationships influencing the local interaction.

It illustrates in particular how the strategy established by each group at corporate level to handle relationships with their customers or suppliers influences the local relationship studied, through plays on the position and power-dependence level of such counterparts.

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The MTF Group: structure and organization

MTF is a French metallurgical group with a turnover of nearly FF100 bn, and employing approximately 100,000 employees worldwide. MTF's strategy is focused on two areas: the development of its European and worldwide activities, and the implementation of an ambitious innovation programme.

The MTF Group's organization has the following key characteristics:

- corporate headquarters based in the Paris area;
- various production subsidiaries in each country;
- two 'functional' subsidiaries: the legal centre in charge of all corporate activities related to legal issues, and the corporate research centre.

In France, four production subsidiaries manage several production sites from joint national headquarters in Paris. Each subsidiary is specialized in the production of one 'family' of products. Traditionally the various managers in the local factories (factory manager, production manager, purchasing manager, etc.) have enjoyed considerable autonomy in their day-to-day operations.

The relative autonomy of the local factories tends, however, to be increasingly limited due to recent evolution in the MTF Group's organization. The Group is explicitly and progressively tending to centralize negotiations with a view to obtaining increased power over its suppliers.

The Chimior Group: structure and activities

With a turnover of nearly FF20 bn, and a presence in most industrialized countries, the Chimior Group carries out the majority of its activities in the industrial gas sector. For coordination of its national and international activities, Chimior's organization comprises:

- corporate headquarters, based in France;
- one corporate research laboratory (CRL) also based in France;
- autonomous production and sales subsidiaries in each country.

Each subsidiary is composed of divisions, based on the technical specificities of the families of products each division markets.

The French subsidiary – Chimior-France – has two main divisions that we can roughly describe as:

- the 'Basic Products Division' (BPD) corresponding to commodity goods generally consumed in very large quantities thus justifying, in most cases, delivery via a network of pipelines;
- the 'Special Products Division' (SPD) corresponding to products with special chemical and physical properties (in terms of purity or composition) thus requiring, in most cases, technical assistance from Chimior to adapt the product to the customer's production processes.

Despite shared national headquarters in the Paris area, these two Chimior

divisions are entirely independent, commercially speaking. Therefore, any given customer group can simultaneously and independently deal with both the Basic Products and the Special Products Divisions.

Given the strategic importance of the contracts it deals with, and the particularity of its delivery mode (pipeline), the BPD traditionally negotiates direct with the corporate purchasing managers of customer groups and is not represented by sales offices at the local level. On the other hand, the SPD has set up several branch offices at the local level coordinating both technical and commercial exchange with customer units.

Local branch office activities include: making and following-up contacts with customers, programming delivery schedules, invoicing and coordinating with the corporate research laboratory on technical aspects concerning customer accounts. The CRL helps in the implementation of new technical solutions at the customers' and the transfer of know-how and skills to Chimior's commercial staff. Based in France, for historical reasons, the CRL represents one of Chimior-France's key market-entry resources.

Strategy

Chimior-France – and in particular its special products division – bases its strategy on 'differentiation through technological leadership'. In implementing this strategy, the SPD concentrates on developing and maintaining relationships with customers at a local level as far as possible, avoiding dealing with customers on a centralized basis.

Several factors lie behind this approach: First, the technical specificities of the SPD's activities, which necessitate the development of close relationships with the end-users of the products in order to adapt Chimior's technologies to the specificities of each customer (this requires that Chimior carry out tests on customers' production processes). Second, the strategic intentions of the supplier. These can be summarized in two points:

- testing of technological product, 'packages' developed by the corporate research lab;
- minimizing the customer's global negotiation power by individual negotiation with separate customer sites.

This strategy sometimes comes into conflict with the strategy and practices of those Chimior customers wishing to centralize negotiations at a national or global level, as in MTF's case.

The MTF–Chimior case illustrates the dynamic confrontation of these two conflicting strategic choices: on the one hand, that of Chimior trying to minimize price concessions by avoiding customer headquarters as far as possible, and on the other hand, that of MTF centralizing negotiations in order to increase power over its suppliers and optimize gain from the corporate relationship. The case is presented in six evolutionary phases. These phases each reflect significant

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identified changes in the characteristics of the local relationship (type and status of actors involved, atmosphere of the relationship, nature of exchange).

Strategic partners

The MTF Group, a customer of the Chimior Group since the 1940s, ranks among Chimior's top ten customers in France. Likewise, Chimior is the MTF Group's major gas supplier, supplying more than 80 per cent of their needs in 1989. Chimior, via its two commercial divisions, works with the majority of the MTF Group's French factories. Some of these factories are supplied by pipelines directly linked to Chimior's production units, thus guaranteeing the customer uninterrupted supplies. These deliveries mainly concern simple commodity products and are handled by Chimior's Basic Product Division.

Given the high level of investment required to offer such a service (set-up of a production site close to the customer's facilities and installation of a pipeline network), the two groups have agreed on long-term contracts for supply to these factories. These contracts represents the large majority of MTF's purchases with Chimior (more than 70 per cent) and are of ten to twenty years' duration. The other French factories of the MTF Group are supplied in tanks by the local branches of the Special Product Division. Delivery conditions are formalized in three- to five-year contracts, depending on the level and on the specificity of technological support provided by Chimior.

Depending on type of delivery, then, two situations regarding the degree of dependency exist: highly dependent MTF plants, tied down with a long-term contract and pipeline supply, and less-dependent plants with shorter-term contracts. But the partnership between the two Groups does not stop there. Indicative of their degree of interdependency on a global level is the fact that Chimior sells other ranges of products to MM On the other hand, MTF also sells back to Chimior a large amount of waste, or by-products, which Chimior reprocesses, purifies and commercializes. Thus the two groups' industrial activities are intimately inter-twined. This case focuses in particular on the evolution of the local relationship between Chimior-North, a local branch representing the Special Product Division of the supplier in the north of France, and MTF-Douai, a customer factory located 100 kilometres away from the supplier's branch office.

Phase One: a strictly local relationship

Chimior-North has worked with the Douai factory since its start-up in 1950. Douai belonged to another iron and steel firm at the time, and was sold to the MTF Group in the late 1970s.

At first a simple supplier of goods providing no significant technological support to the customer, Chimior-North proposed, in the early 1980s, implementation of new production technology in the Douai factory. Thanks to a new mix of Chimior's component products, this technology would enable the customer to produce new metal alloys in strong demand on the market at that

time, thus providing MTF with a significant competitive edge.

Initial negotiations between Chimior-North and MTF-Douai for the implementation of this technology took place on the one hand between Chimior-North's technical engineer and MTF-Douai's production manager (negotiation of technical aspects), and on the other hand between the manager of the supplier's branch office and the Douai's factory manager (price negotiations).

With implementation tests being successfully carried out by Chimior-North's local engineers, the customer factory decided to go ahead and award the contract for product supply to Chimior. The actual integration of the technology into MTF-Douai's production tool was handled by the supplier's local technical centre in coordination with the customer's 'Safety' and 'New Task' departments. As confirmed by one of Chimior-North's sales engineers, 'action at this time was purely local' and 'the signature of this contract led to an intensification of our relations on a local level with the Douai factory'.

Over the next two years the relationship remained a purely local one, with the same actors being involved. Regular meetings were organized between technicians, sales and purchasing managers to modify the frequency of deliveries according to evolution of the customer's needs, and to renegotiate prices.

Phase Two: a local relationship with national coordination

In its effort to maintain competitive advantage based on technical innovation, the corporate research lab (CRL) of the Chimior Group developed new technological expertise in the form of a technical 'package' suitable for a specific production process situation.

The CRL contacted the various local branches of Chimior-France individually so as to pre-select with them a 'pilot customer' using this type of process and agreeing to let them carry out tests. The MTF factory in Douai was finally chosen as it had excellent relations with Chimior on a local level, and its production process was particularly well suited to the new technology Chimior's CRL were promoting.

Negotiations were initiated at the local level between the usual actors from Chimior-North, accompanied by one engineer from the CRL, and the factory and production managers from the customer's site. At that time, faced with the concentration of many of its customer industries and the consecutive centralization of purchasing decisions, Chimior-France decided to progressively introduce a system of national account managers to manage its major customer accounts. The iron and steel industry, in particular, was undergoing rapid concentration. Anticipating these changes, Chimior-France decided to appoint a team of two national account managers for the MTF Group: a commercial account manager and a technical account manager. The role of these managers at that time was limited to the gathering of all relevant information concerning action carried out by Chimior's local branch offices with respect to the various customer sites.

After consulting all the French branch offices, the two account managers were up to date on all ongoing action with the Douai factory, but took no active part in the dealings, however. They also learnt that, in parallel, the eastern branch of

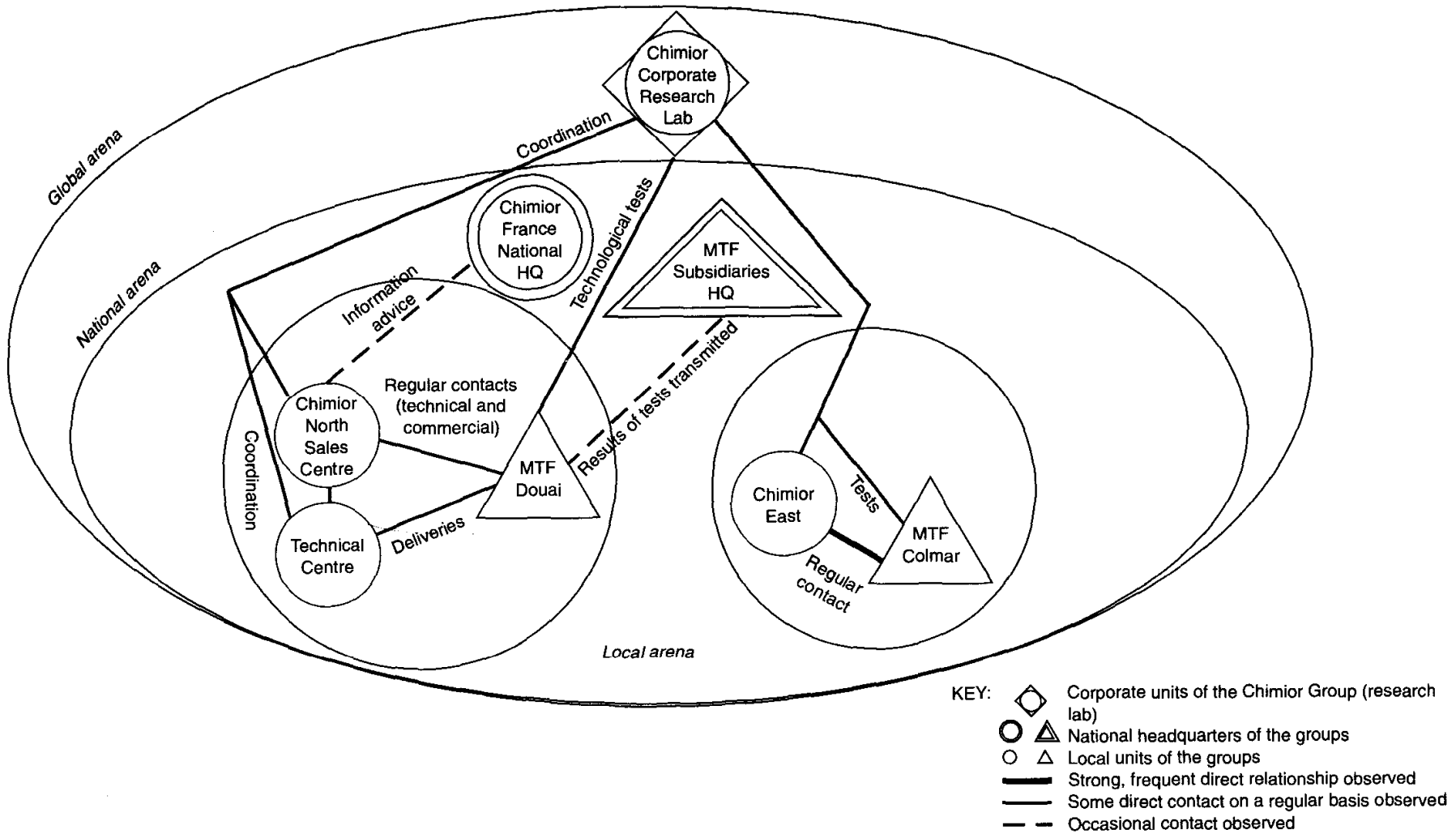


Figure 5.2 Second phase: a local relationship with coordination

Chimior (Chimior-East) was in contact with another MTF factory in Colmar, where the CRL was experimenting with another new technology.

As regards the Douai plant, the usual local partners negotiated an initial series of tests to establish whether the new technology could successfully be applied to the customer's production process. These tests were carried out in the Douai factory by two engineers from the CRL over a total period of two months. Results were presented by CRL engineers five months later.

Given that one of the MTF Group's corporate management objectives was improved quality, the Douai factory manager presented the results of the tests carried out by Chimior to his national manager with the objective of influencing Group investment decisions in favour of the Douai plant. Local engineers from Chimior-North later noted that this collaboration led to 'an improvement in the contacts between Douai, their local branch and their corporate research lab'.

Shortly afterwards MTF-Douai's production manager was replaced upon the initiative of MTF's corporate management by somebody who, according to Chimior-North, 'had more influence on decisions' and was less willing to accept and cooperate with Chimior as a privileged supplier. 'The new manager was ready to sign with just about anybody!' was the remark made summing up the situation.

This was one of the first signs of the changes decided upon by MTF's corporate management with a view to increase centralized control over action carried out at the local level in the factories, and progressive increase in power over its suppliers. Following the appointment of the new production manager, a decisive meeting was subsequently organized between the Douai factory (the factory manager and the new production manager) and Chimior (one CRL engineer and one of Chimior-North's sales engineer) for start-up of a second phase of tests. At the national level, Chimior-France's commercial account manager was kept informed of ongoing negotiations and consulted for advice on price issues.

The situation can be summarized as shown in Figure 5.2.

Phase Three: the 'invisible' action of MTF headquarters and the first signs of conflict

From there on the customer Group continued implementing its new corporate strategic plan and took, more specifically, the following steps:

- the development of several research programmes on metallurgical processes, aimed at increasing the quality of end-products and reducing the quantity of raw materials used;
- the establishment of procedures aimed at protecting the technological ownership of R&D developments. The corporate legal centre thus occupied a more strategic position and benefited from increased power in the Group;
- the consolidation of information at national level concerning factories' relationships with all major suppliers including Chimior.

unaware of these changes, and in line with its usual practice in these cases, Chimior's corporate legal department was asked by the CRL to set up a trial contract

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prior to launch of the second phase of tests in Douai. Alongside clauses concerning commercial terms over the trial period, the trial contract referred to the use of patented processes belonging to the Chimior Group, and guaranteed Chimior the subsequent industrial ownership of all know-how developed during the phase of tests with the customer. This trial contract was transmitted to the customer's factory in Douai by its usual local partner, Chimior-North.

The Douai factory did not reply immediately. After forwarding the trial contract to its national headquarters, it informed Chimior-North that it refused to sign. The local actors from Chimior could obtain no further explanation, and declared themselves extremely surprised by this 'unusual customer reaction'. This situation led, in fact, to a total freeze of the relationship at the local level. In turn, and faced with this situation, the local Chimior-North branch office decided to contact their corporate technical account manager, in charge of the MTF account, for advice on how to proceed. The latter decided, in the interest of furthering its technological innovation policy, to push for continuation of tests with Douai, even in the absence of a signed contract.

With no contract, then, tests were carried out by CRL engineers, with the assistance of two engineers from Chimior-North (one from the sales centre and one from the technical centre). These tests led to Chimior coming into contact with new actors at the Douai factory: an R&D manager, a quality control manager, and a newly appointed 'new task' manager. These new actors were representative of the growing importance afforded to quality in MTF's corporate strategy.

These actors were responsible for checking that end-products manufactured with the new process were up to MTF's standards. The various engineers involved from Chimior were satisfied with the results of the tests, but their counterparts in the MTF factory refused to give them samples of the final products which would enable them to precisely assess product quality. Before going any further, MTF staff requested a copy of the text of the patent that was mentioned in the trial contract, giving full details on the technological aspects of the process implemented.

After having consulted their technical account manager, the local Chimior-North staff replied to the Douai factory that they were not in a position to reveal the content of the patent. The reason for Chimior's refusal was related to the Group's corporate strategy, based on technological innovation and leadership. To implement this strategy on a market-wide basis, Chimior needed to control all technological aspects and to remain the full owner of all developments in order to be able to implement them afterwards with other customers, and without competition. This meant that the Chimior Group had to be extremely cautious in the diffusion of its know-how, particularly during the initial development stages, where various changes to the patented technology were often called for. MTF Douai's demand to see the content of the patent, in line with MTF's own corporate strategy, thus clearly conflicted with Chimior's corporate strategy.

The supplier's refusal to comply triggered off a vigorous reaction from MTF, with the Douai factory manager forbidding access of any person from Chimior-

North or from the CRL to the factory. Aware that the relationship with Chimior represented new stakes in a henceforth corporate game, the MTF-Douai production manager declared himself 'overwhelmed by events'.

Phase Four: the dynamics of the conflict, or the spread from localized to generalized conflict

Chimior's technical account manager, perplexed, tried at that point to gain a better understanding of the customer's sudden change in attitude. Given the poor state of the relationship between their northern branch and the Douai factory, he made direct contact with MTF's national purchasing manager in an attempt to solve the conflict.

As a result of this meeting, he was advised to request an interview with the manager of MTF's legal centre (corporate level). When he finally met the latter, the MTF Group's corporate purchasing manager also attended the meeting.

Chimior's technical account manager was informed that MTF's legal centre had received, from its national subsidiaries, not one but two trial contracts from Chimior: one concerning the Douai factory and one concerning the Colmar factory. Both of these contracts mentioned patents and rights on industrial know-how that the customer was 'not ready to accept without further details and explanations'. Chimior's legal department had already refused to modify the terms of contract concerning the Colmar factory.

Another meeting was then set up between the two Chimior national account managers, two CRL engineers in charge of the ongoing developments in the customer's factories, the manager of MTF's legal centre and the manager of MTF's corporate research centre.

Confident in their conviction that the customer group would eventually concede, Chimior's staff emphasized the benefits the new technologies would bring to the factories, but still refused to disclose the patents. This led to a more extensive, renewed freeze in the relationships between the two Groups at corporate level.

Faced with this stalemate situation, and so as to 'continue to develop its research activities as fast as possible', and avoid freezing development on the whole technical package, Chimior's technical account manager decided to look for another pilot customer to replace the MTF factory in Colmar and to drop all action related to this factory.

In parallel, the CRL launched minor developments in a third factory (in the Nancy region) of the MTF Group, with the objective of 'obtaining indirect information on the work carried out in Douai'. Chimior kept MIT headquarters ignorant of this parallel action, and no contracts were drawn up with this other customer unit. As mentioned by one CRL engineer: 'information on these relationships was not thrown about a great deal at a central level'.

All this action took place in an atmosphere of tension between the two Groups. At the same time, the MTF corporate purchasing manager and the national sales manager of Chimior's Basic Products Division (BPD) were renegotiating their

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long-term contracts. Severe price conflict arose regarding one specific product, with MTF considering it was not getting a fair deal.

Several factors, then, had a cumulative effect on the deterioration of the atmosphere between the two groups: the situation with the Colmar and Douai factories and patent and technology rights, the long-term customer dependency generated by the long-term BPD contracts, and the price disagreement on the specific commodity mentioned above.

Chimior's Basic Products Division was seen by MTF as being highly inflexible, and unwilling to adapt and grant concessions. MTF consequently became very cautious and suspicious in its dealings with Chimior in general. The Chimior Special Products Division suffered due to the Basic Products Division's poor image.

Phase Five: global-level intervention to exit the conflict

Quite a serious, far-reaching, situation had thus arisen between the two Groups. Finally, a meeting was set-up between the managing directors of the two Groups (Chimior and MTF) to solve the price conflict on the BPD contracts. At the end of the meeting, the two MDs agreed to set up an 'umbrella contract' not just related to prices but with a view to performing joint research projects. In particular, they agreed that any know-how developed prior to the joint research and development agreement belonged to the party responsible for its initial introduction, and could thus be patented by that party alone. This cleared the path for dealings with the Douai and Colmar factories.

Following this meeting, the atmosphere of the relationships between the two groups began to improve, and the national and global actors of the two groups started up a second phase of negotiations for the trial contract proposed to the Douai factory.

A meeting was organized at the beginning of January to redefine the contract terms, involving:

- for Chimior, the two national account managers (national level) and the engineer from the CRL who had initiated the technical developments in Douai (global level);
- for MTF, the national purchasing manager (national level), the corporate purchasing manager, the manager of the legal centre and the manager of the corporate research centre (global level).

The manager of MTF's legal centre, however, was very critical of Chimior, stating, to use his own words, that:

'Chimior has been robbing MTF for many years, and has technically abused us, taking advantage of us in a situation where the steel industry did not know how best to protect its own know-how. From now on the MTF Group is not ready to transmit its know-how for free.... The trial contracts drawn up behind our back by various Chimior branch offices with our factories constitute a

danger for our Group. We are eager to work in collaboration with outside partners, provided we can control what we are jointly developing.'

This meeting enabled Chimior's technical account manager to identify those people in MTF that seemed to be the most open to their project in Douai. He also learnt through different sources (and in particular through the contacts they had recently established in Nancy), that their actions with Douai and Colmar had taken place at a very bad time in relation to the customer Group's new strategy with, in particular:

- increased power granted to the legal centre;
- increased power granted to MTF's corporate research centre to promote innovation;
- the development by the MTF Group of a research programme in direct competition with the technology proposed by Chimior in the Colmar factory;
- increased centralization of information and decision-making for improved control and coordination.

The Chimior technical account manager later decided to meet the research director of the MTF Group – who seemed the most open and favourable to Chimior's project – alone. He took with him a copy of the much-mentioned patents, with the objective of 'calming' the heated atmosphere which reigned. During the meeting he learnt that the customer's unwillingness to sign the Douai and Colmar trial contracts was not only due to the conflict on patents alone, but also to the difficulty encountered by MTF with Chimior's BPD contracts.

The situation can be summarized as shown in Figure 5.3.

Phase Six: back to a local situation

Following these events, Chimior's technical account manager sent a letter to the manager of the MIT corporate research centre pointing out that:

- the contract for the Douai factory was handled by the Special Products Division of Chimior, and was therefore less restrictive in terms of contract length than those handled by the Basic Products Division;
- the patent mentioned in the contract did not involve any claim by Chimior for financial compensation regarding MTF;
- this contract did not concern any common research project between MTF and Chimior, but the mere application of a technology previously developed by Chimior, and concerning its own field of expertise. Therefore, it was not a new technology and did not fall under the 'umbrella contract' agreed by the MDs of the two Groups.

Following this letter, the technical and commercial account managers of the Chimior Group, on the one hand, and the corporate purchasing manager of the MTF Group, together with the manager of MTF's corporate research centre on the other, set up a final meeting during which they agreed to continue their

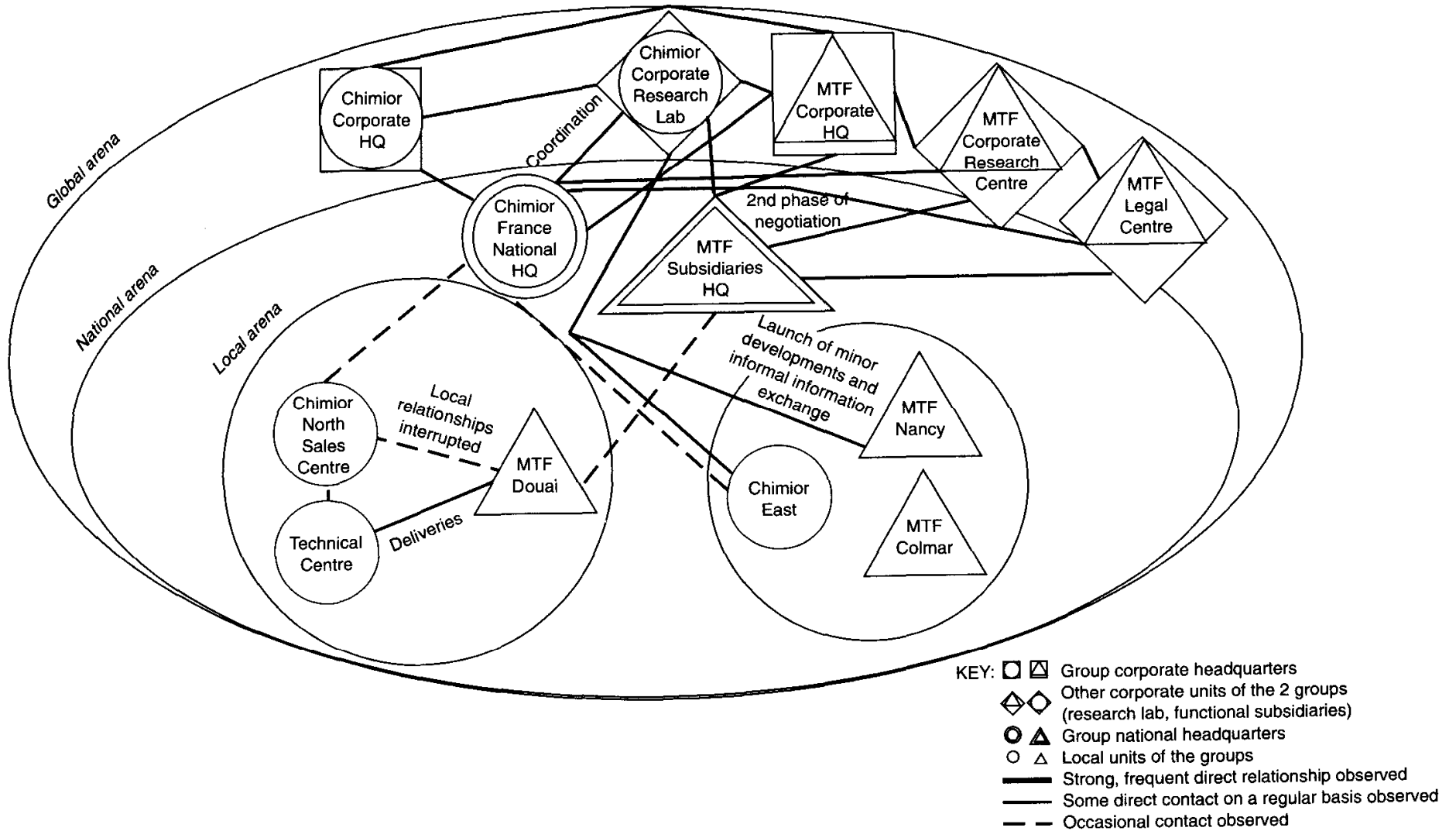


Figure 5.3 Fifth phase: global corporate action to exit the conflict

collaboration in Douai. The local partners were thus authorized – after a one-year freeze – to continue their relationship.

After a meeting with the manager and a local Chimior-North sales engineer, the Douai factory manager informed his employees that the two Groups had finally come to an agreement, and that they were free to carry on their dealings with the supplier 'as before'.

The engineers from the CRL and from Chimior-North were allowed access to the Douai factory. They were then given the results of the previous series of tests, enabling them to launch a new series of tests.

During these tests the atmosphere between the local partners slowly evolved. After the initial rather cold contact, tension progressively dropped. The relationships, however, were more formal than before the conflict, first because several new actors had replaced those the engineers from Chimior were used to dealing with, and second because the recent events had clearly shown the factories, and Chimior's branch offices, that MTF's corporate management was ready to take drastic steps to enforce its new strategic plan. Local factories no longer enjoyed the autonomy they had been used to.

In this context, the local factories now knew that they needed to be more cautious in their relations with their various suppliers, and in particular with Chimior.

Case analysis Phase 1

The relationship between Douai and Chimior-North is maintained on a local level and is characterized by an atmosphere of trust mostly based on the technical expertise of the supplier. The relationship is old, tried and tested, the actors are known and are used to dealing with each other, which enables them to work in close collaboration with very little friction. The local partners share common and converging interests. The power balance is stable and the positions of each counterpart are accepted by the local actor on both sides.

On the customer's side, the actors involved locally are essentially concerned with production efficiency issues (product quality and productivity), and price issues are only secondary to them. No external group-level elements interfere with this local relationship situation. On the supplier's side, the local actors can use their relationship with MTF to test the technologies developed by their corporate research laboratory and as a technical reference for developments with other local customers or prospects.

The Chimior Group can also easily find other reference customers in France to carry out its technical developments programmes, both within the MTF Group itself, which at the time was made up of several independent units, and with other iron and steel groups that had not yet been acquired by the MTF Group. It has other alternatives and relative freedom of action.

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From 1986 to 1987, the relationship was handled mainly at the local level. 'Global' actors from the Chimior Group began to appear in the local relationship through the action of the CRL, but their involvement was purely technical and represented normal practice by the supplier in such cases, provoking no change in behaviour of the local actors involved. Meanwhile MTF, on the other hand, was looking for increased competitiveness and going through the first steps of restructuring. In particular, the MTF Group acquired several other firms in the industry, defined a new structure for the Group, reorganized the factories according to this new structure, and launched a production rationalization programme. In order to reduce costs and increase productivity, the customer Group implemented a programme aimed at improving quality. In line with its overall strategy, MTF also explicitly aimed at increasing its negotiating power over its suppliers by centralization and coordination of action. This reflected MTF's desire to modify its global position on the market and more specifically with respect to the supply market.

The first signs of MTF's plan to improve control over action carried out by its factories appeared at the local level with the arrival of new Douai factory staff, considered by the supplier as being tougher in negotiations, and less willing to cooperate with Chimior. Past investment made by local supplier and customer units suddenly were no longer taken into account when evaluating the worth of the supplier, as they had been in the past, and the formerly close, reciprocal atmosphere between the two local units suffered. In other words, changes in the various micro-positions held by the customer Group relative to its suppliers were the means used by the customer Group to effect a shift in its position relative to Chimior, on the one hand, and in its macro-position on the market on the other. However, the customer's process to better control and coordinate local factories had not yet been fully implemented. Indeed, several actions were carried out simultaneously by local branches of the supplier in two customer factories (in Douai but also in Colmar) which did not lead to any specific reaction at the customer's national or global levels. At the same time Chimior had not recognized, nor assimilated and accepted, the shift in MTF's strategy and desired repositioning. At this stage in the relationship, true to its own strategy, Chimior tried to convince MTF that customization of Chimior's products and technologies was necessary and could only be properly performed at the local level. This can be interpreted as the supplier's intent to demonstrate one source of power to the customer; this power found its roots in Chimior's technical expertise (attractiveness of proposed technical solutions).

To sum up, in spite of the involvement of global actors from the supplier's side, the relations between Chimior-North and MTF-Douai were still mostly handled at a local level. Thus, it seems that the overall relationships between the two groups were still characterized by a set of fragmented, independent relationships between the various pairs of selling and buying centres.

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Chimior continued to handle negotiations with the customer's factories at the local level but was confronted by MTF's centralization strategy, specifically the creation of new job functions in the factories, new staff, and implementation of consolidation and coordination procedures in the customer Group. These measures as a direct consequence led to the 'densification' of relationships within the customer Group (increased communication and exchange between units leading to a higher level of interconnection) and the limitation of factory responsibilities and autonomy.

Relations between the two local units froze for the first time due to MTF's desire to shift negotiations to a higher organizational level. This can be interpreted as a desire to change the identity of the units with which the supplier was in contact – one of the factors conditioning position – both micro-and macro-positions in this case. Given the high stakes involved in the relationship between Chimior and MTF (high level of interdependence between the two Groups along several dimensions), Chimior was forced into activating its national account managers, and giving them increased operational responsibility and roles. This can be interpreted as a first acknowledgement of MTF's power. This power was based on MTF's volume of consolidated purchases from Chimior, its potential use as a key reference in the metallurgical field (with the restructuring of the steel industry, MTF had acquired several independent companies leaving few others for Chimior to work with), and its effective utility to Chimior as a test-bed for technological innovation.

To sum up, for the first time the situation observed at the local level cannot be understood easily without integrating more global perspectives concerning the strategies and actions of the two Groups. Due to MTF's restructuring, the power balance between the two Groups evolved and shifted in MTF's favour.

The micro-position occupied by MTF in Douai was no longer independent of the micro-positions occupied by the Colmar factory. MTF's internal network increased in density and the customer's local buying centres were more closely interconnected with the national buying centres. In turn, but with a slight time-lag, the Chimior Group internal network had also densified and national account managers were forced to take part in the dealings with the Douai factory. MTF, in fact, was behaving contrary to established norms in the Group-to-Group network and Chimior, not fully informed, adopted a reactive as opposed to a proactive approach to the situation at Group level.

Phase 4

In spite of Chimior's reluctance, the customer succeeded in 'shifting the relationship' from a local level to a national level. Only global and national actors from either side were now involved. The local relationship had become totally dependent on decisions taken at the national level.

In attempting to have the trial contracts modified, actors within the customer

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Group were pushing for acknowledgement by Chimior of MTF's increased power. Once again local positions were being used as levers to modify the customer's Group-to-Group position. The supplier, however, refusing to disclose the content of the patents mentioned in the trial contracts, demonstrated refusal to accept the positional change of the customer Group and attempted to reassert a position of dominance by exerting pressure in turn on the customer. This would tend to confirm that an organization's position is not the mere result of its strategic desire or intent, but rather requires the acknowledgement and acceptance of this change in position by other actors in the network.

Further evidence of increased densification and interdependency of the MTF Group's internal network is provided with the incidents related to the BPD contracts and the price conflict. Both of the latter are seen to have had a negative impact on the state of relationships handled by Chimior's Special Products Division. The position occupied by the BPD at the national level in the Group-to-Group network had indirect implications on the positions occupied by Chimior-North and MTF-Douai.

Phase 5

The resolution of the conflict observed at the local level (between MTF-Douai and Chimior-North) is linked to – and indeed totally dependent on – the exceptional involvement of the managing directors of the two Groups. On this occasion, higher organizational levels (global levels) were involved both on the customer and on the supplier side.

The acceptance by Chimior's managing director to develop common research projects with MTF can be interpreted as the acknowledgement of MTF's technical expertise and can be seen as the first signs of the supplier's acceptance of MTF's new position in the Group-to-Group network. The customer thus benefited from increased power over the supplier as compared to the previous situation. A direct consequence of this was improvement in the atmosphere of the relationship both at Group level and at the local level between Chimior-North and Douai.

To sum up, the development of the relationship and atmosphere between MTF-Douai and Chimior-North at this point was entirely conditioned by the decisions taken at the global level. The resulting Group-to-Group network between MTF and Chimior can now be considered as a set of interdependent relationships between the local, national, and global actors involved on each side and forms, in this respect, a tightly structured network. Each actor, to a large degree, had become repositioned within the Group-to-Group network and an attempt at matching strategies was underway for global coherency and stability.

Phase 6

Chimior finally agreed to show the text of the patent, and the trial contract was signed. Chimior thus proved that the technology proposed for the Douai factory

had been undergoing development for many years by its corporate research lab. The local actors were authorized to continue their relationship. Little by little, the relations between Chimior-North and MTF-Douai returned to normal, but with some major changes as compared to the previous state of affairs, due to MTF's new corporate strategy. It was 'business as usual' at a local level, but with each actor in the Group-to-Group network now aware of the fact that its network environment was rather tighter and more interdependent than before.

Perhaps a final mention should be made here regarding the local supplier and customer units. Often unaware or uninformed as to Group-to-Group stakes at play, these latter found themselves at a loss as to which position they were in and which action should be undertaken in practice. Group strategies thus conflicted with local strategies at times, leading to uncertainty and inefficiency. Certain actors interviewed at the local level did not understand the reasons for the one-year relationship freeze, for example.

Once again, this illustrates the need for strategic coherence within the supplier or customer Group, and the need for shared awareness, acknowledgement and acceptance of change in position in the network by all actors involved, be they actors within or between the supplier and customer groups involved.

5.2.2 Omega: Network perceptions and network learning by David Ford and Richard Thomas*

The network and focal companies

The focus of this case is Omega Components, which is one of the automotive products divisions of a diversified industrial manufacturing group. Two principal types of products are manufactured by the division. Both are relatively low value and simple in product and process technologies, but have to meet important performance criteria in their operation. They have been subject to incremental technological change and have both become more complex. Recent changes in the products have now allowed considerable flexibility in other aspects of vehicle design. On some vehicles, the presence of 'new generation' components has made a considerable contribution to overall performance.

The focal organization in this case is the plant which produces one of these two components. The plant is an independent business unit and is directly responsible for the development and marketing of its products. It has an arm's-length relationship with a similarly independent plant located nearby which manufactures the second component ('Omega B'). Sales volume of the focal organization is approximately £60m., which is small by the standards of a number of its international competitors.

*This case study and that in 6.3.1 includes material produced by three MBA students of the University of Bath; Camilla Jonsson, Keith Lake and Alan Traves. Grateful acknowledgement is given for their work and ideas. Interviews were carried out in all of the companies discussed. A number of details have been changed to make the companies unrecognizable.

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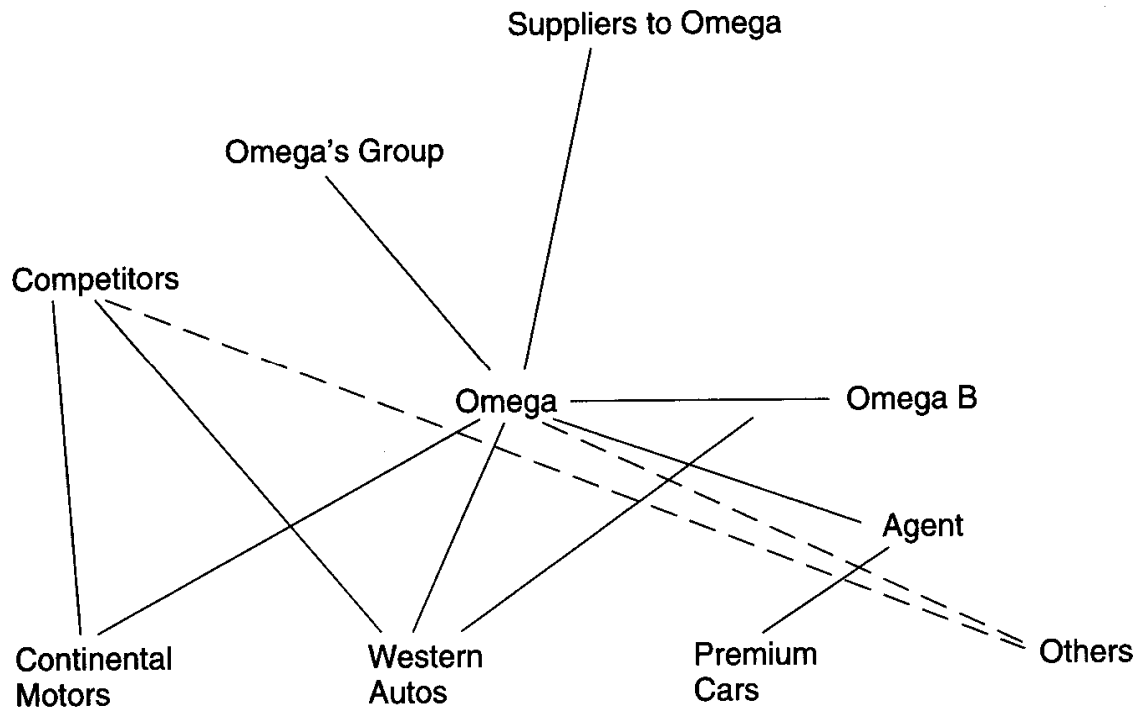


Figure 5.4 The network

Omega has only three UK competitors in this market, although larger European and US companies are increasingly important.

Omega has traditionally supplied UK firms and the UK-based subsidiaries of overseas companies, but car manufacturers are now following globalization policies. This means that at least in theory their purchasing policies are regionally rather than nationally focused. Because of this transition, contacts between some buyers and their suppliers are maintained at several locations simultaneously. This considerably complicates the map of intercompany relationships.

We will concentrate on three customers in this case. Continental Motors is seen by Omega as critically important for its future business volume and prestige. Western Auto is also a major customer for the group as a whole, while Premium Cars illustrates an interesting contrast as a relatively minor source of business with quite different relationship characteristics.

The network of companies centred upon Omega is depicted in Figure 5.4.

Changing relationships and changing perceptions Omega Components and Continental Motors

Continental provides 30 per cent of Omega's turnover, and purchases 50 per cent of its requirements for the component from the company. The relationship is therefore critical both to Omega's finances and to its credibility as a major quality supplier. The business has grown ten-fold over a twenty-year period and is seen by Omega to be secure for the immediate future. Uncertainty in the longer term

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is considerable as the customer moves towards global product design and component sourcing policies. These favour larger suppliers and those with low-cost locations. This potential for major change is recognized by Omega.

There is intense interaction between the companies. Omega maintains a sales executive permanently at the customer. There is also contact through R&D, production and general management personnel and Omega uses a number of 'entrypoints' to the customer's organization. Much of the contact is highly formalized, due to Continental's emphasis on the programming of activities such as purchasing and on the use of common standards for supplier behaviour and performance. Despite the length and depth of experience amassed by the two companies of each other, their respective perceptions of the relationship differ substantially in many respects. Indeed, this experience may be seen as one of the reasons for the different perceptions held. For much of the history of the relationship Continental operated a strict bidding system for its suppliers. This assured that its short-term costs were minimized, but gave very little security for its suppliers. More recently, the customer has emphasized the importance of longer-term arrangements with suppliers and has encouraged them to 'add value' to their offering. This involves a very substantial change in the underlying culture of the relationship and one which is not easily assimilated or operationalized by the customer itself or by its suppliers. Omega believes that the major commitments of resources which are now required for it to become a long-term supplier are a ploy by the customer to increase the dependence of its suppliers without increasing its own real level of commitment. Omega's 'corporate memory' of the customer's traditional approach heavily influences its view of how far it can safely trust these new patterns: 'Continental may want better suppliers but they still want the lowest cost', is a typical quotation. Similarly, Omega's general manager believed that now he had achieved the customer's increased quality requirements, its emphasis had 'shifted back to price'. This view strongly influences Omega's willingness to change its operating practices, and this leads to continuing conflict between the companies over various aspects of performance.

This is one aspect of a more general difference in the fundamental assumptions made about the basis of the relationship and about how change is responded to. As the economic and technological bases of the motor industry have increased pressure on manufacturers' costs, so their requirements of suppliers have become more complex. Various elements of service have been added to the basic product offerings for even the most simple components. But in this relationship it is clear that there is little common understanding of the basic expectations of the two parties. Continental requires a sophisticated package of R&D-based product and service, rather than a traditionally simple product offering. They see Omega's lack of response in this area as indicating 'poor customer awareness'. Continental expects a more proactive role from Omega in identifying areas for product and service improvement. Indeed it sees an important role for suppliers in providing much of the innovative 'drive' for technological change. Continental believes that a major potential benefit of its relationship with Omega is the supplier's contacts with other

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innovative auto companies, from which it expects Omega to transfer new ideas.

From Omega's perspective, the dominant characteristic of its interaction with Continental is the customer's insistence upon compliance with formal standards and procedures. The idea that qualitative 'added value' is required, in the form of supplier-driven initiatives and improvements, appears incongruous to the operational management of Omega because of the explicit nature of the relationship as a whole. Omega's senior management sees that the company is heavily engaged in keeping abreast of an apparently constant stream of directives, specification changes and quality ratings which flow from Continental. They feel that this restricts the extent to which operational managers can be aware of, or sensitive to, these underlying issues. Omega's management sees itself as the passive partner in an unequal relationship. This all means that Omega would only be able to absorb major changes in the basis of the relationship if they were as explicitly signposted as are the more detailed aspects.

Omega and Western Auto

Western has been buying from Omega for over twenty years and now accounts for approximately 10 per cent of Omega's turnover. Western purchases around 30 per cent of its requirements for this type of component from Omega. The importance of the relationship is increased by the fact that Western is also a large customer for components produced by the Omega 'B' plant. Western has worked strenuously over recent years to build an improved structure for component sourcing. This has involved reducing its supplier base from 4,000 to 350 and establishing a single sourcing policy with increasing quality demands. Omega has benefited from these changes as an approved supplier and feels that it is in a fairly secure position.

The longevity of the relationship has caused the routinization of most interactions and overall the participants on both sides see the relationship as close. Rather than this creating a depth of understanding between the companies, there is a clear impression of inertia and lack of effort on both sides. Minor but damaging misunderstandings appear endemic and the informality which has arisen from familiarity seems to be at the heart of some disputes. For example, Omega accepts verbal orders followed by a two-stage formal order for invoicing. On occasion the time interval before formal order is considerable and Omega sees this as a deliberate ploy by Western to optimize its cash flow at the expense of a powerless supplier. This decreases the amount of trust which Omega feels towards the customer. From Western's perspective the delay is simply the result of standardized internal administrative routines. To them it is trivial and they do not consider any impact it might have on the relationship.

Similarly, the tendency of Western's engineers to make late design changes inevitably impacts most upon 'minor' components, which it sees as being most easily amended, such as those made by Omega. From the manufacturers point of view this may seem a logical solution, but to Omega it shows a critical lack of organization and commitment. Moreover, the additional costs marginalize the

profitability of Omega's business with Western. Omega's level of commitment to this customer is therefore lessened even as Western is trying to build its structure of closer relationships with fewer suppliers. Another issue for Omega is Western's policy of regular personnel rotation within its purchasing department. To Western, this has an internal logic of human resource development, but it reinforces Omega's perception of Western as being disorganized and difficult to deal with.

The companies' respective views of the relationship as a whole, and of its future prospects, are also interesting. The divergence in views of their importance to each other is particularly striking. Omega sees itself as more critical to Western than it is to Continental because of the former's lack of alternative suppliers which offer it the same level of flexibility and design input. But Omega views the relationship as static and further limited by Western's relatively low volume.

Indeed it places greater importance on much smaller levels of business with other customers because of their greater perceived potential. Despite some recently awarded orders, Omega does not see Western as committed to the relationship. In contrast, Western thinks that Omega is much more committed to the relationship in the long term than, as our description shows, is actually the case.

Omega and Premium Cars

Premium Cars provide approximately 10 per cent of Omega's turnover. The relationship between the companies has existed for over ten years and since 1984 Omega has been the sole source of this component for the customer. Premium is a relatively low-volume manufacturer and faces particularly difficult problems of scale and cost. It has consistently made losses in recent years. Premium sees supplier relationships as key elements of cost reduction and has fully committed itself to long-term single-sourcing arrangements.

The interactions between Omega and this customer are characterized by higher levels of trust and greater informality than in the previous examples. This is despite the fact that Omega uses an agent in the customer's country, through which contacts for both Omega plants are channelled. Despite, or in some ways perhaps because of the relative closeness between the companies there are, again, significantly different views of the dynamics within the relationship. The contacts between them have expanded to the extent that relatively low-level direct liaison on technical matters is common. Adaptions of procedures and specifications by both parties take place regularly. This familiarity has led Omega's commercial manager to delegate most routine contact and problem-solving to a deputy, who thus is better informed on many issues than he is. A result of this is that Premium frequently finds it difficult to establish contact at the highest level when it feels this necessary. Premium has concluded that Omega is assigning 'second-best' resources to its business. Similarly, the use of a sales agent seems logical from Omega's point of view because of language and related complications, but is seen by Premium as an unnecessary and unhelpful element. More generally, Premium sees the principal reason for conflict within the relationship as Omega's poor

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organization and administration. For Omega the major cause is seen as Premium's tendency to make constant, last-minute design changes aimed at reducing inaccurately forecasted costs.

As in the previous examples, there exists a more basic difference in perceptions, concerning the value of the relationship and the respective power of the companies. Premium believes it receives a number of key benefits from its relationship with Omega: its design and engineering support; its quality control expertise; and its experience of other highly programmed customers. In other words, Omega is seen as providing a tailored package of high added value which would be difficult and expensive to obtain from any replacement supplier. In contrast, Omega sees its offering as standardized replaceable and as part of a relationship where neither side is in a more vulnerable position than the other. This view leads to Premium's belief that Omega is less committed to the relationship than itself.

Predictably, major concerns for the future also differ. For Omega the main issue is uncertainty about whether Premium will be able to increase sales in line with its plans. Unless this is successful, it feels, the relationship between them can only stagnate or decline. For Premium, the main source of concern is whether Omega can continue to fulfil its increasing demands of cost, service and technology.

Generalizations from the relationships

It is clear in all three of the relationships that the two sides hold contrasting views of the motives, intentions or capabilities of their trading partner. The relationships do not stand alone and it is clear that the views and expectations of the companies about each are conditioned by the other relationships in which they are enmeshed. The importance of these views of third-party relationships varies across the network. For example, Premium has a high opinion of Continental's quality control skills, whilst Continental has a similar view of the design leadership of another network member. It would appear then that none of the companies within the network can take for granted that other companies have a similar view of the world about them. The existence of superficially similar trading relationships with a series of partners does not necessarily imply that each partner has similar views or expectations of the relationship.

The many-faced firm

Each of these car manufacturers faces the same broad set of environmental and economic trading conditions and has the same fundamental trading relationship with Omega. But Omega is perceived in significantly different ways by each one. We can usefully ask how, and why, substantially different views of this kind emerge. Specifically, what are the main differences between the customer companies, and in what ways have these differences affected their views of a common supplier?

There are obvious differences between the companies in the scale and type of

operations. Continental is a very large, multinational producer of standard products employing highly standardized systems for procurement and other functions. Western is smaller, but operates on a much greater scale than Premium, which is an established niche marketer. More useful distinctions can be drawn with regard to variations in bargaining power, technological capabilities and the historical and experiential 'baggage' borne by each company.

Continental's power, both direct and 'referent', is seen by others in the network to be enormous. They feel that it can unilaterally dictate terms and performance criteria to actual and potential suppliers continent-wide. Its dictates on price, quality and delivery standards thus become increasingly stringent 'absolutes' against which all supplier relationships are judged. These network members also believe that the existence of enthusiastic would-be partners in the wings relieves Continental of uncertainty and of the need to invest in coaching or joint development. Continental sees suppliers such as Omega primarily in terms of their level of compliance with its established norms and their ability to keep pace with change. Descriptions of Omega as 'lacking programming', failing to be sufficiently 'customer aware' and not consistently meeting production schedules derive from this standardized frame of reference.

Historically, suppliers have 'fought' for Continental's business and this has allowed it to select partners from an available pool. This experience of dominance appears to suffuse its relationship with Omega and makes it difficult for it to communicate *with* them rather than *to* them about changes in attitudes and requirements. This hampers any coherent response by the supplier.

In contrast, Western's power derives primarily from the importance of its business to the Omega 'B' plant. As we have seen, Western has recently increased its formal investment in the relationship through a single-source agreement and sees Omega as a continuing long-term supplier. More generally, power within this relationship seems more evenly balanced because Omega offers Western benefits — particularly proximity and flexibility of service — which Western believes it would find difficult to replace.

As is the case with Continental, established historical norms appear to influence Western's view of Omega. Thus the turbulence which Omega believes is caused by Western's 'chaotic' buying organization is clearly seen by the customer as the 'natural state' of the relationship and the way things have always been done. This sense of continuity and normality lies at the root of Western's view that the relationship is healthy and free of significant problems, a view clearly at odds with Omega's.

In contrast again, Premium's view of Omega is shaped by a much higher level of perceived uncertainty and dependence. Its worries about Omega's commitment to it relate to the fact that it has both wider and more intensive needs of its supplier than either of the other customers. Because of its relatively low output and internal technological capabilities, it relies on Omega for a substantial input on product development and on quality and process control techniques. It sees its own country as being far behind on quality matters and feels that Omega's relationships with larger and more advanced customers provides a key source of

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new knowledge. At the same time, Premium is conscious of the vulnerability arising from a full single-sourcing programme. All of this means that Omega is seen as both a key resource and a potential weakness. The customer's perception that levels of service have been reduced and the tenor of its comments about administrative failings emerge from this sense of weakness. Again looking at historical aspects, Premium's previous experience with an unreliable supplier appears to have contributed to the sense of nervousness deriving from its reliance upon Omega as a proven partner.

Individual perceptions within the network

So far, we have confined our attention to differences in views at the company level. We will now examine more closely the dealings between individuals, using the relationship between Omega and Continental, which is the most intensive in terms of the amount of interactions and the number of individuals involved. This will give the opportunity to see that views of a relationship at the company level are subject to change over time and that they vary between individual actors within the company.

The views of Omega held by individuals within the national organization of Continental and its international headquarters may not coincide. This is most clearly demonstrated here by the phenomenon of 'side-changing' on the part of individuals in the national company. The relationship between the national and international parts of Continental is a complex one which is affected by the current changes in strategy and environment. National staff have a desire to use UK suppliers wherever possible, for the sake of the continuing well-being and importance of the UK company. Thus, interaction between Omega and certain Continental employees is sometimes (though necessarily implicitly) intended by the latter to safeguard Omega's position. For example, a design engineer from Continental UK will on occasion pass on 'hints' concerning deficiencies in an Omega bid or technical specification with the aim of ensuring that an acceptable British bid is submitted. The previous Continental buyer for this component stated explicitly that he would put a lot of effort into Omega in order not to 'work himself out of a job'. However, we should note that what are seen by the customer's staff as helpful suggestions are not necessarily construed as such within Omega. Instead, as we have seen, they may be seen merely as additional, confusing signals from a dominant partner.

More generally, the buyer's perspective is different from that of the design engineer concerned: the present buyer holds the most 'upbeat' view of Omega within Continental. He sees them as a 'continuing supplier' with an 'excellent progressive management team' and says they are 'improving their levels of excellence' in systems and product quality. His predecessor as buyer had also stressed the improvements in Omega's performance. He added that, notwithstanding any disputes over delivery times or quality, he trusted the information he received from Omega and understood their way of doing business.

In contrast, the UK design engineer for this component focuses on concrete

technical considerations and on Omega's ability to compete technologically with newer or larger potential suppliers. For example, he states that Omega lost a contract for a prototype because its bid design was more complex than the competitors' and was based on inadequate tooling. He is also unable to understand Omega's lack of response to the 'side-changing' that we have noted above. His overall view is that the prospects in the longer term are poor, and that Continental is likely to switch to suppliers from other countries once the cost/ quality balance tips in their favour.

Perceptions and learning in action

Finally in this case we will examine the different perceptions of a relatively minor technology change which has occurred in the recent past and which has involved most of the actors we have already introduced.

The development of the technology change was initially mentioned by the general manager of Omega as an example of how he sees that learning takes place across the boundaries of the companies he deals with. From his account of the development, it is clear that, until approximately 1980, the component had been manufactured and designed in a way which had shown little change over many years. Where more complex product designs were required then the solution generally adopted was to link a number of components together. At this point Omega's sister company 'B' applied its specialist process technology to provide an innovative way of linking the components, thus allowing a major product innovation. The process technology involved was well established in its normal application but had not previously been used in this context. The innovation had noticeable advantages in product reliability. It also allowed a considerable measure of freedom to design engineers at a time when environmental and performance requirements were placing considerable strains on existing technologies. The manager believed that the company was able to capitalize on this technological lead for several years and took profit but failed to invest in further development (he had only recently taken up his appointment and thus had no record to defend). Eventually European competitors employed more advanced process technology to make similar components at lower cost, and the advantage was lost. The manager believes that these deficiencies in process technology have remained in Omega's main weakness right up to the present.

Omega's technical manager gave a somewhat different account of these events. (Interestingly, he had worked for one of Omega's principal UK competitors during much of this time.) He stated that at the time of this product innovation, several different methods of integrating a number of components were in use, based on a range of underlying technologies. He said that dissatisfaction by customers over product reliability was the initiating factor in the product change. This led to a first attempt at a solution by Omega, involving a rather high-cost approach to 'stretch' the existing technology. Customer response (primarily from Continental, seen as the most demanding customer) was poor, largely because of poor product performance. The use of the new technology arose as a solution to

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the problems identified by customers. The technical manager could not say which Omega division took the lead in applying these technologies.

This account agrees that Omega took the technical lead in the industry for a period, until process and resulting price improvements elsewhere again put them under competitive pressure some seven years ago. The manager also added that, some three to four years ago, Omega had also lost any lead over European competitors in product technology which it might have had. This was realized when, as second source for a model for a French customer, Omega received a prototype component manufactured by the primary source, a German competitor. Invited to propose its own version of the product, Omega found that it could not manufacture such a product. Hence, this manager sees Omega as requiring an urgent 'catch-up' operation to match the product capabilities of the industry leaders. He believes that a key cause of the surprise felt at the arrival of this prototype was that customers had ceased to see Omega as a technical leader, and had therefore ceased to involve it in innovative development projects.

Other managers within Omega suggested that the series of events surrounding this technology was either not significant or had been obscured by time. The company's production engineering manager had 'no idea' how or when the above product technology changes occurred. This engineer was wholly concerned with the conflicting customer demands put on price and quality and could only say that the impetus was likely to have been in the form of new, higher performance requirements from customers.

The present commercial manager of Omega 'B' had held the senior technical position at the time the innovation is said to have occurred, yet he had no memory of any direct involvement. He noted that the first mention of any technology transfer was, to his recollection, by the then technical manager at Omega 'A', but that no regular contact at senior levels took place subsequently. No formal initiative was taken by personnel at 'B' and so he concluded that any transaction must have been driven by plant 'A'. Any continuing interaction was undertaken in the form of routine, low-level contact between technical counterparts. From his perspective this interaction had never been of great importance: 'It wasn't a major issue at the time'.

From the perspective of Continental, the dominant customer involved, another set of perceptions and priorities emerge. The relevant UK design engineer for the customer did not recall any major advance in product design of the type claimed by Omega. Instead he said that, of suppliers presently using a range of underlying technologies, most were using the particular approach which Omega believed it had pioneered, whilst others had dispensed with the particular devices employed. Perhaps more significantly he expressed no preference for particular technologies, current or past. His view was that bought-in technology is a 'black box' and that Continental are 'not interested in how the specifications are achieved'. The initiative for change is expected to come from the supplier. Because any approved supplier must by definition meet the price and quality criteria set by Continental, the design engineer saw further involvement or interest by himself as superfluous. However, we have already noted that the UK customer has an ambivalent attitude to UK suppliers. The design engineer did note that he had actively communicated

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to Omega that their responses to certain tenders had been technologically inferior to those of competitors. Overall, he saw Omega as still 'a player' in the market, but not an industry leader.

The comments of the Continental buyers largely supported those of the design engineer. However, one of them believed that it was a competitor of Omega's which had been the first mover in the development of the new technology and that Omega, among others, had been forced to follow. None of the buyers could name a dominant supplier, or technology amongst its current suppliers of the component internationally. Clearly, what appears to one actor to be a clear progression from product innovation to loss of process competitiveness appears quite differently to other companies and to those actors within his organization facing differing core concerns.

Conclusions on the case

This case has examined the dynamics of perception and learning within a relatively 'uncomplicated' partial network. The nature of the commercial exchanges involved and of the products concerned is generally simple. The focal relationships have all existed for ten years or more. Despite this considerable experience, all of the companies hold different views of the relationships in which they are enmeshed. There are differences in the way they describe the state of the relationship, its expected future course and the balance of power within it. The meanings that the actors attach to their own actions and those of other participants also vary, as do their expectations, priorities and the outcomes which they intend. These differences are seen most clearly when we compare the images held of the 'core' company, Omega, by its three partners. Three quite different views of its capabilities and importance are apparent. Equally, individual actors within the companies express very different views which fragment any objective or unitary view of the network which might be held by an outside observer.

Perhaps of more interest are the clues that are offered as to the forces shaping these differences in perceptions and the resulting dynamics within the network. Clearly, actors' views of their own and others' relative bargaining power are important in shaping attitude and approach. Equally, their experience of the exercise of power in the past and of historical norms of behaviour are important in forming perceptions. More significantly, it seems that the learning which occurs in the network does not inevitably lead towards a convergence of perceptions by closely associated companies. Rather, the way that each individual responds to changing circumstances is mediated by their accumulated 'burden' of previous experience. This perpetuates gaps in perception between companies. It also reinforces what they already 'know' about the network and how they interpret the 'real' meaning of the actions of others. Because of this, any description of this or a similar network as long-established, and by implication stable, is suspect. The problem with such a description is that we run the risk of hiding a reality wherein variations in perceptions and meanings can contribute to seemingly unpredictable change and can invalidate much of our analysis.

5.2.3 Measuretron: A case analysis of relational trust from the buyer's perspective, by Kate Searls and David T. Wilson

Introduction

This case study describes the ways in which 'trust' is perceived by members of the buying group at one particular US firm, as recorded using ethnographic interviewing techniques. The role of, criteria for, and outcomes associated with trust (and its synonyms) are described in the informants' indigenous terms. The impact of trust is elevated in the case described, due to the firm's commitment to a just-in-time philosophy. Trust is viewed holistically. Informants do not conceive of good-quality companies supplying poor-quality products. Distinct product-trust and company-trust dimensions did not materialize. 'Trusted' suppliers face little competition, due to the buyers' interest in maintaining close relationships with known partners. 'Distrusted' suppliers, on the other hand, face considerable competition in that these relationships are tolerated only until a suitable alternative is located.

The company

Measuretron began as a basic machine shop over twenty years ago, graduated to manufacturing valves and more recently got into manufacturing analytic equipment through a joint development project with a customer. Measuretron is a small, low-volume manufacturer which relies on price competition (rather than service and support) for its sales.

Measuretron currently manufactures in, and sells to, two separate industrial marketplaces. Each marketing effort is represented by a separate legal corporate entity. The two product groups are: basic machining of raw bar stock and manufacturing high-performance analytic equipment.

The division between these operating functions is symbolized both figuratively and physically by what the purchasing agent, Sam Pitman, referred to as 'The Wall'. 'The Wall' runs the length of the rear two-thirds of Measuretron's facility. On one side, where the machine shop is, there are several work areas marked by drills, presses and other machines for processing steel and other raw materials. On the other side of 'The Wall' is the electronics facility, which is a large room with steel shelf-dividers indicating work stations. Personal computers and computer-supported work stations are located in many areas of this room.

In addition to literally separating the two employee work areas, 'The Wall' represents a psychological (symbolic) separation between the two industries served by the products made. This physical barrier thus demarcates old and new technologies, the firm's history (basic machinery) and future (manufacture and assembly of electronic components). Both informants focused their discussions on the activities and objectives involved in purchasing activities related to manufacturing and marketing the high-tech electronics products, rather than on the processes involved in selling the outputs of the machine shop operation. Thus

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the entire context of this enquiry is framed by the informants reporting only on the electronics portion of their firm's business.

A second contextual factor is Measuretron's recent commitment to operating within the guidance of just-in-time (JIT) principles. While the impact of this philosophy was generally discussed in terms of Measuretron's relations with its suppliers, JIT exerts substantial influence on the firm's relationships with its customers, as well as having a profound influence on internal operations and management.

Measuretron's transition to JIT coincided with their physical relocation to new facilities. Measuretron had previously been operating out of two distinct locations separated geographically by several miles. The firm's decision-makers chose to simultaneously implement JIT at the time when the two facilities merged operations into one new plant.

The buying group

Although both informants conveyed an impression of internal cooperation in executing the various buying tasks at Measuretron, Sam Pitman (Measuretron's purchasing agent) and Bob Clancy (Measuretron's design engineer) did not completely concur on the appearance and operation of the firm's buying group. According to Pitman, he was the sole decision-maker in most vendor selection decisions. Clancy, on the other hand, described the existence of a small, but relatively stable, informal buying group made up of three people: John DeNeuf, Measuretron's chief engineer, Clancy and Pitman.

The likelihood of involving personnel other than the purchasing agent and the relative influence of the various parties involved depends on the type of buy-class (new vs. re-buy) and the technological significance of the item to Measuretron's product performance. In the event of requiring a novel product (one which has not been purchased in the past) and which is sought to support a Measuretron product's technological capabilities, engineering personnel will surely be involved in the vendor selection process. Additionally, expensive products were reported to involve a high degree of collaborative decision-making.

Both informants said that the members of the buying group make a point of sharing information on bad experiences with vendors. These exchanges typically take place during times of 'crisis management'. As a result, positive relationship experiences were far less likely to be communicated than negative experiences.

Clancy and Pitman agreed that the involvement of engineering personnel in the buying task was weighted most heavily in terms of a potential new product's technological attributes. Clancy reports that he occasionally dictates supplier selection to Pitman, due to special technical needs, although he generally prefers to allow Pitman to select the vendor. Clancy reports that he always tries to consider Pitman's preferences when considering potential vendors.

Clancy and Pitman reported initiating relationships with sellers through several different routes. These include cold calls, catalogue or directory listings, and word of mouth referrals from other engineers, purchasing agents and sales reps.

potential vendors'

The criteria used in evaluating potential vendors are related to the informant's functional role. The purchasing agent, Pitman, mentioned three basic criteria: product quality, price and delivery. Product quality and delivery are applied in an evaluation scheme which is strongly influenced by Measuretron's JIT orientation. The absolute minimum quality level required is higher in this JIT environment, as Measuretron does not carry back-up products in inventory and thus relies on products coming in which uniformly meet their specifications. Delivery issues were described in terms which indicated that they represent a critical trust variable. A supplier who cannot meet JIT delivery requirements cannot be trusted.

Clancy, the engineer, cited two general criteria as relevant in his evaluation of potential vendors: the product's technical attributes and the selling organization's perceived commitment to the product. Technical characteristics include: the product's physical fit and electronic performance within Measuretron's assembled product, the perceived durability of the potential vendor's product and aesthetic characteristics. To evaluate a product's performance along these dimensions, Measuretron's engineering staff conduct an 'investigation of a sample part'. This means that the potential vendor must provide a prototype of the specific product and the prototype must demonstrate its physical and electrical compatibility within Measuretron's standards.

The seller's perceived commitment to their product is reflected in the degree to which the seller is seen as having a history of independently (without consulting customers) modifying or discontinuing products and the degree of post-purchase product support offered to customers.

Clancy also considers whether the potential vendor is a JIT-dominated firm, when making his selection. A JIT vendor is typically indicated by their promotional literature now. A JIT vendor may also be indicated from the quoted prices, minimum amounts and delivery times. Since Measuretron's transition to JIT, a growing percentage of both their suppliers and their customers are JIT-driven as well.

Pitman reports conducting checks on the potential vendor's qualifications prior to buying through both formal and informal information sources, such as Dunn & Bradstreet and his professional association. Pitman also indicated that new relationships develop through incremental increases in purchase volume. Relationships develop by lower investments first, then greater investments. Pitman reports keeping an extra close eye on Measuretron's newer and smaller vendors. In these cases, he reports that they monitor both delivery and product quality.

Actor bonds 235 'How I think about the products I buy'

As before, informants categorize products according to the organizational function which they perform. Purchasing agents in JIT environments have organizational objectives which highlight cost-reduction (via both low purchase price and minimizing capital invested in inventory) and a quick product throughput. Thus when Pitman was asked to discuss the ways in which he thinks of the products he currently buys, he suggested the following categories:

- cost;
- amount desired in inventory;
- ordering and delivery frequency;
- Measuretron products which the vendor's product goes into.

Engineering personnel in a JIT environment also consider throughput. Suppliers are sought who can provide smaller size shipments of high-quality products at more frequent intervals and at a reasonable cost. However, Clancy reported that one of the major ways in which he thinks about the products he currently buys is in terms of how he obtains product information. In general, Clancy prefers not to have a lot of direct contact with vendors, distributors or other parts manufacturers. Instead, he prefers to obtain his product information in printed formats (such as catalogues and brochures) which he may use independently and on an as-needed basis. Clancy searches this literature according to technical attributes first and then by price, delivery, etc. Catalogue houses offer Clancy a convenient and time-efficient means of getting important information. Thus, distributors who don't have catalogues are less interesting to Clancy.

Clancy reported that he often enquires of only one vendor due to time limitations and he prefers to stay with current suppliers. If there is no current supplier, he then looks through his printed materials (from manufacturers, distributors, industry associations, vendors). After identifying potential sources from these printed materials, he makes a few phone calls or faxes information to selected potential sources.

At times Clancy has selected a vendor because they called on him at a critical moment and they were perceived as offering a suitable product. To Clancy, this salesperson just happened to call at the right place at the right time with the right product. However, if Clancy had not had the need at that time, the salesperson would not have been given the opportunity to make an extended sales call.

Clancy's preference is to specify easily available ('commodity') parts which require little involvement in locating and delivery. Dealing with non-commodity parts means that Clancy must expend special effort, calling manufacturers to find out what they have. On occasion, customers have driven materials selection, but not electronics.

Clancy perceives his product/vendor criteria to be generally similar to those of the chief engineer (John DeNeuf) in vendors, and often dissimilar from Pitman's. Pitman, as viewed by Clancy, is more concerned with delivery than Clancy is. Pitman is also believed to be more concerned about delivery than cost in many

respects. Clancy reports being more concerned about aesthetics and technology-driven product attributes than Pitman. Clancy reports that engineering-oriented criteria may override Pitman's criteria in supplier selection if technological issues dictate.

'How I think about vendors I buy from'

Both informants were confused to some degree by the interviewer's request to discuss vendor characteristics after having discussed the products purchased from those suppliers. Clancy and Pitman were puzzled, as though there was nothing new for them to talk about. For these informants, the supplier and the product supplied are not easily or logically separable constructs. And the terms in which they consider products are the same terms that they use in considering vendors. The vendors are the products they sell, and vice versa.

Thus, the informants think about suppliers in terms of the way they buy their products and the way they work with them as described in the preceding section. For Pitman this means evaluating vendors by product purchase cost, how much product he would like to carry in inventory, ordering and delivery frequency. Clancy thinks about the vendors in terms of how he obtains their product information (via catalogues, direct mail, etc). 'No other way of dividing up the vendors makes sense to me.'

The informants were then probed for additional information about how they think about the service aspect of the products they purchase. Delivery issues were paramount in their responses. Delivery amounts, frequency and reliability were stressed as critical criteria when assessing products/vendors. Customer support issues were also emphasized. These include: the vendor's orientation towards problem-solving in terms of promptness and cost, as well as the ability to exchange information with the vendor. Freely flowing information, followed up by responsive action, were aspects sought in the service component of Measuretron's relationships with its vendors.

'Good' or 'ideal' suppliers

Both informants described 'good' suppliers as those which contribute to positive returns on material investments. As Measuretron is a JIT-influenced firm, delivery reliability contributes substantially to the cost advantage associated with a given vendor. Other characteristics mentioned which are less directly linked to 'the bottom line', but still highly influential in identifying a supplier as 'good', tended to reflect a relationship's perceived stability. General traits such as reliability, responsiveness, dependability and responsibility were all terms used to describe a good supplier's relational traits.

The third dimension on which the respondents both offered descriptions of good suppliers was in terms of reciprocal exchange of information. While the engineer stressed the flow of appropriate and timely technical information between Measuretron and its 'good' suppliers, the purchasing agent focused on

aspects of the communication which led it to have a consultative nature. The purchasing agent additionally stressed that communications exchanges with 'good' suppliers were frequent and likely to take place on an informal as well as formal basis.

According to Pitman, good suppliers are also characterized by a number of traits which essentially indicate an awareness of joint interests (and thus the potential for synergy). For Pitman, 'good' suppliers are noted by the partnering attitudes they express and consequent collaborative behaviours. These traits are seen as indicating the vendor's appreciation for Measuretron's preferences and changing needs. One outcome of this type of orientation is observable in joint development activities. Another potential outcome is that the vendor assumes a more integrated position within Measuretron's operations by acting as either a sole source or as an agent for Measuretron. In the latter condition, the vendor manages the purchasing relationships with a set of sub-vendors and may execute sub-assembly tasks at their site prior to shipping products to Measuretron.

The third outcome of the degree to which a vendor assumes a joint interest with Measuretron is observable in the vendor's conflict-resolving behaviour. 'Good' suppliers take a functional approach to conflict resolution. Both informants expected that in the course of any relationship, problems would occur. Even the best supplier will occasionally ship an inferior product, experience an unavoidable delay in their ability to deliver, or find that they need to change their manufacturing process. Thus some conflict is a given in every relationship. A good supplier will demonstrate an appreciation of the difficulties these events may cause to their customers through a number of routes. Appropriate measures mentioned include: advance warning of the impending delay or change, soliciting customer input on ways in which changes can be made that best suit the customer's interests, offering to work with the customer to minimize the impact of changes or delays, absorbing some of the costs incurred in replacing shipments with defective parts. When these events take place, the informants report that relationships actually grow stronger. Thus episodes of conflict are in fact potential opportunities for greater relationship stability and further development of trust.

In addition to Clancy's report that a cost advantage is associated with 'good' suppliers, the engineer described these vendors as also characterized by the superior technical and aesthetic fit of their product. Superior quality in terms of product performance was most likely to be a concern of Clancy rather than Pitman.

Both Clancy and Pitman consider the ideal supplier to be one that isn't noticed. The ideal supplier causes no interruptions in work flow, product throughput or Measuretron's general productive focus. This vendor does not create a drain on Measuretron's human or material resources. The informants both appreciate having the freedom to not have to think about a vendor. To these informants, relationships which are not frequent 'attention getters' signal relationships which are operating in a reasonably efficient and effective way. One consequence of achieving a relationship of this type is that Measuretron's buying staff indicate no interest in investigating alternative sources of supply. Alternative vendors are not

actively investigated or pursued. Salespeople representing products for which a 'good' supplier already exists are not generally given time to present their offering.

'Bad' suppliers

When asked about the characteristics of vendors who should be avoided, each informant gave examples of firms whose delivery record had caused Measuretron to have to act outside its JIT interests. Vendors who are considered 'bad' tended to be those whose deliveries were either unreliable or too long. Both informants were emphatic in their desire to avoid delivery complications. 'I get out of that. I mean there is [*sic*] enough other suppliers out there.... Not that I want to drop that guy. But I don't have time to solve his problems and my problems too.' According to Clancy the only reason he still interacts with the vendors whose delivery systems don't match his own is that he hasn't yet found suitable alternatives (due to price and/or technology). 'We hate them, but we deal with them because we haven't found an alternative.'

Pitman and Clancy also agreed on the absence of a customer orientation among 'bad' vendors. This was most particularly problematic for Measuretron when the supplier significantly modified a product without consulting or forewarning Measuretron. Pitman indicated that since problems are inevitable, the worst supplier is the one who doesn't warn his buyer in advance of an impending delay or other delivery problem. Pitman reports that when the product is not delivered on time, his relationship with the vendor can easily become hostile.

Another indication of a negative customer orientation was reported to be when a firm did not provide adequate product support. Vendors with these traits supply Measuretron only when the latter firm is unable to locate an acceptable alternative source of supply. Alternative vendors are actively sought when the current supplier disrupts the smooth flow of products and service necessary to enable JIT operations.

Pitman's focus when considering the characteristics of inferior suppliers was on delivery issues. Pitman himself indicated that delivery is actually more important to him in some respects than is price. Delivery frequency and reliability to meeting shipping commitments are both critical variables for Pitman.

Clancy described inferior vendors primarily in terms of the technological attributes of their product. Thus, the vendors which Clancy avoids, or would like to avoid, are the ones whose products don't work as expected, 'fail prematurely', or 'weren't right in the first place'.

Clancy and Pitman offered their own interpretations of this type of inferior supplying behaviour. 'Bad' vendor behaviour is viewed as indicating that the supplying firm is either having financial problems (sometimes due to 'growing too big too fast'), or doesn't consider Measuretron to be an 'important' customer, due to its small purchase volume.

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For Pitman, the definition of 'trust' is heavily influenced by his firm's commitment to a JIT philosophy. Trusted vendors supply products whose quality need not be checked prior to installation. An inferior quality product can cause significant problems, as Measuretron does not carry back-up items in inventory. Trusting a particular supplier also meant to Pitman that he could feel confident that the vendor's delivery schedule will stay within JIT-driven requirements (correct amounts at frequent, short and predictable delivery intervals).

Pitman's synonyms for 'trust' were 'reliable', 'dependable', 'responsible', 'predictable'. He felt that trusted suppliers demonstrate a willingness to be inconvenienced, if necessary in order to correct their own errors. Trusted suppliers do not present problems or surprises. Trusted suppliers did not offer relationships which require individual attention on the part of Measuretron's personnel.

The level of trust which Pitman expressed for current vendors varied according to delivery characteristics (i.e. length of delivery intervals and delivery reliability). Product quality levels are acceptable among all present suppliers. The purchasing agent separated his vendors into three categories in terms of trust. These categories are given in descending order of levels of the purchasing agent's satisfaction.

A 'Very reliable, short deliveries, never have any problems with them.... Reliable, trustable, ... they come in on time. Very dependable.'

B 'A long lead time, but they are dependable ... they're good. So I have to stock more than I want and I've always got to kind of overstock them. Because they're an item that I can't ship a [product type] out the door unless I have one of them. So I can't afford to be without them.'

C 'Unreliable delivery ... makes a good product but he's not consistently reliable with delivery. You're kind of always wondering whether you're going to get it.... if he says the 10th, it might be the 15th or the 20th until you get it.... But I have no other vendors to go to. So I'm kind of tied in with him.'

Clancy began his discussion of trust by describing the tension he experiences between what he considers a basic human desire to trust and a culturally prescribed inclination to distrust. For Clancy, the business setting in which these relationships take place requires an element of suspicion. According to Clancy, trustworthy vendor relationships are built over time and characterized by reciprocal information flow. Trust and information-sharing build on each other. For Clancy, relationships with trusted suppliers are also characterized by responsiveness, which is supported by the mutual recognition of shared benefits and risks.

The transition to JIT has had profound impacts on many aspects of Measuretron's internal and external relationships. Measuretron's employees have found that the number and diversity of their job responsibilities have increased. Functional divisions have become more blurred, as the workforce flows to where internal demand is strongest. For example, Pitman reported finding himself acting as more than the company's purchasing agent. He now has additional responsibilities for inventory, customer relations, manufacturing, management and shipping. The change to JIT has meant that this buyer occasionally has assembly (production) responsibilities as well. Thus, the transition to a JIT system has resulted in a more blended, fluid workforce. The two legally distinct companies share workforces and, within both organizations, all workers are situated on an as-needed basis. As Pitman said: 'Everybody gets into the ball of wax.'

Clancy, on the other hand, has found the transition to JIT to be less personally eventful in terms of his own responsibilities and tasks. He explained this as being due to the fact that prior to the transition, he had worked at the Measuretron site least affected by inventory and delivery issues.

Clancy reports that the transition to JIT has been beneficial to Measuretron due to improved ease in processing orders in smaller, more frequent batches. The engineer perceives Measuretron to be a small-scale JIT organization.

The themes dominating customer relationships within this new JIT culture were also affected. As Pitman states: 'We want to give the customer his parts when he wants it and ... no ifs, ands or buts.' An increasing percentage of Measuretron's customers are also JIT-oriented firms.

The impact of changing to a JIT system was reported to be heaviest in terms of Measuretron's relationships with its suppliers. JIT-influenced relationships with suppliers involve flexible ordering and delivery options, such as blanket orders, where buyers can release the quantities they want at the intervals they prefer over the course of a contract.

The total number of relationships with vendors has decreased and the vendors remaining in this smaller group have been rewarded with larger portions of Measuretron's business. Changes in supplier relationships were particularly significant among the firms supplying the most expensive products bought by Measuretron. In this group of products, Pitman reports that Measuretron has greatly strengthened some relationships, eliminated some and replaced others. The relationships which were continued changed, in that an annual blanket order was established and the buyer may 'release' products (i.e. order their delivery) on an as-needed basis.

Generally, 'eliminated suppliers' were described as vendors who did not find it adequately advantageous to accommodate Measuretron's new order and delivery frequency needs. Eliminated relationships tended to be in the middle product price range. Relationships with vendors for the most expensive products tended to continue. According to Pitman these firms perceived an adequate incentive to accommodate Measuretron's needs. Relationships with suppliers of

inexpensive products were relatively unaffected by Measuretron's change to JIT, as order and delivery requirements did not change significantly. The least expensive products (such as bolts, washers and many office supplies) continue to be stocked in amounts expected to last lengthy periods of time.

The change to JIT has made some relationships much closer (more structurally bonded). Both informants suggested that these closer relationships indicated an increased level of trust. For example, one reason why Measuretron's buyers now interact with fewer vendors is that one vendor is willing to take responsibility for some of the interactions. This supplier is perceived as an organization which can be trusted to handle those relationships in a way which reflects Measuretron's interests.

Both informants reported being very interested in locating better sources of supply for the current vendors who cannot match Measuretron's JIT needs. The informants also indicated that they were basically not interested in finding alternative sources of supply for the current vendors who do fit with their JIT management style.

Contracts

Pitman described how, at Measuretron, the content of contracts does not reflect relationship maturity or the level of trust vested in a particular vendor. For example, some of Measuretron's agreements with more highly trusted vendors specify delivery objectives that are better than current performance. This is interpreted as representing agreement on idealized goals, where the evidence sought is that of effort at attaining the goal, rather than goal accomplishment.

Threats and negative consequences are not included in contracts, according to Pitman, because Measuretron doesn't enter into contracts with vendors who haven't proven themselves at some minimum level. Pitman reports being confident that he can count on his better vendors for accommodating behaviour not specified in the formal contract. Pitman feels sure that his better vendors will not insist on Measuretron taking all the remaining products at the end of the contract's duration simply because the contract says so. Pitman suggests that this willingness to accommodate the informal (unspecified) needs of Measuretron's relationships with its suppliers is based on joint recognition of mutual benefits, their collaborative vision of mutual advantages. The letter of the contract is not referenced, so much as the intent. With the preferred vendors, Measuretron's intent is to foster successful long-term relationships.

Measuretron's transition to JIT operations symbolized elevated levels of several different constructs often thought of as related to trust. These include the views that JIT means:

- a better total relationship potential for both buying and selling firms;
- reciprocal exchanges of benefits and costs;
- more communication;
- functional conflict orientation;

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- better delivery schedules;
- better prices;
- time savings;
- fewer product quality concerns.

One additional impact is that the transition to JIT principles at this small firm has resulted in a binary vendor search state. Either the buyer is dissatisfied and actively looking for a suitable alternative source of supply ('suitable' being indicated by a JIT compatibility), or the buyer is satisfied and thus disinclined to spend resources on investigating other options.

Conclusions

Trust within buyer–seller relationships is holistically viewed. Divisions between product attributes and selling firm attributes are artificial. Buyers do not naturally consider products as objects of trust separate from the firms which sell them. There were no reports of great products being purchased from bad vendors (and vice versa). The company is the product and the product is the company and one global trust assessment is made for each seller. One does business with low-trust suppliers only until a better source is available.

One potentially fruitful conceptual alternative would be to consider a purchase's composition along a product/service continuum. In this case, the relative proportion of product and service representing the exchange basis for the relationship may be considered (Wright 1991). In the context of this case study, the engineer focused more on tangible attributes, reflecting product trust, while the purchasing agent gave relatively more emphasis to operational performance or service characteristics.

Just-in-time is a business philosophy with far-reaching implications. The firm under study has recently implemented JIT principles, which has the effect of providing informants with recent memory of business behaviours both pre- and post-installation of JIT. Just-in-time principles develop a corporate culture which is manifested in both intra-and inter-organizational decisions, relations and activities. These include human resource management, purchasing, inventory, customer relations, marketing, manufacturing and delivery.

Just-in-time as a management strategy results in blurring functional divisions among personnel. All employees are considered available to any area which has need of extra hands during a given period.

Just-in-time influences both the relationships one must have with one's suppliers and the options available in one's own relationships with customers. The informants noted that since the transition, a greater percentage of both the suppliers and customers were firms managed along JIT (or similar) principles.

The transition to a JIT system has had the impact of making the firm's standards regarding developing relationships with suppliers somewhat more strict. JIT narrows the band of potentially qualified suppliers while it increases the potential range of interdependencies and interactions. As the products purchased

become more expensive, the firm's relationship needs involve more trust and consequently the trading partners are held up to more rigid expectations.

JIT firms offer exceptional environments in which to observe buyer–seller trust. The act of engaging in JIT relationships is itself an expression of trust. JIT increases the value of trust and trustable suppliers by decreasing the opportunity to distribute risk among multiple sources of supply. Measuretron's definitions of vendor trustworthiness have changed since the JIT implementation. Buyer reactions to supplier displays of trustworthiness/untrustworthiness were described as more rapid, direct and strong since the transition.

Going onto a JIT system has opened up a range of new, more trust-based relationships, including 'buying by extension' which involves external manufacturing. With buying by extension, buyers directly select fewer suppliers, those choices being left to the discretion of the external manufacturer. Buying by extension is convenient as products arrive in kits according to a JIT delivery schedule. JIT seems to play buyers in a binary vendor search state, whereby buyers are either actively looking for a replacement source or are not at all interested in considering a potential alternative. In the latter case, the best a prospective vendor can hope for is that the buyer will listen to him, file his printed materials, and then wait for an uncertain event (buyer dissatisfaction).

Although no informant voluntarily used the word 'trust' when describing how they thought about vendors and products, both informants reacted immediately and positively to the question of whether 'trust' belonged with the other words they were using. Trustable suppliers were described as the buyers' objective in developing relationships with vendors.

In the JIT culture at Measuretron, the operating description of a relationship marked by a high level of trust can be summarized in the following terms:

'I have a feel for what will happen. I can predict and control. I perceive mutual and shared benefits and losses. I don't have to check this supplier's product quality, because I know it's right. The vendor knows that a product flaw is a problem for me. And they care enough to do something extra to help me avoid or resolve it. Trusted vendors are reliable, dependable and responsible.'

As Pitman said:

'Basically, it's if the guy is responsible for what he's selling to you. It comes right down to that. I mean if he is consistently doing that, doing what you want for the price you are willing to pay, you know, he knows he's going to get more and more business. At least he is from Measuretron. I can guarantee you that. Because we have proven it.'

When asked to describe a 'trusted' relationship, both informants described situations in terms of the frequency, reciprocity and scope of the information which flows between the vendor and the firm. In these relationships, the buyers described balanced information, as well as agreement on the potential degree and likelihood of costs and benefits. Each informant saw the partner as being cognizant of deriving benefits from the relationship's successful outcome.

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The informants also described the relationship partner as one from whom they sensed a commitment. This relationship was marked by a mutual acceptance that some temporary personal costs might be absorbed in order to advance the long-term potential of the relationship. Each trusted vendor could be counted on to endure some inconvenience to satisfy Measuretron's needs.

Clancy's concerns with 'bad' vendors expresses the belief that a bad supplier punishes the buyer's customers, as well as punishing the buying firm. Thus, vendors who didn't merit trust damaged the trustworthiness of Measuretron in terms of its own customers.

In summary, being a trustworthy trading partner and maintaining relationships with other trustworthy trading partners are primary goals among the informants at this JIT firm. Trust is viewed as the foundation upon which more efficient, effective and profitable systems may be put into place. Trust releases many resources (human and material) to be put to other, more productive uses. Operating along JIT principles is one indication of a firm which accepts the strategic benefits of relationships grounded upon trust.

5.2.4 Sunds Defibrator, by Mats B. Mint

Presentation of the two actors

This case is about a new relationship developing between a Swedish producer of equipment and an American producer of paper and pulp. Sunds Defibrator AB (Sunds) is one of the world's leading manufacturers of equipment for woodpulp production. Equipment for bleaching pulp is an important part, in which Sunds has an advanced technology.

During the course of this case Sunds was owned by Svenska Cellulosa AB (SCA), a big pulp and paper producer in Sweden, and United Papermills OY, an important paper company in Finland.

Sunds has reached its current position in two ways. First, during the 1950s and 1960s, Sunds manufactured bleaching equipment under licence from Impco, a US firm. The license agreement did not allow Sunds to sell in the USA; that market was reserved for Impco. Over the years, Sunds developed their own technology and knowledge, which by the mid-1970s had resulted in an end to the collaboration with Impco. Second, in 1978 Sunds purchased the shares of a main competitor, Defibrator AB, a Swedish company producing equipment for defibrating wood into pulp, and integrated the two operations into one. Defibrator AB was well established in the USA, with a sales subsidiary situated in Minneapolis, for the sales of their defibrating machines.

The marketing of Sunds production is done through a net of sales subsidiaries and agents around the world.

Champion International Corporation (Champion) is one of the five biggest pulp and paper producers of the world, with its main operations in North America and a turnover of around \$7bn and a pulp production of around 3 million tons (1988). The US factories are situated in Courtland (Alabama), Hamilton (Ohio),

Pensacola (Florida), Canton (North Carolina), Bucksport (Maine), Deferiet (New York State), Sartell (Minnesota), Lufkin (Texas), Sheldon (Texas), Quinnesec (Michigan) and Roanoke Rapids (North Carolina). The company also possesses wholly and partly-owned factories outside the US. One of these is a kraft liner-board mill in Sweden, Obbola Linerboard AB, a company which was founded 1973 as a joint venture on a 50/50 basis between SCA and St Regis Paper Company, at that time one of the ten biggest companies in the USA. St Regis was taken over by Champion in the autumn of 1984.

Product concerned

Equipment for woodpulp production is very often developed through close cooperation between machine manufacturers and the users. Originally SCA was the only owner of Sunds and the strategy behind that was for SCA to make this cooperation inhouse. At the same time Sunds developed strong cooperation with most customers, among them a north-Swedish company, Mo and Domsjo AB (MoDo), well known in the industry for an advanced technology in bleaching. Together with MoDo, a new method for bleaching pulp, through oxygen instead of the traditional chlorine-dioxin, was developed at the end of the 1960s. A pilot plant was installed at MoDo's site at Husum in 1968, and full-scale plants were successively installed in Swedish pulp mills, such as Aspen (owned by Munksjo AB) 1973, Husum (MoDo) 1976, Monsteras (Southern Forestowners) 1979 and Ostrand (SCA) 1981. In Sweden, a pioneer country for oxygen-bleaching plants, almost all pulp-factories use the oxygen-bleaching method today. The process was at the beginning used with pulp with high consistency, but Sunds developed a technology for using medium consistency. The main advantage of the medium-consistency process is a substantially lower investment cost. If an average oxygen-bleaching plant working in medium-consistency costs about SEK 90m., the corresponding cost for a high-consistency plant could well be SEK

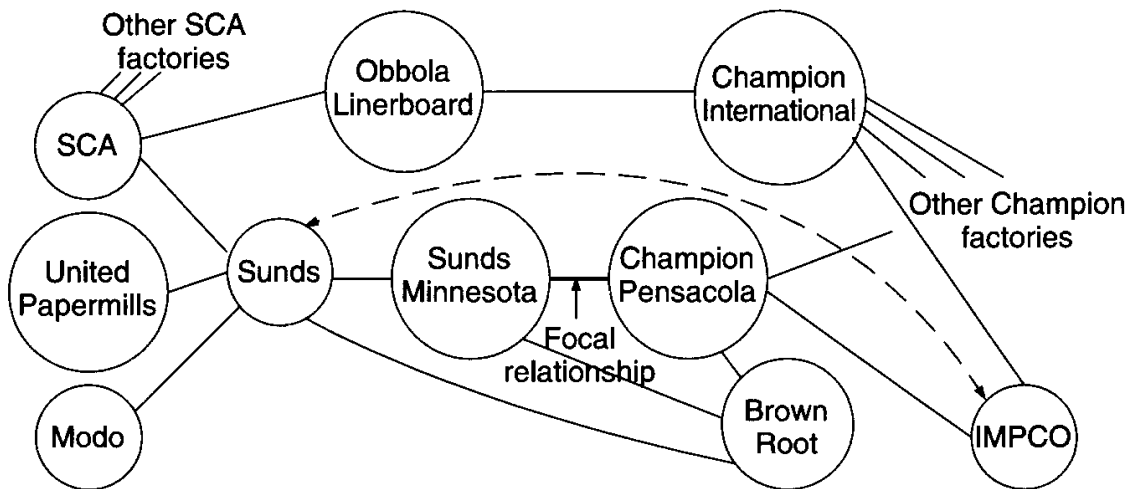


Figure 5.5 The main actors

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125-150m. It is not only a question of the equipment itself, but also of lower building costs. In warm climates, some of the medium-consistency equipment can work outdoors, which is not possible with high-consistency equipment.

One aspect of the oxygen-bleaching method is the positive environmental advantage. In Finland, a major pulp-producing country, the industry tried earlier to solve the environmental problems of bleaching in other ways, but has now also turned over to the oxygen method. Pulp mills in Japan have also turned to oxygen, but they started four years behind Sweden. At the time of this case the oxygen-bleaching process was also used in the USA, but only for the high-consistency process. The USA is by far the biggest pulp-producing country in the world.

Also involved in the Sunds-MoDo/Husums collaboration was an engineering company owned by MoDo, called MoDo-Chemetics, headed by Mr Sverker Martin-Lof, who later joined Sunds as managing director and became in 1989 the managing director for SCA.

At the time of this case there were only four main competitors on the world market with a capacity to offer complete pulp-producing equipment. Beside Sunds the others are the Swedish company Kamyr AB, the Finnish company Rauma, and the North American company, Impco. For the development of the Kamyr oxygen-bleaching process, Kamyr had a close relationship to a large South African company, Sappi.

In the forest industry around the world there are a relatively large number of technical consulting firms offering anything from advice to turn-key installations. Among these firms some are bigger, such as Jakko Poyre (Finland), Simons (USA), Parsons & Wittemore (USA), Sandwell (USA), IPK (Sweden) and Celpac (Sweden). Jakko Poyre is one of the biggest in Scandinavia, but small in the USA, where Simons is one of the biggest. Most of them operate on their own, with no strong relationships to particular equipment manufacturers. The importance of the consultant can vary from country to country, but in the US the consultant generally plays a key role. A consultant can compete with an equipment producer, such as Sunds, to a certain degree. A pulp-mill project contains partly so-called basic engineering, covering process solutions and general control, which can be offered by Sunds as well as by the consultants. But the detail engineering is only made by the consultants and never by Sunds.

Buying a new process

Through the acquisition of St Regis Paper Co. Champion was in the possession of an unbleached kraft-paper producing unit in Pensacola (Florida). Because of low profit of the operation at the Pensacola mill, Champion asked the consultant firm, Brown & Root of Houston, to work out a pre-study of the possibilities to reconstruct the mill and change the production from brown container board to bleached paper qualities. Brown & Root is an important consultant firm with about 2,000 employees, primarily concerned with oil projects, but also knowledgeable about manufacturing of woodpulp.

In a traditional American way, requests for offers were sent out to different

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manufacturers of equipment during the spring of 1985. Mr Bengt Pettersson, earlier responsible for the development of the oxygen-bleaching process and in charge of the pulp division at Sunds, came in 1984 to Sunds' sales subsidiary in Minnesota to develop the American market for Sunds. One of his conditions for taking that responsibility was that a certain Mr Roland Edstrom, a skilled process engineer, would also come to join the Minnesota set-up.

Sunds/Minnesota, got the request from Champion to offer a bleaching plant, which was answered in due course, but without putting too much concern in it. Mr Pettersson thought that Sunds should be considered too new on the market, and that Champion would buy from one of the traditional American suppliers, such as Impco, Kamyr and Beloit/Rauma (a licensee agreement with the American company Beloit offering Rauma equipment). When submitting the offer, Sunds didn't even make a personal visit to the buyer. In early May, the purchasing manager of Champion Pensacola called Sunds/Minnesota and asked for a personal presentation of the offer. For the realization of the project, Champion had formed a project team with people from Pensacola, responsible for the start-up of the rebuilt mill, and people from Brown & Root. During the visit, Sunds was informed that the board of Champion International had decided to raise the money for the project and the intention was to make a decision about the purchase in early June. This was very unusual for this type of business. When buying equipment for about \$10m, the normal time for preparing the purchase is about half a year.

To the Sunds people all others at the meeting were completely unknown. Mr Pettersson had the feeling that Sunds was some kind of 'dark horse' and that there was no real faith in the request for offer. Most probably Champion had had contacts with the other suppliers of bleaching equipment before the official enquiry was set out.

Mr Edstrom remembers the introduction in the following way:

'From Champion and Brown & Root about twenty-eight to thirty persons attended the meeting. We informed about the offer, what we could do and our experience. During sales visits in the USA it is not very common to be invited for lunch, but there was an older man with whom we got a certain contact with and who offered us a lunch. However, our impression from the meeting was that they didn't find Sunds' offer very reliable. Sunds' proposals were always related to the offer from Impco.'

The activation of a peripheric bond

After the meeting, Sunds/Minnesota made contact with the Swedish head office and informed them about the state of the business. It was then suggested that Sunds should try to make use of the existing contacts between SCA and Champion on the corporate level. It was known that the two companies were negotiating a change in the owner-relation of Obbola Linerboard AB. Champion had let it be known that they wanted to sell 25 per cent of their shares, probably to finance investments in the USA.

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The managing director of Sunds, Mr Martin-Lof went to the USA and met the top management of Champion International, among others Mr Joe Donald, Vice-President of the company and ultimately responsible for the rebuilding of the Pensacola mill. At that meeting it was decided not to mix the two negotiations between the companies. Each business should be done on its own merits. The project group at Pensacola should feel free to take their own decisions. However, it was obvious that because of these contacts between the companies, the project group should not leave any doubt about the competence or the reliability of Sunds. Champion declared that any problem with Sunds could be solved through intercompany contacts at the top level.

The negotiations

During the following seven weeks after the first presentation in May, Sunds/Minnesota worked very intensely on the Pensacola project, submitting not less than five offers, which was considered a strong effort. All people at Sunds/Minnesota put all their faith in the work. The office had been working for a year and the market for pulp equipment was extremely bad at that time. Very few companies were investing in new machinery, and for Sunds/Minnesota it was more or less a question of survival. The contact with the buyer and with the Brown & Root's office in Houston was intense. The people from Sunds/Minnesota, who had been strengthened by some engineers coming over from Sweden, considered that they achieved good contact with several people from the buyer and the consultant. The working meetings in Houston were very often followed by informal and friendly social events.

According to Edstrom, an important detail when comparing the different offers was that Sunds proposed an alternative location for the bleaching plant to the other proposals. There was a railway track right through the factory area. The competitors had proposed to site the bleaching plant in two parts, on both sides of the railway. Sund proposed a solution on only one side, which would save other personal and operating costs.

When offering and before purchasing equipment of this size it is very common that a buyer travel around visiting factories where the sellers have installations running. For that purpose Sunds arranged a visit in June to Sweden, as no complete Sunds bleaching plant was installed in the USA. From the buyer's side, there were seven persons from the Champion headquarters, the project group and from Brown & Root. From Sunds there were Messrs Pettersson and Edstrom, and when visiting the Sunds headquarters in Sundsvall, the managing director Martin-Lof was present among others. Visits were paid to three factories in Sweden: Korsnas (independent), ()strand (owned by SCA) and Husum (MoDo). In a way, what Sunds really showed the Americans was the extent and the strength of the contact with their customers. During the visits the personal contacts were deepened, mainly between Pettersson/Edstrom on one side and the Americans on the other. There was plenty of time for the buyer to study and test the attitudes among the Sunds people, to appreciate the size of the headquarters of Sunds and

the workshops, but mainly to study the Sunds network in Sweden.

Sunds could present complete flow sheets and descriptions of all processes and different solutions. This was done by a computer-supported system, not common in the USA. In the bleaching process, the consumption of chemicals is an important and expensive factor. Through their computer-supported offer system Sunds could forecast the consumption of chemicals in a very reliable way. The corresponding figures from Beloit/Rauma were not considered as reliable. It was made obvious that in several aspects, both technically and in the way of calculating offers, the American companies were on a lower level than Sunds.

One aspect which made a strong impression on the project team from Champion was the close relationship Sunds had with the whole Swedish pulp industry. In most projects Sunds is deeply involved, keeping many persons present during the start-up of an installation. Sunds can mostly arrange that when a new equipment is due to start up, people from another company, familiar with the operation of such equipment, can be borrowed for a month or two. Such close co-operation between companies does not exist in the USA. During the visit to Husum, the people from Champion were impressed by the personnel working in the bleaching plant, and especially by an engineer by the name of Danielsson. After the visit at Husum, Joe Donald, Champion, said to Mr Pettersson: 'If you can arrange that Mr Danielsson will be present at the start-up in Pensacola, you'll get the order!' It was said in a joking manner, but Mr Pettersson took it seriously and answered that if it was important to Champion, it could certainly be arranged.

Another thing which contributed to the build-up of trust in Sunds was that in the equipment offered by them, the last dewatering stage was a press instead of a conventional filter. The people from Pensacola had earlier explained their doubts about this, as they had already installed a couple of such presses made by Impco. These had never worked satisfactorily, but as they are very expensive machines, they were not substituted. The Sunds presses were originally of Impco design, but improved by Sunds. During the mill visits in Sweden, the buyer saw the Sunds presses all over, working satisfactory, and Sunds could also explain to the buyer why the Impco presses didn't work.

The Sunds offer to Champion was designed with 'upstream' bleaching towers, whilst all the competitors offered a 'downstream' system, which was current in USA. There are many advantages with the 'upstream' system, but also a risk for so called 'channel formation'. During the visit in Sweden the buyer became convinced that such risks were very small, and could appear only at certain times a year.

The deal

After the buyer's visit to Sweden, which was followed by a visit to Finland, arranged by Beloit-Rauma, the buyer started the final selection of the suppliers. A number of meetings and informal contacts were carried out, primarily with Joe Donald, who was considered as having a key position. Mr Pettersson got the

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impression that Donald preferred Sunds, and Sunds received much advice and information on suitable changes in the offer. People from Sunds were now invited to a final negotiation, where the buyer informed them that the only competitor left was Impco, the traditional pulp-machine supplier of the buyer. During that negotiation, Mr Martin-LW* from Sunds was also present to demonstrate confidence and engagement.

The business was closed in Sunds' favour in July 1985 at a price of about \$13m. One condition was that Sunds accepted a closer cooperation with Brown & Root, with people stationed in Houston. The contract also included a corporate guarantee from SCA. It was important that Sunds was part of the SCA group. The negotiation went very fast; the contract was of a general character and the details were left to be cleared up afterwards.

Somewhat later the order was increased with another \$1.5m for software of the process control. The original intention from Champion was to purchase that from Brown & Root with support from Sunds, but when it was obvious to Champion that Sunds had a higher level of competence, they also got the order. This created some irritation at Brown & Root, but this was cleared up through discussion. At most, Sunds had six or seven people stationed in Houston, and a very good relationship was created between people from Sunds and Brown & Root.

The start-up of the bleaching plant was very successful. On the morning of Christmas Eve 1986, one week before the deadline, the first pulp was bleached.

Of the four competitors, Kamyr was the first company to have been excluded from the negotiations. Their process was considered more old-fashioned than the others, and their reputation in the early 1980s was relatively bad. Impco probably underestimated Sunds during the negotiations. Because of Impco's long relationship with Champion they had many contacts with the buyer, very often of a social character. Joe Donald from Champion headquarters, mentioned often his good friend Bob, Mr Robert C. Harrison, sales director at Impco. People from Sunds got the impression that Impco couldn't even imagine Sunds being a real alternative, having no track-record in USA.

Epilogue

Sunds consider this business to have been a real breakthrough into the huge US market for pulp equipment. The year after, another oxygen-bleaching plant was sold to Champion, Hinton, Alberta (a Canadian subsidiary), but with Simons' Vancouver office as consultant, followed by another plant to Quinnesec, Michigan, with Rust Engineering as consultant. In 1989 Champion's mill in Courtland, Alabama bought a plant, again with Brown & Root as consultant. On the whole US market ten oxygen plants have been sold, which correspond to about a 70 per cent market share.

Impco got no orders from the Pensacola mill in 1985, but this didn't mean the contact between Champion and Impco was broken. Champion's mill in Canton, North Carolina, has since bought a bleaching plant from Impco, with Simons' Eastern office as consultant. According to Mr Robert Harrison from Impco,

companies of Champion's size have a policy of changing suppliers now and then. At the time of closing the Pensacola business, Impco had no medium-consistency method to offer, but it took them only six months to develop the method. After that they were back again as supplier to Champion, as well as to other customers in the USA. In fact, Impco managed to deliver a medium-consistency plant only six months after the closure of the Pensacola business, and consequently had the new method running before Sunds, even if Sunds were first to sell it.

It is obvious that when purchasing equipment of the size described here, the actual price is not the only factor which is important for the buyer when choosing the supplier. Questions such as reliability of the equipment, maintenance and the supplier's capability to solve problems are also very important. For that reason Champion carried out a very extensive investigation of Sunds as a company, not being known in the US but well-known in the rest of the world. When Champion was convinced that Sunds' reputation was untouchable, the buying was reduced to a price question.

In 1988 Sunds acquired Rauma-Repola's operations in Finland for the manufacture of pulp equipment, after which SCA, United Paper Mills and Rauma Repola each held a one-third interest in the company. In 1990 SCA sold out to the Finnish companies.

Another interesting change for the market was that Mr Robert C. Harrison later joined Sunds as managing director of Sunds' operations in the US, Sunds Defibrator Inc. That office was also transferred from Minnesota to Atlanta, close to the main expansion area of the US forest industry.

5.2.5 Svitola SpA, by Jacqueline Pels and Ivan Snehota

Svitola is an Italian medium-size manufacturer of industrial equipment (mills and drills), with a broad field of applications. The company was founded in 1947 by an importer of machines for agriculture. It has grown within the Italian market and by 1970 started to export, first to Germany, later to other European countries. In 1989 exports represented about 60 per cent of the total sales. France, Germany and Spain accounted for nearly 75 per cent of the exports. Svitola is rather well regarded within the industry for its industrial know-how and product quality.

When Svitola started to develop its foreign markets, in the early 1970s, most dealers of mills and drills were already buying these from other suppliers and the company faced many difficulties to be accepted as supplier. A European Community regulation introduced in 1972, ruled that no company could impose an exclusiveness clause in their contract with dealers. That has facilitated Svitola's entry and acceptance by dealer-distributors. As a result of the regulation it is common to see dealers that handle more than one make of mills and drills.

Svitola's products are sold through a network of independent distributors and agents. The Italian market is covered by about twenty full-line independent dealers supported by a sales force of nearly twenty persons (working on an agency basis). There are no direct sales to final users but dealers are assisted in their contact with major users by Svitola's sales and service personnel. The rest of

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Europe is covered by independent dealers, less than a hundred in all, supervised by two sales executives under the export manager.

Relationships to the dealers, considered to be customers, have traditionally been good and non-conflictual. The awareness of the concentration in sales is, and has been very low. (Actually the twenty major dealers account for about two-thirds of the total sales.) Svitola had not bothered to identify either key clients or key suppliers. The supply manager described the traditional relationships to suppliers as 'very loose, with low transaction or switching costs' for Svitola.

Cooperation agreement with Buki Corp.

In 1985 talks started within Svitola about the importance of adding 'reamers' to the product line of the company. At that time various models of reamers were being introduced in the market and were generally predicted to be one of the few products with growing applications in the industry. Reamers were widely used in Japan and the US, but only starting to be introduced in Europe. Not wanting to invest time and money in the internal development Svitola started to search for a Japanese partner which would be willing to sell the know-how of reamer production. Japanese companies were those who introduced the reamers concept and Svitola considered them to be the world leaders in reamer technology. Buki Corp. of Japan was one of major manufacturers of mills and drills and reamers.

Towards the end of 1985 the president of Svitola, Sig. Ostillio, visited Buki Europe headquarters in Paris. The first contacts resulted in discussions between Svitola and various units of Buki that lasted nearly two years. A cooperation agreement with Buki was signed in April 1987 according to which Svitola obtained the licence (and know-how) to produce and sell reamers under their own brand. Simultaneously a second contact was signed that Svitola would supply reamers to Buki to be sold to the Buki dealers in Europe under the Buki brand. These contracts were the beginning of a rather intense phase of the relationship between the two companies.

The main reason given by Svitola's management for the choice of Buki as partner has been its production technology but also the Japanese management know-how. Svitola's management had been interested, however vaguely, to have an occasion to see the way the Japanese were working; managing the logistics, controlling quality, dealing with suppliers and so on. Another point considered was that producing both for own sales and for Buki would increase the overall volume of Svitola's production in the end by nearly 40 per cent, making it thus easier for Svitola to achieve the cost structure needed to compete with the large international firms who were dominating the industry. In 1989 Svitola started producing two models of reamers and another three models were scheduled for production by June 1990. The Buki dealers during the period 1988 to 1990, were buying the models that were not produced by Svitola from Buki. From June 1990, when all five models would be produced by Svitola, Buki Japan was to discontinue the production for Europe and all orders would be supplied by Svitola. The agreement with Buki also helped to further improve Svitola's image

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in the European market. Also, since they can offer a complete line of equipment, their standing has improved.

The main apparent reason for Buki's involvement seemed to be related to the EC plans to introduce a limit on imports of mills and drills from Japan to Europe, in order to protect the European producers. The EC restrictions, discussed at that time, would not only make it virtually impossible for Buki to expand, they would actually diminish its sales volumes. The tools produced by Svitola even under Buki's brand would, under the EC regulations in discussion, be considered Italian and thus the planned EC restrictions would be avoided. The European market presented at the time of the Svitola–Buki negotiations rather interesting expansion possibilities, especially for the reamers. While the European market for mills and drills was considered mature, several country markets such as Italy, Spain and Portugal, were expected to grow further. Buki was thus interested to find a suitable European partner.

The relationship

After the two contracts were signed in 1987, intense contacts developed between the two companies. The contact pattern has been rather complex. The project involved nearly fifty persons in the two companies having direct and continuous contact.

The main actors in the relationship on Svitola's side have been:

- Sandos, coordinator, responsible for the application of the various aspects of the contract for all equipment sold under the brand name Buki. He handles orders, sees that the goods ordered are produced and shipped on time, is in charge of the deliveries, etc. (Interestingly he is one of the few in Svitola's management who has never been to Japan!)
- Bertoli, vice-director of manufacturing, in charge of the production of reamers. He has been, and still is, in close contact with all the Japanese technicians staying at the Svitola site in Italy.
- Ostilio, the president of the company, who is in close contact with all Buki counterparts, in particular with Mr Fuji and Mr Mawa, presidents of Buki Corp. and Buki Europe.
- Otti, Svitola's marketing manager, who is in charge of both Italian and European sales and the coordination of sales of both brands.
- Chetti, the export manager responsible for the sales of Svitola tools in Europe.

Buki's personnel in contact with Svitola belong to different units in Buki's organization, which is somewhat complex. The units involved with Svitola are:

- Buki Europe, involved in France. Buki Europe is the operative interface for Svitola when ordinary problems arise with one of Buki's European dealers and/or with paperwork related to orders, shipments or invoicing.
- Buki Trading in Japan is one of the divisions of Buki Corp. It is the unit of

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Buki that is closest to Svitola and acts as main problem-solver in the relationship. All contract aspects are mainly dealt with by them, even if Buki Europe also has some say. All principal decisions regarding the relation to Svitola are taken by them. Also all financial aspects of the relationship are handled directly with this unit. Buki Trading has an office representative in France at Buki Europe.

Buki Corp. is the corporate headquarters of the Buki holding company in Japan.

The main Buki actors involved in the relationship are:

- Mr Fuji, the president of Buki Corp., who meets with Mr Ostillio twice a year to clear eventual problems and to discuss the outlook for the industry and for the partnership of the two companies. The meetings can take place elsewhere, in Japan, in Europe, in Italy.
- Mr Mawa, the president of Buki Europe who is in close contact with Ostillio for both the problems of manufacturing and marketing.
- Mr Jima and Mr Taito, who both belong to the Buki Trading Co. and handle all the day-to-day aspects related to the Svitola relationship. They are in daily contact with Sandos for problems regarding shipping, deliveries, payments, etc. They act as middlemen when problems arise that affect other units. They are in close contact with their colleagues at Buki Europe and at Buki Trading. Both are in close touch also with the Buki technicians at Svitola.
- 'Technicians'. Over the two years from the beginning of the cooperation agreement a number of technicians from Buki Trading Co. and some from Buki Corp. have been coming to Italy for extended periods (usually six months) to help out with the production set-up problems. They have been in charge of solving some of the production problems, mainly those related to the introduction of the automation processes and to adaptations that the Buki reamers required due to the machinery used. On average six technicians at middle management level were stationed in the Svitola plant. They seem to have made good personal friends among the production personnel and some friendship links seem to be maintained even outside the working place and after some have returned to Japan.
- Mr Kubi and Mr Rubo, sales managers at Buki Europe have been those who normally participate at the monthly meeting with Svitola and who are in charge of much of the coordination at the marketing side.
- Madame Bligny, the sales administration coordinator at Buki Europe, who solves all the ordinary problems that could emerge in the daily paperwork.

There are at least fifteen other persons that are in regular contact in both companies (service personnel, production planning, administration and finance department, etc.)

Organizational adaptations

The typical order cycle between Svitola and Buki is that orders from the Buki dealers go to Buki Europe in France to be forwarded to the Buki Trading Co. in Japan which, in turn, sends the orders to Svitola. Deliveries of reamers are made from Svitola directly to Buki's European dealers while the invoicing and subsequent payments are handled through the Buki Trading Co. in Japan.

Because of the peculiarities of the order cycle Svitola had to develop new *ad hoc* administrative routines and procedures. Most of these procedures did not even exist for the other clients. The procedures introduced were largely based on Buki Europe's way of working so that Buki's European dealers would be exposed to as little change as possible. When Svitola suggested some changes to Buki's procedures, these were taken into consideration and modified according to Svitola's suggestions and requirements.

Svitola has thus three different sales administration routines: first, the sales procedure for Italian customers under the brand name Svitola; second, the sales procedures for the European customers under the brand name Svitola, and finally, those for European and Italian distributors of the Buki brand.

As the `transaction circuit' is rather long, complex problems can arise. To overcome these possible inconveniences several measures have been taken to make the communication between the two firms effective.

Svitola has appointed a new coordinator, Sig. Sandos, to handle the daily contact with Buki Trading Co. Sandos is in contact with Buki Trading Co. by fax or phone daily. He informs his counterparts daily of the numbers of reamers delivered and also those scheduled for production and those leaving the production line and shipped.

Monthly meetings have been introduced between Svitola and Buki Europe. The meetings are held mostly at Svitola's factory and offices in Italy. The number and position of the people who participate vary according to the nature of the problem on the agenda which is prepared by Buki people and follows a rather strict and rigid format. About a dozen persons usually participate at these meetings. Typically the agenda contains the following issues.

First, any routine problems that emerge in the circuit are discussed. Solutions to these are proposed and measures are discussed to prevent similar problems in the future.

Second, the sales and production plans for the next six months are discussed. The Buki Trading Co. communicates to the Svitola people their sales forecast six months ahead and the irrevocable orders for the next three months. Officially no information is exchanged on the situation of the single dealers of the two companies. All information exchanged is the total for a region or country. Svitola has no direct contact with Buki's dealers and very little knowledge of these. Still the Svitola people know, from the shipment data, what seem the most important markets and dealers for Buki. Finally, the meetings are used to discuss the general market situation. From the very beginning of the agreements Svitola and Buki have been analysing together for each existing market, the present situation and

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potential; the market shares of competitors, their actions and development, the price range and margins to dealers, and the margins that Buki and Svitola need to work with. One of the outcomes is that the price to both Buki's and Svitola's dealers is the same and is decided upon jointly during the meeting. It is interesting to notice that Buki makes a profit on all the reamers produced at Svitola as the latter (according to the contract) pays royalties for each unit produced, regardless of to whom they are sold. The result is that Svitola has relatively lower margins on the reamers sold to Buki, since the price is the same. Buki's argument for this arrangement was 'we've given you the possibility to produce at certain costs and we have our commercial costs and thus to arrive at the competitive final dealer's price your price to us (Buki) should be ...'. Svitola seems to accept this argument and the consequent pressure on costs. They agree that without Buki volumes and technology, especially their initial support, they would have never arrived at a competitive product or price. While having larger margins on all reamers sold to their own dealers there has not been any conflict of priorities so far.

The people in charge of service also have monthly meetings held at different time and at different locations (sometimes at dealers' premises). The subjects discussed are related to customer satisfaction, complaints, technical problems that can occur on the product and financial aspects related to the product guarantees. They are attended by the sales and after-sales people from both companies (typically some ten persons participate).

Both meetings follow a very strict and partly formalized procedure. Information exchanged is considered important to keep a smooth flow of communications in such a complicated circuit. Svitola people say such a level of information exchange has never been needed between Svitola and any other of its counter-parts. On the whole they seem to appreciate how the systematic exchange has developed.

The atmosphere of the relationship

As one would expect there have been unavoidable initial problems due to the perceived distance between the two cultures and some initial communication problems. On the whole, however, on the part of Svitola, the general opinion is that there were less problems than expected. Several persons in Svitola's management have spelled out mutual long-term commitment, openness and trust between the two companies as the main factors that helped to create what is largely a positive atmosphere between the two companies. Another factor, not spelled out by the Svitola management, but rather apparent, is the tolerance of the cultural differences. Any possible cause of conflict is brought to discussion between the parties and considered for effects on both firms.

As Svitola people put it: 'Buki's way of doing business and working is not European and much less Latin. Yet, once one understands their way of thinking, they become highly predictable and dependable, which facilitates the interaction process.' 'Tokyo people are always here when we feel the need for any type of help.' 'Once the Japanese way of working is understood, working with them

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becomes very easy. It makes sense.' 'They are very loyal people; they generate and value the feeling of trust.' These and similar feelings are widely shared by all the people interviewed, regardless of their status in the company. Most people at the premises of Svitola have had some experience of the Japanese.

The feeling of partnership seems to prevail at both corporate levels even though the two companies, at the end of the day, are competing. The broad information exchange seems to generate a feeling of openness.

Svitola's management seems to believe that there is a solid base and a good understanding and does not see any danger of major conflict in the future. Nevertheless, there are two different perceptions among Svitola's managers about how the relationship could develop in the future. The production people talk about the future possibility of producing some other mills and drills at Svitola for all of Buki's European industries and of jointly developing new types of equipment especially for the European market. While the need of technical assistance felt by Svitola has decreased, the production people of Svitola have asked Buki Trading for help on the management aspect of the production process (quality controls and management, logistics, production programming, cost analysis). There have been talks about the possibility of Buki taking over Svitola, which would then become simply Buki's European brand name. While such a scenario is not thought of as desirable it is brought to discussion and the possibility is considered among the Italian managers. The general attitude seems to be 'not unless forced by circumstances'.

On the other hand, the marketing and sales people manifest the opinion that Svitola could interrupt the relationship with Buki now at any moment with no major negative consequences for Svitola. The main argument uses is that 'the reason for the creation of the joint venture was to get access to new product know-how and that has been achieved. We could drop them at any time.'

Areas of conflict

The atmosphere of trust does not imply that the relationship is conflict-free. There seem to be some potential areas of conflict.

Since signing the agreement with Svitola, Buki has bought two companies in Europe specialized in complementary equipment: one in France in 1988 and another in Sweden in 1989. On both occasions Svitola's president was informed and asked for his opinion beforehand although not at the very initial stage of the negotiations. Neither of these acquisitions is perceived as a threat to the present relationship.

Buki and Svitola are direct competitors in the end-user market. Through a series of agreements they've tried, however, to minimize the potential for conflict. (The decision to fix the dealer prices jointly is one example. Also other conditions of the dealer contracts have been worked out in concert.) As a matter of fact, they have been so successful in handling these aspects that Buki allows Svitola to sell exactly the same tools even in their traditional markets. For example, in March 1990 both Svitola and Buki were presenting their products

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under separate brands at the same major exhibition in Spain.

While Buki as a company is several times the size of Svitola, they have so far never used that as an argument in order to impose a line of action. On the other hand, for the overlapping line of mills and drills, Svitola is a significant player. Its volumes on the European market amount to about 60 per cent of those of Buki. Svitola people do not foresee a future without Buki, but are confident that they could manage anyhow.

The impact of the relationship on Svitola

Not surprisingly, Svitola's managers consider the relationship's major effects on the manufacturing capabilities and systems. Even though Svitola had a strong and consolidated tradition in the production of mills and drills, and had been highly regarded in the industry especially for its production efficiency, they found a serious challenge in adapting to the Japanese way of working and the quality standards required.

Working with new volumes implied using a new and more specialized type of equipment than that to which the Svitola people were accustomed. The Buki technicians played a critical role in helping the company to achieve what is within Svitola considered 'the psychological, methodological and technological leap forward'. It is rather difficult to summarize all the adaptations made. Yet they have not been totally in one direction. The reamers design, for example, has been modified from Svitola's suggestions on several items. Material specifications have been adapted; the reamers produced in Italy use a different (improved) steel formula. Numerous adaptations have been made, by both companies, yet there is no feeling of conflict. As a top manager of Svitola stated: 'things will slowly find their optimal solution for both sides'. Buki people have also tried to understand both Svitola's way of working and the limitations (e.g. the power of trade unions in Italy). An example of the adaptations Buki has made is asking their secretary to learn Italian. Major adaptations on Svitola's side are doubtless in the manufacturing technology, in the production process and, not least, in the production management.

After two years of dealings with Buki the production staff of Svitola started to realize that the traditional approaches to purchasing are not likely to yield the needed results. They seem increasingly convinced that closer relationships with suppliers (a high level of trust, commitment and information exchange) can lead to mutual gains in productivity that cannot be achieved with a large base of suppliers chosen mainly on the criteria of price. They voice the conviction that suppliers are a critical asset of the production system, just as any internal sub-unit. They have seen the benefits that derive from cooperation and the new attitude has been clearly summarized by one of Svitola's managers: 'Their problems are ours but ours are now also theirs.' They have been shown the way Buki works both from a technical and a relational point of view. Svitola has started to explain that to its major suppliers and communicated a future change in purchasing policy. Major suppliers have been summoned and left with a message somewhat

discomforting for the Italian context: 'Svitola will grow and the suppliers with us. Suppliers should be happy and honoured to serve Svitola!' The initial reactions have been of scepticism on the suppliers' side. The suppliers to Svitola can be put in roughly two categories: those that depend to a major extent on Svitola's business, as a rule mid-sized companies, who seem more willing to adapt to the change in policy, and those less dependent on Svitola's business (some of them larger companies) whose willingness to be part of the Svitola family is more limited. Svitola intends, however, to discontinue business with those companies that are not willing to commit themselves, whenever alternatives exist.

A year after the announced change in purchasing policy, most of the suppliers remain the same. Few have been abandoned, mostly when parallel suppliers were used. Those who seem to understand that Svitola really means business with its new purchasing policy seem to be those who in 1988 and 1989 were asked to supply components to reamers and have been through the process of negotiating some new quality standards then. According to the Svitola purchasing manager they are starting to see the benefits attached to this new logic. Some of Svitola's suppliers have been in touch with other operations of Buki Europe and started to supply other units producing Buki's mills and drills.

Svitola marketing people have had initially much less contact with Buki personnel and seem to perceive less advantages from the relationship. They seem, however, to appreciate the systematic approach to the market, driven by Buki ever since the first reamers started to be delivered to the European dealers. Some of the sale administration procedures have been developed but on the whole the sales organization has not changed much. The marketing people feel that Svitola has already learned the tricks (technological know-how related to the production process) and the continued relationship with Buki will be more adversarial, 'one with the competitor rather than a partner', and caution therefore against 'being too open' with Buki.

There seems to be only a limited awareness of the effects of the agreement with Buki on the dealer relationships. When trying to assess what has happened there a distinction must be made between the reaction of the Italian and other European dealers. Svitola's Italian dealers were very enthusiastic about the introduction of the new line of reamers as these were not supplied by any of the local producers at the time. Typically, Svitola's dealers have been able to increase considerably their sales volumes (between 10 and 30 per cent) during the first year of introduction. The relationship with Buki had thus a positive effect on Svitola's image among the dealers and helped to strengthen Svitola's bargaining position with its domestic dealers. There was no cause of conflict with Buki because their respective dealers were working with different end-user segments.

The situation was slightly different with the European dealers. Some of the markets were mature for the introduction of reamers. Even though most of the dealers were very receptive to Svitola's offer, many dealers had recently included reamers from other manufacturers, including Buki. In the case of a dealer already buying from Buki, Svitola was compelled, by a clause in the contract, to respect the dealers' historical choice. This restriction did not apply to the overlapping of dealers

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between Svitola and other producers. Nevertheless, a year after the introduction of the reamer line, Svitola still faced difficult negotiations with 'their dealers', trying to convince them to switch from other suppliers to Svitola. Svitola did not foresee this problem, nor had it a devised plan for the introduction of reamers. It introduced the new line simultaneously in all the countries where they had a distribution network. The reaction of some Buki dealers in Europe was interesting. Getting to know about the Buki—Svitola relationship they approached Svitola with requests for deliveries of mills and drills complementary to those delivered by Buki. No one at Svitola has developed any type of systematic, regular contact with Buki's dealers.

Neither of the effects preoccupies Svitola's marketing people. Yet, when these effects are analysed they seem significant. Nearly half of Svitola's dealers had introduced competing reamers shortly before they were offered Svitola's. About thirty Buki dealers approached Svitola with their requests. Summarizing Svitola's marketing people's feelings, we can say that they are not interested in making war with Buki. As a matter of fact, as they put it, 'we want no conflicts with the Buki people', but 'we want to grow together, against others and then further on in the future [when they both have larger market shares] maybe go into a frontal attack'. The opportunities created by the agreement with Buki are seen strictly in 'being able to offer reamers at very reasonable, perhaps too low, a price'.

Final considerations

The case history described spans a period from 1987 to about mid-1990. The cooperation agreement signed in 1987 seemed to be born from rather vague expectations of mutual benefits from the two companies. However vague, they seem to have been very important for the development of the venture, for the willingness to commit the companies mutually and for the building of trust between the companies. As the venture develops and involves numerous persons on both sides it seems to have had effects on the parties only partly foreseen when it started. Various organizational arrangements for dealing with possible conflicts have been introduced. What these may have been on Buki's part has not been assessed, except for some opinions of the Buki people met on the Svitola's site. The effects on Svitola seem, in hindsight, rather significant. Both the manufacturing practice and some of the way of operating in sales have been changed. While it is difficult to ascribe all of the changes to the relationship with Buki, there are some indications that a major part of these, indeed were consequent to adaptations made to the partner. In particular, the impact of the relationship on the management practice seems to be significant, although uneven throughout Svitola's organization. Managers who were more involved with the counterpart seem to give a different picture from those who were more marginally involved, or for a shorter time period. The effect of the relationship does not seem limited to the impact on the actual practice of management but also on the way management conceives the business of the company. Some effects of the latter can be traced not only to the internal activities of the company but also to the relationships the company has to its suppliers and customers.

5.3 MANAGEMENT ISSUES

The actor dimension is important in relationship development as it can reinforce or diminish the importance of activity and resource dimensions. The clue to management issues in handling the actor dimension of business relationships is the notion of a business relationship being a 'quasi-organization' with its resources, activities and actors. Also, in the first section of this chapter we argued that actor bonds have an organizing effect on business networks and that the development of the company depends on how well it succeeds in relating to others. Management issues involved in handling the actor dimension of relationships revolve thus about organizing.

If the process of relating to others is to be managed, and not left to chance, some insights are needed into how actors in business networks develop bonds, build up trust and become committed. From a company's point of view the issue is how to develop, maintain and use actor bonds in relationships to other companies. The intricacies and implications of this task are illustrated in the five cases in this chapter.

Three issues will be discussed with respect to the actor dimension of business relationships. The first is how bonds develop and can be used in relationships. It entails questions like how to monitor and how to intervene in the process of building trust and identity. The second regards how to use the set of bonds of a company and the web of bonds in which it is embedded in order to develop its capabilities, which entails the choice of partners, or rather, the problem of giving and getting priority to and from other actors in the network. Finally there is the issue of the role of identity and actor bonds in strategy development, that is, in maintaining a favourable status of the company in the network over time.

5.3.1 Handling the development of actor bonds in a relationship

Handling actor bonds in a certain relationship is very much a matter of handling their development and thus the two processes of identity-creation and trust-building, and to take advantage of and to use the bonds. The effects of trust and of the supposed identity are well illustrated in most cases in this chapter but in particular in the Measuretron, MTF and Omega cases. Measuretron's buyers project the trust in certain suppliers and lack of it with respect to other suppliers into the product performance rating of the suppliers. When the trust in the supplier is weakened, as in the MTF relationship to Chimior, it results in pressure on prices. The motivation in this case is interesting as it is one of 'the other's behaviour is not understandable'. A similar theme is present in Omega's relationship to Continental, Western and Premium, and also raises another issue, namely, of the asymmetry in trust and of identity and self-attributed identity. While Premium trusts Omega to the point that it judges the supplier non-substitutable, Omega clearly believes it is on the verge of being substituted. In the Omega—Continental relationship the mistrust of the supplier makes it difficult to introduce a different way of working together.

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The importance of the trust-building and consequences of the mutual identities for the relationship can hardly be overstated. Trust has to be kept at an acceptable level in at least the most important relationships, or else it makes it difficult to develop and use relationships. The problem has to do with the interpretation of actions by others, in reading them in terms of reactions to own actions and to own ambitions, and thus the differences in identity attributed by others and the self-perceived identity. It becomes difficult to develop a relationship in a desired direction when the actions taken are interpreted differently by the counterpart. This is exemplified in, for instance, the Omega–Continental relationship where the intentions of the buyer are not believed because certain clues are interpreted differently. A similar situation arises in Omega's relationship to Premium and in Chimior's relationship to MTF where certain procedural practices are taken as signs that contradict the goals declared and produce reactions that do not favour a development of the relationship that would seem advantageous for both companies. Attention and care for the way we and the counterpart are reading behaviours and the symbolic value of certain practices are emphasized in these cases. The identity attribution process interferes with that of learning and taking reciprocal advantage of the established bonds.

There is the problem of monitoring and intervening in the process of trust and identity-building. It depends on the fact that a business relationship tends to be a complex pattern of interaction between individuals and units involved. The width of the interface is rather effectively described in the Svitola and MTF cases where the interplay of numerous individuals and organizational units is captured. The complexity of bonds in a relationship makes it difficult to monitor and assess what is happening and makes it also problematic to intervene and direct the development of a relationship. It is problematic within the company itself and even more so at the counterpart. Single individuals can sometimes be extremely important, as is illustrated in the MTF case where the change of one person more or less destroys the whole atmosphere in a relationship.

Yet, if the ambition is to direct the relationship development, the problem of elaboration of the collective experience from interaction within a relationship has to be coped with. Intervening in the relationships to create bonds hierarchically ('by order') from the outside has effects which are often illusory, despite good intentions. MTF and Measuretron are good examples (as well as for instance Swelag in chapter 3) of failure to introduce the desired changes in such a way. A similar situation is Continental's attempt to elicit cooperation from Omega. Monitoring and intervening in what is happening in a 'quasi-organization' of the type represented by a relationship poses peculiar problems.

Coping with the problem is illustrated in a few of the cases. One often attempted solution is account management, i.e. giving a person responsibility for monitoring the relationship. An example is Chimior's system of national account managers. The division of responsibility between commercial and technical account manager can also be found in other companies, for example in Svitola and Buki. In the other cases there are either sales or purchasing managers who have this kind of overall responsibility for a certain counterpart. It is easy to see the

benefits but also the shortcomings of such a solution. Another solution is to develop routines of regular meetings between some of those involved in both parties in order to assess and discuss the development of the relationship. A good example can be found in the Svitola case. The two most obvious positive effects are that this does not take away the complexity of the relationship as different functions/persons and different issues can be dealt with and this in itself is a symbolic act of willingness to cooperate. The latter helps to manage better the interpretation of behaviours by the counterpart. It helps each party to become aware of the fact that its acts are interpreted by counterparts and if it wants to get some control over this interpretation it has to be involved in it. It has to give 'meaning' to it.

The interpretations of what is being done, besides trust-building, are related to the width and depth of the interface. Broadening the interface can strengthen the bonds and lead to better understanding of the identity attribution, besides having positive fall-out in terms of learning. Omega with respect to Continental, Buki in the Svitola case, and Sunds with Brown & Root, all have had their own people continuously at the customer site and put value on many entry points. Besides being an effective solution to the possible communication problems, this arrangement is also a symbolic act that conveys certain meaning. One could go as far as to hypothesize that Continental having more trust in Omega than vice versa might depend on symbolic meaning of the sales technician being continuously present at its site.

The problem of handling the process of bonding in a relationship is often taken for the problem of information flows. Rather than being a problem of information, the problem is one of communication, that is, interpretation of actions and counteractions and not access to information. To manage the actor bonds development requires intervention in the interpretation and elaboration of experience. This process is often poorly managed as the Omega case in particular shows. Broadening the interface is not only a way to obtain access to the counterpart but of making it easier for others to create the identity as desired. The opening of their own organization and showing parts of their own network have been major factors in acquiring identity in the Sunds case with respect to Champion. Interaction is a way to develop bonds.

Bonds take time to develop and do not result from short-term behaviour. In the Measuretron case the representatives of the purchasing company claim that when the day-to-day business is well taken care of they are not interested in getting information about alternatives. The efficient day-to-day activities give in this way a safer long-term position for the suppliers. On the other hand actor bonds resist remarkably over short episodes. Bonds established with different units within the MTF group helped Chimior to keep the interaction alive even when the relationship was very much frozen down. A major obstacle to positive development appears to be opportunistic short-term behaviours.

While meanings of behaviours in a social network setting may be difficult to assess and understand there seems to be more common ground in business relationships. The logic of business tends to be similar for most companies and

this facilities understanding. A major conclusion and recommendation for coping with the actor dimension in a relationship is that it pays to be as straight, simple and understandable as possible. Bonds are not only to be used as vehicles of learning but also as vehicles of teaching.

5.3.2 Building a set of counterparts – to give and receive priority

Actor bonds are important for the development of a company's capabilities, not least because they are a prerequisite of access to the counterparts, their resources and activities and thus a condition for effective learning and capability development. Thus a management issue is to develop bonds that will favour the access to necessary competence. Companies need bonds to those whose activities and resources are directly related to those of the company as well as to others less directly connected to the existing business but maybe more so in the future. Companies have relationships and bonds to different counterparts and the value and importance they acquire depends on how they connect between relationships. How different bonds become complementary is described in many of the cases; a good picture is provided in the Sunds case or the NME case in chapter 4.

If there is an area where the discretion of a company has been believed to be high it is in the choice of counterparts. The practice, as the presented cases show, is different. A number of factors, other than short-term economic convenience, affect and constrain the freedom to choose partners. Some of a company's relationships are very difficult to substitute. Their importance, the huge investments in them or their complexity, make it difficult to initiate new ones as well as to change existing ones. As a rule the critical relationships are demanding and thus compete for the attention and other resources of the company; to develop and maintain bonds takes time and is not cost-free. Dense relationships and strong bonds cannot be maintained to everyone. There is a limit to how many relationships a company can handle also because of possibly conflicting identities. A related issue is that while it is easy to have ambitions with a relationship it can be difficult to get the counterpart interested. The Omega case hints at some of these difficulties for Continental and Premium in particular. The development of bonds has to be mutual, which entails a special difficulty of not only giving priority but also of getting the priority from the counterpart.

Still there are changes and new relationships become established and old ones eventually decay or are interrupted and changes in the set of key relationships with respect to bonds are important to the company's identity. The problem of giving and getting priority to counterparts is a central element in any attempt to use bonds in order to develop the capabilities of a company and entails defining the principles for handling those changes. Companies always have, explicit or only implied, principles for giving priority between existing relationships in different situations. They are always there because the different relationships compete for attention and capacity of management. These principles are critical to the overall development of companies' potential and performance over time. When we look at the cases to see how the different companies have handled their

way of giving priority, in some of the earlier cases, for example Glulam and Vegan, the companies have had very clear views of whom to give priority to. In the cases presented in this chapter the handling of priority seems more problematic. The MTF case is an example of what can happen when different units involved bring in different priorities. The conflict in the case is solved by excluding most of these intervening units. The Sunds case illustrates the fact that the problem is both of giving and getting priority. The company had first to find a special way to induce the customer to reciprocate and after that signal that it was given high priority. In the Omega—Western case the customer is given the highest priority but the problem is a feeling that it is not reciprocated. Instead there are other customers, e.g. Continental, giving Omega priority but uncertain about being given priority from Omega.

The cases point to different criteria being used. There is first criterion of short-term economic convenience. The priority is given to counterparts that are 'easy to deal with', those that require little effort and produce good results. An excellent example is the Measuretron case when good suppliers are described as those causing no troubles, they are also those with whom the strongest bonds exist. The second type of criterion is inspired by a counterpart's contribution to the short-term cost or revenues of the company. It results in giving priority to suppliers or customers that have major impact on the economic performance of the company. This is clearly found in the MTF case but also in the Sunds case. In both these cases the focal relationships are evaluated or assessed in these terms from both the buying and the selling side. The third type of criterion used is more long-term oriented. It is related to the development effects of the counterpart on the company's capabilities. Accordingly preference tends to be given to customers, suppliers and partners the company wants to have tomorrow rather than today. This type of criteria can be found in the Omega case where, for example, Western Auto clearly is using this criterion and in the Svitola case when the Italian company is evaluating the Japanese counterpart.

There is often the tendency in companies to apply one criterion generally to all counterparts. Such a practice leads to under-exploiting the existing relationships. The network view emphasizes the specificity of counterparts that, if accepted, means that differentiated criteria should be used as the roles of the counterparts are differentiated and complementary. The important thing is to ensure that the set of counterparts forms a meaningful totality. That applies to both the supplier and the customer side. The meaningful totality is one where the existing bonds in single relationships can be effectively connected and used to strengthen the bonds when needed. The Sunds case provides perhaps the best example among the cases in this chapter.

5.3.3 Manoeuvring within the web of actors

Actor bonds have an important role to play in strategy development of a company, that is, in the manoeuvring for position in the network. There are three issues in particular that merit the attention of management. The first is the role of bonds

for the character and identity of the company that affects its capabilities and their development. Relating to others requires development of strong bonds. The Svitola case illustrates this problem nicely. Sunds and Omega also provide good examples. Bonds in one relationship lead to strengthening of other bonds, thus opening possibilities to draw on other elements of substance in these. Certainly, this is critical for a company's long-term development of character and identity. Bonds in the relationship with Buki are used by Svitola to transform other relationships and to build new ones. Sunds draws on the bonds developed in existing relationships in order to get the order from Champion and then uses the new bonds to strengthen its position in the web of actors in the US. Omega is trying to use the bonds in the relationship to Continental to enhance its position *vis-d-vis* the other customers.

The second issue concerns the developments in the web of actors over time. There is a need to identify, read and interpret moves or changes in the network in order to direct the conduct of a company. The existing and evolving bonds facilitate this task. Again the Sunds and Svitola cases illustrate rather nicely the role of bonds to others for reading the trends and changes in the network. Sunds' bonds in relationship to the parent company SCA and MoDo provide numerous opportunities to monitor changes in the web of actors. In the same manner Svitola uses Buki, and Continental tries to use Omega. The reading may not always be very systematic and sometimes is not attributed due weight. Changes in bonds between third parties affect the future position. Globalization in Continental's operations will surely affect the standing of Omega and can only be monitored to the extent permitted by the existing bonds.

The third issue regards the possibilities to direct the development of a company's own position in a network to some desired status. Companies strive to develop their own set of relationships in order to get a more central or powerful position within the larger network, but as we observed several times, this cannot be done unilaterally without having the support of at least some other actors in the network. Actor bonds are a condition for mobilizing others if change in the position is to be achieved. Networking in the narrow sense, that is, developing bonds to certain other players in the network amounts to making alliances for the short or the long term. The actor bonds in the Swedish paper and pulp producers net can be mobilized to acquire a desirable position within the US market by Sunds. Buki turns to Svitola to achieve a similar position for development in the European market as the new product is introduced. Success in mobilizing an alliance of actors is very much a question of bonds and resulting identities.

All these examples illustrate the importance of having partners who have the right partners at the right moment, and the effect of bonds on the organizing of the web of actors and thus of the overall network. We have already seen in the Vegan case in chapter 4 how this can be done consciously and systematically. Among the cases in this chapter, Sunds illustrates a clear strategy or ambition in this respect. The company has some target customers which it successively moves towards. Most companies do not have this conscious and systematic approval. Instead, by using what can be perceived as efficient short-term criteria as

guidance, they tend to be headed for a disaster in the long run; following short-term criteria can give them counterparts without future. A daring interpretation of the Omega case could be that attempts to manage relationship have been made, but without a clear consciousness of the interdependences. The Measuretron and MTF cases seem then to be at the opposite extreme, they show how a unilaterally induced change can be difficult to achieve when insight into the mechanism of the actor dimension is low.

One, for some maybe disappointing, conclusion is that as it is impossible to foresee what might happen. The company should not try to be 'too smart all the time' or 'too economically rational' in each and every situation. It seems to pay to be prepared for different possibilities and also to know that in order to survive and develop you have to have counterparts who are also likely to succeed. The healthier the network that a company is taking part in, the healthier the company itself is likely to be. A concern with the situation of the counterparts is thus called for. The picture is, however, available only if solid bonds exist. On the other hand solid bonds may provide a possibility to assess and mobilize even indirectly connected actors whose character is of interest to the company.

5.3.4 Managing actor bonds

Actor bonds in relationships between companies have an obvious importance. They can limit or enhance the opportunities offered in business relationships in the actor and activity dimensions. As such they require management attention. The major issues for management identified in the above discussion can be summarized in the following:

1 Bonds amount to the process of building trust and identity and affect the character of the company. The mutual identities in a relationship need to be monitored and possibly directed. Disregard for existing bonds is likely to produce negative effects.

2 Monitoring the development of bonds requires handling the communication and the way in which the interactions of individuals in the two companies are attributed a meaning. Broadening and deepening the interface provides conditions for development of stronger bonds that can be exploited in different ways.

3 Strong bonds can only be maintained with a limited number of counterparts, and require investment and conscious priorities to be given to certain relationships that are critical either for the company's capabilities or its position in the web of actors.

4 Discretion in the choice of 'preferential' counterparts is limited by the extent of existing bonds and by the perceived identity of the company.

5 Bonds are important means to gaining intelligence about the trends and changes in the web of actors and permit a company to read the likely developments.

6 Strong bonds to others are necessary in deliberate attempts to change the

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position of the company within the network. They are a condition for forming both defensive and offensive coalitions and alliances required in order to manoeuvre for position.

6 Stability and change

in business networks

The picture of business networks as it emerges from previous chapters evokes the dictionary definition of a network as 'a fabric whose component strands are knotted, twisted, or otherwise fastened to form an open mesh' — a structure without one centre of gravity where components are connected in an open mesh. The case histories in the preceding chapters provide examples of more or less tightly linked activities, more or less closely tied resources and of actors with more or less strong bonds in relationships between companies; they contain numerous examples of how relationships affect companies as actors in business networks. Business networks have an obvious, quasi-physical, appearance of complex interdependencies that affect investments in equipment and physical facilities, numbers of people involved and their contact nets, the knowledge of individuals and organizations, and organizational routines.

The existing pattern of relationships in the network is a result of experimenting with various connections and combinations of activities, resources and actors. While the different elements can be connected, combined and developed in many different ways, a huge number of hours have already been invested in the existing connections that form the network structure. The existing structure is thus a result of 'solutions' adopted in the past and in this way the base ground for future developments. That is why the structure of a business network displays in many respects a remarkable degree of stability and continuity.

While the total pattern of business relationships appears relatively stable, new relationships develop and old decay over time and, above all, the existing relationships between companies change in content and strength. Looking at the different company case histories this 'continuity of change' in business relationships and thus in the structure of networks is rather evident. Supplier or customer relationships grow stronger or weaker, new customers and suppliers are looked for and approached. The connections that make up relationships, the actor bonds, activity links and resource ties, change more or less continuously. Because of the connectedness of business relationships the changes propagate throughout the network. Changes initiated in a part of the network tend thus gradually to involve other parts of it. The amount of change going on in business networks is at least as striking as their structural stability or continuity.

Stability and change may seem contradictory features but in business networks

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they coexist. They are two inseparable features of the networking process that we will try to explore in this chapter. We argue that in business networks they are dialectically connected and causally interdependent and both are important for the network dynamics.

Change in business networks can be caused by both exogenous and endogenous factors. Exogenous factors such as changes in the general economic conditions, social, technological and cultural developments, will create new basic conditions. Actors within the network will adapt to these external changes and initiate changes in their relationships. These will be transmitted as counterparts react to others. But there will also be from the network point of view changes initiated endogenously. There will always be some good reasons for at least some of the actors to initiate changes in at least some of their relationships. Business relationships will never be in anything that can be described as 'equilibrium'. Changes initiated, for whatever reason, affect others and cause reactions and counter-reactions.

In our discussion of the change in business relationships and networks we will focus on the networking process – the connecting of links, ties and bonds, which we believe is the origin of much of the change in the network. We will be looking into how the way in which each of the substance dimensions of business networks (actors, activities and resources) is related to the other two changes over time. Activities are performed by actors using resources. Resources are controlled by actors and acquire value through the activities they are used in. Actors get their identity in relation to other actors through their performance of certain activities and control and use of certain resources. The way in which the three dimensions are related is systematically developed as actors interact. We will use the notion of 'network logic' to describe the rationale in how the connections between resource ties, activity links and actor bonds develop and become manifest in the pattern in which actors, activities and resources are bonded, linked and tied together.

As changes occur in the network and involve the context of relationships of a company they require a more or less continuous coalignment of the behaviours of a company; the actual connections – bonds, links and ties in its relationships – need to be adjusted as the context changes. Changes in the network, generated by the company itself or by others, will affect its relationships and thus, most likely, its performance. In the management perspective the problem becomes one of how a company can cope with change in the network when it has virtually no possibility to predict with any accuracy any future state. Major issues for management are: how to assess and interpret the changes, whether the company is to absorb or promote change, and how to handle it for its own advantage.

In this chapter we will propose a framework for assessment and interpreting of change in business networks following two lines of argument. The first is that forces that generate change in business networks can be identified. The second is that understanding of the mechanisms and processes of change rather than attempts to predict their effect can help management in companies in coping with change. In the first section we will discuss briefly the characteristics of the

networking process. In the second section the concept of change vectors in business networks will be developed. Section three contains three case histories that illustrate the various issues involved in coping with change in companies. We will come back to the management implications of network dynamics in the final part of the chapter.

6.1 THE PROCESS OF NETWORKING'

Many of the cases presented in earlier chapters described how companies take part in change processes and try to develop and change existing or establish new relationships. Companies develop products, try to make production processes more efficient, introduce new solutions in the organization and so on. In all these changes carried out by companies some external parties are generally involved in one way or another. Looking at changes from a relationship perspective it seems possible to identify three types of factors that can cause the need to change. First, there can be company internal factors; someone within the company gets the idea of doing something in a better way. Second, the interaction in the relationships to some of the counterparts creates a situation that has to be solved by making a change or suggesting one to the counterpart. Third, there may be developments somewhere else, among third parties, or in society generally that produce change that will, at a certain stage, affect the relationships of the company and thus create a need for some adaptations.

Applying the relationship perspective to the issue of change in business relationships and networks leads to two tentative conclusions. One is about the importance of endogenous change. A network of business relationships is never optimal or in a state of equilibrium and will certainly change when there are exogenous changes, but it will also change when there are no such exogenous changes. The second is that the change process is driven by interactions in relationships. Change is generated and carried out by actions which to some extent always are reactions to earlier actions. This means that stability and change become related to each other, they will be each other's base. The network of business relationship can thus never be seen as a stable structure. It is a structure with inherent dynamic features, characterized by a continuous organizing process.

6.1.1 Endogenous and exogenous change

It is common to assume that change in a market system is either an answer to change in external conditions, or the effect of entrepreneurial acts of individuals. The change factor is thus assumed to be either endogenous of the collective actor (the company) or exogenous of the whole system (the network). We profess that change in a business network is to a large extent endogenous in relation to the network but exogenous of the single actor. Substantial changes are initiated and carried out as companies interact. Actors promote change, as they always have both reasons and opportunities to make changes in the structure of the network.

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Every relationship can be developed and its substance (links, ties and bonds) can be changed. There are also opportunities as well as good reasons to relate different relationships to each other in new ways.

There are three major reasons for changes in business relationships. The first has to do with the fact that they are built up by a combination of individuals and resources. Individuals are curious and learning, and the resources are heterogeneous, i.e. there are always things to learn. Thus, some changes will occur as individuals learn how to utilize new dimensions or new combinations of resources in relationships. The second reason has to do with the fact that relationships are developed by individuals performing activities that are linked to others' activities. The activities are interdependent and the individuals are boundedly rational. Generally, the interdependencies between the activities are so complex that the individuals can never fully observe or comprehend them. Given the complexity it is only natural that different individuals' perceptions of the various activity links vary. As many of the case histories in previous chapters indicate, quite different views often coexist of how the activities performed by different actors are, and should be, linked. The different and contrasting perceptions of the links are at the origin of some changes in business relationships where they are confronted between actors and changed. The third reason has to do with the fact that relationships are built up by individuals who try to act purposefully and relate organized collective actors such as companies. The survival of companies depends on the fact that they can accomplish something for the individuals brought together within a company which, in turn, requires that they can accomplish something for the counterparts and obtain something in exchange. Actors are constantly looking for opportunities to improve their positions in relation to important counterparts and are therefore looking for opportunities to create changes in the relationships. The interest in strategic questions shown by the companies is an indicator of how important this question is.

It is important to notice that all the three reasons for change are not simply consequences of a 'defect in the rationality of individuals'. For we know that individuals and thereby actors in business networks try to be as 'rational' as possible when interacting with others. The problem is that the heterogeneity of resources and the interdependencies of activities offer so many possible paths of development that the only possible (rational) resolution is an incremental development in a continuous interaction with others. Ideas, vague to begin with, are tried out together with others, and put in practice. It is through confrontations and adjustments in relation to others that new or modified activity links, resource ties and/or actor bonds are developed. The motive for the change can thus be the struggle to find stable arrangements and to experiment with workable solutions; the effect, paradoxically, is that change is generated in business networks.

Development in any business network can also be influenced by exogenous factors like changes in general economic conditions, new technical solutions developed within other networks or other types of change. Such changes will, however, always be transformed into or at least combined with endogenous

change parameters. Thus, they will not influence all the actors in a uniform way but will be used by some of these in order to develop their positions. Relationships will in this way function as a transmitters and transformers of the exogenous change.

The development in any network is also influenced by the entrepreneurial action. There are always individuals who have new ideas with respect to activities performed or resources used. But, in order to carry out these in practice some relationships need to be developed or changed. Thus, relationships will be the means to carry into existence an entrepreneurial idea. Furthermore, the idea is never accomplished; it will, as it always involves others, be developed in relationships to others.

6.1.2 Interactions and joint actions

Relationships are developed from interaction processes. Actions and reactions are executed by the different actors in series. Changes aimed to stabilize or to change the networks are always a matter of two or more actors working together with or against others. The actors adjust to others as they know, from experience, that it is the only way to get others to adjust to them. Interactions thus lead to joint actions among actors that shape the structure of business networks and create the connected relationships and result in ties, links and bonds. The elements of a network structure are thus neither invariably related to each other according to some predefined design nor are they totally free to relate to just any other actor unilaterally. As a consequence no single actor alone is capable of maintaining or changing the structure of the network.

Whether a company is striving to stabilize a certain situation or attempting to change it, the outcome of its efforts will depend on how its counterparts react and adjust. While the perceptions and interpretations of the individuals differ, they are developed on some kind of common ground of shared understanding, or else the coordination of activities and mobilization of resources would not be possible. Hence there is some kind of collective network logic that makes interaction possible and thereby is also the ground for changes.

Innovation can be initiated in extensive and stable relationships. They can be the base for the development of a new product or a new production process. In another situation a company may have to change its production facilities in order to secure an already existing relationship. Change in one dimension of a relationship can be a prerequisite for stability in another, and vice versa. Much of the change in business networks aims at achieving a certain degree of stability. This does not mean that there is ever any such a thing as an equilibrious state in business networks, but it certainly means that a 'steady state' is what makes a purposeful action possible. Companies pursue in their acts some kind of workable steady state that makes it possible to carry out their activities so as to achieve 'economies'. (We will discuss this further in chapter 8.) In the same way stability is often a base for making changes. In chapter 4 we concluded that in order to learn from each other there is need for continuity. A number of different factors

(technical, social, economical) concur in generating change in business networks and complex connections exist in major relationships between activity links, resource ties and actor bonds. If all dimensions were changing continuously or at the same time there would be no common ground for interactions or joint actions. Stability in some dimensions is a condition for change in some of the others.

Even though by pooling their knowledge, resources and activities the actors in a relationship can cope with the complexity better, their view of the connections and the effects these are likely to produce will always be limited. As it evolves, it is likely to lead to adjustments of mutual links, ties and bonds. Connections in the relationship are the recipients of change as much as its generators. Business networks appear thus as structures where stability can be transformed into change and where change can be performed in such a way that it economizes on already established conditions.

6.1.3 The network organizing process

The change in business networks is evolutionary. It does not tend to a state of equilibrium as hypothesized in the classical picture of the market mechanism. Nor does it follow some hierarchical grand design established once and for all by some mastermind. Business networks are always the result of a continuous collective organizing process consequent to the actions of its actors who, with only a partial understanding and control of the overall structure, take action *vis-a-vis* single specific other actors. Actors in a business network may act purposefully, under norms of rationality, but they always are bound by the interactions to others. The actual form of the network is a product of its past and determinant of its future form. It is a workable compromise for today that is bound to change tomorrow.

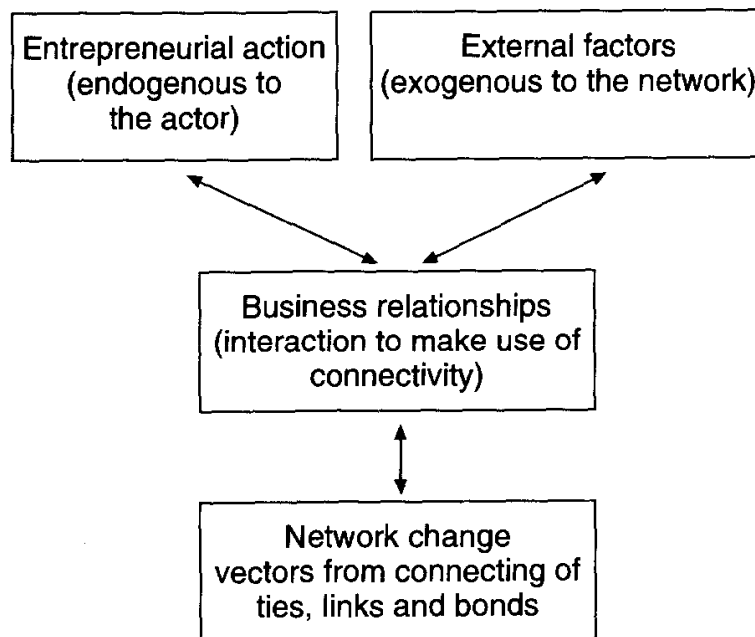


Figure 6.1 Factors of change and the process of networking

That is probably the only thing all the actors can be certain of.

Based on the previous discussion, however, we will argue that it is possible to identify certain patterns in the change processes in business networks. Changes initiated for any reason are carried out through the interaction between actors trying to take advantage of the heterogeneity in resources, handling the interdependencies between them and positioning themselves in relation to others. Thus, we assume that the collective characteristics of business networks tend to produce a network logic where activity links, resource ties and actor bonds are combined and developed in a purposeful and thereby understandable way. Connections between ties, links and bonds will not just be developed by chance, they will follow some kind of rationale that we will call network vectors.

The outcome of the change process in business networks in terms of its configuration will result from partly conflicting tendencies based on the partial framing of circumstances by the actors involved. The arguments put forward in this section are illustrated schematically in Figure 6.1.

6.2 VECTORS OF CHANGE IN BUSINESS NETWORKS

Structural change in business networks is continuous; thousands of small and large changes are occurring each day. Some of these concern technical features, others organizational, commercial or social aspects. In order to cope with these analytically we need to identify some more general dimensions in these changes. Companies have to do the same. Some of the characteristics of the network change process, identified in the preceding section, can be used to identify such

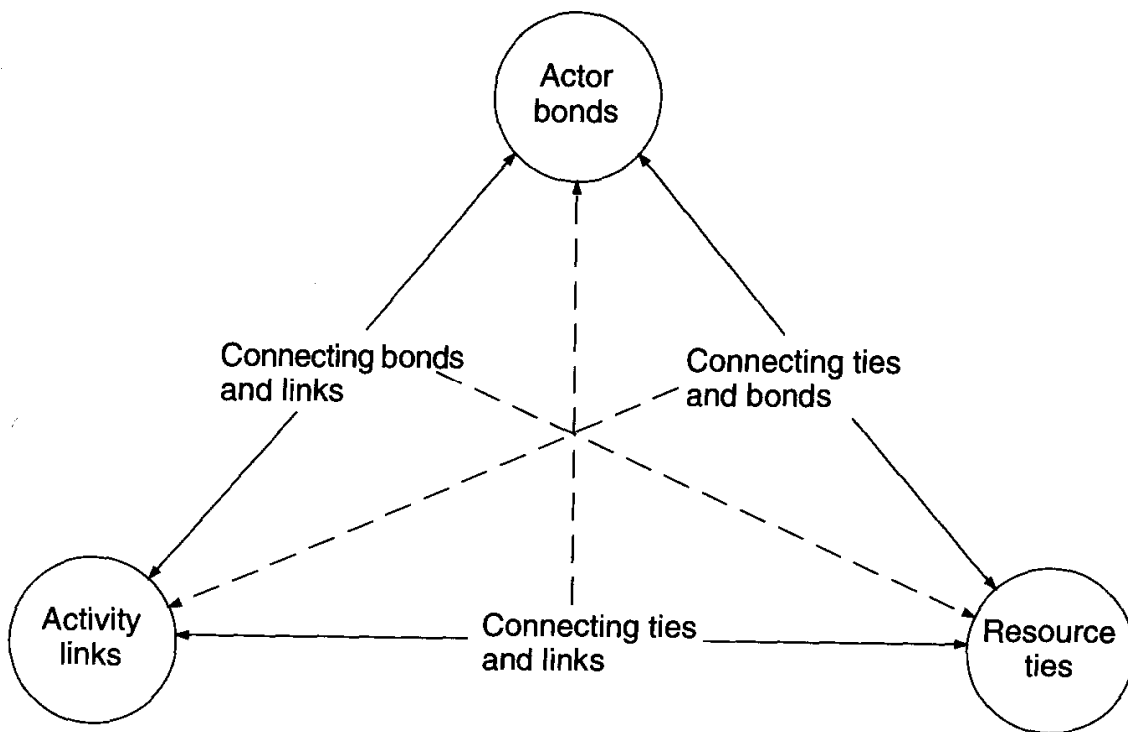


Figure 6.2 Dimensions of change in business networks

dimensions. Our main argument was that the most important dimension of change in business networks concerns the development of activity links, resource ties and actor bonds in relationships. These are not just recording the effects of change, they are also one of its main sources; that was our conclusion. As links, ties and bonds are developed within one relationship they are also combined and connected to each other. The development of relationships brings them together in different and sometimes contradictory ways. We thus believe that three dimensions of change in business networks can be identified with the interplay of links, ties and bonds as a starting point (Figure 6.2).

The interesting dynamic effect of connecting the pairs is that the effect on the third content dimension can vary. Consequently, for example, how links and ties are connected will affect in different ways the actor bonds. As we will show later it is possible to distinguish two main vectors in terms of effects on the third content dimension for each of the connections.

The importance of these changes to every company is obvious when it is realized that the very purpose of a business enterprise can be described as a 'novel connecting' of links, ties and bonds. Thus, the changes are closely related to how new connections are discovered, interpreted and enacted by the actors. Relationship development is the mode in which the connections become manifest. The actual changes in the network will, using the same logic, reflect how the network actors converge or diverge in their views of the necessary and of the possibilities to connect the links, ties and bonds.

6.2.1 Connecting activity links and resources ties

Activities are performed in companies in order to transform and provide resources but at the same time they are consuming resources. Resources acquire value in relation to the activities they are used in. At the same time availability of resources limits what activities can be carried out and what cannot. What can be done is dependent both on the resources and the activities.

The connections between resource ties and activity links concern the technology and economy. The amount and type of resources required in order to carry out a certain activity translates into costs. The amount and type of resources that make certain activities possible reflect the existing technology – the knowledge of use of resources. The input–output ratio, i.e. efficiency in resource transformation, both at company and network level, results from connections between activity links and resource ties. It develops through changes in combining activity patterns and resource constellations between companies and the resource collections and activity structures within companies. They affect thus the resources used in the activities carried out in companies and how these are linked and tied among companies.

The connecting of links and ties will affect actor bonds in either of two ways. The first one is that it might strengthen the existing bonds, which we will label the 'structuring vector'. Companies, actors, are under economic pressure, thus there is always a reason to economize, i.e. to reduce the use of resources that

concerns very much the connecting of links and ties to each other. The cases presented earlier offer examples of this economizing in the production or development of a product (e.g. Swefork) as well as in purchasing components (as in the Swelag case) or marketing products together with services (Vegan case).

As companies continuously strive for 'economy' there will be a tendency that the activities within each identifiable network successively are getting more and more elaborated and linked to each other and to the resources used. Each network becomes more tightly structured; elaborated as an earlier structure is refined. As there are numerous ways to reduce the use of resources there will always exist opportunities to continue this process even if in relation to a specific network it probably slows down over time. 'New' networks, those that developed recently, seem to have a larger potential for restructuring than old ones. But, as 'old' and 'new' networks always are interrelated, the strength of the structuring vector will depend on how the company defines and specifies its network horizon.

The existing web of actor bonds is stabilized by systematically relating the existing activities with the existing resources. It has a structuring effect on the network, making the physical structure in terms of links and ties follow the network logic. The structuring vector is often relatively easy to identify and assess as it can be related to indicators, as for example yield figures used in many industries. Figures for the consumption of raw materials or energy in process industries can be a good example. Another example can be the figures for how much of a certain type of material a car consists of in the automotive industry. The effects of the structuring process are by no means automatic. There is need for very substantive efforts in order, for example, to reduce by 5 per cent the use of steel in a certain construction. Yet, the structuring vector tends to be rather strong and its effects on the business are readily perceptible.

There is, however, another possibility in how links and ties can be connected. Resources and activities can be combined in a novel way, not used previously. New activity links can be created out of given resources, or new resource ties can be found in order to perform given activities. We emphasized earlier the heterogeneity of resource use and observed the effects of novel activity—resource combinations. Now and then there will be 'developments', as someone learns how to combine some specific resources in an old or a new activity. These developments can be deliberate or the outcome of chance or necessity; companies experiment with solutions, or are driven to devise solutions to problems as they arise. Developments can result from deliberate actions taken by companies looking for new activities where existing resources can be used or experimenting with using new resources in existing activities. Developments also occur by chance when actors reflect on the results from mistakes or spin-offs. The new combinations of resources and activities can sometimes be compatible with, but most often are in conflict with, the existing web of actor bonds.

When such changes coincide and involve several actors within a network they become a vector which works in the direction of reshaping the existing structure of actor bonds. We will use the label of 'restructuring' (or heterogenizing) vector' to denote such a direction of change. Several different structuring forces may be

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working in a certain network at the same time without any of them gaining enough support to affect the structure of the actor bonds in a network significantly.

The restructuring vector in the network tends to lead to new bonds being developed between actors, or to the entry of new actors in the relevant network of the company. The effects of the restructuring vector on the economy of the companies involved can be less immediate. Novel resource–activity combinations, new technologies, may affect the costs of operations (amount of resources needed for a certain output) in the company and/or at the network level. The impact on the individual company's economy is often on its effectiveness, that is, the type and amount of output; this may produce 'economizing' and efficiency within the whole network but not necessarily at the individual company.

Looking at the combinations of activities and resources in a network within the horizon of the single company we will often find structuring and restructuring (heterogenizing) vectors at the same time. They always will be driven by coalitions of actors. A single company has to relate its own development activities and ambitions to either of the vectors. Product development as well as production investments should be assessed with regard to the momentum of the prevailing vectors. Furthermore, cooperation with different partners (suppliers and customers) must be analysed in relation to how these partners work and anticipate these vectors.

6.2.2 Connecting actor bonds and activity links

The connection of actor bonds and activity links results in the organization of the activities within the network, that is, how activities are allocated and linked among different actors. Over time two different types of change take place if we consider effects on resource ties. First, some actors choose to concentrate, i.e. develop stronger bonds and activity links with only some counterparts. As an effect, the existing resource ties become strengthened. Second, some actors try to link their activities with new types of counterparts. This basically means that a standardization is taking place which in general will loosen up the existing resource ties. This change in the scope of actors' activities can be expected to be a never-ending process that reflects the changing experience, perception and learning of the actors.

The possibilities to vary the allocation and connections of activities between actors are endless. In more practical terms there will always be changes in how suppliers and customers divide work between each other, that is, how they specialize; this is true for each transaction stage in all chains in which a company is a part. Given that the network structure reflects the interdependence of activities and heterogeneity of resources it is impossible even to think in terms of a long-term optimal solution in the scope of activities carried out by a certain company.

Two tendencies can be discerned in how companies combine links and bonds, that is, how they change the scope of their activities, elaborate and rationalize the activities they carry out within the company, in relationships with others. One is

a tendency towards specialization. Over time, some actors tend to specialize, that is, focus on certain activities for a specific group of counterparts. This way was followed by Glulam in relation to its main customer and it was also the path followed by NME. Activities carried out are elaborated and adapted to the next (or previous) stage of activities in a certain specific activity chain; the bonds are strengthened. Activities thus become more closely connected to an existing actor structure. They are linked to those preceding or following in a given activity chain. The tendency to specialization becomes manifest within the company in the emphasis on cost efficiency of activities and in relationships to others and in a preferential orientation of a company towards a certain type of counterparts, typically towards a relatively homogeneous customer or supplier group. Thus, specialization entails developing the way in which activities are performed and thus focus on certain actors. That affects in what way resources are used. The resource ties in the relationships become strengthened — more specific.

A second tendency that has effects on resource ties is towards generalization in activity links and actor bonds. This is the case when a company attempts to broaden its activity scope and tries to link the activities it performs to some other activity chains than the actual one. An example in the earlier cases is Swelag trying to link up to new activity chains in its purchasing. This tendency becomes manifest in the orientation of the company towards customers or suppliers with rather different types of technology or organization and in emphasis on developing new connections of activity links and actor bonds. A certain activity is in this case combined with a new activity, usually a 'new' counterpart and its general capability is tried out. The effect on the resource ties is that they are weakened. The specific ties within the relationships are substituted with a general technology interdependence. The actors within a certain network following this development path will together establish a generalization vector.

The allocation of activities among the actors reflects their competence and capabilities, and the perceived identities with respect to resource utilization and skills. How the set of activities in a certain business enterprise will develop depends very much on others' perception of the company's capacity to provide value within the relevant activity chain. The latter will in turn depend on its position in the overall activity pattern.

The 'specialization' process is always evolutionary while the 'generalization' process can be both evolutionary and revolutionary for the actual resource constellation in the network. Specialization is evolutionary as it is a reaction to the possibilities uncovered in interaction with existing suppliers and customers. These opportunities will mainly reflect the existing network logic and each development step will thus be elaborating the existing structure. The process pushes towards a refined specialization of each unit in the chain.

Generalization always involves 'experiments' by the firm driving such changes; it leads to change in the scope of linking and bonds with others. It is evolutionary when it slowly and successively grows out of attempts to broaden the use of a certain activity by linking it with other activities. In some situations when the results prove positive the change can become drastic — it can become

a revolution for the established network. The development of bonds to new actors often seem necessary and limit the pace of such a revolution in business networks.

The 'specialization' and 'generalization' vectors will be found side by side with varying strengths and handling them is an important issue for management. Companies pursuing specialization tend to subordinate to a logic of a specific activity chain and tend to develop their skills accordingly. Those that pursue generalization follow the logic of exploitation of a certain skill base for whatever purpose. The design of activities and direction of the development of the activity structure of a company are subordinate to the direction taken in questions of specialization and generalization. The 'specialization' makes it more difficult to connect to other chains. The 'generalization' thrust, attempts to find possibilities to link up with other chains or actors, leads to a decreased linking in the established chain with accompanying possibilities for conflicts and development of new activity chains.

Sometimes opinion is voiced that the specialization—generalization tendencies in a network are cyclical, with periods of dominating specialization followed by periods of generalization and so on. It is argued that the specialization allows development of a competence base to be exploited in subsequent generalization, i.e. that focus in scope provides for broadening of the scope. In the network view the two vectors are closely intertwined. The vector of generalization is as much a condition of specialization as the other way round. Both have a bearing on the external relationships of the firm, its web of bonds and how it locks into the activity pattern as much as on its activity structure and organization.

6.2.3 Connecting actor bonds and resource ties

In order to perform some specific activities a set of resource elements is required. The availability of this set of resources can be considered a limiting factor for what an actor can do. Companies use resources of different types in carrying out their activities and strive to achieve control over a resource base that allows them some degree of discretion and development.

Some resources are more critical than others in the performance of certain activities. The nature of the activity pattern and the overall availability of resources are important factors in this respect. By controlling the critical resources an actor can gain advantages over other actors. Striving for control of resources is a clear tendency in business networks. The actor bonds—resource ties dimension is principally a matter of resource control or availability.

The connecting of actor bonds and resource ties can produce two different effects on the activity links. First, increased connections between actor bonds and resource ties is combined with tighter activity links. Connecting of bonds and ties can in principle be achieved in either of two ways: through formal bonds (ownership) and through more informal bonds in relationships to those owning the resource. Both types make it possible to preclude others from using a certain resource. If the resource is necessary for performing a certain activity, the actor

gets some hierarchical control over activities and activity links in which the specific resource is used. This type of vector, here labelled a 'hierarchization vector', is often important in networks based on a specific resource (e.g. the petroleum or the paper and pulp industries).

However, the connecting of bonds and ties can also have another effect in relation to activity links. The heterogeneity of the resources creates opportunities to combine them with activities in new ways thereby creating new activity links and consequently weakening the existing ones. There might be a 'heterarchization vector' in which bonds to resource providers are developed in order to tie that resource to new activity links. Consequently, the lock-in of a certain resource to some specific activity is broken and the use of the particular resource is substituted more or less by another. A good example of this can be found in the European paper and pulp industry today where there is a shift from using primary fibres (wood) to secondary fibres (scrap) as a major input. The same process was shaking the special steel industry thirty to forty years ago.

The 'hierarchization' and 'heterarchization' vectors involve conflict of interests among the actors within a network. Each of the actors tries to gain control over the resources which enhance its position best. As for the two previous types of vector, a single actor has to relate what it is doing itself in terms of control of resources to these vectors. Both the hierarchization and heterarchization vectors become manifest directly in the activities carried out in the companies but primarily they affect the priorities in development of relationships to other parties and the nature of the bonds that arise between actors.

6.2.4 Coping with the changing network

The discussion of vectors of change in business networks is an attempt to capture some dynamic aspects of networks. The changes in the context of a company are produced by 'events' with effects far too complex to be anticipated, in which numerous factors concur. The complexity makes it impossible to assess the changes properly let alone to anticipate them and predict their direction; they can only be assessed and understood with hindsight. Yet not every change is possible. Changes taking place always flow from the actual existing structure of the network, which is a product of processes that in the past have led to formation of the network's structure as it is experienced today. That provides for the possibility to anticipate change; some sequences of events are ruled out. Change in business networks is not a change 'from one state to another given state' but rather a state of dynamic flux – a continuous process. Yet, in the intention of the actors, every change is an adjustment towards a workable steady state. Therefore the patterns of change follow the 'network logic' and vectors of change can be discerned.

When we reviewed the empirical evidence of business relationships in chapter 1 we saw how these impact on the company's performance. Change in the relationships of the company, generated by the company or others, will thus be a major factor determinant of its performance. There are two ways change in

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relationships can become manifest. First, the composition of the set of the main customer or supplier relationships can change as some are interrupted and other new ones can be developed or become more or less important as customers grow, suppliers are used less, and so on. On the whole the rate of change in this respect does not seem to be high and the structure of supplier and customer relationships of a company seems relatively stable. Second, changes affect the substance of some of the relationships as the various activity links, resource ties and actor bonds in a relationship become connected differently.

Both types of change impact on the economy of the companies as they alter their scope of activities, resource control and identity. Thus their bargaining position in exchange with others is affected and thereby the current and future revenues. They also affect the resources and activities of a company and thereby its costs. Changes in the relationships and in the network affect the current economic performance but also the possibilities to develop certain capabilities and the strategic position of the company. Coping with change in the network context therefore becomes the single most important task for management.

The notion of coping with change acquires in the network view a quite specific meaning. Coping with change has often been seen as synonymous with adapting to changed circumstances, that is, with absorbing the impact of change. Such a view fails to recognize that in business networks any actor has a role to play in the dynamics as it takes part in generating the change. Companies in business networks are at the same time objects and subjects of change. Managing change in business networks seems to be a more appropriate notion than that of coping with change. A company can either absorb the change or promote the change, therefore the change is managed. The need to manage change is imperative because of its impact on the company performance. Given the constant change, even not reacting is bound to affect the position of the company in its relationships and thus to affect its performance.

In principle, coping with change is said to require anticipation of change and its effects. Given that it is impossible to anticipate how and when a change will take place in the context of a business enterprise, how can change be managed? There seem to be, in principle, only two ways to manage change: one is to absorb the change in the context, the other is to play with the change, that is, to generate and concur in change. To absorb change, given its magnitude and constancy in business networks, is hardly a viable strategy over a longer time period. To play with the change requires an interpretation of the main factors of change in the context of the business enterprise. Managing change requires a 'workable picture' of change and understanding of the factors at work and often a broader horizon when it comes to monitoring the behaviour of other actors in the context. Therefore we need a language to describe and interpret the changes in the context of the company.

We have suggested three pairs of dimensions, labelled vectors, as a first attempt to characterize the change in a network context. All of them are expected to be simultaneously at work in every network but there will be a large variation in their strength and relative importance for a company. Together they will form a pattern

we have termed the 'network logic', which will be important to consider for any actor. The vectors discussed in the preceding sections can be used to describe and characterize the network development pattern. Some of the vectors seem to fit together: structuring, specialization and hierarchization tend to reinforce each other. They go hand in hand and are a typical pattern of network development when and where gradual changes are dominating. In the same way, restructuring, generalization and heterarchization tend to be a typical pattern when a more radical change is taking place. Different portions of a company's context can be subject to different developments. The strength of the vectors can be used to identify different stages in the development pattern and in this way to be used to investigate if there are special network cycles or at least if stages follow a sequence (Lundgren 1994). Whatever the forces that produce a structural change, there always seems to be a tendency in the business networks towards stabilizing its structure. The vectors can also be used to identify important causal links between micro features as degree of heterogeneity in the key resources, number and size distribution of involved actors and the development of the network.

Given the nature of change in business networks, to manage change requires of companies to master three questions:

1 As relationships are the source and transmitter of change, those with major impact on the company need to be handled, combined and connected to others and to the activity structure and resource collection of the company. This organizing of customer and supplier relationships is a critical issue in the purchasing and marketing of the company.

2 The complexity of connections that generate change makes it difficult for these to be managed by the top management. Therefore, it will be the routines and the competence of the organization in identifying and dealing with the development of connections in activities, resources and individuals that will be determinant of the success.

3 The possibility to involve and mobilize other counterparts in order to amplify or to contain change is important as no single actor alone is capable to induce or contain the change. Therefore bonds developed with external actors, other companies and like become critical to coping with change.

6.2.5 Change in networks

From the outset of this book we have followed a line of reasoning that change in business relationships and in the network is a constant. In the first two parts of this chapter we have explored the issue of change in business networks some more and reached a few tentative conclusions with regard to network dynamics:

1. While exogenous events and entrepreneurial action can cause change in relationships and thus in business networks, the major source of change is the interaction within relationships. The network structure is in this way inherently dynamic.
2. Changes in relationships regard the connections of activity links, resource

ties and actor bonds that become modified as the parties involved jointly uncover and experiment with 'better' solutions. They are thus closely related to the process of collective learning.

3. Modifications in relationships have an organizing effect on the overall structure of the network and the change is a manifestation of a continuous organizing process. Therefore the change in business networks is evolutionary and does not tend to a state of equilibrium that corresponds to some hypothetical optimal structure. The learning is never accomplished.
4. The change in business networks is incremental from the existing structure developed from collective experimentation. It will take place from within the existing structure of links, ties and bonds and follow a rationale we choose to call network logic.
5. The network logic permits identification of three pairs of vectors of change identified by the type of connections between resource ties and activity links, actor bonds and activity links and, resource ties and actor bonds.
6. Structuring and heterogenizing vectors are identified from connections between links and ties. Structuring means that the existing links and ties become more closely connected which tends to strengthen the actor bonds and thus makes the network more structured. When links and ties are connected in a novel way this will generally work against the existing actor's bonds, and the network will tend to be restructured.
7. Specialization and generalization is the pair of vectors resulting from connections between links and bonds. In the specialization vector links and bonds are more closely connected in such a way that the resource ties are strengthened. Generalization has the opposite effect.
8. Hierarchization and heterarchization vectors stem from the connections between bonds and ties. When stronger connections are established between bonds and ties it will cause close activity links and hierarchization. The heterarchization vector combines change in actor bonds and ties with weaker activity links.
9. The structuring, specialization and hierarchization vectors result in closer connections between ties, links and bonds. The generalization, heterarchization and restructuring break up some of the connections and are in this way always changing some of the basic parameters of the network.
10. Coping with change in relationships and in the network is critical to companies' performance. Change cannot be absorbed and has thus to be managed, even though *a priori* assessment of its effect is impossible. It can only be done by playing with the change and involving other parties; it requires relating to others.

63 CASE HISTORIES: DATACORP, INTEQ AND FUJITSU

Three cases will be used in this chapter to illustrate how companies cope with change in business networks. Most of the cases presented earlier could have been used as well, since they all include examples of vectors of change in networks

discussed in this section. We will, however, limit our discussion to the three cases included in this chapter.

The first case concerns a British company, Datacorp, and its way to handle some of its major relationships and customers. Datacorp's relationships are part of a network characterized by rather rapid technological development. The case shows how, in the context of complexity and change, the different actors within the network read each other's identity and how they perceive the changes and trends in the network. Conflicting views tend to survive side by side. The point that is nicely illustrated in the case is how the different ways to 'read the change' in the network actually promote changes in the relationships as the different views are confronted in interaction between actors. It thus illustrates discrepancies in the network logic among various actors. Another issue raised in the case is how a company can react when faced with the differences in interpretations of what is happening and what various companies in the relevant network stand for. The case offers also some examples of how revolutionary changes in the network are intertwined with the mundane steps taken in the individual relationships.

The second case concerns a Swedish company, Inteq, and describes the developments in its relationships to some of the most important customers. The case is a good illustration of how dependent the relationships are on how different actors specialize and change the way they are related. It contains a number of examples of how the development within a certain relationship is affected by what is going on in general in the network. A key question for Inteq is, for example, how one extremely important part of the network (customers in the automotive industry) will choose to solve their demands in the future. The case also provides a good example of conflicting tendencies in some of the developments which makes the problem of directing the future strategy of the company even more difficult.

The third case deals with the developments in a rapidly changing information technology network within which operates the Japanese company Fujitsu. It illustrates how long-term relationships can be useful if combined with a set of more short-term or task-oriented relationships or if some flexibility is built into them. A company within such a network must be extremely adaptive, which in turn means that it has to be good at managing the learning and unlearning. At the same time the case suggests the importance for a company of being able and daring to follow its own route. An issue highlighted in the case is how control of change, as much as attempts to induce change, always requires alliances among actors.

63.1 Datacorp, by David Ford and Richard Thomas

In this case we look at developing interorganizational relationships in the context of rapid changes in technology, markets and organizations. With the introduction of a new-technology product, the focal company must evolve new, and modify existing relationships within a changing industry environment. Success is dependent upon a correct 'reading' of the new network dynamics by Datacorp's

managers and the establishment of a common understanding with their counter-parts in the connected companies. We will therefore first outline the characteristics of these changes before examining the perceptions of the actors involved.

Introduction

Datacorp operates in the datacommunications equipment industry and is an operating division of a large diversified group. The company is responsible for the development and manufacture of its own products and markets them on a worldwide basis both through other group companies and directly. Only relatively loose financially based control is exercised over it by the parent company. The products are complex and relatively costly, of a type forming an important part of most medium to large computer/communications installations.

The case centres on the introduction by the company of a product based on a new technology. The product function and application areas are familiar to Datacorp, fitting well into the existing range. However, the new product requires a critical externally designed and made component as well as substantially altered production arrangements. In addition, the positioning of the new product, through a radical change in marketing strategy, involves a new approach to customer relationships. Datacorp have introduced the product via a strategic alliance with a component manufacturer from Japan and complex relationships between Datacorp and major hardware original equipment manufacturer (OEM) customers, distributors and large end-users, all of whom are customers.

The introduction of the technology is occurring at a time when many of the products of the computer/communications industry are increasingly seen by its customers as commodities. There are moves towards greater price competition in the industry and hence the growing use of distributors instead of direct relations between costly sales forces and final customers or end-users. Datacorp estimates that 80 per cent of its business will be via distributors within the next four years. At the same time manufacturers seek to add value to their offerings by the sale of integrated packages or 'solutions', rather than simply to compete as suppliers of boxes. These packages frequently include elements from potential or actual competitors. This means that manufacturers increasingly see each other as potentially lucrative – though inevitably demanding – partners. This is the perspective held by Datacorp as it concurrently manages a new product and a changing market.

The focal company and the network

A diagram of the network which has been analysed is given in Figure 6.3. FinCo is one of Datacorp's largest home-market customers and would be a very likely user of the new product when it became available. TravelCo used to be a Datacorp customer but moved away some years ago and now deals only with its competitors. Infoshop is representative of the company's distributor channel in the UK. Both the OEMs have previous dealings with Datacorp. Eurosysis is

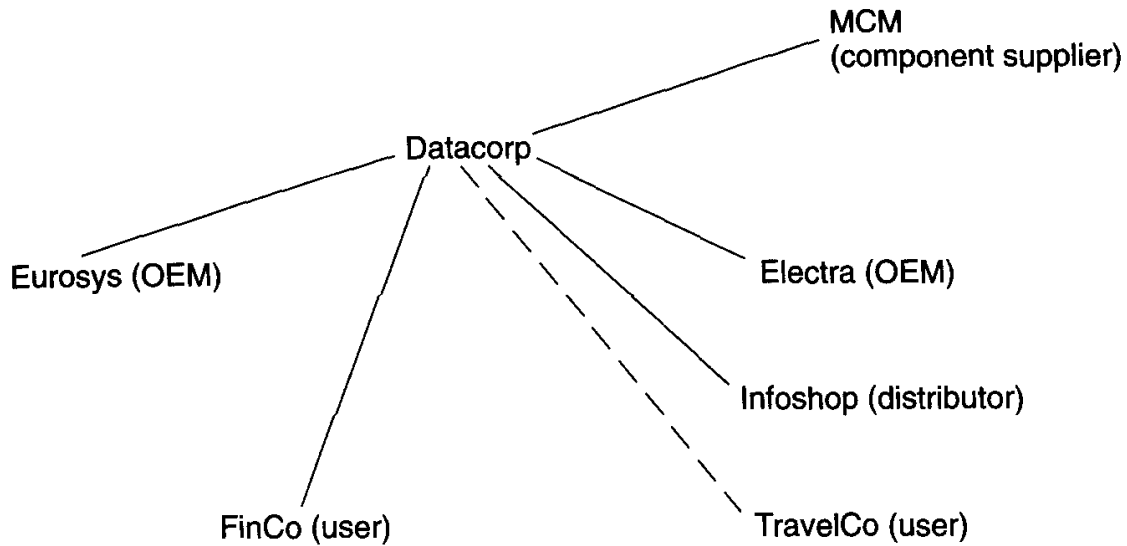


Figure 6.3 The network

currently in negotiation with Datacorp about the new technology and Electra is presently taking delivery.

Individuals and relationships

In this section we will look at the views of various managers from companies in the network about the different relationships in which they see themselves and the effects on them of the new technology introduction.

Datacorp

The company's managing director discussed two 'major relationships' currently in operation in the network surrounding this technology. The first is with the Japanese supplier, 'Major Component Manufacturer' (MCM), and the second is with the OEM customer, Electra. He reported that these two relationships are similar in nature and that Datacorp has built strength into them by emphasizing personal, face-to-face contacts. In particular, Datacorp believed that the depth of understanding and complexity of requirements in its relationship with MCM required an intimacy of contact. This had led to Datacorp investing considerable capital and management time to establish informal contacts. This was made more difficult by the cultural distance between the companies. In the face of these difficulties he said:

'It is possible to manage relationships as a process. We need to have a model for building strategic relationships. It probably operates at many levels and is a repeating process. We could apply controls and metrics, use tactical milestones. I have no doubt that we could manage relationships better.'

MCM is a good example of a relationship which 'could be tied down tighter'.

The relationship with Electra has been strongly influenced by that company's 'extreme' demands for quality systems. 'They have been digging to ridiculous depths to try and tie the contract down to their own standards. Quality largely rules them.' When asked if he saw himself as exercising control over this relationship, he replied: 'Just'.

It was clear that the company did not expect such extreme demands from the more recent relationship with Eurosyst. He described this relationship as developing on a number of levels, ranging from the respective corporate management to technical direction. In all of these relationships the company has a designated individual in charge of each. One element of its approach is to exercise some detail control where necessary. For example, they actively discourage lower-level relationships within R&D. The problem of control was expressed thus by another manager: 'Engineers by nature are very open!'

The company's manufacturing director shared the view of the managing director that the relationship with MCM presented the biggest challenge in the network and he also re-emphasized the issue of informality. He stressed a number of aspects of the relationship. First, the danger of under-estimating the cultural differences between the two companies (he emphasized how seriously his company had taken these by funding 'Understanding Japanese' courses at a local university). Second, the relationship relied heavily on face-to-face meetings, rather than the phone, as demonstrated by 'raw fish and beer sessions'. Third, there was a perceived lack of openness in the relationship and a feeling of information being held back. This was often compounded by meetings which took place with 'English speakers' who were clearly not the decision-maker.

His view was that the relationship with Electra also presented a challenge of culture, albeit on a different level. This was because of the hierarchical nature of that company's organization, which led to considerable difficulty in locating the decision-makers. He saw the problems with Eurosyst as being somewhat different. Unlike the managing director, he did not see a very formal set of interactions but potentially dangerous, somewhat unmanaged multiple layers. In both of these companies, this manager had a clear view that it was a case of Datacorp having to 'go and get the business' due to the 'supply and demand equation'. He felt that in general, Datacorp was 'driving' the relationship with Eurosyst and that it was his own company which was controlling the call on his manufacturing resources. We will see shortly that this view contrasts with that held in Eurosyst.

Clear differences in view emerged between these two managers and Datacorp's marketing director. He saw the relationship with MCM as being built on the basis of respect and formality, approached with a degree of risk aversion on both sides. The formality involved non-disclosure, joint-venture and supplier agreements and was necessary because MCM was both a supplier and a competitor. In this network it is possible for MCM to integrate forwards or to engage in licence agreements with other companies so as to bypass Datacorp. Additionally, this manager was more concerned with the issues surrounding the company's move towards the use of distributors. He spoke of the need to 'win over' a big

distributor network to the new technology, but emphasized the level of investment which would be required. He noted, 'These guys are selling today's products and you need to get them to buy tomorrow's.'

Eurosyst

The purchasing manager in Eurosyst who had overall responsibility for buying in Datacorp's product area had a strong view of the importance of a laid-down purchasing process. He saw Eurosyst's relationship with Datacorp and with others in formal terms. Any attempts made by the interviewers to explore the informal aspects of relationships were viewed with a lack of comprehension that such things could have any relevance. The purchasing manager saw product acquisition as a formal process of negotiation, one which was 'owned' by the purchaser. This process consists of a series of 'phases' through which any new product acquisition must pass after marketing has provided a set of targets for purchasing to work to.

Two other aspects of Eurosyst's view of its relationships also contrast sharply with those described by Datacorp. First, Eurosyst does not see that the relationship is based on the supplier's sales effort, as Datacorp thinks. Instead, Eurosyst is quite clear that the process is initiated by their 'technology watch' which forms the first phase in purchasing's process. Hence, Eurosyst sees *itself* as the key driver in the product development cycle of its suppliers. The purchasing manager's team has design authority for the introduction of new technologies into the company. Second, this notion of purchaser initiative is reinforced by the fact that Eurosyst sees itself as a 'flagship' account for a supplier. Hence, any supplier would and should be prepared to go along with the phase process and meet any of its demands in full. Eurosyst seeks to control many of the resources within the boundaries of the vendor's normal areas of discretion – its 'discretionary boundaries' :

- It insists on vetting product changes and revisions.
- Cost reductions are included as part of the contract and value engineering audits are carried out at the supplier to ensure that cost reduction is being pursued.
- Quality standards are set and Eurosyst tests for conformance.
- The vendor is expected to share product development plans, product test data and warranty failure data.
- Those products which are demanded by Eurosyst's customers but which it deems to be 'tactical' and not 'strategic' are recommended by the company. However, it does not take any subsequent responsibility for future support, leaving it to the customer to set up individual arrangements.

Eurosyst seek an arm's-length relationship with Datacorp and its other suppliers and tries to get the maximum benefit out of the supplier. It believes that the payback for its suppliers is access to its own development teams, expertise and processes. This leads to some exchange of resources in development and R&D,

but beyond that Eurosyst expects to gain control of many of the supplier's own processes and resources.

Electra

Unfortunately, interviews in this company were restricted to those in Datacorp's home country, although the adoption by Electra of the new technology was being led from the parent overseas. Two main points are worthy of note. First, at about the time of the interview, the purchasing director of Electra gave a presentation to the staff of Datacorp. This covered very standard information about Electra's production planning process plus its expected schedules on inventory. Despite the established relationship between the two companies, this information came as a surprise to Datacorp's management. They had no real idea of the specifications which Electra expected and in particular of the subsequent impact of these on Datacorp's own manufacturing activities. These standard Electra procedures had not been communicated to Datacorp's manufacturing managers. Second, there had been a fundamental quality problem with the first shipments of the new product to Electra, picked up by their standard quality control procedures, which derived from inadequate communication of quality specifications.

The two incidents illustrate that although the parties thought that the relationship had been 'tied down' it still suffered from basic difficulties in communication and lacked an 'openness' which could perhaps have avoided them.

Similarly to Eurosyst, Electra also seeks to formalize its relationships with suppliers through very specific terms and conditions. Although the managers use such terms as 'partnerships for profit' and 'suppliers as an extension of our resources', etc., it is clear that like Eurosyst they see themselves as holding the overall position of power in the relationship.

Infoshop

This company has acted as an exclusive distributor for Datacorp's existing products for a number of years and is now distributing the new technology product. It is part of a group of companies which also distributes related products from other manufacturers.

The major impression which emerged from this company was one of frustration: it does not feel that it is treated as a serious potential contributor to Datacorp's success with the new product. For example, when asked if Datacorp listened to them, the distributor's response was: 'Manufacturers never listen to us, it's an industry trait . . . we feel powerless to influence the product.'

The distributor is forced by the conventions of the industry to interface with Datacorp through the supplier's sales force, which it feels is both under-resourced and ill-equipped to build a relationship. This frustration extends further due to a feeling that Datacorp fail to use Infoshop's market knowledge. Infoshop is sure

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that the firm possesses information which must be of value, 'if only someone would ask us for it'.

Generally, Infoshop feel that Datacorp is 'dabbling' at its distribution and so runs the risk of appointing too many distributors who will end up competing with each other. Ironically, it appears that Datacorp is seeking a similar 'arm's-length' relationship with its distributors to that which its OEMs seek with it. This is despite its notional aim of 'winning over' distributors and its own view of how its relationship with the OEMs should operate.

The end-users

FinCo is a major financial services company and is Datacorp's largest home-country customer. TravelCo operates in the travel industry and is a former customer of Datacorp. The purpose of these two interviews was not to deal directly with the issue of the new technology. Instead it was to serve as a check on the attitudes of large customers to hardware suppliers. In a sense, these interviews depict a disappearing configuration of the computer industry as they deal with the direct relationships between a centralized decision-maker in a large customer and a hardware supplier. This is in contrast to the increasingly decentralized purchase decision-making and indirect distribution which we have already noted.

The predominant impression which emerges from both companies is of distance between them and their suppliers. This is particularly so when we look at the process of technological change. FinCo said that long-term relationships with suppliers included non-disclosure agreements so that they could see new technologies being developed by suppliers. Despite the existence of these long-term relationships, dealings were said to be based on very formal contracts. The company's apparent interest in new technology was reinforced by their having a group of thirty people reviewing the current 'state of the art'. However, in practice the interviewee admitted a more passive approach. This manifested itself in the use of consultants and 'free' support from suppliers until products were proven. The clear emphasis was on 'having a warm feeling by eliminating technological risk'.

TravelCo strongly asserted that they did not wish to develop long-term relationships with suppliers. They consider each new project as a new set of relationships. They saw this approach of planned distance as part of a culture within the company which leads them to take a very short-term view of their investments. According to the respondent, there is some affinity between the company's IT personnel and its equipment suppliers, but this is limited because its IT decisions tend to be pushed in a tactical direction. Further, they believe that 'technology exceeds our ability to use it', so close involvement with a supplier on product design would be seen as unnecessary.

Comments

This case does not concern a routine or 'regular' technology change. Instead it covers a major technology change which reinforces the incremental network changes which are leading (through the 'commoditization' of products and the growing margin pressures) towards an increase in distributor sales. This new product has to be sold to a wider array of companies than those in Datacorp's own group, or those which can be addressed by its own sales force. More profoundly, the technology forces the company to establish and manage important relationships with a small number of OEMs and a major supplier. The company is facing several problems.

First, it must deal with an issue that might be called the 'leadership' of the technology in the network. Datacorp appears to take the view that having developed the new technology, it must now 'go out and sell it' to OEMs and to distributors. Implicitly, it also believes that it is in the process of gathering together bundles of technologies — which include technologies supplied by the OEMs — and then directing these to others in the network. These bundles consist of product, process and marketing technologies, i.e. the abilities to design, to make, to tailor and deliver appropriate offerings to a selected group of companies in the network.

We must first question the extent to which either of these bundles is complete. The case does not deal with the quality of the product technology (its design). If we assume that this is appropriate to the requirements of those in the network, we can then address the appropriateness of the process technology. This process technology can be questioned on the grounds of the quality problem reported by Electra and the extent of the changes required to produce this new product. Similarly, the view of the distributor in the case indicates that the marketing technology of the company appears to be inadequate for this product technology and this application.

Second, and more profoundly, we can question the extent to which Datacorp's view of its role is either 'correct' or shared by others in the network. Eurosyst appears to have a very different view of the role of Datacorp in the introduction of this technology into the network. Eurosyst believes that it exercises a leadership role in the network: that it scans existing and potential applications and emerging technologies and itself assembles the appropriate bundle of technologies suitable in areas elsewhere in the network. This view casts Datacorp in a much more passive role as a supplier of a product and process technological input into a bundle being assembled under the direction of Eurosyst. Further, in this view Datacorp would have no involvement in any relationship with anyone else in the network and the whole process would be under Eurosyst's leadership and control.

Datacorp's approach can be seen as 'make-sell'. It has developed a product technology in collaboration with others and it now seeks to develop relationships elsewhere in the network to exploit it. It is at this point in the process that both the inadequacies in the overall bundle and the discrepancies in perceptions are emerging. The perceptions which exist in Datacorp about the nature of network

relationships are those which were learned in – and which were appropriate to – both a previous period of time and a previous technology. In particular, Datacorp expect a closeness and informality with final customers which may have existed when the latter had little knowledge of the technologies involved. It is now clear that these customers emphasize formality and routinization of relationships where they are well informed and believe they have control.

Datacorp's view of its relationships with OEMs also does not coincide with their own, with respect to both the formality and closeness desired and the basic roles expected. If we see leadership in a network change as centring on the selection of an application area and control of the bundle of technologies for that application, then Datacorp appears to be ill-equipped to exercise what would be a new role for them. It is also faced with other network members who have a clear view of its inadequacies or with quite different perceptions of what the functions of Datacorp and themselves should be in this new technology introduction.

6.3.2 Inteq: positioning in a changing global network, by Bjorn Axelsson and Finn Wynstra

Introduction

In this case study, it will be illustrated how a company involved in the manufacturing of production equipment is handling three major strategic issues. These issues are all related to the network that the company is part of; the first concerns positioning within vertical relations with customers and intermediaries, the second issue is position development by the acquisition of competitors and the last concerns defending and developing positions in a global network. Inteq is our point of departure. The aim is, however, not only to see the network from their horizon, but also to give a general view of how the network works.

The company

Inteq is one of the world's leading producers of a special type of flexible production equipment. It is part of the Inteq Group, a large international electrotechnical company. Since the beginning of the 1970s Inteq has been expanding its activities continuously. This has been done through internal growth and a series of acquisitions. The company received orders amounting to \$350m in 1991, and had about 1,700 employees. By the end of 1992 it was the market leader in Europe and one of the two biggest in North America, with some 30,000 machines installed around the world.

Within the whole Inteq Group, the activities are combined in one business area. The business area consists of a number of companies. There are two production companies; Inteq Products, which is the most important, and Inteq Novo, both located in Scandinavia. Furthermore, the organization comprises some twenty sales companies all around the world, which are called 'Flexible Automation Centers' (FACs). Besides these local sales companies, there are also a couple of

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companies that specialize in selected applications, known as 'Centers of Excellence', and which assist the local sales companies with their special technical expertise. The whole business area is managed by a small management group, Inteq International.

The product

The product equipment consists of a machine and a separate computer, the control system, which steers and controls the machine's actions. The term 'naked equipment' refers to the combined machine and control system. The equipment is quite versatile and can be used for different production activities. It can be supplied with additional process equipment for special applications. This process equipment can either be supplied by the machine manufacturer or by another company. Usually, the production equipment is incorporated in a system; a complete production line or work station with numerically controlled machines, equipment to hold and transport materials and overall control systems. Some manufacturers of the equipment supply these systems, but there are also specialists in this area, the so-called systems integrators.

The customers

The most important market for the equipment is the automotive sector. In the 1960s and 1970s large-scale production and other activities that could easily be automated created possibilities for the use of the equipment. As the machines which they wanted were in many instances not (yet) on the market, some car manufacturers started to manufacture them themselves.

For Inteq, the automotive industry is a very important market. It accounts for roughly 50 per cent of total sales, and Inteq has been capturing increasing market shares. Most of the sales are to vehicle manufacturers, but the automotive sub-suppliers are becoming important customers as well. These companies are getting bigger and bigger because of their customers' tendency increasingly to subcontract. Their increasing production volumes enable and in fact force them to automate and use the kind of flexible production equipment Inteq produces.

A portion of the sales to the automotive industry are made indirectly, through various channels (see the next section), but more than half are made by Inteq itself. With regard to the major car manufacturers, two different categories of sales can be distinguished. Most important are the lot order projects, involving sizeable amounts of machines and taking place when a customer builds a whole new plant, or production lines for a new car model. Then there are the cases where a customer purchases a smaller number of machines, for replacement or rationalization installations. Both Inteq Products and the local sales company are involved when an automotive lot order project takes place. The smaller orders are usually taken care of by the FAC.

In general, the manufacturing process of cars can be divided into four different stages or units, each with their own production lines or plants even. These are the

body-shop, engine and transmission, the paint and finishing-shop and trim and final assembly. Up till now most machines have been installed in the units where the body of the car is produced. In Europe and the US around 70 per cent of all machines sold annually to the automotive sector are installed in body-shops.

In the course of time, with increasing know-how and new possibilities for application, other industries have also started to make use of the equipment. One of the things that stands out is that activities which are performed to a high degree by these machines within the automotive industry, are far less automated in this so-called general industry sector. Consequently, selling the equipment to general industry is totally different from selling it to the automotive industry. The latter consists of extremely sophisticated and experienced buyers, whilst general industry customers often do not even know how and what activities can be automated. However, sales to general industry are becoming harder as well, as their knowledge of the machines increases.

The channels

The selling and purchasing of the equipment often involves not only a manufacturer and a final customer, but also a whole network of companies. Inteq makes use of sales companies that it owns fully, but other manufacturers, especially Japanese companies, sell their machines through a network of partly owned distributors and other agents.

One of the most important groups which plays a role as a kind of intermediary is the systems integrators, or line builders. Often a customer wants more than just 'naked' equipment. A line builder offers customers a full production line including the equipment, other machinery, control systems and peripheral equipment. Line builders often buy the equipment from equipment manufacturers, but there are also companies which both produce the equipment and have line building activities, like the German company Lemp. The in-house equipment suppliers of some car manufacturers also combine line building with their own manufacturing of the equipment. Inteq also has systems capabilities, but only in a number of special applications.

Another sales channel is presented by the original equipment manufacturer (OEM) customers. These companies do not manufacture the equipment themselves, but purchase it from a manufacturer, make some modifications and, usually, add special process equipment. Inteq has a particularly close relationship with one OEM customer, the company Tyrus. This company is one of the world's leading companies in metal working equipment, and a major customer of Inteq. Besides Tyrus, Inteq has large numbers of small and medium-size OEM customers. Those companies usually operate in small niches, building small automation units for various kinds of manufacturing activities.

The competition

In the 1960s American companies dominated the market. In the 1970s European and Japanese companies entered the market and a large number of quite small companies were active. The business grew very fast in the beginning of the 1980s. European and American companies dominated the industry and a lot of smaller companies disappeared. In the second half of the 1980s increasing competition from the Japanese particularly, as well as changing demands from customers, have led to major changes. These more recent developments will be discussed in the third section.

The most important European manufacturers are Inteq, Lemp and, to a lesser degree, the automotive in-house suppliers Satero and BLA. There are more companies, but they are not very strong and often operate only in special fields. The in-house suppliers of one German car manufacturer, SPS and Manfred Kopf, are some examples. In Europe, these companies have been facing increasing competition from Japanese companies, especially from Subaki and Katana. Most of the other Japanese companies do not yet have enough resources in Europe, such as sales offices and after-sales service, to support their operations. In the United States the strongest competitors are Inteq, Subaki and two other Japanese companies, Hamoto and Ondai. Traditionally strong American companies like Acheson have virtually disappeared from the market. The flexible production equipment division of Pro Tools was bought by Inteq in 1990. In Asia, the market is dominated by the Japanese companies.

It will be clear that the manufacturing and selling of flexible production equipment in the automotive industry takes place in complex networks consisting of producers, various kinds of intermediaries and different customers. We will confine ourselves to the network of relations between the manufacturers and the customers within the automotive industry. Therefore we will not go into the relations of Inteq with its suppliers or other parties that are not very important in that context.

Before going more deeply into the three strategic network issues, which relate to the three kinds of relations discussed above, a more general picture will be given of developments in the automotive sector and their significance for Inteq.

The developments

Starting in the second half of the 1980s there has been considerable turbulence in the market. Japanese companies have begun to make inroads in Europe and North America, customers have become more demanding, and prices have fallen sharply. The changing demands and attitudes of automotive customers especially have had a great impact on Inteq, and other equipment manufacturers as well.

Forced by increasing competition from the Japanese particularly, automotive companies have been focusing more and more on cost issues. This has had immediate effects on the equipment industry. In the first place, automotive customers have been pressing continuously for lower prices. Competition in the

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equipment industry has been increasing as well, and as a result of these two developments equipment prices have been falling dramatically. This has meant that cost efficiency has become very important for equipment suppliers.

In the second place, automotive customers have adopted another view on automation. The emergence of 'lean production' philosophies that followed the increasing attention on cost issues has led to a more critical view. This changing attitude is also the result of the equipment having developed into a more 'mature' product. Instead of being interested in the equipment itself and all its features, customers have become more focused on the economic rationale of automation. Automotive companies do not automate manufacturing activities if there are no real cost benefits involved, and they no longer want machines that are more 'sophisticated' than is really needed. This has meant increasing standardization of the equipment, and has shifted the emphasis from the technical qualities to the cost-performance. Consequently, it is becoming harder and harder to create competitive advantages in the basic product, also because the equipment develops into a more mature product. Attention is shifting towards other factors, such as service, technical advice and so on.

In the third place, automotive customers have been pushing for 'one-step' supply. They want to reduce the number of suppliers they have to deal with in order to make purchasing more efficient.

Faced with these developments Inteq realized that, in order to be competitive, it would have to lower its costs considerably. In 1987 a project was started to reduce production costs, increase efficiency and shorten lead times. To improve its product programme, it developed two new machines, and in general Inteq can now develop new products in shorter times. Development has become also more customer-oriented. Inteq targets certain main customers and develops products paying close attention to their wishes.

The trend towards increasing standardization implies possible benefits of large-scale production for Inteq. Naturally customer requirements will still differ to a certain extent. One way the company tries to benefit from scale advantages and simultaneously to become more flexible in meeting different customer requirements is by introducing modular design concepts.

As a result of all these efforts, Inteq has been able to maintain a strong position.

In the following section we will discuss the three network issues in the light of these developments.

Positioning within vertical relations

The first theme is related to position development by companies within dyadic relationships. In studying Inteq and its network there are at least three examples of this kind of positioning that have demonstrated interesting features of the way this network functions. The first of these deals with the strategic alliance between an American vehicle manufacturer and Subaki. The second concerns the general and strategic question as to whether the equipment producer should become active

as a systems integrator or not. The third example deals with Inteq's relationship with its OEM customer, Tyriss.

Strategic alliances with car producers

In 1982, an American car manufacturer and Subaki established a joint venture called Subaki Systems Inc. It was not set up to produce equipment itself, but to become a distributor and systems integrator for Subaki equipment. In Europe and the US, Subaki machines are now sold under the name Subaki Systems. Despite some difficulties in the beginning, Subaki Systems Inc. succeeded in acquiring a large share of the market in the USA, and in building up a strong organization in Europe.

The joint venture broke up in the summer of 1992, mainly because the car manufacturer did not want to be involved in non-core activities anymore. Subaki bought all the Subaki Systems assets. The break-up will have mixed consequences for Inteq. During 1982–92 the American car manufacturer was largely a captive market for Subaki Systems, but already before the break-up, Inteq assumed the position of a 'preferred supplier' at the car manufacturer's plants in the US. That was the result of, amongst other things, the 1990 takeover of Pro Tool's flexible production equipment division, which had good contacts with the car manufacturer. So Inteq already had, from a product point of view, a position equal to that of Subaki Systems, although it was the case that, with regard to relations, the latter was still favoured. When the break-up took place Inteq was in a good position and since then it has started to take more orders.

So, regarding sales to this American car manufacturer, Inteq should be able to profit from the break-up in the long term, although there is also a possibility that other competitors will come in at this customer as well now that it is opening up for everyone. In the short term, however, it is not clear if the car manufacturer is becoming an entirely open market. It is not unlikely that the purchase of all Subaki Systems assets by Subaki was accompanied by a guarantee that Subaki could retain some business.

Apart from the looser bonds between the American car manufacturer and Subaki, another consequence of the break-up is that Subaki has become a more attractive alternative for other automotive companies. The Japanese company is not connected with a competitor anymore, and the other US car manufacturers and manufacturers in Europe will have a more positive attitude to Subaki. It will also become more aggressive in competing for business from these customers, as it has lost its comfortable position at its former American partner. However, the fact that it can no longer conceal its Japanese identity by hiding behind the American will hinder more effective competition from Subaki. This will probably have negative consequences for Subaki's position in the US and Europe. If equipment suppliers are equally good, being Japanese is not an advantage in those markets. How strong Subaki will actually become, and what kind of relations it will develop, remain to be seen.

The American company and the car division of a European vehicle manu-

facturer concluded a strategic alliance in 1990, which meant that the American company bought 50 per cent of the division's shares. At that time the American car manufacturer still owned part of Subaki Systems, and it purchased its equipment mainly from that company. The European company had good relations with Inteq; it was the main equipment supplier for both their truck and their car factories and the two had been working closely together in the development of one of Inteq's machines. Not very long after the agreement there was a lot order project coming up at one of the European company's car factories. In the last stage Subaki Systems and Inteq were the alternatives, Subaki Systems being the choice of the Americans and Inteq being favoured by the Europeans. Inteq lost the contract to Subaki Systems on price. The people of the European car manufacturer obviously failed to convince the Americans that Inteq's price was justifiably higher. It is instructive to note that Inteq's relation with the truck division of the European vehicle manufacturer, which was not part of the agreement, remained the same – sales continued. Now that Subaki Systems has broken up, the situation has changed again. There are no longer special reasons for the European car division to buy Subaki equipment.

In general, the position of in-house suppliers is changing. As flexible production equipment has become a fairly mature product with enough capable suppliers on the market, there is hardly a need any more for automotive customers to have in-house competence in equipment manufacturing. This is reinforced by the tendency towards increased subcontracting by vehicle manufacturers.

So, if BLA, the German car manufacturer and Satero were to give up equipment manufacturing in the near future, just like the American company has done, it would not be that surprising. Both BLA and Satero are not doing very well; their sales volumes have decreased considerably, and the German company has had troubles as well. While the three companies might be abandoning or selling their equipment manufacturing, they will probably maintain their line building, as those activities are somewhat closer to the car manufacturers' core-business.

Major effects should not be expected from all this. Satero's owner has been buying equipment from Inteq, despite its close relation with Satero. It uses at least two external suppliers, in order not to become too dependent on Satero. The owner of BLA has bought from Inteq as well, be it only in application areas that BLA is not strong in. A division of the German car company has purchased Inteq equipment on several occasions.

So, important rearrangements of the relations with these three automotive companies will not occur if they close down or sell their equipment manufacturing. The main effect will be that Inteq (and other equipment suppliers) probably can increase sales to them.

Become active as a systems integrator or not?

As has previously been mentioned, automotive customers usually buy more than just naked equipment, especially in the case of lot order projects. In those kind

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of projects the equipment supplier has to deal not only with the final customer but also with one or more line builders. A typical body-shop includes at least four separate production lines, and normally they are each built by a different line builder because of the size of the undertaking. Most systems integrators are small or medium-sized companies; there are very few companies who can take the responsibility for a whole body-shop.

Usually the customer decides which brand of equipment is going to be put in the lines. Instead of having each systems integrator bring their own preferred equipment, the customer tells them the equipment is 'free issue'. That is to say, the line builders are asked to quote their prices regardless of the kind of equipment to be put in. The customer then decides which equipment to use in all of the lines, buys it and orders the line builders to incorporate the equipment of his choice. On most occasions all of the equipment comes from one supplier, because that keeps the prices low and because it is more efficient with regard to technical compatibility, the storing of spare parts and maintenance. The customers gain two advantages by buying the equipment themselves; in the first place they obtain a better price from the equipment supplier than when the line builders each separately buy the equipment, and second they save the profit margin which line builders would otherwise put on the equipment. This is the normal praxis in automotive lot orders today, accounting for some 90 per cent. In the remaining projects the line builders take responsibility for buying the equipment.

All this means that Inteq still primarily works with the automotive customer, and secondarily with the line builders. The fact that there are four and often even more line builders involved in the setting up of a body-shop naturally complicates the whole issue.

However, there is a development that customers expect their suppliers to take more and more responsibility, and that is of course difficult to combine with telling line builders which kind of equipment to use. Automotive companies are pushing for 'one step' supply, reducing the number of suppliers they have to deal with in order to make purchasing more efficient. Contributing to this development, also, is the maturing of the equipment. Earlier when the equipment was a reasonably new product and the technology was not yet well developed, there were a lot of uncertainties regarding the equipment itself and its use. Now that flexible production technology has developed and a great number of applications have been tried successfully, the customers are focusing their attention on the total production system. This implies that, instead of the equipment suppliers, the systems integrators are becoming the important discussion partners for automotive companies.

So, the trend will increasingly be towards line builders buying the equipment. The process towards 'one step' supply of a whole body-shop – one line builder for a whole shop, who also decides which equipment to use – is going very slowly. The customers intend to go that way, but most line builders are still too small, and there is also a technical risk in having all lines built according to the same principle. If one line does not function well, the other ones are likely to have problems as well. All the manufacturer's eggs are in one basket.

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It is clear that relations with systems integrators are an increasingly important issue. For Inteq the fundamental question regarding relations with line builders is whether it wants to be just a supplier of naked equipment or to have a systems capability as well.

In fact, from initially being focused on manufacturing naked equipment, the company has gradually been moving into the systems business since the late 1980s. Around that time customers' interest began to shift from the equipment to the total system. Faced with that development and wanting to keep an advantage over its competitors, Inteq decided to develop its competence in systems. The company has adopted a niche orientation in doing this, selecting particular application areas in which to become active. The Centres of Excellence (CoEs) are responsible for these activities.

Inteq has several of these centres, each with competence in one special activity. While most CoEs have production capacity for actual building systems, they should primarily be regarded as know-how centres. Most of these centres have been established through acquisitions or joint ventures. One has been set up after the acquisition of Pro Tool's flexible production equipment activities, making use of their special expertise, and the takeover of a French company resulted in another centre.

A centre in Germany was also established through an acquisition. In February 1989 Inteq bought a German company called Wiebling, based in Dusseldorf. Looking for possibilities to build up its systems competence, and having decided that buying this competence from outside was the cheapest and fastest way, Inteq asked one of their most important (automotive) customers for advice on what kind of company to buy. The customer proposed Wiebling. Inteq had already been working with Wiebling in a project, Inteq supplying the machines and Wiebling delivering the system.

The takeover of Wiebling has been a success. The company was quite wealthy and had a strong core of know-how, working closely with automotive customers. The original management – the people with the contacts and the technical competence – was retained, and later they worked for the company as consultants. But not all experiences with acquiring systems competence have been that positive.

In 1986, the English line builder Hutchinson Systems was taken over. Hutchinson Systems was almost bankrupt at that time, but Inteq felt that it needed a systems integrator with knowledge in some special kind of systems for the automotive sector. The company was badly managed and a cheap buy. The original management was replaced but, by doing so, some of the company's capabilities and contacts were lost. Although some lines were sold to car factories in Europe, the acquisition was not a success and finally these systems activities were sold off. Inteq had not achieved the results it wanted; on one occasion, Hutchinson Systems even sold a line with Subaki Systems equipment. Manufacturing equipment is still the most important activity for Inteq, and selling systems with equipment from competitors is something that does not fit very well with that.

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Further efforts by Inteq to strengthen its abilities in systems integration will most likely be concentrated in the application areas that the CoEs are active in.

Apart from the episode with Hutchinson Systems, Inteq has not yet gone into real line building, which is actually somewhat different from building systems for special applications. These systems are usually small, and are specially constructed for one product activity. A complete production line often comprises various systems. Buying a company that builds complete lines for the automotive industry would mean becoming involved in the production of rather low-tech equipment, like transfer equipment, fixtures and magazines. Inteq does not see that as its core business.

An even more important reason for not buying a line builder is that it would endanger Inteq's relations with other line builders. Instead of an independent supplier Inteq would become a competitor to them and they would become very reluctant to buy any more machines from the company. A typical line builder integrates only some 100 machines a year, which is not an interesting volume for Inteq. The additional machine sales through an acquired line builder would be more than offset by reduced sales through other line builders.

Closer cooperation with line builders is necessary, however. It has already been noted that automotive customers are pushing for 'one step' supply, and that line builders increasingly will influence and even make the decision as to which equipment to install. That implies that contacts between manufacturers of equipment and line builders are becoming more important. They will have to form partnerships in offering a broad range of competences to their customers. Already some Japanese equipment manufacturers are quite strong in building this kind of partnership.

Inteq is trying to improve relations with line builders by providing programming and installation services, and especially after-sales service at the customer's plant. Line builders often do not have the local strength that Inteq has, so for them cooperating with Inteq would mean that their position as a supplier becomes stronger.

There are two problems in adopting this approach. One is that it takes a lot of resources, mostly with regard to manpower and time. It is not clear that Inteq has those resources. The second is that the company still wants to be able to work with different line builders. There is, however, a trade-off between closer cooperation with some of them and maintaining good relations with all of them, as has been discussed with regard to taking over a line builder. These two problems are important issues for Inteq when developing further strategies for handling their relations with line builders.

The equipment producer as OEM supplier

The Tyris Group is one of the world's leading companies in metal working equipment. Based in Europe, and with a turnover of \$1,200m, it consists of several divisions, one of them being Tyris Automation. This division is active in flexible metal working equipment.

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In the early 1970s Tyris Automation started to build automated metal working stations that included flexible production equipment. Its first supplier of equipment was the Scandinavian company Novo, which was acquired by Inteq in 1985. Tyris was not entirely satisfied with Novo, and in 1974 it contacted Inteq. The latter had just developed a quite revolutionary machine and Tyris was very interested in trying it. Since then the two companies have developed a close relation. Tyris Automation has become Inteq's biggest single customer, and it has been involved in many of the equipment manufacturer's development projects. The cooperation intensified even more in the period 1988-92. Inteq has been giving higher priority to Tyris' demands, and has even developed a new machine primarily according to its wishes. There are even more ties between the two companies; many people working at Tyris Automation are former Inteq employees, and there is an indirect ownership connection through an investment company.

The two companies have an agreement that gives Tyris Automation the right to sell automated metal working stations to general industry and automotive sub-suppliers, being obliged to use only Inteq equipment. For Inteq it means that it cannot sell metal working machines with other process equipment than Tyris' to these customers. The agreement further stipulates that Inteq has the right to sell metal working machines to the vehicle manufacturers, and for those machines Inteq is free to use any brand of process equipment (albeit that Inteq should give priority to Tyris' equipment). This clause has two reasons. In the first place, vehicle manufacturers often have their own preferences regarding the process equipment. In the second place, vehicle manufacturers want to be able to purchase all their machines from one supplier. As a supplier for their other flexible production equipment, you cannot tell a vehicle manufacturer that they cannot buy metal working machines from you.

The agreement is not too strict, however, and in several instances Tyris has taken final responsibility for deliveries to vehicle manufacturers as well. But Tyris' most important customers are the automotive sub-suppliers, as these companies do a lot of metal working. The tendency for these companies to become bigger and more important has led to a situation where Tyris Automation and Inteq work closely together in dealing with these customers.

What makes the situation complicated is that Tyris is also active as a (metal working) systems integrator. Within that area the company is totally free to sell also to vehicle manufacturers, but it is still obliged to use equipment from Inteq. Inteq on the other hand has to use Tyris in supplying metal working systems.

For Inteq the relation with Tyris Automation is extremely useful; it provides for a large sales volume and gives a strong position in the (expensive) area of metal working. With regard to market segments the relation combines quite complementary strengths; Tyris is very strong in sales to smaller engineering companies, while Inteq is better in sales to larger companies like car manufacturers.

In January 1993, Inteq reached an agreement with Tyris to acquire its automated metal working business. One of the main reasons for the purchase was

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that Inteq wanted to become more strongly involved in the expansive area of automated metal working in order to increase market share and volume. The 'machine content' in an automated metal working station is quite high, while the 'process equipment content' is rather low. Another reason was that the automotive sub-suppliers and general industry were 'closed' for Inteq, while these very customers form the expanding segments. Inteq probably also wanted to make the situation less complicated for these customers. Before the acquisition Inteq had to tell them to go to Tyris if they, after for example having bought an assembly machine from Inteq, wanted an automated metal working station.

Also important is Tyris's systems competence. We stated before that further efforts by Inteq to strengthen its abilities in systems integration would most likely be concentrated in the application areas that the CoEs are active in. It seemed that in most of the more general application areas, like metal working, Inteq would probably confine itself to having only know-how regarding systems. But with the purchase of Tyris Automation, Inteq's systems activities have also moved into larger application areas, in this case metal working. One of the reasons is probably that this application accounts for the big volumes of machines, especially within the automotive industry.

One less obvious and maybe paradoxical reason and effect is that the stronger ownership tie between Tyris and Inteq also gives the latter more freedom, as the whole complicated agreement has been dissolved. Inteq can now use process equipment from other suppliers when selling to automotive sub-suppliers and general industry as well. That gives more flexibility regarding customer demands. Inteq is also not obliged to use Tyris as a metal working systems integrator any longer — it can use others as well.

It is interesting to see how this single relationship has contributed much to Inteq's position within the field of flexible production equipment. It took them into metal working applications, and as a world leader Tyris put the 'right' demands on the products. Still today this specific relationship is alive, and revitalized by, amongst other things, the ongoing structural changes in the division of work between the car manufacturers and their sub-suppliers. Evidently the relationship has had to be adjusted to changes in the surrounding network — changes that have taken place not only with regard to the various demands on the products, but also in matters dealing with the 'rules of the game', regulating rights and liabilities.

Position development by the acquisition of competitors

During the 1980s and early 1990s there have been a lot of acquisitions going on. Inteq has been acquiring several companies; not only systems-integrators like Wiebling and Hutchinson Systems, but also other manufacturers of machines. While the acquisitions of Novo (1985) and Plat Machines (1991) concerned companies producing machines only for special applications, Inteq has also bought one real competitor: the flexible production equipment division of Pro Tools.

Historically, Inteq had not been very strong in the automotive industry in North America. It did not have an adequate product range and it lacked good contacts with customers. The company managed to sell machines to two of the big three American car manufacturers, but mainly to their engine and transmission plants. Most body-shop plants had already been using the equipment for a long time when Inteq became very active in the US (1981), and so the company had problems in becoming involved with these plants. Consequently it had a weak position in the large area of metal working applications where Japanese competitors like Hamoto were becoming increasingly successful.

Although it had suffered considerably from the increasing competition from Japanese companies, Pro Tools was still a company with a strong position in automotive applications, particularly in metal working. It had large installed-machine bases, especially at the American car manufacturer that has been mentioned before. So the takeover in 1990 gave Inteq exactly what it had been looking for: a stronger position in metal working applications and better relationships with customers.

Installed-machine base is an important parameter within equipment manufacturing. A manufacturer's total installed-machine base reflects experience, associated learning effects and so on. Its installed-machine base with one particular customer forms a good indication of the intensity of the relationship with that customer. Normally the equipment manufacturer takes care of the service and maintenance of the machines, and that means that contacts remain even when there is no installation project going on. Once a supplier has managed to build up a considerable machine base with a customer it is also in a more favourable position when new projects come up. The customer and supplier are familiar with each other, and there are benefits in choosing an already 'present' supplier: technical compatibility, cost-efficiency with regards to service, maintenance and spare parts supply, etc. Taking over another equipment manufacturer is therefore often an effective and relatively simple way to improve relations with the customers of that company.

As was hoped, the acquisition has improved Inteq's position at the American car manufacturers. This has been achieved partly by retaining the people from Pro Tools to work with these customers. In general Inteq has been gaining strength in the US. Through the acquisition the company also got a more local image. Pro Tool's production, however, has been shut down; it was too small, and by letting the factory of Inteq Products produce the additional volume Inteq is aiming to reap scale benefits.

In Europe there have been no acquisitions of competitors so far. Inteq is not opposed to it, but up till now there have been no good opportunities.

It has already been mentioned that it is likely that some companies will lay off or sell their equipment manufacturing in the not too distant future – the German company, BLA and Satero. It is difficult to give an estimation of when exactly that will be. There will naturally be internal resistance from the people involved and probably competition will have to become even fiercer before they decide to give up their equipment manufacturing. However, it is questionable whether those not

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so successful activities would be interesting to acquire. Another possibility would be to acquire a smaller company, like Manfred Kopf or SPS. What the company will actually do is unclear.

Defending and developing positions in a global network

In this section we will illustrate how the 'globality' of this network with globally present actors works. We start with a minor illustration where developing and defending positions *vis-a-vis* other flexible production equipment manufacturers is one of the issues. After that we look at features of dealing with a global customer.

Positioning vis-a-vis competitors

In 1982 Inteq decided to establish itself in Japan. In order to become one of the world's leading flexible production equipment manufacturers it was deemed necessary to be present in that market, as it represented around 40 per cent of worldwide sales. Japanese suppliers were beginning to export machines, and Inteq realized that competing with them in their home market could create valuable advantages. It would be possible to get a better idea of their way of doing business, and this would be of use in competing with them when they entered the North American and European markets. Another advantage of deploying activities in Japan was that Japanese companies abroad, for example car-transplants, often bring their suppliers with them from home. Inteq would then be in a better position than other equipment manufacturers that were not active in Japan. The possibility to 'hit back' more easily at the Japanese in their home market if they became too aggressive in Europe and the US did not play a major role in the decision. That possibility was limited because Inteq would confine its presence to application areas which the Japanese competitors were not that active in.

Inteq established a joint venture with the European company TechnoHouse, a trading company with a long tradition in Japan. This company had, however, neither any experience in industrial automation nor the contacts with the automotive industry that Inteq was looking for. Initially the results looked promising, and the operations were subsequently enlarged. However, in the second half of the 1980s the positive development halted, and operations were reduced considerably.

In 1989 Inteq signed an agreement with Konita, one of the largest users of flexible production equipment in Japan. The company manufactures the equipment itself as well. Konita became responsible for marketing and selling Inteq equipment. Inteq hoped to profit from Konita's strong position in the electronics industry and its enormous range of contacts in Japan. Konita wanted to benefit from the relation in developing operations outside Japan and in building a more complete product range. Although during the period 1982–9 the venture had not been a commercial success, it had not been without any use. Inteq showed a

stronger commitment to the Japanese market than most Western companies, and that probably helped in reaching an agreement with Konita. The knowledge of the Japanese way of doing business has been improved as well.

Up till 1992 the agreement with Konita has not been as successful as was hoped. Inteq' s market share in Japan is still very small, despite the fact that it is the biggest foreign competitor. It is not unlikely that Konita is focusing on selling its own products now that they have gained the knowledge and experience they were looking for. The future is unclear. Japan and the rest of Asia form a tremendously large market, but prices are very low. It is doubtful whether Inteq can have really profitable operations there.

Dealing with global customers

Inteq's major automotive customers are large manufacturers of cars and other vehicles, with several plants spread over several countries. These companies are usually organized in geographical units, and some have different product divisions as well, sometimes with different brands. Most also have staff departments coordinating all the plants that are of the same type; one department for body-shop plants, one for engine and transmission plants, etc.

The company is thus facing customers with rather complex organizations and with units that are often quite independent. When equipment has been supplied to one plant, that does not automatically mean a better position for selling to other factories of the same customer. One important issue for Inteq is how to create a kind of `spin-off' – how to make use of contacts at one point in such a complex organization in order to gain a more favourable position at another point. Basically there are two ways to do that, which are often complementary. One is by using other successful equipment installations at the customer as references, the other is by using personal contacts.

In bidding for orders, the last stage is to a high degree a `political' stage. When there are, for example, two alternative suppliers left for a project the decision depends to a great extent on relations and influence. Then, close personal contacts are of crucial importance. Obviously, contacts with the people who actually take the decision are most important, but what is more interesting with regard to creating spin-off is the use of contacts with people other than those who take the final decision. One important group of contacts that could be used to influence decisions are those with top-level management. Financially speaking, flexible production machines do not constitute major investments, and therefore the final decisions are often not taken by top managers. They could, however, influence those decisions.

Inteq does not always have these top-level contacts with automotive customers. With most customers the company has established contacts at the lower and medium levels, but very few personal contacts at the high levels. One of the reasons is that the company is rather small compared to the large automotive customers. Trying to establish contacts through the large Inteq Group is difficult, because flexible production equipment is one of the very few business areas

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within the Group that is working with the automotive industry. So there is little need or opportunity for high-level contacts, either for the Inteq Group or for the automotive companies.

The situation differs from country to country. The problem is not so big in, for example, Sweden; it is a small country and almost all top managers know each other. In bigger markets, like Germany, the economy is more divided into sectors, and there it is much more difficult to get the right contacts.

Besides contacts with top management, a supplier could also use contacts with people from other plants or divisions for which it has previously been working. For Inteq, this would be possible as it has good contacts at these levels with several customers.

In general, however, it is difficult to find out who is taking the final decision and to assess and seize the opportunities for using personal contacts to influence things. Informal channels are often hard to trace, and there are constant changes in jobs and positions. But competitors have the same difficulties, except perhaps Lemp, BLA and Satero, who have better connections with automotive customers since they come from the same industry.

The other way to try and create spin-offs is to use other equipment installations for the same customer as a reference. A successful project executed for a customer's plant in, for example, Germany could be shown as an example of the supplier's capabilities, in order to get an order from a plant in the US. This would seem an easier and more straightforward way than using personal contacts. Both, however, face the same major limitations: the complex organization and internal tensions that characterize most large automotive companies.

One of Inteq's major automotive customers, accounting for roughly 10 per cent of all sales, has two main divisions, 'Europe' and 'US'. Most of Inteq's sales to the customer are in Europe.

The Europe division has a staff department for final assembly plants in the UK, and two departments for engine and transmission plants and body assembly plants in Germany. These departments decide on large investments, while rationalization and minor investments are handled by the individual factories. With regard to lot orders, it is thus crucial for Inteq to have good relations with the responsible department. It is also very important to have contacts with the people at the plants. They do not have the formal authority to decide which equipment will be purchased, but the staff departments are reluctant to push a supplier which the people at the factory do not agree with. By being cooperative or not, these people can influence the success of an installation to a very high degree.

The Europe division consists again of various national divisions, and between those divisions there often exists a form of rivalry. They compete in achieving the best results and are seldom very open to each other. There is also some kind of struggle for power between the Europe division and the US division, which leads to considerable tensions. 'Europe' has been quite successful in the 1980s, and has taken responsibility for projects that concerned the whole company. For 'US' that is not always easy to accept. Consequently Inteq often finds it difficult to create spin-offs within this customer. In general it is quite successful at the company, but

that is primarily due to its own efforts, not to internal relations at the customer. With the US division, for example, it has not yet been able to build up as good relations as with 'Europe', and that is partly due to the tensions between those two divisions.

This phenomenon is not unique to this customer. At other automotive companies Inteq also has to pay close attention to internal relationships, in order not to become mixed up in possible rivalries and struggles for power.

At most automotive companies there is a tendency for plants to become more independent. They get greater responsibility and accountability for results, and it is therefore necessary for them to have more authority as well. This authority often includes the choice of suppliers of production equipment.

One car manufacturer's plant in Belgium is one example of such an increasingly independent operation. It has achieved that position after a long struggle and due to good results. Inteq has always had good relations with most of the manufacturer's plants and its headquarters, but its efforts to get orders from the plant in Belgium have not been very effective.

Unwillingly it became an instrument in the power struggle between the plant and headquarters. Just because it was the preference of headquarters, the people at the plant made a point of not choosing Inteq as their equipment supplier, and instead bought Satero machines. After that, when somebody from headquarters went to Belgium and told them about their good impression of Inteq, the people at the plant started telling them about their good experiences of Satero. Both headquarters and Belgium polarized around their standpoints, and Inteq has suffered as a result. To achieve further results at the plant Inteq cannot rely on its connections with the customer's headquarters. Instead, it simply has to demonstrate and stress that it is a good equipment manufacturer. This applies not only when trying to get contracts at this Belgian plant, but at every automotive customer.

To demonstrate one's capabilities as an equipment supplier it is in fact equally effective to refer to installations with other customers than to projects within the same company. Due to the possibility of the aforementioned tensions and rivalries it is a very precarious business to use internal references in trying to convince a customer. It can even backfire, as in the case mentioned above. When using references from other car manufacturers there is no internal competition which can negatively influence the discussion, and customers are highly interested in suppliers' experiences at other factories. Equipment suppliers have seen many more different car factories than people at one single automotive company, and that is something automotive customers gladly profit from. Inteq people can tell customers, for example, how certain problems have been solved at plants in Germany, or in Spain, and they can give their opinion on what they think to be the best course. That kind of knowledge and experience is exactly what customers are looking for. Except for issues related to the design and launching dates of new car models, the information on equipment installations is usually not confidential.

It is interesting to observe how the handling of global customers is affected by

changing relations between those customers, as in the case of two strategic alliances that both include a European automotive customer of Inteq and a car manufacturer with tight connections to a competing supplier.

We have already seen that the alliance between an American vehicle manufacturer and a European car producer had effects on the relationship between Inteq and the European company. There it was one of Inteq' s competitors that profited from the new relation between its main customer and another automotive company and managed to create a spin-off.

The alliance between the owner of BLA and another European car manufacturer will in the near future probably open up opportunities for Inteq at plants of the owner of BLA. It has executed several successful installations at the other car manufacturer and BLA is not seen as a serious threat. The two automotive companies are still quite open to each other, so referring to installations at the other is not yet a precarious business. In the longer run, when they are more completely integrated, it is not unlikely that internal competition will increase and prohibit the further use of internal references.

An automotive company cannot be treated as a monolithic entity; it consists of different units and people, and it is essential to have good contacts with all – headquarters, staff departments and the plants. For every order a supplier has to start all over; demonstrate its capabilities, have appropriate contacts, etc.

Whether the opportunities for creating spin-offs will increase in the future depends to a large extent on whether the organization of customers will develop into a more centralized or a more decentralized structure. The more centralized the organization is, the more opportunities there are to create spin-offs. In what direction the developments will lead is not entirely clear. On the one hand there is a trend towards decentralization, with plants becoming more independent, as has been mentioned above. On the other hand there is a trend towards centralized purchasing. Centralized purchasing of production equipment has, for the customer, the important benefit of lower prices, as volumes increase. Parallel to that, plants often see their maintenance and engineering staffs decrease as part of overall rationalization strategies. So there are some contradictory developments.

Not everything depends on the customers, however. The supplier can play an important role in the developments as well. It can influence automotive companies to become global purchasers.

The choice of a flexible production equipment supplier is closely related to the kind of production method a customer employs or wants to employ. Different methods or concepts are associated with different equipment suppliers. Usually there is a variety of methods or concepts used at the various plants of an automotive company. Harmonization of those methods is crucial if a customer wants to centralize its purchasing of production equipment. A supplier like Inteq can help a customer in that. It can analyse what kind of production methods are applied within one company, find out what and who are the drivers behind those methods, and then see if and how it can develop a concept that is attractive to everyone. If it then also manages to `sell' the concept, the supplier has not only gained a competitive edge over other suppliers, but has also improved its

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opportunities to create spin-offs with the customer.

Still, how the situation will develop is not totally evident. Equipment suppliers obviously favour centralized purchasing, with its improved opportunities for creating spin-offs, but the whole issue remains rather complicated.

Final remarks

The picture that emerges from this case study is one of an intricate global network of relations between production equipment manufacturers, line builders, independent and in-house suppliers of equipment-cum-systems and large automotive companies. We have mainly been dealing just with these four most important kinds of actors, and have more or less left out most OEM customers, as well as some other companies that are involved in equipment installations at automotive companies, like electronics companies that provide automation systems for complete plants. As well as being intricate, the network is dynamic. Relations have been changing considerably, and further developments are to be expected. All the changes that have been demonstrated have taken place within a network that has its origins in the 1960s. Evidently a lot of changes can take place also in more mature networks.

What is interesting to observe is the ever-present influence of technological development on these changes. The development of flexible production equipment into a 'mature' product has not only led to a situation where automotive companies have less need for an in-house supplier. It has also meant that the attention of customers has become more focused on the system, implying a more important role for systems integrators.

It is worth noting that one of Inteq's oldest relationships – that with Tyris – is still very important and influential. It more or less started the whole venture of Inteq, and has in the course of time been subject to various changes, most notably the acquisition. Stability seems to go hand in hand with change!

6.3.3 Fujitsu: international organizational networks in the IT industry – the case of disk units, by Yoshiya Teramoto, Naoto Iwasaki and Tohru Takai

Introduction

The business environment of the information technology (IT) industry is very turbulent. With the advance of technology, especially the development of semiconductors, data processing capacity is rapidly increasing. Furthermore, the ability to use information using SIS (strategic information systems) is progressing. Investments by firms in information-related areas increased rapidly in the 1980s, and the IT industry grew with it. The share of computer investments in the total private equipment investments increased during the period from 11 per cent to 18 per cent. From the end of 1989, however, investments in information equipment sharply decreased in the US. The same trend is now appearing in Japan.

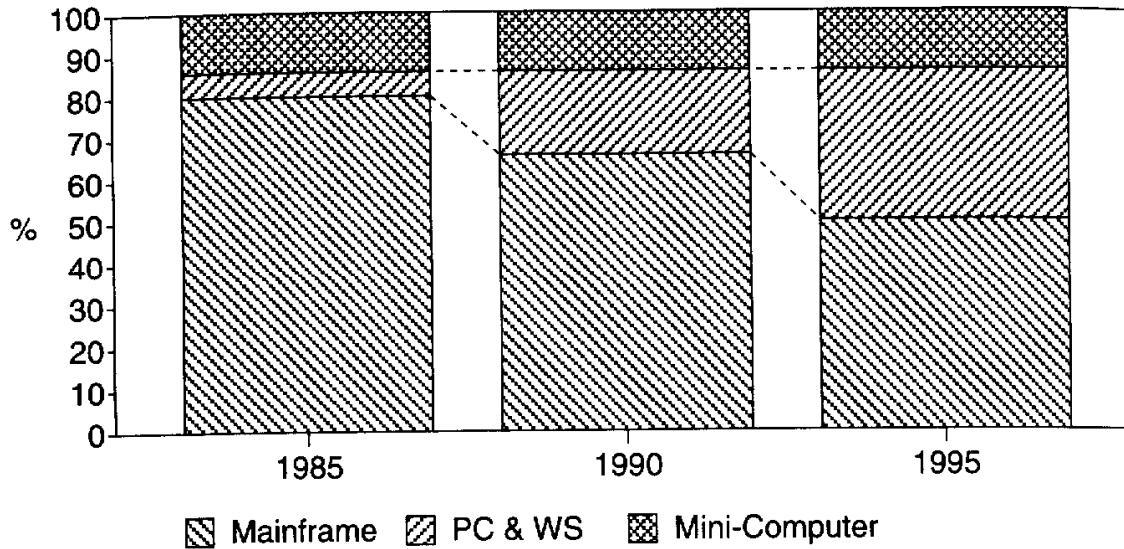


Figure 6.4 Amount of information investment

Source: *Nikkei* newspaper, 30 October 1991

Related to such changes, environmental turbulence in the IT industry is caused by the 'down-sizing' of computers since the end of 1989 (see Figure 6.4). There is a shift towards using small sized computers, such as personal computers or work stations, instead of mainframes or super-computers. Centralized information processing systems based on mainframes are changing towards decentralized networks. It is the rapid advancement of information technologies, both hardware and software, that brought about the 'down-sizing'. Mr W. Rollants, vice-president of Hewlett Packard, said 'the ability of information processing by small-sized computers like PC has improved 75 per cent per year since 1986' (*Nikkei* newspaper).

Manufacturers of mainframes and mini-computers, such as IBM, Unisys and DEC, could not grow at the same rate as they had earlier, and in fact saw their total sales decrease in the 1990s. IBM especially, which had over 50 per cent of the global market for mainframe segment, was forced to change its strategy. IBM allied with Apple Computers, a rival in the PC business, promoted an open-architecture strategy and began to supply semiconductors to competing companies. This is an expression of a strategic turn-around in order to strengthen competitiveness in the next generation of software and work stations. The open-architecture of hardware and the standardization of operation systems (OS) are coming into existence. Leading companies do not like to give or open their own specific technology to other IT firms. However, to increase new demand by increasing the number of end-users through 'down-sizing', large IT companies must promote standardization and open-architecture. On the other hand, such a trend is welcomed by small rr firms. Price and cost efficiency become more important. In this way competition and cooperation coexist in the IT industry and this has created some contradictions.

Growth of the peripheral machines industry

Total sales of peripheral machines such as printers, displays and disk units are increasing. With the advances in down-sizing, PC and/or WS used as LAN servers need large memories and HDD (hard disk drive) units and are furnished with

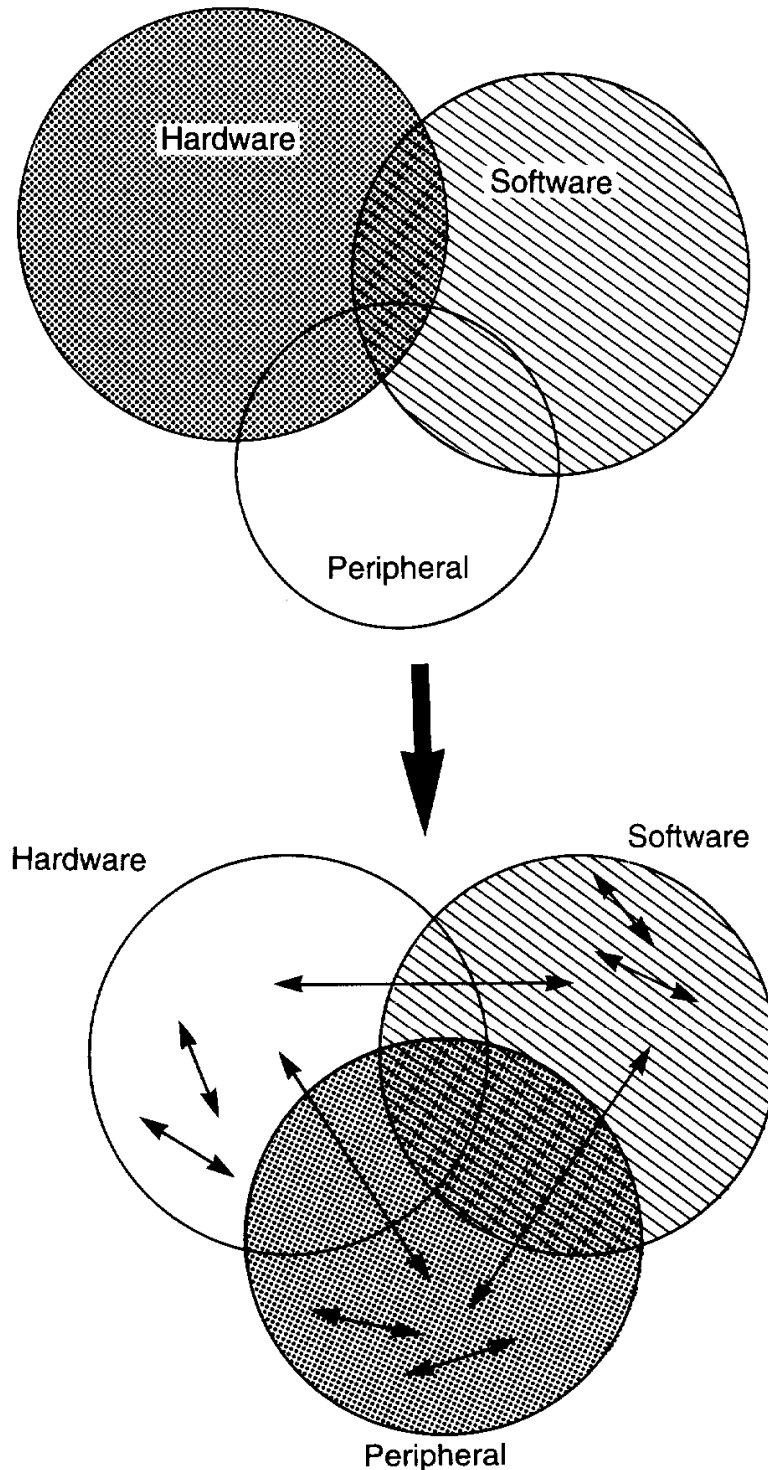


Figure 6.5 Structure of IT industry

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small displays such as LCD (liquid crystal displays) and small printers. Advances in the open-architecture and of the standardization result in most peripheral machines being adjusted to 'multi-vendor environments', where various kinds of computers are linked to each other through communication networks, and peripheral machines can be used even if their technical specifications are different.

We can consider the structure of the IT industry as shown in Figure 6.5. During the 1980s the hardware business, especially manufacturing CPU systems, was strong. However, it is losing its importance and giving way to the software business and peripheral business. That is, the driving force of growth in the IT industry from the mid-1980s was a combination of hardware and software, but it has been changing into a combination of software and peripheral machines since the end of 1989. In other words, the progression of IT industry is ushering in the era of down-sizing and international standardization. The role of peripherals is becoming more important and the whole IT industry has become more complex. Peripheral machines cannot be used in isolation. They function together with computers which makes it necessary for such producers to relate to other IT firms.

Characteristics of transactions in peripheral industry

Peripheral industries are characterized by both market and technology uncertainty and also by some specific transaction characteristics. It is generally said that a key factor in developing and keeping business relationships in industrial markets is after-sales service. But as far as products of peripherals are concerned, technology is the most important ingredient. In a way, technology defines all stages of the transaction: its creation, maintenance and development. The main reason for this is that peripheral products are not independent of computers and software, but tend to be affected by their development. Furthermore, peripheral technology itself is easily replaced with new technology, produced by either existing companies or newcomers. Customer loyalty is very low compared with other industries, so unless companies are sensitive to new technologies it is difficult to maintain relationships with customers. To create new relationships demands developing a technology superior to competitors. Once successful in developing a new technology, relationships can be easily developed, even with fierce competitors.

There are long-lasting relationships between some companies in the IT industry. Those relationships are, however, only an accumulation of short-term ones, since companies in high-tech industries never expect that their relationships with customers will continue in the future.

Stability and change 315 Establishment of international interorganizational networks

Development of international business

Fujitsu began the establishment of their foreign operations with an office in New York. Thereafter Fujitsu California was founded, which is the origin of the present Fujitsu America. Fujitsu then began full-fledged operations in the American market. Since the early 1970s the sales network has been expanded through the establishment of sales agencies.

Fujitsu first engaged in overseas production in 1976 by producing telecommunications equipment in a factory in Anaheim California. A year later a plant in Malaga, Spain was established for production of mini-computers. This plant now has the highest productivity among all of Fujitsu's offshore plants.

From the late 1970s to the early 1980s, Fujitsu established itself on firm ground in the information industry through technological tie-ups with Siemens and Amdahl. At the same time, Fujitsu also had a technological cooperation pact with ICL, which it took over in 1990. Fujitsu supplied hardware to ICL and ICL was responsible for the design part. Since 1980, Fujitsu has rapidly increased its exports of information-related equipment. After 1985, following the appreciation of the yen and the demand in Western countries for certain levels of local content, Fujitsu actively expanded its foreign manufacturing operations. It was able to complete the integrated production of DRAMs (dynamic random access memories) in the US and to produce in Asian countries such as Malaysia and Thailand. Today, in addition to local production and sales, Fujitsu is about to transfer the function of R&D overseas in order to strengthen its ability to react to local demands for both hardware and software products.

Fujitsu has built an international network of thirty-eight foreign subsidiaries for sales, production and R&D. As far as the information-related business is concerned, it has grown to acquire the second place in the industry behind IBM.

Interorganizational network of the disk unit

Fujitsu started to market disk units overseas in 1978, when it agreed to market products for System Industry. Since the late 1970s, the American market has been flooded with new PC producers. However, most of these companies could not adapt to the rapidly changing technology and to the short product life cycles in the industry during the 'PC war', and disappeared one after another. Fujitsu has been trying to develop a system that uses UNIX, which is seen as the next generation of software. Disk units produced by Fujitsu were given much credit and were closely studied in the US by system producers, such as Anperi and Mips. In the computer business, many of the competitors are using disk units from Fujitsu.

Today Fujitsu has business relationships with Unisys (its biggest customer), NCR, Tandem and Sun and also with leading European companies such as Siemens and Olivetti.

316 Relationships in business networks Establishment of a cooperative relationship

The position of companies in relation to each other within the information technology industry is characterized both by competition and cooperation. Relationships between suppliers and buyers can often be reversed, which expands business opportunities for both. For example, the relationship between Fujitsu and Sun in the work-station business is being complemented by a new business exchange regarding disk units.

Sun Microsystems

Sun Microsystems, a work station manufacturer, was established in 1982. In 1990, it had worldwide sales of \$2.47bn. In Japan, which accounts for 13 per cent of its gross sales, Sun established an agency relationship with Itochu Techno-Science. Sun Microsystems Japan was established in 1983, but did not become widely known until 1987, when it introduced the `Sun 3' and `Sun 4' computers. These models met the needs of the Japanese market for advanced functions and small size. In addition, Fujitsu, Toshiba, Japan Steel and Tokyo Electronics signed original equipment manufacturer (OEM) agreements with Sun. They became the driving force behind Sun's efforts to expand the sales channels in the country. Sun has been trying to grow stronger and more prosperous by encouraging other companies to use their proprietary knowledge. It has licensed hardware and software to many of its American and Japanese rivals, believing that this strategy could build the worldwide market for its technology, and thus increase its own sales along with those of its rivals. Sun's strategy proves clearly that companies are not victims of leaking knowledge, but its agents.

Today, direct sales account for 20 per cent, and sales from OEM agreements for 80 per cent of Sun's sales in Japan. Three companies, Fujitsu, Toshiba and Itochu, account for 60 per cent of the OEM sales. Especially Fujitsu has experienced a remarkable sales growth since 1987 of Sun's products.

Developments towards a reciprocal relationship

The business relationship between Fujitsu and Sun began in 1982 when Fujitsu started to sell magnetic tapes to Sun. At that time, Fujitsu had made a major inroad into the US market with its disk units, which were sold to US computer firms since 1978. The Fujitsu model was rated as the most suitable for the UNIX system at a joint academic forum held periodically in the US. Initially, Fujitsu supplied all of Sun's disk units, but Sun began to purchase units also from Seagate, a US producer, in order not to be dependent on one supplier.

Today, Fujitsu supplies Sun with about Y3bn worth of products; about 80 per cent of this is disk units. As Fujitsu has a policy of pursuing localized production and marketing, this volume is handled by the peripheral industry division of Fujitsu America and is produced in a US plant. However, at the time of a model change some units are generally supplied from Japan.

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The reciprocal relationship between Fujitsu and Sun began in 1987. Fujitsu, supplying disk units and magnetic tape to Sun, wanted to sell the work stations from Sun in order to offer a full line-up of computers, from super-computers to PCs. As the small computer business for Fujitsu was very weak, it wanted to enhance its competitiveness by introducing work stations. Sun wanted to expand sales in Japan and realized that entering an OEM agreement with Fujitsu could be one fast way. Fujitsu was at that time very powerful in the Japanese mainframe market. In recent years, Fujitsu has also been marketing work stations through its overseas subsidiaries and dealings with Sun has consequently increased.

For Fujitsu, the increase of the sales of Sun's work stations obviously contributes to the expansion of its own peripheral machine business. In addition, the market for work stations is separate from the general-use computer and personal computer markets. By entering into an OEM agreement to produce work stations, Fujitsu can also enter into the business for these. As can be seen in Figure 6.6 the relationship is quite contradictory. Sun supplies work stations not only to Fujitsu but also to other OEM producers. SPARC, which Sun uses for some work stations, are produced by Fujitsu. Some companies supplied by Sun are at the same time developing their own work stations. This includes Fujitsu which recently started to sell its own work station.

In short, the reciprocal relationship between the two companies has been mutually beneficial, leading to increased sales for both. It has also strengthened the development of new technology for both.

Interorganizational networks and competitive advantage Interorganizational networks

Manufacturers change from one component supplier to another without much hesitation. In the disk unit business, both customers and suppliers maintain business relationships with several companies to get new technology and price advantages. Maintaining relationships with several companies is useful for collecting technological information. The exchange of technological information among companies is also useful for developing products that meet market needs. Therefore, it is important for IT companies to establish strategic relationships with other companies in order to find out what kind of markets are growing or in which direction technological development will go.

Most Japanese IT companies, like Fujitsu, Toshiba and NEC, offer a wide range of products, from semiconductors to super-computers, and sell components to other IT companies, including competitors. When competitors get on the same boat, the relationships become multi-dimensional and difficult to manage. The disclosure of technological information through reciprocal trading between Sun and Fujitsu may stimulate the R&D departments of both companies. They can get information on new products or new technology faster than other firms. Above all, in the case of OEM business, communication and exchange of information among engineers become more important than among salespeople. Some business

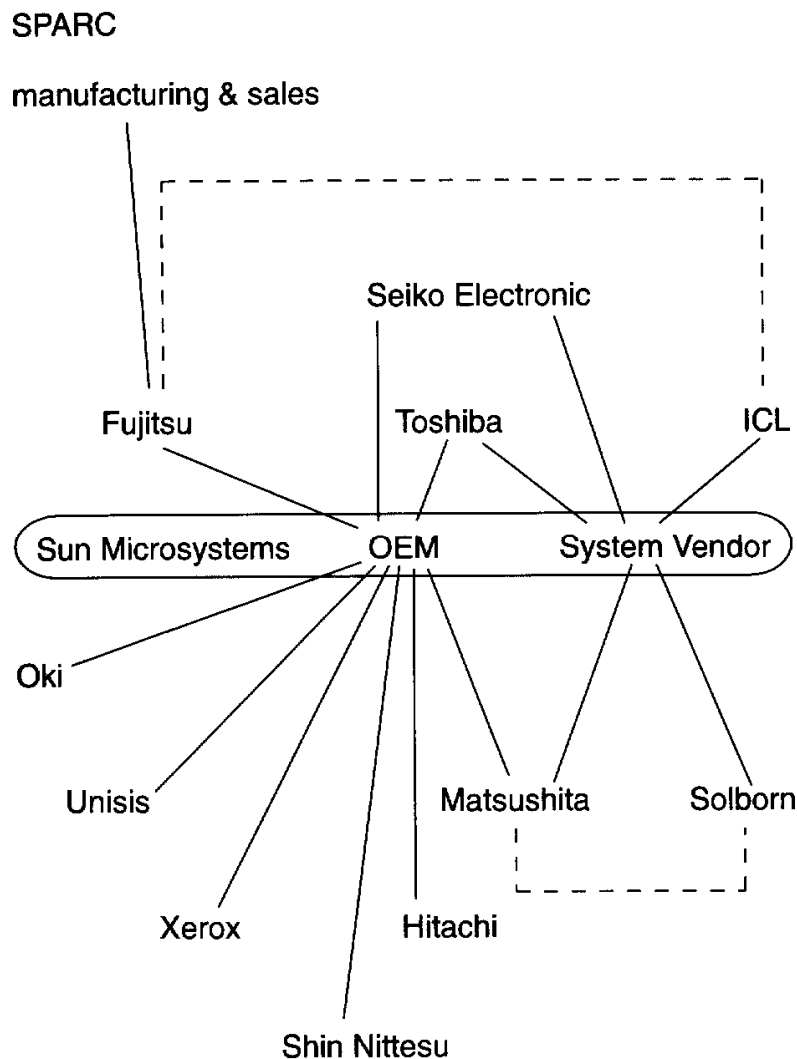


Figure 6.6 Interorganizational relationship of SPARC

meetings among engineers are held periodically not only for introducing own technology or new products to customers, but also for collecting information about customers' demands which then is fed back to R&D departments.

However, such bilateral relationships do not necessarily last long. Trade relationships among IT companies are based on current business conditions. The reason is that technology changes rapidly and this influences the performance of companies. The continuity in business relationships is not ensured even if they have revealed technological information to each other. A necessary condition for long-term business is related to the technological advantages each firm possesses.

Even though reciprocal trade relationships like the one between Sun and Fujitsu do exist, there is no general connection between peripheral and work station businesses. The cooperative relationship may thus turn into a competitive one. The same may happen when Fujitsu expands its own manufacturing of work stations. In this way, there is a cooperative relation behind the competitive one, and vice versa.

Effects of intra- and interorganizational networks

There are advantages in forming networks for broad IT manufacturers because it can create an interaction between supply and demand within the company. Direct information flowing throughout the organization can be the driving force for improving the quality of products. Whether information becomes advantageous to the companies or not depends on the information processing ability within the organizations.

Some transaction relations suddenly become important in terms of strategy, because they affect some central part of the company. Such opportunities would not be found if the interorganizational structure functioned well. For example, Fujitsu receives information coming from a single business partner through three divisions which all interpret the information from different viewpoints. In this way, Fujitsu hopes to avoid overlooking any strategically important information.

Building several relationships in the industry is important for reducing dependency on one counterpart and also for producing the opportunity for 'self-reflection' for the organization. Broad IT companies actively promote intraorganizational networks. The existing knowledge base of an organization can easily become outdated in a rapidly changing environment. Therefore, new learning opportunities are necessary to obtain new knowledge. However, it is well known that organizations are reluctant to discard their existing strategies based on successful experience. Interacting with other companies that possess different knowledge bases enables organizations to reflect on their own experience. For instance, Fujitsu's first intent forged with Sun was simply to extend the product line, filling a product gap (Baradocco 1991). However, the change to in-house production of work stations, which were positioned between the mainframe and PC, led to reassessment of existing knowledge about the development of computer business. Reassessment of existing knowledge also leads to creation of new knowledge. Thus, new knowledge creates new interorganizational relationships, which create new strategically important knowledge for the firms involved. IT companies create, develop and maintain business relationships in order to synchronize intra- and interorganizational networks, and to promote opportunities to create new knowledge. This is central for their competitive advantage.

6.4 MANAGEMENT ISSUES

Companies cannot avoid coping with change. Through their relationships companies are continuously exposed to change and at the same time generate change. It has been a major argument in this chapter that change in business networks and in single relationships is a rule and not an exception. That alone is a sufficient reason for claiming that continuous change in the context of a business enterprise requires of a company capacity to manage change. Change in this context requires change in behaviour, which is learning or development.

Learning in the network context has some unique features. To learn a network could be compared to 'reading' a rapid before (or even while) trying to canoe it

or to 'reading' a diamond stone before trying to cut it in the best way. In neither case is any simple formula or mathematical expression available that can be used. Perhaps even this metaphor is too simple, because in the network context the change, the streams, are to some extent self-generated and an actor is part of it. In any case we have to use words such as 'understanding' or 'feeling' in order to describe what is needed. To get such a feeling requires experience in combination with reflections. We can offer very little help with this. Each actor has to get it through his own experiences as in the case of canoeing or stone-cutting. But there is something that we can do. To facilitate learning there is need for some kind of frame of reference as a starting point.

The three cases presented in this section, as well as earlier cases reported in this book, show that it is impossible to get a comprehensive picture of what is happening in the network. The complexity is overwhelming as various activities, resources and actors are combined and as the actors are consciously or unconsciously changing their connections. Interdependent changes, some of which are contradictory and conflicting, are a consequence. Therefore, there is never anyone with comprehensive knowledge of the present and even less about the future state of the network. The problem for a company is not to get a comprehensive picture but an 'actionable' one, that is, one that serves to generate and guide companies' behaviour.

We have suggested three pairs of dimensions that can be used as a framework to facilitate the reading of the developments in business networks, that can be used to gain such an 'actionable picture' of network developments. We have also explored a few examples of how companies have handled different situations; our case histories are an attempt to offer a few examples. Using the frame of reference on the cases we have earlier concluded that one of each pair – structuring, specialization and hierarchization – is quite typical for developments within a network under certain periods. Over time, a lot of the changes will develop the network gradually towards a more structured, more hierarchized and more specialized one. At the same time there will be different attempts to find new combinations, to relate to new resources and new partners. These attempts can form vectors, which we have labelled heterogenizing, generalization and heterarchization. All the focal companies – Inteq, Datacorp and Fujitsu – exist within networks where structuring, hierarchization and specialization vectors are easy to identify but where there are at the same time more dramatic change vectors at work.

Once again we will try to discuss three management issues involved in coping with the dynamics of change in business networks. The first has to do with handling changes within and through relationships, it entails experimentation of new arrangements of resource ties, activity links and actor bonds within a relationship. The second regards the development of the capabilities of the company in such a way that changes can both be executed and adapted to; the issue is one of mobilizing the resources and capabilities of others for own advantage. **The** third is about manoeuvring for a position (a status in the network) over time, that is, about strategy development in a business enterprise; the heart

of the matter is coping with the organizing process in the network structure that impact on the position of the company in the overall network.

What the three areas of managing change have in common is the centrality of the relationships that 'put the company on the map' of the network and thus affect its performance. It is by choice in connections, in links, bonds and ties in single specific relationships that change is managed. Any choice in this respect is a way to introduce change or to react to change.

6.4.1 Handling changes within relationships

A relationship creates interdependencies. Activities in a company are linked to the activities of others and resources are tied to the resources of others, actors have bonds to others. Change in any of these, for example, as a reaction to exogenous factors, entrepreneurial acts or as a result of interaction between the actors, means that new combinations have to be tried and developed.

A company can handle the problem of recombining the activity links, resource ties and actor bonds in principle in three different ways. First, it can develop some knowledge regarding activities or resources independently and then try to impose a solution on others. It is easy to realize some of the problems with this alternative illustrated in, for example, the Datacorp case. The attempt to introduce new product technology requires costly interaction activities to induce the customers to accept it. The problems that Datacorp is facing with its first customer are probably just the beginning of a long series of problems with this customer, and the next ones before the new product can be firmly established (if it ever comes to that). Datacorp seems to be little aware of that when introducing a new high-tech product developed by someone else. This way to manage the change can only be effective when at least some other actors share the understanding as to what technological or demand problems need to be solved; it may work when the ambiguity among the actors is limited.

There is a second way to handle the change in the substance of a relationship. The actor can try to absorb the change; that is, react by adapting the actor's own development to that already materialized by others. Several of the companies in our case histories seem to be following this approach; it is common especially in supplier relationships. Vegan's customers seem to absorb easily the change in combination of links, ties and bonds; some of the customers in the Inteq case adapt to change in the substance of the relationship. It can be an effective approach when the effects on the activity structure, resource collection and organization are limited or when the benefits can clearly be perceived, often when the relationship in question is marginal for the company, or when it concerns a marginal technology, product or customer segment. Incidentally, it is the approach most often implied in much of the management literature that deals with how companies can cope with change.

There is a third way, which is a combination of the two previous ones; a 'give and take' in interaction with the counterpart. Modifications in the connections of ties, links and bonds in a relationship are worked out jointly and gradually. This

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way to handle the problem includes trying to find as many links and ties as possible between the own development and the development of surrounding actors. An example of this is Inteq handling the relationship to Tyris, its critical customer when it comes to the development issues. Inteq is very conscious about the developments going on within the customer, and between the customers and their most important suppliers, as much as Tyris is. Fujitsu sharing the knowledge with Sun and drawing on its knowledge in turn to develop new ties, links and bonds is another good example. The companies check off the possibilities of new connections and the impact on the two companies and their other relationships more or less continuously.

This approach to change in a relationship seems effective when the dynamics of the network change are ambiguous for the single actor and when the relationship is critical in terms of impact on the activity structure, resource collection and the organization of the companies involved. Under such circumstances there seem to be few alternatives to the joint, gradual and mutual development and learning of combinations of ties, links and bonds in a relationship. It has the advantage that the partial knowledge (framing) of an actor is confronted with similarly partial knowledge of the counterpart and mutually beneficial solutions can be developed. When the knowledge of the interacting actors is limited it will always be impossible to forecast what the next development will be when one solution is found. The solutions found can change the perceptions of those involved and thus their view of which technologies and actors are important. This approach points to the need to manage the process of 'reciprocal framing of the situation' when coping with change. Learning within relationships is a collective process. Development of skills and knowledge is critical in this development. In such a world the use of knowledge by one actor is to a large extent conditioned by the knowledge of its counterparts. The Fujitsu case illustrates apparently conscious management of the collective learning in the relationship to Sun.

In the Fujitsu case the most noticeable relationship issue is the handling of reciprocal relationships where the two counterparts at the same time are customers and suppliers to each other. An important question for both sides is whether the relationship should be looked upon as one and the same, or as two parallel relationships. In the Fujitsu–Sun case, at least the first of these is perceiving the dealings as two relationships. It is clearly an important issue which probably will be looked upon differently, given the situation.

On the whole, the cases show the two-sidedness of any attempt to change the existing actor, activity and resource connections in a relationship and thus the limits to the possibility to cope with change one-sidedly. They show how different vectors of change within the network can affect a relationship and the reaction of companies in order to adapt it. They also show how important relationships are in initiating the change and sustaining a change vector.

The question remains what can help a company to manage change in a relationship, to facilitate the reciprocal framing of the situation and devising of workable solutions for both parties? A norm that seems to be used with good

results in developing a relationship is 'to look beyond and show what is beyond' the links, ties and bonds in a relationship. Awareness of the single change being an element in the broader network logic is important; it is when changes and reactions in a relationship are first viewed in this way that they become understandable and thus acceptable. In order to make sense of counterparts' reactions and proposed solutions, awareness is needed of how the activity links, resource ties and actor bonds connect to activity structure and pattern, resource collection and constellation and organization of the counterpart and of the network. Such an awareness also favours the 'discovery' of new possibilities to connect respective ties, bonds and links. It is less a matter of knowledge in the narrow sense, that is, knowing the effect; rather it is a matter of understanding the factors that produce behaviours.

Another norm is to accept the limits on the knowledge and its subjectivity. The reaction of any actor is based on a subjective judgement which means that an actor sometimes first has to do something before it can learn about the consequences. Workable knowledge can be gained by evaluating the effects of a way to act. Experimenting will thus be a natural element in handling business relationships. Given the complexities of most major relationships in terms of links, bonds and ties it is out of question that all available alternatives can be identified beforehand. To put it somewhat awkwardly it seems useful to analyse the effects after the fact rather than before.

There is finally a third norm that seems to work: persistency. As companies react to the actions of others in a relationship, as they adapt and propose adaptations or force adaptations, they are inevitably pulled in series of incremental changes that over time tend to modify substantially the content of the relationship. Short-term opportunistic behaviours that aim at making the most of various episodes tend to produce patterns of reaction that can be difficult to make sense of for the counterpart. The direction of the development of a relationship needs to be verified now and then. Such a check though, is, meaningful only in the broader context of other relationships the company is involved in and the change in those. That brings us to the next issue.

6.4.2 Flexibility in resource base and capabilities

Throughout the preceding chapters we have argued that relationships are important for the capabilities of the company and thus for the possibility to achieve a desired performance. Change in business networks and relationships opens up the existing combinations of relationships and shows how the activity links, resource ties and actor bonds are connected to the resource collection, activity pattern and the organization of the company. This makes some connections obsolete and opens up new possibilities. It affects how relationships are combined and to what purpose they are used.

At the same time we argued in our discussion of change that while it is impossible to forecast changes, there will be a pattern in the direction of change in business networks. We seem to be obliged to accept the fact that it always will

be impossible to forecast what the next 'discovery' will be and to assess beforehand its effects on the company and on the network with any reasonable degree of accuracy. The company has to accept and to live with some uncertainty and ambiguity. On the other hand we concluded that there is a pattern in the changes taking place within relationships and in the network and identified three pairs of vectors that can be used to read the development of the network. The vectors can be used to make some predictions about future developments. The meaning of the vectors is that the direction of change can be predicted but not its outcomes. Clearly some actors, some activities and some resources will be the same even if they have been developed. It is also generally quite easy to predict some of the next steps that will be taken regarding the three aspects of relationships.

Thus, any company faces on the one side the unique uncertainty for which it has to be prepared and on the other side a reasonably stable change process that is possible to forecast to some extent. It is easy to realize the problems that might occur if either of the two is emphasized too much. If the 'stable' pattern is all that the company is aware of, it will soon be surprised, but if the unique uncertainty is too much in focus, the company may not do enough — it may become paralysed.

We argued earlier that a company's resource base and capabilities build to a large extent on its relationships. Consequently, the set of relationships of the company is important for how determined and how flexible it can be in order to 'play with change'. The criteria for attributing priorities to different relationships will have to reflect this problem.

Questions like 'who should we develop the knowledge together with?' and 'who should we learn together with?', must be regarded as important managerial issues. They are related to the previously discussed network change vectors and illustrated in some of the cases in this chapter. In Inteq there is an example of the problems of 'generalizing' from one type of counterpart to another. Inteq's main customers in the automotive industry are very professional and competent in both technical and commercial questions. Trying to develop similar relationships with companies in the general mechanical industry, Inteq found difficulties as these are much less competent and need to be dealt with in quite another way. Another vector issue for Inteq is how to handle relationships with counterparts who face changes in their other relationships. It can be to try to survive as a supplier despite the fact that the customer becomes more closely related to a competitor (hierarchization) or to try to take advantage of the fact that such a relationship is broken (heterarchization). In both cases Inteq has learnt not to overreact; relationships have a certain 'living force' and they are consequently difficult to manage for anyone. A good example of this is Inteq's relationship with Tyriss that has developed over a very long time despite all other changes taking place. In the Datacorp case the handling of the relationships is very much characterized by Datacorp trying to be a part in a restructuring vector. Consequently it has to build up new relationships, with all the problems that follow. It is a question of creating bonds, links and ties as well as of connecting them with each other. It is a huge

task especially when the selling company has no earlier experience in any of the dimensions.

The question is whether anything can be done to influence the odds in hedging change. It can be argued that uncertainty and ambiguity can be handled by maintaining some flexibility and/or redundancy in the resource base and capabilities. It can also be handled by using others to look beyond the horizon of the company itself.

Some of these issues are present in all the three cases in this chapter. Faced with considerable changes in its network Inteq has succeeded in combining strength and flexibility in its resource collection. An important development is that some of its major customers are trying to abandon and sell units that make part of the equipment sold by Inteq. The company has a choice of buying up these units or trying to compete with them in the future when selling to these customers. While ownership control may be more effective (and safer), a drawback is that it does make the company more heavily committed to the type of production these units carry out, perhaps losing some flexibility.

For Datacorp the situation is much more problematic. It is trying to find a way to handle the new technology but seems to have a very limited picture both of what the relevant network looks like and even less what its future position within it might be. Datacorp is trying to market a new solution which demands that new links and ties are established, and the existing bonds cannot be of any great help. It has to build up a new resource collection from scratch, which is both costly and very difficult. At the same time those being part of the old base feel insecure about the future and can easily decide to move away. Datacorp is in this way illustrating an interesting paradox in the business network. If a company has no previous relationships it is free to work with anyone but it will have difficulties in mobilizing them. If, on the other hand, it has previous relationships it is less free to select counterparts, but these few will be much easier to mobilize. Thus, total flexibility in one dimension can restrict what can be achieved in another.

Finally, Fujitsu tries to keep up several alternatives for future development, aware that it cannot predict what will happen. There are some major changes taking place in several dimensions, mainly towards restructuring and specialization. The company seems to handle this by actively taking part in a number of broad and cooperative relationships. Some of them are so broad that they include several sub-relationships as different units on each side have relationships with each other. It is an example of multiple relationships between multi-actors. This is the case for the Fujitsu–Sun relationship. An interesting observation in this case is that despite the huge changes taking place, the main actors are very much the same, which also means that even if there are substantial changes in the content of the relationships they continue between the same actors. The changes have one positive aspect and that is that the resources of the different actors to a large degree become complementary as there is a low risk that many of them will end up with the same product.

The advice to keep a certain flexibility and a certain redundancy are very similar to 'classical' managerial advice regarding how to be prepared for changes

in the environment. However, there seems to be one important advice given our approach, which at least partly contradicts these conclusions. Change is to a large extent created by the involved companies and in order to influence this change there is need for 'vitality'. The only way to influence the process for a company is to become a 'living force'. The more it becomes an active part of the process the more it will influence it. The question is not so much to get the perfect 'direction' as to become a force of change. But, as we have concluded before, the company can hardly become a force of change in itself. None can change a network by themselves. The key must be to have 'living relationships'. The direction cannot be given because it needs to be engaged; instead it will be a result of a process. Thus, the company should not try to direct the development in relationships too much; instead it should try to get them as 'living' as possible. The change in itself is important.

In the cases studied it is obvious that Inteq and Fujitsu have managed to become important living forces. They are both highly engaged in the change process and they are together with other central actors forming the structure. The 'ambiguity' they show in the direction of change is natural and a consequence of their being part of a process that is not, and never will be, aiming towards a final solution. Datacorp on the other hand does not at all show this kind of involvement, and is more or less bound to fail.

As all the cases illustrate, every network is changing in terms of how activities are linked, resources are tied and actors are bonded. These changes partly follow a path as they are created by the involved actors from a given pattern and thus are possible to foresee but partly take on new directions which are impossible to forecast as there are genuine uncertainty factors due to the multiplex interaction processes between the actors. It has two major implications. The first is, of course, that the company in itself must change through a continuous learning process. One way to facilitate this process is to try to get a certain variation (variability) or redundancy in the company's own network in the way that, for example, Fujitsu is trying to develop. Learning never can become very routinized, it is always to some extent a process of looking for the unknown, something that cannot be specified beforehand. What was right yesterday is not necessarily right today and what is right today will not necessarily be right tomorrow. Using the terms of Kirzner (1992) it is not enough to search (looking for something that you already know exists), the company must be prepared to take advantage of discoveries (finding something that you did not know existed before you saw it).

The second implication regards the need to take part in the changes. The resource and capability base a company needs is one to be active from. Among other things it requires the involvement of actors who will be taking part in the future. Clearly, some of the actors involved today will take part tomorrow, but there are also those who will not. A company's capabilities from a change point of view are dependent partly on the amount of resources it controls in one way or another but partly also to how these are 'moving'. The 'faster' the movement, the greater the 'living force'.

Looking at the two implications in relation to each other it is possible to

combine redundancy with the 'active' participation but it is more difficult with the flexibility. The more a company becomes a 'living force' the less the opportunities it has to change and thereby also less flexibility. As we will try to show in the next section it may be possible to find a way to solve this contradiction but then the flexibility must be conceived in a particular way.

6.4.3 Manoeuvring for position — strategy development

The network position of a company is the base of its performance. It matters not only for its capabilities and costs (the use of resources) but also for the revenues (its capacity to be a resource provider to others). It should be made clear, however, that expressed in these terms we use the notion of position in a somewhat peculiar meaning. When we use the notion of position it is not with respect to 'competitors' as usually intended when reference is made to position. We refer to position in a specific meaning with reference to the nature and type of relationship a company has, how it is situated in a network with respect to others, customers, suppliers and other third parties with whom it has direct relationships or to whom it indirectly relates. It is the position from outside, the 'status' to others with respect to the innovativeness, productiveness and alliances.

The network position of a company changes even if there are no changes in its own relationships. The status of the company changes even if it does nothing to change it. The overall position is affected if there are changes in the relationships of the counterparts, that is, changes elsewhere in the network that inevitably have an effect on the relationships of the company. The position of the company is thus subject to change regardless of its own initiatives.

Given the dependence of performance on position, the strategy problem of the company is to attain and maintain a favourable position over time. At the same time we concluded in the previous section that in order to become a living force the company could not decide about the 'direction' itself. The strategic consequence of this must be that as the company's direction cannot be more than partly influenced; the environment in terms of the network must be influenced. Basically, this means finding ways to connect other actors' ways of perceiving the network logic with the company's own. This can mean influencing their way of interpreting the technology or of how certain needs can be satisfied. Even if the influence can only be marginal on each of those others actors, the total result can be substantive. If several different others are viewing the world in such a way that our 'direction', whatever that is, can be understood and integrated, then the company will also get a certain flexibility. There will be several different opportunities existing side by side which can be activated depending on the outcome of the process.

This strategic issue is presented in the cases of this chapter, but also in other cases in this book. Inteq has the problem of judging what will happen in their network; in particular it seems to be affected by the future positions of line builders or system integrators who are expected to become more important to users in the future. If this should happen, when and how fast is difficult to say,

but Inteq is actively involved both in relation to these actors themselves and through the way the customers view the situation. In the same way Inteq has problems with the large international customers and their development. Decisions regarding the equipment Inteq is selling depend on whether there will be any hierarchization. Will the decisions become centralized, or will they mainly stay local? Again Inteq is trying through an active engagement to understand what is going on but also actively influencing it. There seems, furthermore, to be a certain restructuring going on between the main customers (users) and their suppliers. There also is a tendency to heterarchization; activity links and resource ties become connected in a new way due to a move of activities from the customers to the suppliers. Some large customers who had their own internal units producing the equipment Inteq is selling are now trying to sell these units. Such a change opens up in two ways. Inteq can either buy these units, or try to compete harder with them in relation to the old owner. Whatever the company does will affect its position and performance potential. It may be in its interest to promote the kind of change that it is best equipped for: generalization, heterarchization, restructuring. As such a change cannot be managed by the company unilaterally but others have to be mobilized and made into allies, different criteria for attributing priorities to certain relationships may become necessary if the future 'resource provider position' has to be maintained.

The Datacorp case seems to involve coping with change without really connecting the future resource provider position to any broader idea of capability or resource base. The case illustrates rather nicely the problems involved in change in networks generated by attempts to emulate the position development of others. The prevailing tendency in the network seems to be one of structuring, hierarchization and specialization, while the direction of the company runs to some extent in an opposite direction. Success or failure is likely to depend on whether the company succeeds in developing allies that are interesting in a loosening of the network and on whether it succeeds in developing the appropriate resource ties, activity links and bonds.

Fujitsu seems to be manoeuvring for position by striving to tighten its network but at the same time to involve most of those who make it up, in promoting change. The change is promoted on two rather different levels. One is within the existing relationships, seemingly with the purpose to keep the learning (capability development) process going on. An example of more complex resource ties and activity links is provided by the relationship with Sun. Another approach is to co-opt others collectively to the network, to broaden it.

What the cases illustrate is how all the changes in business networks in terms of structuring/restructuring, specialization/generalization and hierarchization/heterarchization are due to changes in some of the existing relationships and have effects on other existing relationships. The strength and content of single relationships will change and these changes will in turn affect the possibilities to establish new relationships. It is this interplay between other actors that a company can take advantage of in order to enhance the effects of the 'change direction' it, together with its major counterparts, has managed to create. What we

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can draw from the arguments brought forward and from the case histories is the importance of a cooperative rather than conflictual posture in the attempt to manoeuvre for position. In neither of the cases, perhaps with the exception of Datacorp, does competition seem to be the primary concern in guiding the strategy development. Rather it is the concern with how others can be involved and engaged in order to become a major force of change.

6.4.4 Managing change in networks

The management implications of our analysis of change in networks revolve around three major points. First, the companies need a 'language' to make sense of the change. They need a scheme for interpreting how the effects of single changes can become long-term tendencies. We have suggested three pairs of vectors, structuring–heterogenizing, specialization–generalization, and hierarchization–heterarchization as a first attempt. These vectors can be identified from how connections of ties, links and bonds develop.

Second, as the change process to a large extent is created in interaction between the companies it is important for the company to be actively involved through developing relationships and through connecting these better to each other. The change is formed in or transmitted through the relationships and the only way to manage it is to be actively involved. Clearly, such an involvement creates contradictions and internal conflicts but these are necessary in order to keep the company alert and prepared for 'discoveries'. If the involvement is combined with the ability to interpret through the 'language' above, the company will also get an insight into those questions that might be useful.

Third, in order to combine the living force created by the active participation in the relationships the company needs to create a certain flexibility first through a redundancy of relationships and second through an active involvement in how other actors within the network interpret the change processes in terms of change vectors and the network logic. As some of the changes always will be unexpected, the company needs some extra space and some extra possibilities to mobilize resources.

A final remark concerns the strategic posture of the company with respect to change. It can be conservative, aiming at exploiting existing opportunities. This tends to be accompanied with a focus on competition. It can on the other hand be innovative, aiming at creating opportunities. That tends to be accompanied by a focus on cooperation, that is, on relating to others.

7 Analysis of relationships and networks

in complementary approaches

In the introduction to this book we stated that our aim is to 'describe and analyse business relationships within the frame of market networks'. Working towards that objective we have developed a set of analytical concepts and applied them to different empirical cases. Up to now, we have avoided the question of how applicable our approach is and thus how it compares with alternatives. When we discussed the distinctive features of relationships in general in Chapter 2 we concluded that they have some peculiarities. These were then discussed in terms of the substance and the functions of the relationships and we concluded that we will focus our interest on 'the important relationships' which we assumed had both a complex substance and several important functions. The problem we did not face then is that there are differences in the use of the term 'relationship'. The notion of relationships is used for relations which have other attributes than the ones we have focused on. If we use the metaphor of personal relations of an individual we have chosen to look at the close relationships, e.g. within the family or with partners or other close friends. A company as well as a person has a lot of other relations; not all of these are 'important'. Furthermore, we can also be wrong in our assumption about the characteristics of the important relationships. Using our concepts, there are relationships which do not have a complex substance and/or several important functions. Thus, there are relationships that have simple substance and/or single or very straightforward functions (see Figure 7.1). Relationships with simple substance and a single function are uninteresting from a relationship point of view; it is the case that comes close to the pure market exchange relations conceptualized in economic theory. The two cells with question marks are both describing situations where some kind of relationship approach can be of value. They have in common some complexity due to interdependencies.

The possible differences in the phenomenon and in the approaches taken on these can be related to the matrix in Figure 7.1. The differences in approach can concern the way of hypothesizing the substance of the relationships, as well as their functions for the individual actor, the dyad or the aggregated structure. By identifying differences in these respects we hope it will be easier for the reader to evaluate the usefulness of the approach developed in this book compared to similar or alternative approaches. We also believe that it can help the reader in

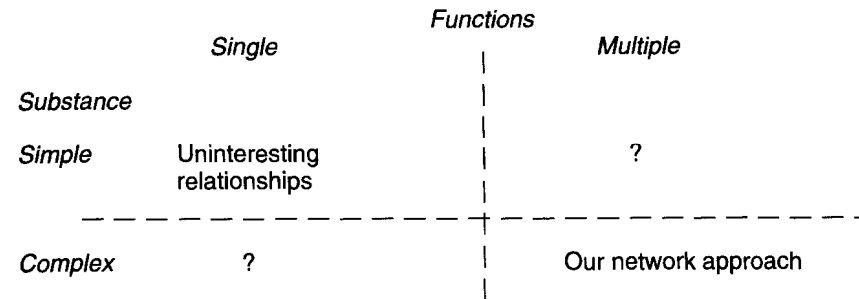


Figure 7.1 Different types of exchange relations

applying the concepts developed to situations where they will have the best predictive value.

In the same way there is a need to compare our empirical area — handling business relationships, i.e. marketing and purchasing of industrial goods — with other areas in order to find out if it has such peculiarities that the empirical results are not generalizable.

Instead of writing a special section to make comparisons regarding these issues ourselves, we have chosen to use what we regard as a more network type of strategy. We invited some researchers (specialists) whom we, through our relationships, knew had been working with alternative but related theoretical approaches with other empirical phenomena in focus. Thus, we asked for a contribution which included both empirical cases and theoretical considerations.

We got positive answers from several researchers. From two different sources we got contributions which fulfilled our demands on variation in the two dimensions given in Figure 7.1.

One type of study which we wanted to relate to, as theoretical approaches are used which have clear similarities in methodology and in phenomena in focus with our own, can be labelled 'studies of technical development'. During the last ten years there have been quite a number of studies which have centred on the interplay between companies in technical questions (von Hippel 1988, Teece 1980, Pavitt 1986). The studies within this area are from a theoretical point of view quite heterogeneous but they often include some theoretical considerations regarding relationships and aggregated structures. One recent example is Biemans (1992) who studied the technical development taking place in the interface between universities, hospitals and companies. In the first section of this chapter Biemans presents first a case study of a technical development project involving medical equipment, and second a contribution that discusses in more general terms some of the problems of technical development within close relationships. The case is interesting from a network point of view and the theoretical approach is close to ours, but there are also some important differences, which we will discuss briefly in the final part of the first section.

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Another theoretical approach which we wanted to relate to is, quite naturally, the transaction cost approach. During the whole time we have been working with developing the network approach we have always been discussing our position *vis-a-vis* the transaction cost approach (see Håkansson 1982: chapter 2, Johanson and Mattsson 1986, Snehota 1990). Consequently the second section of the chapter consists of two articles by researchers who use the transaction cost approach to analyse the same type of problems as those focused on in this book. The empirical material presented concerns first a shipping company and second international distribution of salmon. The analysis of the shipping case in the first contribution, by Lunnan and Reve, is especially interesting as the company in the case has developed what can be called 'a network organization'. In the second contribution, by Haugland and Gronhaug different governance mechanisms used in different situations – regarding different relationships – are discussed and tested in a cross-sectional study of distribution of salmon. Again, in section 7.6 we will discuss briefly the main differences between the use mode of transaction cost approach and our own study.

7.1 DEVELOPING A MEDICAL EQUIPMENT INNOVATION WITHIN A COMPLEX NETWORK

The case of Applied Instruments for Respiration, by Wim G. Biemans

7.1.1 Introduction

The last decade saw many changes in the research tradition with respect to industrial marketing. Concerning the subject of developing and buying new industrial products, the interaction between buyers and sellers proved to be a fertile area of research leading to results with direct relevance to industrial marketing practice. The Swedish branch of the International Marketing and Purchasing group, in particular, expanded the concept of interaction into a network approach. Up to now, however, research into networks has aimed primarily at the generation of theoretical concepts. But an investigation into networks can lead to results with practical relevance as well, as is demonstrated by the case study presented in this article. It describes how a new piece of medical equipment was developed through cooperation between various organizations within a single network.

7.1.2 Developing medical equipment innovations

- In the Netherlands, a large number of parties are involved in various ways in medical technology.
- Patients and the community in general are the direct beneficiaries of health care, but are frequently badly informed of the available services and equipment, thus resulting in an imperfect fit between supply and demand.

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- Because of its strategic importance and great potential, the national government initiated an extensive stimulation programme.
- In industry technological developments are progressing at an increasingly fast rate, leading to improved diagnostic and therapeutic opportunities. Due to their medical expertise, specialists are the most important people influencing the purchase of medical equipment; aspects such as personal status and the hospital's reputation can result in irrational buying behaviour. Research institutes and universities conduct both basic and applied research to develop new and improved technologies and applications.
- Knowledge brokers assist small and medium-sized firms by scouting for ideas and people, bridging existing gaps and providing support during the stages of product development.
- Insurance companies influence the diffusion of medical equipment through their compensation systems.
- The media play an important role in disseminating information and bringing together the various parties involved.

This multiple-party complexity is also evident in the practice of developing medical equipment innovations, which makes the medical equipment industry pre-eminently suitable to illustrate the functioning of networks.

The most salient feature of the medical equipment innovation process appears to be the fact that the end-user of the equipment often plays an important role in its initial invention and subsequent development. This fact was first reported by von Hippel (1976a), who studied 111 first-to-market innovations (including many

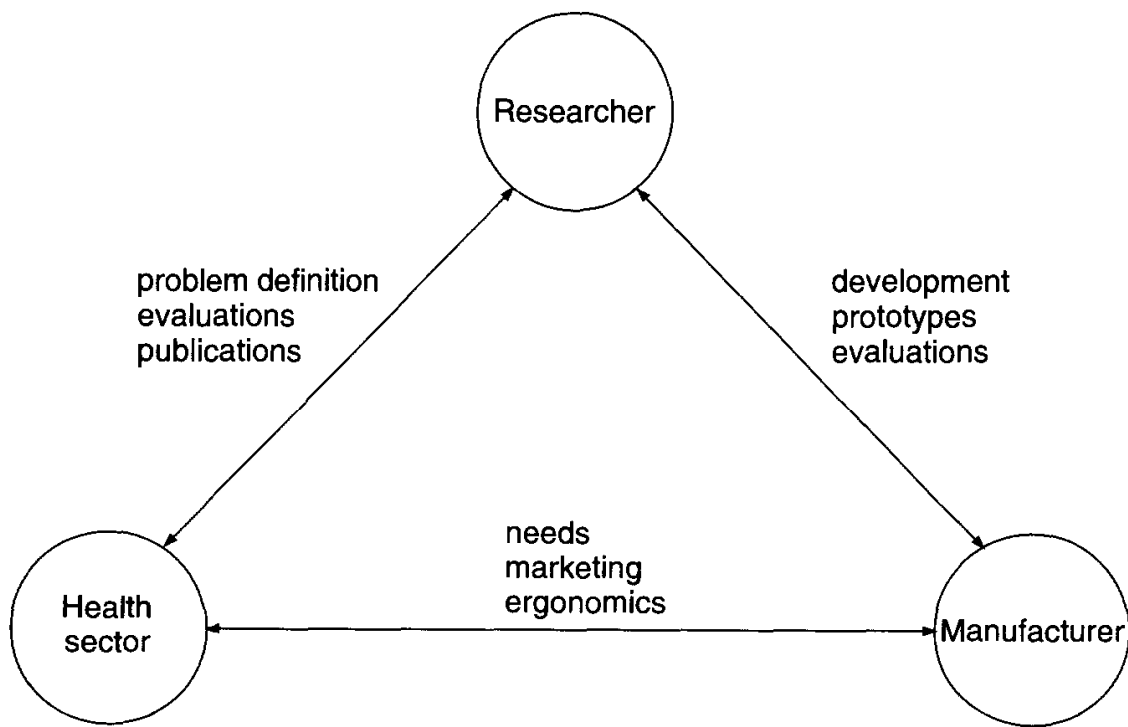


Figure 7.2 The three major parties involved in developing new medical equipment
 Source: Beneken (1980)

medical instruments) in the United States and found a clearly user-dominated innovation process. More recent studies by Shaw (1986) in the UK medical equipment industry and Abeele and Christiaens (1987) in Belgian high-tech firms largely corroborate these findings. Shaw studied a sample of thirty-four medical equipment innovations from eleven companies, divided into basic equipment innovations, major improvement innovations and minor improvement innovations. The principal conclusion from this investigation is that the medical equipment product development process is characterized by a multiple and continuous interaction between the user and the manufacturer.

However, manufacturers and users are not the only parties involved in developing medical equipment innovations. According to Beneken (1988), the development of innovative medical equipment typically takes place within a triangle consisting of the health sector, the researcher and the manufacturer (Figure 7.2). The results of recent empirical investigations stress the fact that, in addition to users, various third parties may be involved (see e.g. Shaw 1988). Biemans (1992) studied the development of seventeen medical equipment innovations and found that these third parties include distributors, universities, research institutes, government agencies, scientific foundations, competitors, suppliers, original equipment manufacturers, consultants and inspection agencies.

Industry–university cooperation

Of these various third parties, the universities deserve some special attention because of their frequent substantial contributions to the medical equipment innovation process. In the future, cooperation between universities and industrial firms is likely to increase. Due to increasing budgetary restraints, the universities are forced to seek external funds, while ever shorter product life cycles force industrial firms to speed up product development processes (Snyder and Blevins 1986). By means of cooperation contracts, universities can assist industry in developing new products (Hise, Futrell and Snyder 1980, Roberts and Peters 1982), as well as increase industry R&D expenditures and speed up the transfer and utilization of academic research in industry (Berman 1990). Cooperation between industrial firms and universities offers advantages to both parties (Dekker 1986). Through cooperation with universities, the manufacturers obtain:

- access to basic and applied research;
- the opportunity to test prototypes;
- feedback, such as information for the specification of improved and new products;
 - promotion of a new product among academics;
 - assistance in recruiting personnel.

For their part, through cooperation with industry, the universities obtain:

clear research objectives, which simplifies the comparison of costs and benefits and the acquisition of subsidies;

- contracts, and thus access to more money and equipment for advanced research;
- a larger critical mass, and thus faster research of higher quality;
- recognition by peers.

Nevertheless, some authors question whether such collaborations will bring the universities financial profit, and fear that academic researchers will be shifted away from their social role as suppliers of a collective good, i.e. scientific and technological knowledge (e.g. Feller 1990).

Despite these advantages of industry–university cooperation, the literature mentions some distinct problem areas, too (Dietrich and Sen 1981, Azaroff 1982, Fowler 1984, Snyder and Blevins 1986, McDonald and Gieser 1987, van Dierdonck, Debackere and Engelen 1990). The most important potential problems relate to the publication of research results, ownership of patents, overall performance, general orientation and attitudes. Notwithstanding these potential problem areas, the consensus appears to be that industry–university cooperation is workable. In most cases, all of the problems mentioned above can be worked out in advance.

7.1.3 A case study of industry–university cooperation

This section presents in detail the case of Applied Instruments for Respiration (AIR), showing how a particular medical equipment innovation was developed in the Netherlands through close collaboration between a number of essentially different organizations (a manufacturer, a university linked with a university hospital and an American original equipment manufacturer (OEM)).

The case description is based on several comprehensive semi-structured in-depth interviews with the persons most closely involved in the product development process. People from both the manufacturer and the university have been interviewed in order to cross-check the findings. Some of these people were interviewed more than once, and in all instances the results were reviewed with them, thus inviting them to correct errors of fact and supply additional information. Each interview took between two and four hours. While most interviews were held during 1987 and 1988, the marketing manager was interviewed again in 1991 to both update the case description and obtain some specific marketing-related information. Based on all interview reports, a comprehensive case description and analysis were drawn up and reviewed by the manufacturer. For reasons of confidentiality both the product and the organizations involved have been disguised.

The case study clearly illustrates the advantages and pitfalls of developing an innovation through a network of organizations. After having presented a brief introduction about the industrial firm and the innovation concerned, we describe in detail the contribution of the three major parties to the product development process. We then proceed to describe briefly the events leading to the present situation. The article concludes with a number of practical implications for industrial marketing management.

AIR: supplying to OEMs

Applied Instruments for Respiration is a world-wide operating manufacturer, specialized in the development, manufacture and marketing of instruments used in respirators. AIR strives for innovation and enjoys the reputation of being a reliable supplier of high-quality innovative equipment. Considering the limited size of the Dutch market for medical technological products, it is not surprising that approximately 90 per cent of AIR's total sales are actualized through export.

Since AIR has specialized in the production of component instruments, rather than entire respirators, AIR's customers are original equipment manufacturers (OEMs) who use AIR's advanced instruments as components of artificial respiration and monitoring systems. This implies that AIR is very dependent on the market information relayed by the OEMs. For example, product specifications are largely formulated by the OEM because of its direct knowledge with respect to user requirements (thus, the OEM is always known at the outset of the product development process).

In general, the process of product development at AIR runs as follows. Ideas for new products originate through scanning of literature and/or discussions with industry experts. After a preliminary assessment, emphasizing the technical aspects, a market study is undertaken to estimate the users' reactions to the product concept. Next, a prototype is developed and tested both internally and externally. The external tests (tests by users under real-life conditions (Biemans 1990) are usually conducted by Dutch hospitals with which AIR already has a relationship. University hospitals are clearly preferred since they have the opportunity to perform comparative research. The process of product development at AIR does not end with a comprehensive market introduction. Individual contracts are entered into with OEMs which carry out the market launch. Although the general description sketches a very linear product development process, the following case study demonstrates that in specific instances the process of product development may become very complicated through the involvement of various different parties.

The innovation

A number of years ago a competitor introduced an innovative respirator. However, users experienced major problems with the new product. AIR significantly improved the existing product through the development of an advanced microelectronic component. This component is built into existing respirators bought from an outside supplier. Subsequently, the modified respirator is sold to an American OEM which integrates it into artificial respiration and monitoring systems used in operating-rooms in hospitals (Figure 7.3). Thus, by the addition of the advanced microelectronic component, the performance of the whole system is greatly enhanced. Thanks to the implemented technology, AIR has a competitive edge and, although competition will follow, competitors are not expected to introduce similar products in the near future. After market launch an

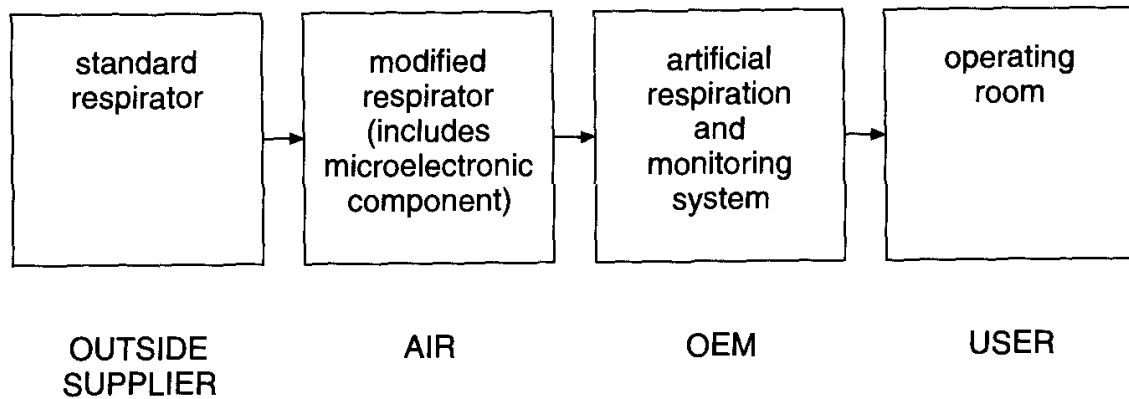


Figure 7.3 The innovation in relation to the whole system

unforeseen application was discovered, representing an additional selling argument and future profits.

The product development process

For the sake of clarity, we will divide the process of product development into three separate parts (Figure 7.4). The first part, starting with idea generation and ending with the construction and testing of the original design, is conducted by the Dutch University (DU). The second part, performed by AIR, starts with the development of an industrial prototype and ends with the production of the ultimate product. Finally, the third part, conducted in parallel with the first two parts, consists of the contributions of the OEM to the product development process.

Initiative for the cooperation

The cooperation between AIR and the DU was initiated because of a third party: the government, which aimed at stimulating industry–university cooperation through the granting of credits. AIR's management had discovered an interesting market segment and was searching for a university to provide existing basic knowledge in order to develop and manufacture me-too products. The DU was considered a suitable cooperation partner, since (a) it possessed the desired expertise and (b) it was linked with a university hospital so that a clinical environment was immediately available. The Department of Experimental Respiratory Techniques of the DU, on the other hand, wanted to develop an innovative product and was looking for an industrial partner to provide the necessary funds. Eventually, a contract was drawn up: AIR would sponsor experimental research to be conducted by the DU and in return would obtain the desired technological know-how. Furthermore, AIR would have first claim on any new product developed as a result of the experimental research.

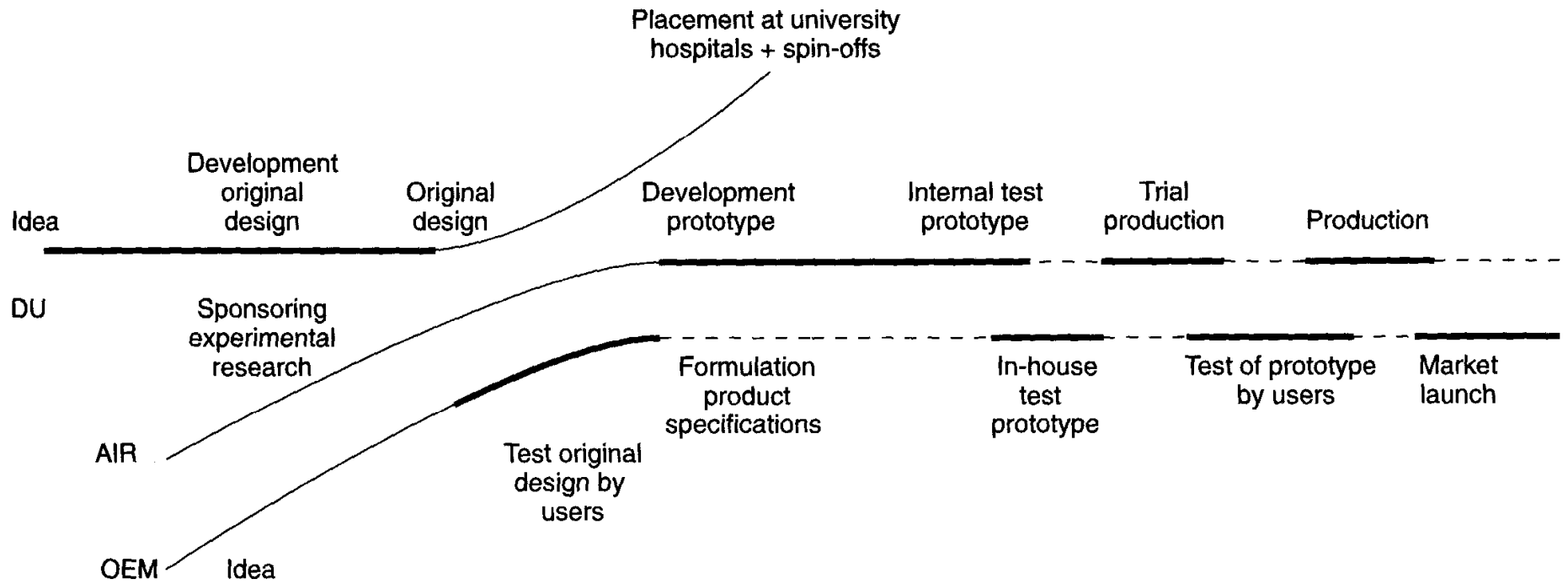


Figure 7.4 The process of product development in three parts

The Dutch University

The Department of Experimental Respiratory Techniques looked at the development of a significantly improved version of the existing product as an ideal project. However, due to the supposed limited size of the market segment AIR's management did not express interest in this specific application and would have preferred the DU to have concentrated on more traditional applications. Thanks to the persistence of the university researchers, the development project was eventually approved by AIR.

The idea for the new product originated with the engineers at the DU as a reaction to complaints expressed by users with respect to an existing product. The product specifications were drawn up in the course of an intensive dialogue between engineers of the DU and physicians of the university hospital. The requirements formulated by the users were combined with the technological possibilities and development of the original design commenced. After almost two years, an original design had been developed which, compared with the existing product, represented a significant improvement. It was tested both by the engineers (internal technical test) and on patients. During the next six months it was demonstrated at various national and international congresses to obtain response from users. The first reactions were positive and the DU was contacted by an OEM which expressed interest in marketing the product. Since the DU lacked both the ability and the interest in manufacturing the product, the OEM was referred to AIR. Only when AIR was confronted with this potential customer was enthusiasm for the project displayed.

Applied Instruments for Respiration

The user was involved in the development process through the close collaboration between users and engineers in developing the original design. The development activities at Applied Instruments for Respiration were based on user requirements too, since the OEM provided most of the product specifications. The OEM's knowledge of the market was very important in guiding product development at AIR. Theoretically, AIR could turn this knowledge into profit by selling to other OEMs as well. Therefore, the contract stipulated that for a period of one year after first delivery, AIR was not allowed to sell to other OEMs. The development activities at AIR took more than one year since several important aspects of the developed original design needed to be modified.

The original equipment manufacturer

Initially, the original equipment manufacturer had started a similar development project. However, when it learned of AIR's development activities, it decided to stop its own development project and cooperate with AIR. A separate project would take too much time and, through cooperating with AIR and demanding exclusivity during a specified period, the OEM could obtain a lead on potential

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competitors. The OEM was involved in the product development process in five different ways.

1. The OEM tested some units of the original design with users in the United States. Thus a more universal response was obtained, while the information acquired could be used to draw up the product specifications.
2. In collaboration with AIR, the OEM formulated the product specifications.
3. The OEM duplicated the internal (technical) tests performed by AIR with the prototype. In addition, the OEM conducted a number of specialized technical
4. tests which AIR could not conduct itself.
5. The OEM conducted the external tests because of its direct relationships with users. The prototype was sent to the OEM in the United States, which subsequently sent it to customers all over the world. The test results were used by AIR to finalize the design.
6. Obviously, the OEM carried out the last stages of the product development process, that is, introducing and marketing the product.

What happened afterwards

In marketing the innovation we need to distinguish between the OEM marketing the innovation as part of an integrated system to end-users, and AIR marketing the innovation to other OEMs (using the publications of the DU as promotional material).

After launching the innovation on the end-user market, it became apparent that actual use of the product frequently resulted in substantial damage to the standard respirator purchased from the outside supplier, leading to non-functioning products or ones that no longer satisfied the legal safety requirements. Here, one must realize that, due to the innovative nature of the product and its application, the user was unfamiliar with the product, while the supplier was unfamiliar with the market. Thus the technical problems may have been caused by incorrect use of the innovation. The problems were solved through a joint effort of the outside supplier and MR. Market acceptance of the innovation exceeded all expectations. AIR's total sales volume of 1987 had increased tenfold by 1990, thus exceeding even the most optimistic estimations of market potential. This huge success can partly be explained by the discovery of an important additional application which proved to be of great importance in the American market in particular. As even the original optimistic estimation of potential sales volume was hardly considered seriously, the overwhelming demand could not be met by AIR until the project received top priority and additional investments were made.

After the agreed period of exclusive delivery had expired, other OEMs were approached by AIR. Of the approximately eight potential customers, five signed up for the innovation. As competing systems for artificial respiration and monitoring tend to be incompatible, each additional contract required the original innovation to be technically modified.

Naturally, the huge success did not go unnoticed. A competitor developed a

second-generation product, while two existing customers announced their intentions to develop a second-generation themselves.

AIR continues to cooperate with the Dutch University. Drawing on the acquired production know-how, new product ideas perceived by AIR are translated into proposals and relayed to the university. Together with the proposal, the university researchers receive detailed specifications of which components AIR expects to use in manufacturing the product (thus more closely matching the contributions of both partners). The researchers at the Dutch University are not required to develop prototypes, but rather to establish the clinical relevance of the design. The research at the university is sponsored by government, while AIR supplies much of the materials used, as well as time, knowledge and expertise.

To sum up: at this moment it is not clear what AIR's future position in this new market segment will be. Will it manage to develop high-quality follow-up products and maintain its position as a major party, or will AIR turn out to be the victim of its own success?

7.1.4 Managerial implications

The case description describes several of the pitfalls and intricacies concerning the development of innovations within networks. This section discusses the most salient conclusions and their managerial implications.

Industry–university cooperation

Although the developed innovation was ultimately successful, the collaboration between AIR and the DU was far from optimal. The frustrations and problems which occurred in the course of the development project can largely be explained by essential differences between the cooperation partners.

Objective of the cooperation

The university cooperated with industry to obtain funds for conducting experimental research in exchange for existing knowledge. AIR, on the other hand, was looking for the basic technological know-how required to develop and manufacture me-too products.

Expectations of the partners

The DU expected to use the funds to develop a new diagnostic method of interest to the academic community. AIR expected the university to assist during the start-up of production and to conduct clinical tests with prototypes.

Criteria for evaluation

The DU would consider the cooperation with AIR to be successful if it led to more scientific publications, increased project efficiency, faster clinical experience, improved diagnostics, and enhanced status and competitive scientific position. AIR, on the other hand, would characterize the cooperation as being successful if it resulted in a shortened start-up period, lower costs, higher product quality, critical external quality assessment and inexpensive access to a 'think tank'.

All in all, the cooperation led to frustrations for both parties. The DU wanted to publish the test results immediately, while AIR would have liked to wait, because of potential competition. The small-scale production techniques used by the DU in the laboratory proved unsuitable for large-scale industrial production. Although, due to the inherent differences between universities and industrial firms, these kind of problems should always be expected, they could have been prevented/reduced by anticipating them and taking preventive measures. Open, detailed and timely communication goes a long way towards preventing these problems.

It should be noted that, while communication problems caused by different cultures appear to be at the heart of the problem, their existence may depend on the size of the industrial firm. If a medium-sized firm cooperates with a university, communication problems are generally to be expected. If, on the other hand, the industry–university cooperation concerns a large firm, serious communication problems are less likely because the R&D cultures at both organizations are likely to be rather similar (Riedle 1989). Finally, in the case of small firms, the widely differing R&D cultures tend to foster communication problems. In addition, experience with industry–university linkages is expected to reduce the cultural differences which may exist between both worlds (van Dierdonck, Debackere and Engelen 1990).

Product development within a clinical environment

The fact that the original design of innovative medical equipment is developed by a university linked with a hospital is generally considered by industry to be a major advantage. Thus the innovation can be developed by engineers with ready access to a clinical environment. The direct and intensive dialogue between engineers and physicians is assumed to result in a high-quality product. During the actual development stage, new improved versions of the original design can continuously be tested by physicians on real patients. Both the physicians and the engineers are motivated to cooperate closely, since the test may be used to generate scientific research results and publications and thus to increase the prestige of the institute, the department and individual scientists. Nevertheless, developing an original design within a clinical environment has some potential disadvantages as well.

Despite the development within a clinical environment, actual user involvement in the development activities is often quite limited. This user-involvement paradox is perfectly illustrated by the case of AIR. Although the original design

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was developed through close collaboration between engineers and physicians, only a few physicians were actually involved in the development activities. What is more, only physicians from the DU were involved, thus making it an 'internal' project. Therefore industrial firms should address the question of whether the results thus obtained are representative of the market segment in question. Theoretically, the initially limited involvement of users can be corrected by having other hospitals test the original design as well. In practice, however, this ideal situation is not easily realized. In the case of AIR, the physicians were so eager to test the various versions of the original design that it became practically impossible to have it tested by other university hospitals (and thus to obtain results of a more general nature). The physicians demanded exclusive possession of developed versions of the original design to maintain a monopoly on future publications. Thus they interfered with an efficient transfer of the original design to AIR.

Technology transfer

An issue that warrants special attention in the context of intensive industry–university cooperation is the transfer of the original design from the university researchers to the industrial firm. Due to mutual misunderstanding and overrating/ underrating, this transfer may be a major source of friction between both parties. Typically, the university researchers expect the developed original design to be only slightly modified before start-up of production and underestimate the extent of development needed to be undertaken by the industrial firm. The firms, on the other hand, typically overestimate the capabilities of the universities by expecting them to develop industrial prototypes. These problems may be significantly reduced if industrial firms and universities establish open communication and cooperate more closely during product development.

The case of AIR illustrates the point. Instead of limiting itself to sponsoring the experimental research at the DU, AIR could have assisted in the development of the original design (thus incorporating the requirements of the industrial firm at an early stage of development). Next, the DU could have assisted AIR in translating the original design into an industrial prototype (thus applying the knowledge and experience acquired through developing the original design). Such a set-up would not only have prevented many frustrations and misunderstandings, but would also have shortened the duration of the development project and reduced total development costs.

It should be noted that the substantial differences between the original design developed by the university researchers on the one hand and the industrial prototype developed by AIR on the other, were partly caused by the use of different suppliers. In developing the original design, the university researchers selected their own suppliers, some of whom were not used by AIR, while others were not even available to the firm! For instance, the university researchers got some of their components from the university workshop. While such a workshop may produce three or four components by special request, it is certainly not

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equipped to, nor interested in, turning out a regular production of twenty-five units per week. These discrepancies are avoided in the present set-up where AIR provides the university researchers with clear specifications and many of the needed materials.

Intensity of interaction

The intensity of interaction may change over time. For instance, in the case of industry–university cooperation, a firm sponsoring experimental research at a university may increase or decrease the extent of its sponsoring, depending on its strategic objectives. Again, the case of AIR illustrates the point. After having concluded the development project, AIR did not totally terminate the sponsoring of experimental research but continued to supply funds, albeit a minimal amount. This provided AIR with direct access both to existing knowledge and new scientific developments. A firm is capable of handling a large number of these weak ties to obtain up-to-date information at relatively low cost (Granovetter 1973).

Developing innovations within complex networks

In the case of AIR the innovation was developed within a complex network, that is to say it was developed through cooperation between many different parties, the most important parties being a university linked with a university hospital, an industrial supplier of component instruments and a supplier of whole systems. This resulted in overlaps, duplications, simultaneous developments and spin-offs. For example, while AIR sponsored the development of an original design, the OEM had started a comparable development project. At a later time, the DU placed the original design at other university hospitals' disposal for scientific research which resulted in various spin-offs. The whole network is presented in Figure 7.5.

Developing a new product through close cooperation between a number of different organizations linked together to form a complex network offers obvious advantages to the parties involved:

1 The contribution to the product development process of every party involved can be limited to its own specialized activities. For example, because of its existing direct relationships with users, the OEM is best suited to conducting the external tests.

2 Deficiencies caused by one party at an early stage of the development process can be corrected by another party at a later stage. For example, the substantial involvement of users in developing the industrial prototype (by means of the comprehensive product specifications based on market information supplied by the OEM) compensated for the limited involvement of users in developing the original design.

However, the case of AIR exemplifies some major *disadvantages* of product development within complex networks as well:

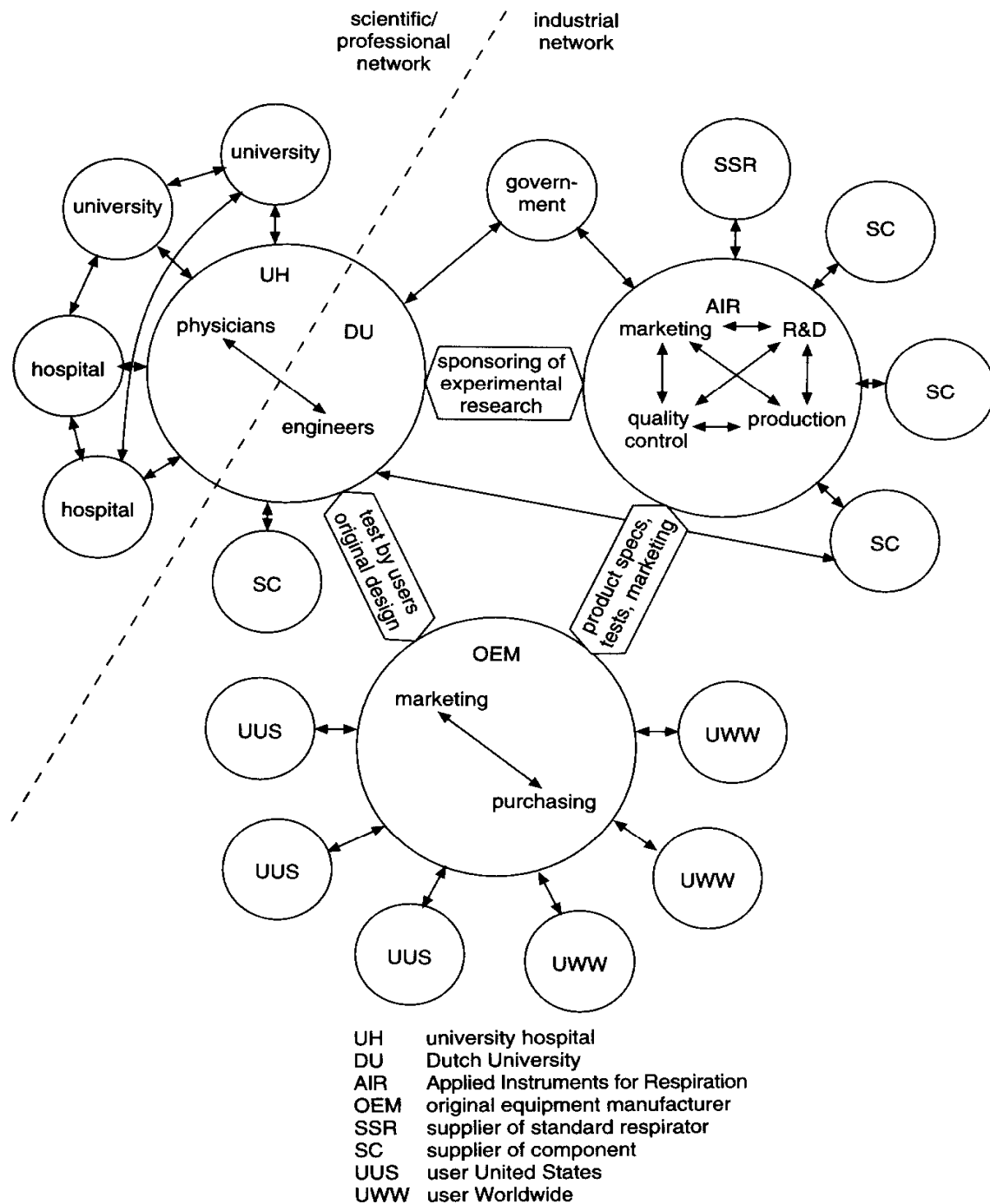


Figure 7.5 The complete network

1. Overrating of each other's capabilities may result in friction and misunderstanding between the partners.
2. The limited involvement of users in developing the original design may slow down the development of the industrial prototype.
3. Further delays may be caused by inefficiently conducted activities (e.g. the external tests would sometimes be organized as follows: AIR shipped the

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4. prototype to the OEM in the USA, who subsequently sent it to a German user to have it tested; after completion of the test the results were sent to the OEM, who then informed AIR).
5. Involvement of various parties in product development may lead to duplication of some activities; for example, developing and testing both an original design and an industrial prototype.

These disadvantages could have been prevented or reduced through more intensive cooperation and open communication between all parties involved.

Internal versus external networks

The graphic representation of the whole network, presented in Figure 7.5, demonstrates that networks should be considered at two different levels. While each of the three major parties involved in the product development process is part of a large external network, every one of them has its own internal network as well. The successful development of the original design within the DU necessitated close cooperation between engineers from the Department of Experimental Respiratory Techniques and physicians at the university hospital. The successful translation of the original design into a new industrial product was made possible through effective communication and coordination between the departments of marketing, R&D, production and quality control. Finally, the purchasing and marketing departments of the OEM had to coordinate their activities. The distinction between external and internal networks is crucial, since the functioning of each of the internal networks directly influences the efficiency and efficacy of the external network. Thus, the old saying 'a chain is no stronger than its weakest link' proves to be relevant to the management of innovation processes as well.

Industrial versus scientific and professional networks

Several aspects of the case described here emphasize the critical differences between the university (including the university hospital) on the one hand and the industrial firm on the other. While university researchers and physicians operate in scientific surroundings, governed by intellectual/professional curiosity and a constant pressure on producing publications and where pace is determined by scientific progress, industrial firms function in an industrial environment, characterized by competition, profit and emphasis on speed and low costs. Thus the case of industry-university cooperation describes how representatives of two widely different systems collaborate (linking the industrial network with the scientific/professional one; see also Figure 7.5). Because of the specific problems inherent in this type of collaboration, we propose to expand Håkansson's typology, consisting of vertical cooperation, horizontal competitive cooperation and horizontal complementary cooperation (Håkansson, 1987) with a fourth category, diagonal cooperation.

7.1.5 Conclusion

This case study has described how several different organizations joined forces and developed an innovation through close cooperation within a network. Despite all the drawbacks and frustrations encountered, the case should be considered an example of successful product development. While the case description describes just a single example taken from a larger study (Biemans 1992), it illustrates the practical relevance of the network concept. Not surprisingly, the managerial implications are numerous. The most relevant observations are summarized below.

- Cooperation between various parties is an important condition for the successful development of medical equipment innovations.
- Potential cooperation partners are not limited to users of the product, but include research institutes, the government, suppliers, etc. as well.
- Although the involvement of various different parties in product development has obvious advantages, there are some potential disadvantages too (see also the following section).
- The inherent differences between the scientific nature of a university and the commercial reality of an industrial firm create much potential for misunderstanding, problems and frustrations.
- Successful industry–university cooperation can be supported through open communication between the parties involved from the very beginning. Expectations, objectives, requirements, demands and capabilities should be made explicit at the outset of the project.
- Industry–university cooperation should not be restricted to providing money and approving a research programme. Instead, the partners should focus on establishing and managing a long-term relationship.
- The right timing is a prerequisite for successful cooperation.
- Long-term cooperation demands flexibility of all parties involved, which implies that contracts accommodate enough flexibility, so that changed circumstances can be met by the appropriate actions.
- The successful conclusion of any joint development project depends strongly on the functioning of each of the internal networks.
- Weak ties should be considered complementary to more intensive interactive relationships.

7.2 PRODUCT DEVELOPMENT WITHIN NETWORKS The other side of the coin,

by Wim G. Biemans

7.2.1 Introduction

Recent years have seen a proliferation of publications about interaction and networks. All in all, these articles and books have tended to focus on the formulation of theoretical constructs and hypotheses. In so doing, they stress the

need for cooperation and applaud the numerous benefits to be gained. However, while the existence of networks offers great opportunities to management, the practice of networking involves some serious potential pitfalls and problems as well.

The observations and recommendations presented in this article are based on the results of five years of intensive field research, including approximately 300 interview hours with close to 100 executives from some fifty organizations, as well as numerous clippings from the business press and scientific articles, books and reports.

As regards networks, we can distinguish between simple and complex networks, with complexity referring to both the number and kind of partners involved. When a firm interacts with just one partner, management can direct all its attention to managing that relationship. On the other hand, when a firm collaborates with a number of partners of various types, management is confronted with the task of managing a portfolio of relationships, some of which may be influencing each other. This situation is increasingly becoming a reality for many firms, who find they can no longer develop new products with the speed required by the market without numerous cooperative relationships with a number of organizations. Individual relationships need to be evaluated in terms of investments, benefits and potential interaction effects. Whatever the complexity of the network, collaboration with external partners will always confront the firm with a number of potential disadvantages and problems. The nature of these disadvantages, as well as how to deal with them, is the subject of this article.

7.2.2 The problem: potential disadvantages

As has been stated above, along with the many benefits that may be obtained, every mode of cooperation with an external partner involves various (potential) costs as well. Let us take a closer look at this other side of the coin.

Increased dependency

Cooperation implies that certain specified activities are no longer done by the manufacturer but are carried out by an external partner instead. Therefore every type of cooperation is accompanied by an increased level of dependency, which in the case of substantial differences in input may be detrimental to the weaker partner. The level of dependency and its related economic effects depend on the cooperation mode selected (Hagedoorn 1990). Kanter (1989a) describes in detail how Digital Equipment Corporation increasingly cooperated with a selected group of suppliers. The consequential increased dependency was amply made up for by the numerous benefits involved.

With cooperative agreements, the trick is to establish mutual dependency, where both benefits and dependencies are equally distributed among the firms involved. Unequally distributed dependencies will inevitably lead to mis-

understandings, frustrations and ultimately termination of the cooperative agreement.

Increased costs of coordination

Involving a number of external parties in the development of new products requires the people responsible for integration to commit increasing amounts of time to communication and coordination. Most of the time will be spent on writing progress reports, extensive travelling and attending formal meetings and review sessions, but the required presence at informal joint lunches and other similar social gatherings may take up much time as well. The coordination becomes especially complicated when the partners involved represent different corporate cultures (Riedle 1989). When an organization collaborates with foreign partners (for instance, as in the numerous large-scale European technology programmes, such as EUREKA) additional costs may be incurred because of the need to translate documents and existing higher wage levels in partner countries. Fokker, the Dutch manufacturer of commercial jet aircraft, estimated that, in the case of the Fokker 28, the collaboration with external partners resulted in an estimated 60–70 per cent cost increase!

Other management skills

Successful management of strategic partnerships demands new skills from management. 'They involve challenges that require new types of managerial capabilities when it comes to living with ambiguity and displaying a mature attitude' (Lorange and Roos 1991). Three fundamental reasons for this are (1) slower, more complex decision making, (2) the merging of separate cultures and (3) the existence of different (conflicting?) strategic intents. Instead of making unilateral decisions and issuing commands, managers are expected to motivate, bargain, negotiate, sell and empathize (Kanter 1989b). Existing employees may find the shift from competition to cooperation (where lifelong competitors are suddenly referred to as colleagues!), and the accompanying shift in required skills, extremely confusing and the source of much frustration and reduced performance. This changed outlook on reality is particularly confusing to veteran sales executives.

Indeed, today's dynamic market-place results in a peculiar situation. It frequently requires managers to compete with firms which, under other circumstances, may turn out to be cooperation partners. This resulting hybrid of competitor and colleague, which may be called a compelleague, plays a major role in many markets of the 1990s and places additional demands on a manager's skills.

In the Netherlands Industrial Simulator Platform (NISP) a number of suppliers of hardware and software combine their strengths to promote the use of simulators (almost all of which are bought by the Ministry of Defence). As no supplier can deliver a complete system, a new project group is created for every individual

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project. One supplier may learn about a new project and subsequently form a project team of two or three major suppliers (with much standard development work contracted out to other partners). This means that all other potential suppliers are out. However, they may also join forces, form a second team and offer a competitive bid. Thus, the terms 'competitor' and 'cooperation partner' only make sense in relation to a particular project. Firm A may cooperate with firm B in one project, while being fierce competitors as regards other projects.

As cooperation with other organizations typically involves the combination of different cultures, the role of the liaison manager (or boundary spanner) becomes an extremely important one. As Niederkofler (1991) noted: 'Bridging the cultural gap between the organizations requires special skills in communications and diplomacy. According to Botkin and Matthews (1992) an R&D director may not be very suitable choice. Although he/she without a doubt will be very knowledgeable about the company's technology, there may be problems because of the motivational factor. 'As the person responsible for research and development, the director of R&D is naturally inclined to protect his or her turf and develop the corporation's internal R&D resource. The position is almost, by definition, internally oriented, so asking that person to pursue an external strategy is inherently contradictory.'

Management of personnel

The required new management skills have profound consequences for personnel management. Long-term comprehensive joint development projects necessitate new incentive and compensation systems that reward long-term group performance rather than direct individual results, and emphasize creativity and freedom to use personal talents instead of salaries, bonuses and promotion (*cf.* Olson 1990). As Nevens, Summe and Uttal (1990) noted, successful firms stress coordination, not functional skill. In addition, long-term complex projects of strategic importance may cause a firm to reduce personnel mobility by asking key personnel to commit themselves for the life of the project. At the same time, selection procedures in hiring new personnel should emphasize cooperative behaviour rather than an aggressive attitude.

Access to confidential information and proprietary skills

In the course of a joint development project the partner may get access to certain information of a confidential nature, as well as proprietary skills. While, frequently, such sharing of information and skills is critical to the project's eventual success and an open atmosphere has the side benefit of creating a mutual feeling of trust and commitment, firms may want to take precautionary measures. For instance, Lyons, Krachenberg and Henke (1990) note that industrial buyers looking for cooperation partners are using increasingly explicit supplier evaluation programmes, thereby gaining access to all aspects of the supplier's operations (including financial information!) (see also Burt 1989). Others have

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observed that personal relationships prove to be a major mechanism for creating effective linkages, both in day-to-day execution of the partnership and from a long-term perspective. In the case of cooperation with external partners, these personal relationships need to exist at all levels of the organization. Henderson (1990) cites one manager as saying: 'It is often the personal relationships built between organizations that enable you to manage across the rough spots'. However, it should be noted that interaction with external cooperation partners is a means by which strategic information may be disseminated as well as gathered. Therefore firms may want to control trading of information at operational levels in particular, since this is where the day-to-day interactions occur. This calls for a clear specification of the information which is off limits to the collaboration partner, as well as for employee loyalty, greater self-discipline and even greater emphasis on individual responsibility for relationships and for communications (*cf.* Drucker 1988).

Dominance by the partner

Increased dependency may be accompanied by a fear of being dominated by the cooperation partner in question. The risk of dominance and resulting exploitation is always present, but especially in the case of unequal contributions by the partners one should beware of the pursuit of power and control. In the case of international alliances the selection of the country that serves as 'home' to the alliance influences the danger of dominance and control (Hamel, Doz and Prahalad 1989).

Lack of commitment

The potential synergistic benefits of joint product development may be completely nullified by lack of commitment from one or more cooperation partners. While most direct personal contacts exist at operational levels, top management support and strategic vision are crucial for the project's success. The vital commitment should not just be expressed in pretty declarations of intent and empty slogans, but should result in visible investments in the relationship and setting the right example. However, it should be noted that insufficient commitment does not always result from unwillingness or lack of interest. An unexpected strategic shift from one of the partners may cause the collaboration to be terminated. For example, the partnership of Siemens and RCA was ended abruptly when RCA informed Siemens that it was no longer in the computer business in a surprise phone call: 'Okay, we were just in a board meeting and we decided to get out of computers' (Alster 1986).

Loss of critical knowledge and skills

Joint product development implies that a carefully defined series of activities are no longer performed in-house but are carried out by an external partner. If

increased cooperation with external partners results in a gradual shift from development to production, the resulting loss of critical knowledge and skills has serious implications for the firm's strategic position. Hamel, Doz and Prahalad (1989) call this phenomenon the 'ratchet effect'. However, such a strategic shift also has important implications for many of the present suppliers. The announcement, made at the end of October 1990, that another 40,000 jobs would have to go at Philips created great unrest in the market. The loss of jobs and the consequential strategy to enter into strategic partnerships with external partners makes the firm strongly dependent on a limited number of highly qualified suppliers. The director of Neways Electronics (one of Philips' many suppliers) reacted to the announcement by expressing his worry that in the future Philips will probably be unable to supply critical knowledge and expertise (*NRC Handelsblad* 1990).

7.2.3 The remedy: prevention is better than cure

As is implicit in the description of the various potential disadvantages of cooperation, they come in three basic categories.

1 *Inherent disadvantages* Some disadvantages are inherent in cooperation with external partners and the firm just has to learn to live with them (for instance, increased dependency, increased costs of coordination, and changed management skills). Evaluation of these organizational effects of cooperation is at the heart of making decisions about strategic partnerships.

2 *Easily manageable disadvantages* In contrast, the adverse effects of many potential disadvantages may be easily minimized through innovation management tailored to the contingencies of the situation. Frequently, effective communication proves to be the key to success. For instance, in the case of AIR (see the preceding case study), much of the friction, frustrations, misunderstandings, delays and unnecessary duplication of activities could have been prevented through detailed and timely communication, careful drawing up of agreements and having partners interact freely during the development process. Several managerial guidelines to improve industry–university cooperation have been suggested to prevent the cultural differences between the scientific world of the university and the practical reality of the industrial firm from resulting in frustration and failure (Biemans 1992).

3 *Situational disadvantages* Finally, some disadvantages are only relevant in certain specific situations. For example, at Philips the loss of critical knowledge and skills due to a more extensive reliance on a limited number of high-quality suppliers is closely tied to the firm's economic performance, corporate business strategy and changing management culture.

Successful cooperation is all about carefully assessing the effects and taking measures to minimize the potentially adverse consequences. Typically, a successful cooperation strategy consists of four basic elements, that is, (1) selecting the

right partner, (2) identifying and motivating the right person(s), (3) formulating clear-cut agreements (getting the project on its way) and (4) managing the ongoing relationship.

Selecting the right partner

Quite obviously many problems can be prevented by carefully selecting future cooperation partners. According to Hagedoorn (1990) one should aim at similarity balanced by complementarity, with similarity referring to the firm's size, resources and economic performance. In addition, numerous real-life examples illustrate that compatible cultures increase the likelihood of success. For example, when AT&T formed an alliance with Philips in 1983 to develop and sell digital phone switches throughout Europe, the two companies' cultures were mismatched from day one: 'The Dutch had their wooden clogs nailed to the floor, while the go-go Americans wanted to rush in at the business', says David Thunder, marketing director for the venture in Britain until 1986. In 1990 Philips officially pulled out of the partnership.'

Nevertheless, alliances can be specifically designed so as to reduce cultural conflict (Lewis 1990). Steele (1990) emphasizes that potential cooperation partners should also possess compatible design and production philosophies.

However, of more importance is the required complementarity offered by the cooperation partner; the creative combination of complementary activities, knowledge and skills realizes the desired synergy.

Biotech companies, who develop drugs based on gene-spliced versions of the body's own biological mechanisms, are increasingly teaming up with major old-line drug companies (who base their development efforts on chemical compounds). The huge investments needed to build a stand-alone drug company make that an impossible dream for most biotech start-ups. Many need long-term partners to stay afloat. Meanwhile, large drug companies have a constant need to develop more major projects than their labs can produce. Thus, by revealing the biological mechanisms at work in disease, biotech could help researchers design more precise chemical compounds with fewer side-effects. An example of this collaboration is provided by Genentech. Kirk Raab, chief executive of the San Francisco-based biotech company, invested more than \$30 million in January 1991 alone in three ventures aimed at marrying Genentech's technology to new approaches for developing synthetic chemical drugs. 'Our sciences are complementary, not competitive', says Alan R. Timms, chief executive of Glycomed Inc., one of Genentech's new partners.³

Hull and Slowinski (1990) deny that differences in firm size automatically lead to unequal contributions to the partnership. Small and large firms may very well function as complementary partners. In the case of international collaboration, the political situation in a country may strongly influence the selection of the right partner, while in all situations timing may be a critical determinant of the project's eventual success.

In selecting the right cooperation partner, traditional portfolio analysis may be

of assistance. Just as with every other investment decision, the decision to initiate a joint development project should be viewed as part of the strategic puzzle. Relationships with other firms should not be viewed in isolation, instead their influence on other existing and potential relationships should be carefully assessed. Indeed, joining into a partnership with firm X may interfere with or even preclude future relationships with firm Y.

The literature about strategic partnerships offers many models to evaluate potential cooperation partners (see e.g. Souder and Nassar 1990a, 1990b and Biemans 1992). In practice, however, firms are clearly struggling with this critical question. Should one cooperate with the market leader or prefer the number two (who 'tries harder') as a partner? Under different circumstances a firm might clearly favour cooperation with a small firm, where direct contact with the director/owner or someone else in an influential position is expected to guarantee a prosperous partnership. To avoid these difficult decisions, firms are frequently found to choose their cooperation partner because of an already existing relationship (Biemans 1990, Souder and Nassar 1990b). While existing good personal relationships without a doubt assure a successful start of a new joint development project, the effect on the project's ultimate outcome is much less obvious.

Identifying and motivating the right person(s)

While the existing literature addresses in great detail the selection of the right partner, the critical importance of identifying and subsequently motivating the right individual(s) within the organization is very much underestimated. Discussions with managers indicate that, whatever cooperation strategy is followed, the selection of the right partner is only the first step. Locating the right individual without inside knowledge of the organization proves to be quite difficult, but may nevertheless be critical in establishing a successful partnership. The individual thus located performs two crucial functions:

1 after initial contact has been made, he provides a window on the organization and may be employed to gain information on various aspects of the organization;

2 after having been sufficiently motivated, he serves as internal ambassador in promoting the benefits of the proposed cooperation, countering initial resistance and keeping the project going despite initial setbacks (individuals performing this function are also referred to as 'project champions').

While the individual serving as initial contact may also function as an ambassador initiating and defending the cooperation project, this need not be the case. Instead, both tasks may be divided among a number of individuals, each of whom may gain importance during different stages of the cooperation project and who may use different bases of authority. For instance, Gemunden (1985) calls them 'promoters' and distinguishes between a promoter by power and a promoter by know-how. To be able to function as an ambassador, the selected individual(s)

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need to be provided with ammunition (both compelling qualitative arguments and quantitative data if possible) to counter resistance and demonstrate the benefits of the proposed cooperation. Berry (1980) refers to this as 'managing evidence'.

Formulating clear-cut agreements

After having selected the best partner from among the many alternatives available, and achieving verbal agreement to start a joint development project, detailed agreements concerning a large number of issues need to be arrived at. In addition to clarifying the basis of the collaboration (division of tasks, link with responsibilities, reasons for entering the partnership, goals to pursue, life of the project, contributions to be made, division of costs and benefits, etc.), the agreements should install control mechanisms to ensure successful management of the cooperation project (such as interorganizational decision-making, motivation of personnel, resolution of conflicts and informal communication processes). Effective management of the partnership may also require internal organizational modifications.

Managing the ongoing relationship

From the very moment the project is on its way, effective management of communication (both formal and informal) and recognition of the critical role played by individuals become essential ingredients for success. Periodic reviews can be used to measure progress and keep both the cooperation project and the relationship on track. However, especially with long-term cooperation projects, one should always count on unexpected turn of events. Management faces both the challenge and responsibility to employ creative management of relationships and thus turn problems into opportunities and apprehension into success. In so doing, a clear focus on the interests of the partnership, rather than the wellbeing of the individual firm, leads the way to success.

7.2.4 Conclusion

In the 1990s cooperation, networking and strategic alliances are increasingly emphasized as critical factors in successfully running a company. However, despite the numerous benefits to be gained, cooperation with external partners is nothing like the purely beneficial strategy it is often made out to be. Serious potential pitfalls and disadvantages are part of the game as well. Although some of these are inherent in cooperating with external partners, the adverse effects of many potential disadvantages can be minimized through creative innovation management tailored to the contingencies of the situation. Nevertheless, cooperation may pose numerous unexpected problems and requires a lot of serious effort and commitment of the people involved to make it work.

7.3 COMMENTS

If we compare the way relationships and networks are analysed in the two contributions by Biemans with our own conceptualizing, there are some obvious similarities. While the phenomenon studied (technical development) is different, the relationships explored concern the category we are interested in, important relationships dealing with complex interdependencies. The main characteristics of relationships are very much the same which also is true for identified influencing factors. Different actors are assumed to be interdependent of each other and form network structures which is very close to our way of discussing actor bonds. Complementarities in different activities performed by various actors are assumed to be important, which is close to our analysis of activity links. Furthermore, resources are seen as complementary, which in the same way is similar to our tied resources. In all these respects these two contributions overlap with what we have directed our attention to.

Even if the similarities clearly prevail there are some interesting differences in emphasis given to different features of the relationships and in how the implications are formulated. A first example is the conclusion that by making the goals for the cooperation clearer, improvements could have been made in one of the key relationships. Another suggestion is that more comprehensive communication is a way to solve some of the problems experienced by the parties. We will not argue here about the validity of these conclusions for the presented case. However, the belief that clearer goals, better communication, etc. will solve a lot of problems in the cooperation between companies is not an obvious conclusion in our type of relationship analysis. The difference between the presented approach and ours can be found in the way a relationship is perceived as being embedded into the network. A network in our analysis has such a complexity, includes such contradictions and is so difficult to read that there will always remain a lot of ambiguities and contradictory interpretations and interests within every important relationship. These, we believe, are inherent in embedded relationships, despite whatever communication efforts are made, and the actors will have to live with these relationship and network attributes of ambiguity and inconsistency. Biemans, as well as a majority of other researchers within the technical development area, seems to have a strong belief that networks and thereby relationships can and should be projectual and thus clear and straightforward. It follows then that an increased knowledge will always help the actor. We would, contrary to this, emphasize the inherent differences in the knowledge of the parties.

Another difference regards the existence and functions of asymmetrical relationships. Biemans concludes that symmetrical relationships are better, i.e. they are preferable. In our analysis we have stressed that in most cases there will be asymmetrical interests from the parties involved in a relationship and that nicely balanced relationships will be the exception. The actors will be used to this situation and it will simply be regarded as a problem in strong conflict situations.

A third difference is the way cooperation in a relationship is treated. It is not

the norm on the theoretical grounds for the technical development studies as they most often assume some kind of 'market situation'; that is, that there must be special reasons for actors to cooperate. Companies are assumed to live in a hostile world of conflict where competition is the rule and cooperation is the exception. From our theoretical standpoint cooperation is seen as a very natural element - almost the norm. We would rather ask why companies are not cooperating. Given a network model we would assume that cooperation is a condition for achieving a 'positive outcome of exchange' and has always existed and dominated the business world. It is only the forms and way of doing it that might have changed.

The identified differences can be discussed by characterizing the way the researchers within the 'technical development' area treat relationships in terms of functions and substance. It must, of course, be remembered that there is a large variation between different studies in the area and that generalizations are hard to defend. However, given these excuses, we would in general describe these studies as concerned with several different functions of the relationships; to single companies, to dyads or small groups of companies or to the whole structure. In the other dimension, the substance, we would argue that the relationships are often considered to be quite simple - more or less one-dimensional. Thus, the approach could be classified to one of the two cells with a question mark in Figure 7.1 (the top right cell). One reason for that could be that these researchers are approaching relationships coming from the 'whole' and therefore, they clearly see the effects on the single relationship of the surrounding structure (network). Coming from the 'whole' it is harder to see the complexity in the individual relationship. The belief in the clarity and symmetry in relationships discussed above could be a consequence of this view. Another is that they focus typically on the one dimension of technology. The way they approach relationships is easy to understand from the point of view that technical items are always parts of technical systems. They are therefore focusing on the systemic aspects of the relationships, i.e. that the relationships must be regarded as parts of a larger whole. In general we could depict their theoretical approach in this dimension as a system approach.

The empirical case presented in this section could have been one of our cases. It would be easy to apply the actor, activity and resource model to the case and there are no principal differences to the earlier presented cases. The inclusion of hospitals and universities makes little or no difference in general; the relationships will just have some extra attributes.

7.4 GOVERNANCE MECHANISMS IN A NETWORK ORGANIZATION

The case of a Norwegian industrial shipping company, by Randi Lunnan and Torger Reve

7.4.1 Introduction

The large, vertically integrated firm operating successfully in global markets now has a challenger - the network organization. Rather than vertically integrating virtually all activities in the value chain (Porter 1985), the network organization

or the N-form capitalizes on the advantages of vertical disintegration. Not so that the industry becomes fragmented into a large number of small, autonomous firms acting in chaos, but forming octopus alliances where many small firms act in coordination (Miles and Snow 1986). The core of a network organization is an information headquarters based on a clear business concept combining technical, financial and human resources with a thorough understanding of markets and customer needs. What is created is a system organization, tightly managed, but not relying on vertical control through ownership. The essence of the N-form is that each separate company specializes in what it does best, exploiting the advantages of being small without giving up the advantages of being integrated. Coordinating activities this way means depending on the performance of other companies. This creates complex coordination and control problems which are different from those present in the traditional integrated company. But when it comes to flexibility, the network organization is simply superior.

This case study addresses the challenges of how to govern a network company. The case company studied is a Norwegian industrial shipping company, Laboremus. The company is a global market leader in small chemical gas shipping and is a very successful industrial shipping company in Norway.

The case study is divided into two parts. First there is an elaboration of the N-form concept, presenting a theoretical framework of governance mechanisms, and then this framework is applied to Laboremus and its network of cooperating firms.

7.4.2 The N-form concept

Viewing the firm as a bundle of transactions, these transactions are grouped into units to exploit synergies. Transactions, grouped into value-adding activities, can be represented by the value chain which in its generic form disaggregates the firm into inbound logistics, operations, outbound logistics, marketing, sales and service (Porter 1985).

The value chain illustrates the connections between the different activities a firm must pursue to produce and sell its product. Theoretical perspectives dealing with structuring of activities in value chains have pointed to entrepreneurial forms, bureaucratic forms and divisionalized forms. These perspectives define activities in internal departments. The N-form concept, on the other hand, assumes that the firm can freely choose between internal and external company units when locating value-adding activities. Loosely stated, an N-form organization can be defined as a company having located parts of its value chain with external companies, maintaining vertical coordination and control through non-hierarchical measures. The focus should be on the contractual nature of the N-form, rather than on the ownership pattern defining traditional hierarchical control.

Why do firms want to organize this way? What activities should they locate externally, and what should be kept internally? What advantages and disadvantages can be associated with this form of system organization, and what are the conditions that make it efficient?

A theoretical perspective that addresses some of these questions is the strategic alliance–strategic core analysis (Reve 1990) building on transaction cost theory (Williamson 1985). The firm can be seen as a bundle of economic transactions. Each transaction is analysed in terms of its frequency, uncertainty and asset specificity. Transactions characterized by high asset specificity require specialized physical or human resource investments. These investments can only be transferred to other transactions at substantial cost. Each firm must develop its core skills, defining its rationale within the industry. Assuming that asset specificity is the driving variable, Reve (1990) proposes that transactions with high asset specificity to the firm constitute the core of the firm's activities and should be conducted inside the boundaries of the firm. Transactions not characterized by high asset specificity investments, may be located with external companies connected to the focal company by contractual alliances. Herein lies the effectiveness of the N-form organization. By performing only the activities where the company has its key interest and core competence, other companies are allowed to do the complementary activities at a cost advantage. Low asset specificity transactions are by the same rationale, left to the market, requiring no contractual protections.

According to this perspective, network organizations are companies where activities close to the strategic core are conducted internally, while activities complementary to the strategic core are located with external companies tied to the focal company by strategic alliances.

This assumes an ability to organize a network and manage the alliances needed. Thus network management becomes the core for successful N-form firms.

The principal nature of the network organization can be illustrated as in Figure 7.6. Network management lies at the core of network organization while many of

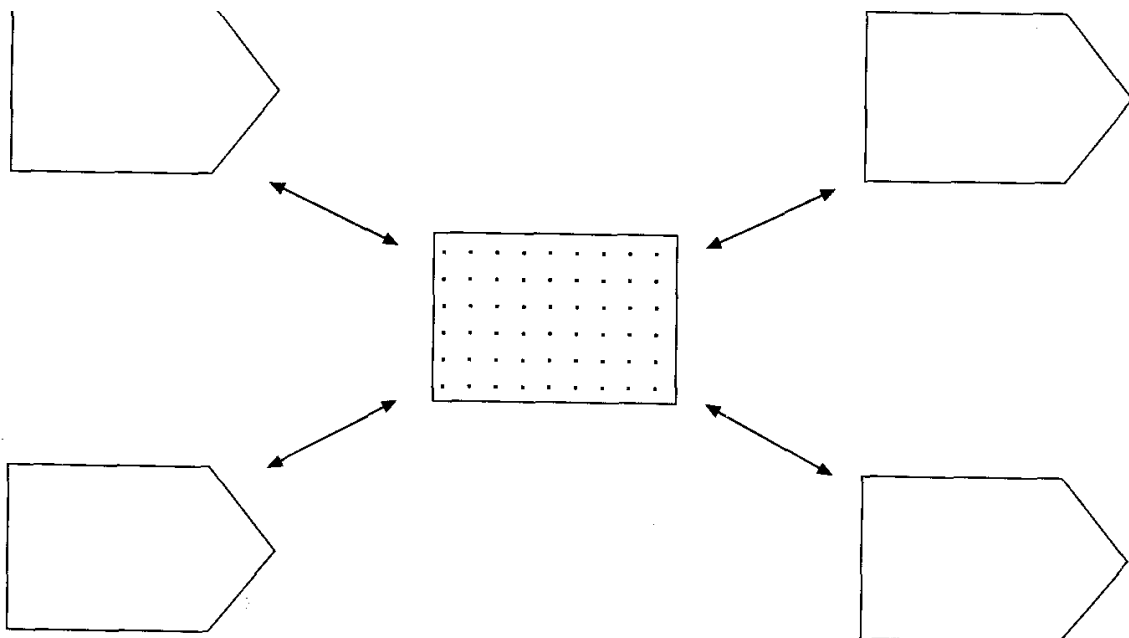


Figure 7.6 Network organization

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the other value chain activities are organized externally. The advantages associated with the N-form are first smaller capital requirements, since fewer employees and physical resources are required (Lorentz 1988). Second, the company will exhibit greater flexibility, since it can change its external partners if they do not fulfill their obligations, or the company wishes to invest in other business (Dore 1983, Miles and Snow 1986). Flexible adaptation to environmental changes can also be enjoyed since fewer employer connections need coordination. Third, a network company's close links to external actors give access to advantages like new know-how (Powell 1987), goodwill (Gerlach 1987), risk sharing, scale and scope economies (Johnston and Lawrence 1988, Borys and Jemison 1989).

Being dependent on another company for vital products, however, makes for opportunism and use of power. Misconceptions easily cause conflicts (Powell 1987). Relying on others gives the company less control and makes it more exposed to risk. Dense networks of cooperating companies bar newcomers. The network nature of the company normally exposes the organization to more competitive forces, although there are also contrary arguments (Dore 1983).

We have now presented some rationale of why companies organize as N-forms, discussing what activities to internalize or externalize. We have also briefly mentioned some problems concerning this organizational form. What remains is a discussion of the conditions for the N-form to be effective.

The work of the IMP group originating at Uppsala (e.g. Håkansson 1982) shows that industrial companies interact and cooperate extensively, and that these relations are relatively stable over time (Håkansson and Snehota 1989). Other researchers have noticed some of the same phenomena (Powell 1987, Miles and Snow 1986). What is the secret which makes inherently instable alliances become stable and meet external competition? Articles debating network transactions point to concepts like developing attitudes and practices (Johnston and Lawrence 1988), stabilization mechanisms (Borys and Jemison 1989), decision mechanisms to secure unity of effort and trust (Lorentz 1988). We will call these 'net-work mechanisms' trust, and focus on the governance perspective in the next section.

Governance mechanisms

The essence of transaction cost theory (Williamson 1985) is that transactions with different characteristics need different governance mechanisms, ranging from hierarchical to market based. The intermediary forms are of most interest when analysing N-form organizations.

Two of the main criticisms of transaction cost theory influence our perspective. One challenge comes from researchers studying networks arguing that the behavioural assumptions are simplistic (Håkansson 1982, Granovetter 1985), while the other can be summed up in Bradach and Eccles (1989) challenging the notion of a market-hierarchy continuum.

Håkansson (1982) and Granovetter (1985) claim that it is not sufficient to

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analyse transactions along the dimensions frequency, uncertainty and asset specificity. Transactions often take place between actors that know each other and have interacted over time. Previous experiences are relevant when companies choose governance mechanisms since previous knowledge might reduce perceived opportunism.

Transaction cost theory associates a governing institution with a governing mechanism: the market with price governing, hierarchy with authority governing, and interorganizational relations with a mixture of price and authority or with trust. Several researchers have observed violations of this rule. Stinchcombe (1985) analysed technology contracts between companies, and he found contracts characterized by high uncertainty and asset specificity not to be organized internally, but rather organized in the market. These contracts, however, contained several authority elements. Eccles (1981) observed construction firms and their relations to craftsmen. Being market organized one would expect to find that the price mechanism prevailed. Eccles, however, found stable relationships between the construction firm and the craftsmen to be characterized by authority structures rather than market organizing. Recognizing these contradictions Bradach and Eccles (1989) suggest that the market—hierarchy dichotomy should be abandoned. The alternative would be to view price and authority as mechanisms independent of institutional forms. They also brought in a third control mechanism, trust, and argued that the three mechanisms can be combined in a variety of ways. By elaborating this perspective, the authors were able to stand up to the two challenges without undermining the explanatory power of transaction cost theory.

Before we apply the theoretical framework to our shipping company, we will shortly discuss the three control mechanisms: price, authority and trust. Each economic transaction has a governance vector, we argue, composed of these three elements.

Price

When a transaction is governed by price, the two parts must be able to negotiate a price before the product can be transferred. This is considered the efficient governance mechanism when products are standardized and performance is easy to measure, since no further supervision is required.

Authority

In a transaction governed by authority, one part can get the desired product from the other through influence and behaviour control. Governing by authority is more expensive than using simply price, since outcome as well as behaviour must be supervised.

362 *Relationships in business networks* Trust

In a relation governed by trust, one party believes he can get a desired product from another party without fearing opportunism. A history of successful transactions and the expectancy of continued interactions in the future might decrease the attractiveness of behaving opportunistically. Building trust in a relationship may take years and requires substantial investments in relationships.

Finding the optimal governance vector is not a trivial problem, but it may provide the key to better understanding of interorganizational relations. Let us then turn to our case of the network organization which has received little attention in the literature.

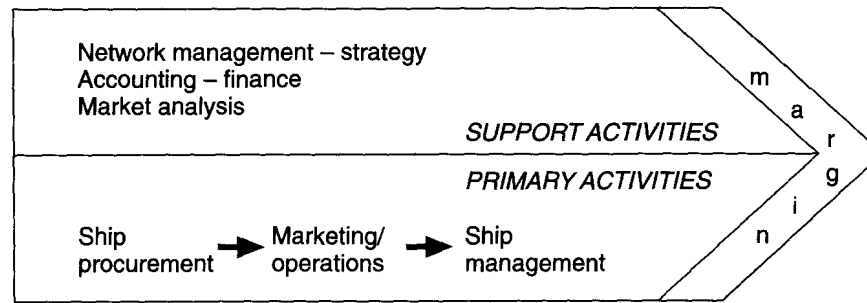
7.4.3 The network organization case: Laboremus

Laboremus was founded as early as 1910, but its history as a modern, industrial shipping company started only in 1986 with heavy investments in small gas tankers. In this market, Laboremus soon became one of the world's leading participants. Controlling a large, modern fleet and establishing a broad network of contacts, the company has been able to avoid many off-hire days, which is vital to profitability in this type of shipping. Perfectly timed buying and selling of tankers gave additional profits and increased the company's ability to expand and invest. Being successful in the gas market, Laboremus wanted to reduce the risk of operating in only one market and expanded into transportation of refined oil products. Their major market, however, remains industrial gas transportation by specialized gas tankers. The main products which their tankers carry are ethylene, propylene and butadiene. In 1989 the Laboremus corporation had an annual turnover of NOK 1.242bn., of which NOK 0.807bn. came from the local firm Laboremus, at that time employing seventeen people.

While we were still in the process of interviewing Laboremus' top management, news came of a merger between Laboremus and Kosmos Shipping, two companies within the same major investment group. This case study is a description of the Laboremus shipping company only, analysed according to the N-form framework developed earlier in this case study.

For current purposes we will concentrate on the most important activities Laboremus needed to control to be a complete industrial shipping company. A simplified value chain is depicted in Figure 7.7. Shipping industrial cargo from one port to another involves a series of activities. First of all, there must be a ship available. Laboremus manages a pool of gas tankers, either solely owned, jointly with other investors, or leased.

Having a ship available, the next step is getting cargo. This is the task of the operations people. One gas operation company, NGC, and one products operation company, Nortank, are responsible for marketing the fleet, working closely with brokers and customers and negotiating contracts. In the gas market, over half of the contracts are long term, while in the products market most contracts are settled spot.



After negotiating the contract, Laboremus hires crew members and procures supplies like fuel, food and insurance. The operations company supplies fuel, while crew-hiring and other supplies are taken care of by different management companies. These companies negotiate a fee per tanker every year, and the relationships are usually long term. They can, however, be terminated within one month.

Finance and accounting are vital parts of industrial shipping. Considering ships as an object for investment and taking full advantage of the liberal Norwegian shipping taxation policy, these functions have large bottom-line impact.

Laboremus has deliberately chosen to have a small administration. Two top managers make all the vital decisions, and together with relevant consultants and staff these two men are responsible for analysing trends in their markets as well as having the main responsibilities for network management and strategy.

Organizing in value chain

Laboremus depends on a web of organizations to conduct its value chain activities. Some of these companies are connected through full or partial ownership. Figure 7.8 gives an illustration of some of these links.

Being 100 per cent controlled by Laboremus, the gas operating company, NGC engages all Laboremus gas carriers. NGC cooperates with another gas operating company, UNIGAS, being located in Holland. In their segment of small gas transportation carriers, they are probably the largest world gas operating unit.

Although Laboremus controls less than half of the Nortank shares, they consider Nortank as 'their' company. Laboremus established Nortank, hired management and located the company next door.

Kosmos Ship Management (KSM) is a company in the IM Skaugen group, and Laboremus uses this company to supply some of their ship procurement needs. About half the Laboremus-controlled ships are presently supplied by other, external ship management companies, the VI-ship company being most important.

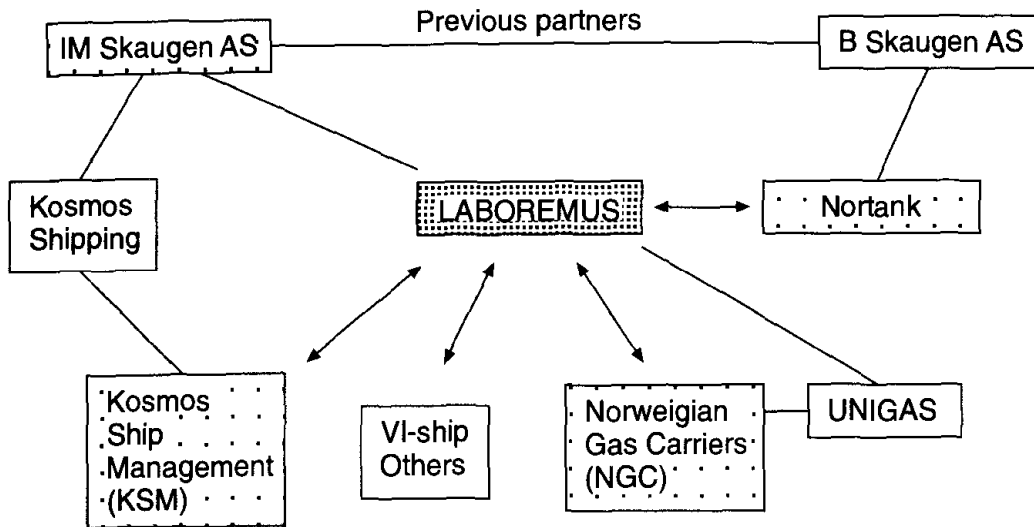


Figure 7.8 Laboremus and cooperating companies

activities

Recalling the Laboremus value chain (Figure 7.7), it consisted of six main activities: ship procurement, marketing/operations, ship management, market analysing, accounting and finance, network management and strategy. We will now discuss each of these activities, trying to analyse how they are governed, and where they belong in the strategic core—strategic alliance perspective.

Ship procurement

The flexibility and strength obtained through controlling a large pool of tankers are vital in the global gas transportation market. For Laboremus it is therefore of the utmost importance to control their carriers. However, purchasing and owning a ship involve substantial capital investments. Furthermore, gains in risk sharing and capital liquidity are obtained from ownership sharing. By tying each ship to different legal entities, Laboremus allows outsiders to buy shares in their gas tankers. Lucrative tax rules for ship investments make investors interested in buying into ships in Norway. Laboremus typically keeps the majority of shares in each ship, thus controlling the ship company board and management.

Most gas tankers which Laboremus controls are partly owned by the company. Only a few tankers belong 100 per cent to the company, while about one-fourth of the tankers are leased for an agreed fee on time charter agreements.

Closely related to the financial and strategical activities, ship procurement is considered an important activity, involving company-specific competence.

Marketing and operations

Originally, NGC belonged to five independent ship owners whose shares were bought by Laboremus. Now NGC only operates Laboremus gas tankers. All customer and ship broker contacts are handled by NGC, being the main centre for market information. Most gas-tanker profits are made through the operations activity. Moreover, NGC is cooperating extensively with UNIGAS, the two together having substantial strength in the market. Laboremus considers the cooperation a good chance to increase their knowledge about shipping. For the first few years the cooperation was managed by detailed contracts, even if many agreements were implicit. Laboremus worked to increase their influence in the relationships with their partners to change ineffective routines. Such a strengthening of ties would increase Laboremus' authority in the relationship.

NGC is an independent company, with its own management, budget and plans. At the same time, the ties with Laboremus are close. The companies' offices are located together, just separated by an unlocked door. Everything NGC earns is transferred to Laboremus, and NGC employees have the same wage system and fringe benefits enjoyed by the Laboremus employees. The chief executives meet regularly. Indicators of authority in the relationship are therefore not hard to find. At the same time, we find many trust indicators. Laboremus does not have time nor resources to control all activities pursued in NGC. They claim that the ship operations competence in NGC is outstanding, and that the two companies act side by side without interference. This freedom of work relies on long-time personal knowledge and daily informal talks between the two management teams.

The products operation company, Nortank, is intended to function and be governed largely the same way as NGC. The closeness between Laboremus and Nortank is signalled by locating offices next door to Laboremus and NGC. Being paid a fee for each tanker they operate, the price element is more visible than in the NGC case. But authority and trust are far more important as governing mechanisms than price. Laboremus chief executives hired Nortank management and are their superiors. The chief executives in the two companies meet formally at least once a week. But as with NGC, there is no way that Laboremus by use of direct authority can control Nortank decisions. Laboremus has to rely on the frequent informal meetings, the Nortank executives' previous employment records and their personal knowledge to assure themselves that the right decisions are taken, and that all important market information is shared.

Authority being present in both NGC and Nortank relationships, makes the two companies resemble organizational departments rather than independent companies, although differences also exist. Employer loyalty is primarily directed towards NGC and Nortank, and the management incentives are believed to be different than being integrated. The flexibility aspect is pronounced. If Laboremus wants to get rid of all their gas carriers, they could simply sell NGC, without needing to reorganize Laboremus. The two companies have their own management and administrative staffs, and their own plans and budgets. When making

operational decisions, and establishing relations to customers and clients, they enjoy complete independence. On the other hand, the cooperation between Laboremus and the two companies is extensive. Market analyses and strategy are important common tasks, and information concerning number of ships required, expected market prices and customer needs are constantly flowing. Impossible to specify in contracts or routinize in procedures, this cooperation relies on both parties finding the relationship beneficial and thus avoiding opportunism.

Ship management

Ship management services are for the most part not specialized. Supplying a large crude oil tanker is not very different from the needs of a small specialized gas carrier. There are many ship management companies, and it is easy to set a standard price for a standard product. Until recently, Laboremus signed ship management contracts on an 'arm's-length basis', enjoying flexibility of being able to sell several tankers without being concerned about employees. With the world shipping fleet getting older, and the demand for safety and environmental protection growing, Laboremus expects an increasing demand for quality, meaning better-kept ships and better-trained crews. To increase management quality Laboremus wants to strengthen its contacts with Kosmos Ship Management, another of its major stockholders. At the same time, they see no reason to quit using other ship management companies when the price and quality comparisons are beneficial.

The ship management activity has previously been governed mostly by price. With the Laboremus engagement in Kosmos Ship Management we would also expect more authority in the relationship.

Market analysis

Market analyses are often conducted by NGC or Nortank. Having experience and market knowledge in the operations companies, NGC and Nortank staffs have access to the necessary information sources. occasionally, external specialists are consulted. Being central to company strategy and core competence in Laboremus, the management keeps close authority control over this activity.

Accounting and finance

About half the Laboremus employees work with these activities. With large amounts of capital being involved in each step of the value chain, financing and cash management is important. The financial and accounting staff is well trained and trusted to perform their work without too close supervision.

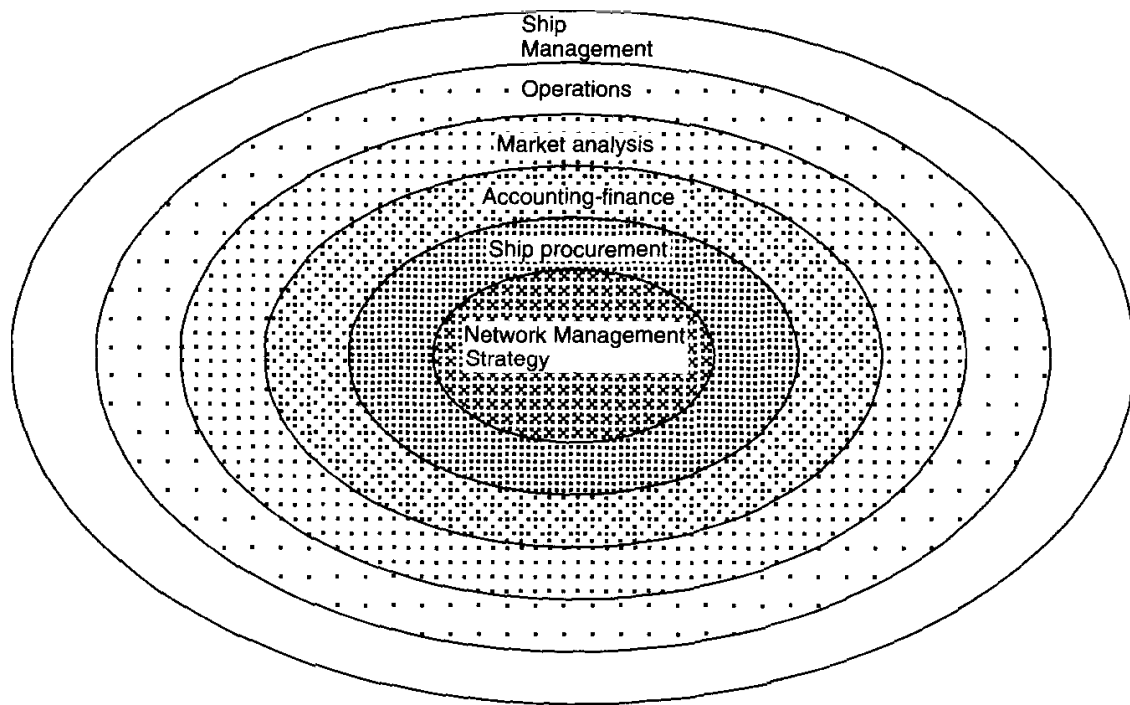


Figure 7.9 Laboremus' core and peripheral competence

Network management and strategy

Network management, or the spider-like capability of developing the cobweb which forms the network organization, is a core competence of Laboremus. Coordinating, adapting and smoothing the different activities in their two markets and finding new paths of development are central to the company. Network strategy similarly originates from the core unit and its top management.

Figure 7.9 summarizes the competence necessary to perform the activities in the Laboremus value chain, arranged from core to periphery.

Conclusion

Keeping strategic core activities internal, while placing complementary activities with external companies, Laboremus has obvious N-form characteristics. With only seventeen full-time employees, Laboremus is only a fraction of the size of similar, integrated companies. Organizing this way, Laboremus enjoys low overhead costs and a small, competent internal organization. The company is highly flexible, being able to use other ship management companies, and can sell out the operations companies completely if they decide to change markets. Strategic decisions are easily made and implemented, and organizational changes are frequent. All this results in a superior ability to meet competitive moves in their global shipping market.

Studying the evolution of Laboremus, we observe two contrary trends which are likely to result in increased use of the governance mechanism of authority.

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The first trend concerns the strengthening of ties in existing alliance relations. NGC, which was earlier predominantly price governed, is now strongly tied to Laboremus. KSM which is presently treated on an arm's-length basis, is about to become a permanent cooperation partner even though other ship management companies would still be used. Furthermore, it seems like Laboremus wants to strengthen its role in the NGC–UNIGAS alliance.

Second, Laboremus is eager to expand. Having only recently entered into refined oil products transportation, the company is already looking for a third market opportunity. Entering products transportation, Laboremus used large financial resources establishing Nortank and preparing the ground for development of trust based on a recognition of mutual benefits. Expansion into new areas would involve additional control tasks. Controlling a relation by trust and authority occupies far more management resources than using price. Extrapolating the two trends, the Laboremus organization is bound to change into a larger and more integrated organization. The consequences of such a strategy are more complex coordination problems and tighter internal control, at the cost of a loss of flexibility and rising overheads.

The case analysis leads us to speculate whether the N-form organization is a transient form or not. Although there may be forces to integrate and rely more on hierarchical controls in individual network organizations, the shipping industry remains full of cases of highly competitive N-forms. In fact, the N-form organization, with its governance vector of price, authority and trust, relying heavily on external organizations, may be a determining factor behind the success of Norwegian shipping in global markets. More thorough theoretical and managerial understanding of such forms remains high on the research agenda.

7.5 AUTHORITY AND TRUST IN NETWORK RELATIONSHIPS Sven A. Haugland

and Kjell Gronhaug

This case study focuses on network relationships in international distribution. Special interest is paid to the governance of such relationships. We argue that authority and trust represent two different modes of governance mechanisms. Authority means monitoring by the use of rules and procedures. Trust, on the other hand, implies monitoring by social norms and personal relationships. A model is developed and explored empirically in the context of international distribution of Norwegian salmon.

7.5.1 Introduction

Network relationships have received much attention over the past years. Both researchers and observers have pointed at the long-term nature of such relationships (cf. Arndt 1979, Håkansson 1982, Dwyer, Schurr and Oh 1987, *Business Week* 1987, Spekman 1988, and Kanter 1989a). A number of both

theoretical and empirical studies have paid interest to such long-term network relationships.

Transactions and exchange processes are at the core of network relationships. In the literature, a primary research problem has been to describe different modes of governance for transactions and exchange processes. In transaction cost economics (cf. Williamson 1985) the basic problem is to understand when market transactions are replaced by transactions governed by authority mechanisms. In other theoretical perspectives like relational contract theory (cf. Macaulay 1963, Macneil 1980) and the interaction model (cf. Håkansson 1982, 1987), the importance of building personal trust relationships is underlined.

In this case study we will argue that authority and trust represent two different modes of governance. However, these two governance modes can be combined in many different ways (Bradach and Eccles 1989). The primary objective of the study is to develop a theoretical model, where the governance of network relationships can be viewed as different combinations of authority and trust. Second, we will analyse the model by using data from international distribution channels for Norwegian farmed salmon.

Norwegian farmed salmon is produced by fish farmers along the Norwegian coastline. The fish farmers sell the salmon to Norwegian exporters, who in turn sell the salmon to importers in international markets. The exporters can be viewed as bridging agents in the distribution process. In general, the exporters represent several fish farmers and also export to importers in several international markets. The exporters are thus the agents who link the production of salmon with the market needs. Based on data gathered from Norwegian exporters, we will study how exporters combine authority and trust in order to link the fish farmers' production with the importers' needs.

7.5.2 Theoretical background

Transactions can be studied from a contract perspective (Williamson 1985, Macneil 1980). In order to conduct an exchange, buyer and seller need to enter into a contract that regulate the parties' rights and obligations. However, researchers use the concept of contract in different ways. In economics, the present focus is on incomplete contracting. This view assumes 'that contracts are necessarily incomplete, because some contingencies are unforeseeable because there are far too many of them to specify in writing, so that cost minimization requires the original contract to define only broad lines of the relationship' (Tirole 1989: 16). In relational contract theory, the contract is related to the relationship to direct and monitor future, often unspecified exchanges (Macneil 1980).

In this study we will look at contracts as regulating network relationships. In our view, these relationships are regulated by a set of control mechanisms. These control mechanisms are assumed to be crucial elements in the contract between the actors involved, serving to regulate their behaviour. Especially, we will look at authority and trust as two major control mechanisms. Based on transaction cost economics (Williamson 1985), relational contract theory (Macneil 1980) and the

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interaction model (Håkansson 1982, 1987) we will now outline the theoretical rationale behind such a view.

Williamson and his transaction cost economics has made a major contribution to our understanding of governance mechanisms for interorganizational transactions (Williamson 1985). Following this view, the transaction is the basic unit of analysis, and properties of the transaction are the principal variables for understanding the emergence of different governance mechanisms. These governance mechanisms may range from market to internal organization, with bilateral governance being the intermediary forms.

The important transactional properties are asset specificity, uncertainty and frequency (Williamson 1985). Transactions characterized by high asset specificity and high uncertainty need a more complex governance mechanism than standard transactions with low uncertainty. Frequency is important, since complex governance mechanisms may incur large costs, and these costs must be recovered over subsequent transactions. If the number of transactions are few, it is unlikely that the actors will invest in a complex and costly governance mechanism.

Following transaction cost economics, different governance mechanisms result from transactions that are different with respect to asset specificity, uncertainty and frequency. In particular, the theory predicts that as asset specificity increases, market mechanisms are gradually replaced by organizational mechanisms based on authority. With reference to a specific transaction with certain characteristics, it is according to the theory possible to determine what will be the most efficient governance structure.

Other theoretical perspectives like rational contract theory (Macneil 1980) and the interaction model (Håkansson 1982, 1987) have underlined the importance of building personal trust relationships between buyer and seller. According to Gambetta (1988: 217), to trust someone means: 'We implicitly mean that the probability that he will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of cooperation with him.' Trust between buyer and seller is a kind of expectation that reduces the risk that the exchange partner will act opportunistically (Bradach and Eccles 1989: 104).

Arrow (1974: 23) has pointed at the advantages of trust as a governance mechanism: 'Trust is an important lubricant of a social system. It is extremely efficient; it saves people a lot of trouble to have a fair degree of reliance on other people's world.' Bradach and Eccles (1989) in a review article, discuss how trust arises out of the social context of transactions. They especially consider the importance of (1) diffuse social norms of obligation and cooperation, and (2) personal relationships that overlap with economic exchange as means of establishing trust.

According to these views, trust is a key dimension for understanding how transactions are governed. At the centre for understanding how trust is created and functions as a control mechanism is the relation itself. A specific relation with its own history will develop certain norms and personal relationships (Macneil

1980). The norms and the personal relationships serve as rules and guidelines for the ongoing exchange processes. In contrast to transaction cost economics, where the transaction is the principal variable for understanding the specific governance structure, these theoretical perspectives propose that the relation itself and how it has developed, becomes a key variable to understand how ongoing transactions are governed.

The theoretical perspectives discussed are all concerned with the question of how transactions are governed when market mechanisms are inappropriate. In transaction cost economics the actors secure their interests by developing a governance structure. On the other hand, relational contract theory and the interaction model propose that trust relationships serve as safeguards. Rather than relying on formal structures as safeguards, these perspectives suggest that the actors can secure their interests by developing trust relationships. Further, the use of governance mechanisms is linked to characteristics with the transaction or the specific relationship between buyer and seller. Based on an analysis of the transaction and/or the relation in question, it is possible to determine what kind of governance mechanism should be used.

Authority and trust can thus be considered two major control mechanisms used in network relationships. However, the different theoretical perspectives are mainly concerned with describing how either authority or trust is used as a governance mechanism. Bradach and Eccles (1989), however, argue that exchanges are governed by a mixture of control mechanisms. Rather than relying on one single control mechanism, economic actors seem to use different combinations. Efficient governance cannot be achieved through implementation of one 'right' control mechanism, but rather through implementation of an optimal mixture of different control mechanisms.

The mixture of control mechanisms we will study empirically is combinations of authority and trust. We will also assume that these combinations can be linked to the relationship and/or the transaction in question. In the model, which we will discuss in the next section, we will specify what factors relating to the transaction and/or the relationship we will pay particular attention to.

7.53 Model

The two control mechanisms we will consider are, as mentioned above, authority and trust. Contract, which we have defined as a set of control mechanisms, can be defined as combinations of authority and trust. This is illustrated by the following equation:

$$\text{Contract} = f(\text{authority, trust})$$

Further we will link these contractual variables to the following characteristics: (1) experience: how long the relationship has existed, (2) dependence: how dependent the actors are upon supplies/deliveries from the other actor and (3) frequency: the number of transactions between buyer and seller within a given time period.

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We will briefly describe how these variables might influence the use of authority and trust. As buyer and seller gain experience from continued interaction, it is reasonable to assume that they establish a specific pattern of handling the operations. The actors can implement formal rules and procedures and/or they can establish norms for how they govern the ongoing exchanges. Experience should thus be positively associated with authority and trust. However, it is possible that the actors will concentrate on either authority or trust, rather than developing both.

As one actor becomes more dependent upon the supplier/buyer, the need for securing a continued relationship increases. If, for example, a supplier delivers a large share of his total sale to one buyer, large costs may be incurred if the relationship is terminated, and the supplier has to establish a new relationship with another buyer. Securing the relationship can be obtained by both authority and trust. We will therefore expect to find a positive association between dependence and authority and trust. As for experience, it is reasonable to anticipate that the actors will concentrate their use on either authority or trust.

Frequency, on the other hand, should mainly be positively associated with authority. As the number of transactions in a given time period increases, the need for a standard way of handling the interaction increases. Some degree of formal rules and procedures are probably required. An increase in the frequency of transactions should result in more extant use of authority rather than trust. A similar argument can be found for the use of standard operating procedures (SOP) within organizations (March and Simon 1958).

Since few studies have investigated how control mechanisms are combined, we will not develop specific hypotheses. We will limit our assumptions to the discussion above and use the data to illustrate the relevance of the model developed, rather than testing specific hypotheses. Before presenting the results, we will describe the procedure for data collection.

7.5.4 Empirical setting and data

The empirical setting for the study is international distribution channels for Norwegian farmed salmon. Norwegian salmon is farmed all along the coast, shipped by truck and air, and sold fresh in several international markets. Given its high quality, most of the fresh salmon ends up in gourmet restaurants in the big metropolises, but gradually the salmon is also penetrating consumer markets.

The distribution channels for farmed salmon typically consist of three vertical levels: (1) fish farmer, (2) exporter and (3) importer, not counting the final retail and consumer levels. The fish farmers are small independent operations located along the coast of Norway. The fish farmers sell fresh salmon to Norwegian exporters who sell the salmon to importers in selected international markets, such as England, Germany, France, Spain, the United States and Japan. The degree of vertical coordination varies considerably, from those channels where each level deals with each other in arm's-length market negotiations, to those channels which have long-term cooperative relations. Vertical ties are closer between exporters and fish

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farmers than between exporters and importers, given the geographical proximity.

From the Export Council for Fresh Fish, we were able to get population data for all salmon exporters in the southern part of Norway. This geographical limitation was imposed as a research budget constraint. However, most Norwegian salmon exporters are located in the southern part of the country. Thirty-six exporters were identified as regular exporters of fresh salmon. Thirty-three exporters were personally interviewed by the research staff, which gives a response rate of 92 per cent. A sample of this size is by definition representative. The exporters answered a structured questionnaire which had two parts: (1) backward vertical relations to their largest supplier, and (2) forward vertical relations to their largest customer in one of the four international markets – United States, United Kingdom, Germany or France. For research purposes, no organization was included in more than one distribution channel. Thus, thirty-three unique distribution channels were identified.

The research instrument used was a structured questionnaire administered by personal interviews with the head or market executive in each organization visited. The interviews were completed during the spring and summer of 1985. The research instrument was constructed with reference to questions used in previous empirical studies of distribution channels. The format of the questionnaire was five-point Likert-type rating scales over multiple items of channel relations. In addition, a number of firm and contract characteristics were included.

Scales for the variables authority and trust were constructed and tested using coefficient alpha (Nunnally 1978) as a measure of internal consistency reliability for each scale. With the small n in this study, coefficient alpha of about 0.60 or higher had to be accepted. The indices for the variables authority and trust were computed in the following way:

$$E_{Sin}$$

where S_i is the score on item i , and n number of items. Some of the scores were reversed to make the scale unidimensional.

The final scales for the variables are summarized in Table 7.1. The table provides information on number of items and scale reliabilities (coefficient alpha), and sample items for each scale are included.

7.5.5 Findings

Below are reported the major findings. First we will present some descriptive statistics related to the different variables. Thereafter, we will especially look at four combinations of authority and trust, and link these combinations to the three transactional characteristics, experience, dependence and frequency.

Table 7.2 shows the mean score (and standard deviations in parentheses) for authority and trust for the exporter–fish farmer and exporter–importer relations. Inspection of the table reveals that the mean authority score is somewhat higher

Table 7.1 Summary of measures

<i>Construct</i>	<i>Number of items</i>	<i>Coefficient alpha</i>	<i>Sample item (response scale)</i>
<i>Backward vertical relations:</i>			
AUTHORITY	4	0.62	In cooperation with the fish farmer we have estimated how much salmon should be delivered and the times of delivery (very poor description–very good description)
TRUST	5	0.63	We believe that the fish farmer's method of handling the salmon results in the best possible quality (very poor description–very good description).
EXPERIENCE	1	–	How long have you been buying salmon from this fish farmer (number of years)?
DEPENDENCE	1	–	What percentage of your firm's total purchase of salmon came from this fish farmer in 1984 (per cent)?
FREQUENCY	1	–	How many times did you purchase salmon from this fish farmer in 1984 (1–2, 3–5, 6–10, 11–20, 21 or more)?
<i>Foreword vertical relations:</i>			
AUTHORITY	4	0.65	In cooperation with the importer we have estimated how much salmon should be delivered and the times of delivery (very poor description–very good description).
TRUST	5	0.75	We believe that the importer's method of handling the salmon results in the best possible quality (very poor description–very good description).
EXPERIENCE	1	–	How long have you been selling salmon to this importer (number of years)?
DEPENDENCE	1	–	What percentage of your firm's total sale of salmon did you sell to this importer in 1984 (per cent)?
FREQUENCY	1	–	How many times did you sell salmon to this importer in 1984 (1–5, 6–10, 21–30, 31 or more)?

Table 7.2 Authority and trust

	<i>Exporter–fish farmer Mean (SD)</i>	<i>Exporter–importer Mean (SD)</i>
Authority	3.30 (0.84)	3.13 (0.72)
Trust	4.00 (0.61)	4.18 (0.53)
<i>n</i>	33	33

(n.s.) and the mean trust score is somewhat lower (n.s.) for the exporter–fish farmer relationships than is the case for exporter–importer relationships. These observations are interesting as such as they demonstrate that trust to countrymen in business seemingly is not more predominant than trust to business partners across borders. Neither is the use of authority in international business higher than in domestic relationships. This contradicts the common view that is conveyed in most textbooks on international business (cf. Cateora 1987).

Table 7.3 shows the mean scores (and standard deviations in parentheses) for the three dimensions, experience, dependence and frequency, for the two sets of business relationships. Inspection of Table 7.3 reveals that experience is somewhat higher (n.s.) and dependence and frequency somewhat lower (n.s.) in exporter–fish farmer relationships compared to exporter–importer relationships.

Table 7.4 relates the three transactional characteristics, experience, dependence and frequency, to the two contractual dimensions, trust and authority. In Table 7.4 the three transactional characteristics are dichotomized by using the means as cut-off points, and the categories are labelled low and high respectively. The upper part of Table 7.4 refers to the exporter–fish farmer relationships, and the lower part of the table to exporter–importer dyads. In this table the transactional characteristics are related to trust and authority, as if authority and trust are independent.

Inspection of Table 7.4 reveals mixed results. For example, for exporter–fish

Table 7.3 Experience, dependence and frequency

	<i>Exporter–fish farmer Mean (SD)</i>	<i>Exporter–importer Mean (SD)</i>
Experience	4.78 (2.95)	3.61 (2.28)
Dependency	22.97 (20.43)	24.16 (22.69)
Frequency	3.87 (1.23)	4.09 (1.16)
<i>n</i>	33	33

Table 7.4 Authority and trust by experience, dependence and frequency

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Table 7.4 Authority and trust by experience, dependence and frequency

	<i>Experience</i>		<i>Dependence</i>		<i>Frequency</i>	
	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Low</i>	<i>High</i>
Exporter–fish farmer						
Authority	3.32	3.27	3.48	2.81	3.04	3.46
Trust	4.10	3.87	4.08	3.78	4.05	3.97
<i>n</i>	19	14	24	9	13	20
Exporter–importer						
Authority	3.10	3.17	3.12	3.14	3.20	3.07
Trust	4.17	4.19	4.12	4.29	4.28	4.09
<i>n</i>	18	15	23	9	15	18

farmer dyads, the lowest trust scores are found in the 'high' categories for the descriptive variables. At the same time the authority scores are lowest in these categories. Moving down to the exporter–importer dyads the picture partially changes. Here the highest trust scores are found when experience and dependence are high, and frequency low. The highest mean scores for authority are observed for low experience, low trust and high frequency.

Examination of both exporter–fish farmer and exporter–importer dyads can be conceived as 'replications'. As noted above, the 'replication' yields different findings, as the observations regarding contractual characteristics differ across the two sets of dyads.

Table 7.4 represents bivariate analysis as it examines how the descriptive characteristics (experience, dependence and frequency) relate to the two contractual dimensions, authority and trust – one at a time. Another way to look at the data is to combine the two contractual dimensions, authority and trust, as proposed in the model, and to characterize each combination by the three transactional characteristics.

In Table 7.5 the two contractual dimensions, trust and authority, are dichotomized, by using the means as cut-off points. The categories are labelled 'low' and 'high' respectively, and related to each other. Thus four specific combinations of trust and authority emerges. The four categories are shown on the top of the table. Each category or cell is described by the three dimensions experience, dependence and frequency, assumed to influence the use of control mechanisms. Moreover, each cell is divided in two. The upper-right part of each cell shows the mean score for the exporter–fish farmer relationships. The lower-left part of each cell shows the mean score for the exporter–importer relationships. The bottom cells show number of observations in each cell. If we link our assumptions in the model to the results presented in Table 7.5, some interesting patterns emerge.

When looking at experience in the exporter–fish farmer dyads, the highest scores are in the low trust–high authority and the high trust–low authority

Table 7.5 Trust and authority by experience, dependence and frequency

	Trust			
	Low		High	
	Authority		Authority	
	Low	High	Low	High
Experience	4.25 3.57	5.75 4.17	5.57 3.25	3.88 3.58
Dependence	26.63 16.29	25.13 20.83	28.57 22.25	14.40 32.36
Frequency	4.00 4.29	4.38 4.33	3.00 4.13	3.90 3.83
<i>n</i>	8 7	8 6	7 8	10 12

categories. This indicates that in relationships that have existed over a reasonably long time, the actors concentrate on either authority or trust as the prime governance mechanism. Further, the lowest experience score is in the high trust–high authority category. At first glance, this result may contradict our assumptions. However, in situations where the actors have only limited experience, they may focus on both trust and authority to establish a workable relationship. When the relationship has reached maturity, the actors may reduce either trust or authority. For the exporter–importer dyads the highest experience score is in the low trust–high authority category.

The pattern is very much the same for dependence in the exporter–fish farmer relationships. The highest dependence score is in the high trust–low authority category, while the lowest dependence score is in the high trust–high authority category. Again, it is reasonable to assume that the actors concentrate on one governance mechanism. However, low dependence may indicate that the actors are in a start-up situation, trying to establish a relationship. Before the relationship has reached a specific operating pattern, the actors may find it necessary to focus on both trust and authority.

For the exporter–importer relationships, the highest dependence scores are high trust–high authority and high trust–low authority, an observation indicating that

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higher dependence results in higher trust. Moreover, the increasing dependence scores from low trust–low authority through high trust–high authority indicate that the more dependent is the firm on its partner, the more powerful governance structure is applied for safeguarding the transactions. This observation clearly supports the basic assumption underlying this case study, i.e. that authority and trust represent two modes of governance that can be combined and complement each other, and that the 'best' combination possible within the constraints given is applied.

Regarding experience, we find that the highest experience scores for both sets of relationships are in the low trust–high authority category. This result corresponds to our model. High frequency probably results in more extant use of authority rather than trust.

Our results support the view that authority and trust can be combined in different ways. If we try to sum up our results based on both sets of relationships, the following pattern emerges. The highest experience and frequency scores for both sets of relationships are in the low trust–high authority category. Experience and frequency may thus lead the actors to concentrate on authority rather than trust. On the other hand, high dependence is associated with high trust in combination with both high and low authority. If the actors are dependent upon each other, trust may be the most dominant governance mechanism. We also found some indications that relationships that are in a start-up situation focus on both trust and authority in order to establish a workable relationship. High degrees of dependence may also lead the actors to focus on both trust and authority.

7.5.6 Discussion

In this case study we have argued that the two governance mechanisms of trust and authority can be combined in different ways. We have especially investigated four combinations of trust and authority, and linked these combinations to three transactional characteristics. The results presented are highly explorative and tentative. However, the results are in support of our basic view, that trust and authority are combined in different ways. More research is needed in order to enhance our understanding of how trust and authority are combined, and what factors influence the choice of specific combinations. Before ending, we will briefly point out some factors, other than those studied here, that might influence the choice of governance combinations.

In order to apply a specific mode of governance, the firm needs the skills and resources to do so, and the situation has to be such that the various modes of governance can be applied. Business firms vary in skills and resources, as do transactional situations. Thus, while assuming that business firms exhibit purposeful behaviour, which definitely seems reasonable in the present case, limitations in knowledge and adequate alternatives may cause non-optimal solutions. However, firms do try to arrive at the best governance structure possible as perceived by them.

Another point is that relationships evolve over time. Relationships exist because they work! If trust is absent, and the relationship cannot be governed by

authority, it will be dissolved. The present study, based on a cross-sectional research design, does not capture this evolutionary aspect of business relationships. The fact that only 'workable' relationships are included may thus – in addition to the skill/resource and possibility argument above – explain the different patterns of transactional/relational characteristics discussed previously (see Table 7.5). It should also be noted that experience represents learning. Learning does not need to be linear. For example, one or two transactions, if completed to the full satisfaction of the actors, may be sufficient to create trust, while perceived dissatisfaction in transactions, if kept at a manageable level, will keep the actors alert, as reflected in the low trust categories.

Business relationships are becoming increasingly popular. To benefit from such relationships requires knowledge and skills. Our present knowledge of such relationships is far from perfect. The findings reported here indicate that governance of such relations is conducted in several ways influenced by a variety of modifying factors. Needless to say, more research is needed to enhance our understanding in order to improve our knowledge-base, and is of crucial importance to increase business performance.

7.6 COMMENTS

Comparing the transaction cost approach used by the Bergen group with our network approach there are some very clear similarities in terms of ambitions to understand how individual relationships function. For example, both approaches emphasize the importance of social forms like trust to govern relationships. Another similarity is that in both approaches the assumption about an interplay between economic, social and technical factors in the development of relationships is important. A third major similarity is that the actors are assumed to develop relationships (bonds) in order to achieve something – in the transaction cost approach, efficiency in exchange activities. A fourth similarity is that resource features play important roles. In the transaction cost approach it is the asset specificity and in the network approach the resource ties.

There are, nevertheless, at least two major differences. One has to do with how relationships are supposed to influence each other and the other with how individual relationships are assumed to develop.

In the transaction cost (TC) approach each relationship (even each transaction) is in principle analysed as an independent unit in itself. A relationship is developed in certain situations due to specific circumstances in order to govern transactions between two actors. But it is the transaction that remains the unit of analysis. Therefore, no specific connections are supposed to exist between different relationships. The overall structure will be a simple aggregate of the individual relationships. The background is that in the TC approach the original two pure forms were 'market' and 'hierarchy' which are both homogeneous structures, including only relationships of a certain type. Even if the theoretical development, for example in the articles included here, has included in the analysis more mixed governance forms in the single relationships (mix of

authority, price and trust), the basic assumption that single relationships are independent has not been changed. An example is that the asset specificity is defined in accordance in relation to a single relationship: a higher degree of asset specificity means that the asset can be used in fewer relationships. In the network model the ties between resources can in the same way be within single relationships but also between resources used in several different relationships. In the network view situations are assumed to exist where the asset specificity as defined in the TC approach might not be so high, but where the used assets create specific connections between certain relationships. An asset can in this way create a specific tie between some but not all relationships. The result is that there will exist specific connections between certain individual relationships, creating a certain substructure within the overall structure in the network. The existence of such substructures is not accounted for in the TC approach.

The second difference has to do with how relationships are assumed to develop. In the TC analysis the interest is focused on finding the 'optimal' governance form for each transaction. This interest indicates an underlying assumption about stability. The assumption is thus that in a certain transaction some given resources with some given characteristics are exchanged and the exchange has to be governed. There is nothing like resource development over time so important in the network model because of the resource heterogeneity assumption. The TC approach is thus basically static while the network approach has an important dynamic ingredient.

To summarize the discussion we can again relate the identified differences to the basic dimensions of substance and functions of relationships. The substance of TC relationships is perceived as quite complex; there are important social, technical and resource attributes of the relationships. Concepts like uncertainty, bounded rationality, asset specificity, few numbers and frequency of transactions give a good picture of this. In the same way the assumed mix of price, authority and trust used in the presented articles is another indication of the assumed complexity. In the dimension of the functions of relationships the assumptions are more simple. There is little or no discussion of how relationships function other than as a means for individual actors. Relationships are viewed as an aggregation of transactions. There is no analysis of how relationships influence each other or are parts of substructures within the overall structure. Thus, the TC approach fits nicely into the cell (bottom-left) in the matrix in Figure 7.1.

The shipping company case shows larger differences to our cases than the Biemans' case. It is still possible to identify variables as actors, activities and resources, but the interest for the company as a whole points to some extra dimensions. It can be compared with the Vegan, SweFork or MTF cases in that it covers relationships between internal as well as external units. The organization forms developing during the last decades have made the distinction between internal and external units more and more arbitrary. The formula for increasing the efficiency in handling internal units has been to regard them as external ones and the recommendations to handle the external units have been to get closer to them in such a way that they can almost be seen as internal ones. Network

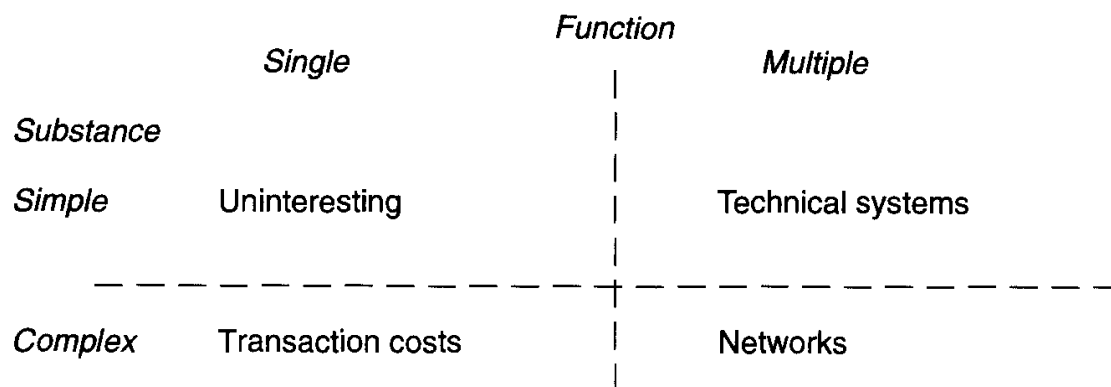


Figure 7.10 A classification of different theoretical approaches

analysis seems to be an important tool for analysing some of the organizational consequences of these changes (Miles and Snow 1992, Achrol 1991).

7.7 SUMMARY

In this chapter we have made an attempt to compare our network approach with a couple of other theoretical approaches in analysing relationships. It has been based on contributions in terms of theoretical and empirical dimensions from two relationship schools. These offer some different basic assumptions compared to those we make. We have tried to describe the differences by the use of a simple four-cell matrix. As we wanted to compare the other approaches with the network approach the matrix has been based on the two dimensions identified in Chapter 2 as our starting points. The two alternatives have been chosen to represent variation in two directions. One is where the substance of the relationships are supposed to be less complex and the other where the functions of the relationships are regarded as being more unidimensional. The results are given in Figure 7.10.

The approach used in most studies within the technical development area was identified as an approach where several different functions of the relationships are identified but where the substance in general is assumed to be so simple that it can be embraced and managed by the actors. The transaction cost approach is basically characterized by the opposite. There the substance is characterized as complex and affected by economic, technical and social factors but the functions are assumed to be one-dimensional. The relationship is seen as a tool for the individual actor to govern its exchange with another actor. There are no connections between the different relationships nor any functions of the dyads as such.

The three approaches are clearly complementary. The network approach as developed in this book has its strength when analysing important and extensive relationships. As soon as the relationships are more marginal or more simple, either of the two other approaches can have their strengths depending on the issues to be analysed. Where companies do not have any major important relationships, these two approaches can be used instead of or as a complement to the network approach.

8 Economy of business relationships

and networks

Cases in this book and earlier research show that substantial costs are involved in developing and maintaining business relationships. One cannot thus avoid the impression that relationships are a costly mode of coordination. As companies establish and develop relationships, interact with each other and adapt their resources, activities and identities, they sustain various types of costs and the amount of costs sustained is far from negligible. Most companies are aware of the time and money it takes to develop and maintain relationships even though they may find it difficult to quantify and measure the costs. Much employee time, considerable expenses and significant investments in facilities lie behind the major customer or supplier relationships of a company. Not only are there the substantial sunk costs for relationships, also their maintenance requires considerable expenses.

Assuming that companies act 'under norms of rationality', even though severely bounded, the only imaginable inducement for companies to engage in relationships is that the expected benefits from relationships outweigh the costs. Can companies be consistently wrong in their judgement? That seems highly unlikely. Were the outcome of nurturing relationships in general negative, should there be another way, companies would have discovered it long ago from extensive experience. Faced with the existence of relationships we have to admit a working hypothesis that under the circumstances relationships are an economically advantageous arrangement to those involved.'

There certainly is a large variation in the outcome of relationships for the companies; some relationships are more profitable, some are less, and still others are but a costly burden. The question for management is which of the relationships are profitable and what can be done in order to improve their profitability? In order to answer this question the complex effects of relationships on the 'economy' need to be sorted out. In this last chapter we are set to explore the less obvious components of costs and benefits of relationships and networks departing from the idea brought forward in chapter 2 where we argued that relationships absolve different functions for the dyad, for the single company and for third parties. We will develop further the argument that the various effects need to be considered if we are to assess the costs and benefits of business relationships, that is if we are to understand the economy of relationships. The

argument we bring forward in this chapter is that in order to explore the economy of business relationships and networks we need a somewhat unorthodox view of what economy is about.

8.1 ECONOMY OF NETWORKS — THE MACRO LEVEL

We have been taught that economy, and the economic rationality, is about resource utilization. There is a long tradition in economics and management that focuses on efficiency in resource utilization as the key concept in any attempt to assess 'economy'. The notion of economy and efficiency in this tradition is as a rule given the meaning of economizing on given resources for a given purpose (Robbins 1932). The concept of efficiency is, in this tradition, relatively straightforward and yet restraining; efficiency is the output—input ratio in resource transformation. This traditional conception of economy and efficiency becomes problematic in the relationship perspective and needs to be amended. It fails to capture some important aspects of resource utilization highlighted in relationship analyses. We need a broader, perhaps more general concept of 'economy'; a concept in which the problem of the resource utilization is not confined to exploitation of given resources for given purposes.

The relationship perspective leads us to question whether both 'resources' and 'purposes' ever are, or should be, treated as given. Throughout this book we have argued that an important aspect of business relationships is the change and improvement in resource use, in the scope of activities and in the knowledge and capacity of actors. We emphasized the change and development in resource utilization in and through business relationships. The relationship perspective leads us to focus on change and development of 'new' resources and resource combinations. However, at the same time a lot of interest of the two parties in a relationship is devoted to utilization of each other's resources as they are. Our conclusion has been that actors see and use resources as given, and need to do so if their use is to be improved, but, as they interact new resources and combinations are developed over time. Therefore, resources are given 'then and there' but not in any general sense.

Also the second part of the classical efficiency formulation, the notion of 'given purpose', can be questioned in a relationship perspective. Resources are used for various activities carried out for different purposes as the actors see fit. In a relationship perspective the activities carried out are more or less interdependent and arbitrarily delimited. New activities can be carried out by an actor, their purpose changes over time and they can be linked in new ways. At the same time many of the activities conducted within the relationship link the existing activities to each other. We argued that collective actors within networks (companies) are formed through the interaction with others and pointed out how the identity of actors is a result of history and the development paths are thus restricted. Consequently, the resources are used for activities the scope and purpose of which is not 'given', by actors whose identities, perceptions and intentions are never fully 'given'. While the single actors pursue purposes they see very much as

given, the 'purpose' of resource utilization cannot be seen as generally given.

That is why, taking the relationship perspective, we argue that neither the resources nor their utilization are fully given and that the critical question becomes how the resource utilization changes and develops. Therefore, the attention must be on the dynamics, on the changes in the resource utilization, rather than on the statics. We are not alone in taking such a position with respect to the nature of the economic problem. The need for a broader perspective on resource utilization has been explicitly suggested on similar grounds by economists (e.g. Schumpeter 1934, Hayek 1945, Kirzner 1973, Dosi *et al.* 1988). Dynamic efficiency or effectiveness in resource development rather than static cost efficiency seems to be one main issue in any attempt to explore the economy of relationships and networks. The need to consider the dynamic aspects of resource utilization does not mean that some of the resources and some of the purposes will not be regarded as given, and that the issue of static efficiency is a non-relevant one. The issue of cost efficiency in achieving a given purpose remains an important one. Furthermore, the development is the change of the 'given'; the dynamic efficiency is a matter of change in the parameters of the static efficiency. We argued that the stability and the perception of certainty is a prerequisite for actions aiming at change. Thus, the issue of static efficiency remains highly relevant in a network, but it is subordinate to the issue of dynamic efficiency over time.

Indeed, business relationships and networks, while evidently costly coordination mechanisms, seem to play an important role both for the static and dynamic efficiency. On the whole it seems that networks allow and cater for, perhaps better than other modes of organization, a continuous and 'economically efficient' organizing of resources, activities and actors. Business relationships appear to be the mechanism for the continuous organizing for the purpose of an effective resource utilization given that both the resources as well as the scope and the purpose of their utilization are subject to change. This view finds some support in the argument put forward by other scholars that network structures are more flexible than the mechanism of hierarchies and better in producing a directed change than the hypothetical mechanism of markets (e.g. Piore 1992, Lorenzoni 1990, Burt 1992). In order to explore this issue further we have to penetrate the economic functions of relationships on the micro level.

8.2 ECONOMY OF RELATIONSHIPS – THE MICRO LEVEL

In chapter 2 we introduced the notion of functions of relationships to discuss the effects of a relationship on different parties, not only those directly involved, and thus the forces its development is subject to. In the chapters that followed this aspect has been discussed in a more indirect way and we would now like to return to it for a closer scrutiny. The functions of business relationships are critical when analysing their economy. What makes the economy of relationships so special is indeed that a relationship has functions (has economic consequences) for several actors and thus that the outcomes of different relationships are interdependent.

The interdependencies make the economic outcome of a relationship for the single actor dependent on the effects the relationship has on others. Thus, it is not enough for any actor to be concerned just about itself in order to be successful, as is suggested in all recommendations based on the market theory. What can be achieved is not dependent just on what one company is doing but also on what its counterparts do, and not only what they do in relation to the company but also in relation to their other counterparts. The economic performance of a company will in this way be dependent on the economic performance of its counterparts, mainly its customers and suppliers, but also of other third parties, e.g. customers' customers and suppliers' suppliers. We will emphasize the interdependence of the economic outcome of relationships for the company and for others.

The three functions of business relationships we distinguished were based on the effects the substance of the relationship, its links, ties and bonds, has for, and is subject to, with respect to: (1) the dyad — the two actors seen as a 'team', (2) each of the two involved actors, (3) third parties. We will therefore, in order to explore the economy of business relationships, start with a discussion of benefits and costs for the dyad, then do the same for third parties and, finally, the cost and revenue consequences of relationships for a single company.

8.2.1 Economy for the dyad (team)

In chapter 2 we said that the primary function of a relationship is that it produces something we described as 'team effects'. Something particular that neither of the two can do in isolation is achieved as activities are linked, resources become tied together and individuals develop bonds to each other in a relationship between two companies. The connections that thus arise in a relationship have economic consequences.

The economic consequences depend on the nature of the interaction process in the relationship between two companies. What is accomplished evolves over time and is influenced by the way both of the two parties act and have been acting which in turn reflects how they interpret the various situations as they arise and the expectations they hold. While business relationships generally start out from a first idea about 'exchange' the interaction process over time gives both parties the opportunity to 'bring into it' further elements. The process is basically driven by the two parties getting to know each other's activities, resources and identities at the same time as they both meet a number of problems or opportunities — situations where they 'feel' they have to do something. Some of these problems or opportunities appear within the relationship itself but also other problems can be 'brought in' from other fields by either of the two; internal problems as well as problems in relation to other counterparts. As a consequence, when a problem or an opportunity is met either of the two parties will act in a technical, administrative or economic dimension using whatever knowledge they have regarding the specific counterpart in the relationship. Thus, because of the mutual learning, when they have to find a solution, the two parties can take advantage of the heterogeneity in their respective resources, of the existing interdependencies

in their activities and of the differences and complementarities in their respective knowledge and interpretations that permit them to identify opportunities and solutions beyond their individual horizon.

The interaction process, characterized in a broad sense by mutual learning, can thus become a joint development process. The acquisition of knowledge in combination with the need to utilize it in situations that require solutions and actions offers an opportunity to create value. Consequently, when trying to assess the economy of relationships we have to consider this dynamic effect. The 'something' created by the two together has value that reflects expectations about future possibilities. In order to secure these future opportunities a certain 'quasi-organization' is needed – resources, activities and individuals have to be brought together in a meaningful whole. Thus, the 'something' can be seen as such a quasi-organization with the purpose to take advantage of future value creating from connecting to varying extents the two parties involved; it consists of some activities, resources and individuals.

We have earlier used the concepts of activity links, resource ties and actor bonds to characterize the features of this 'quasi-organization' and to sort out its economic consequences. The possible benefits and main economic consequences of the three can help us to sort out the main components of the economy of a dyad. There are, first, the possible benefits related to the exploitation of the interdependence of activities. Linking activities is to take advantage of the texture of activities of the two companies as well as to the texture of activities carried out by others that characterize their activity structures and the broader activity pattern. There are possible short-term productivity gains from adapting to a given texture but there are even more important productivity benefits from actively influencing the texture of the activity pattern and activity structures over time. The team offers productivity benefits from improved coordination and reallocation of activities in and between companies.

The second type of possible benefits stems from resource heterogeneity. The results of utilizing heterogeneous resources is much more dependent on how they are combined, how different features of the resources are adapted to each other and knotted together, how the interface between them is developed, than simply on the quantity and prices of them. The team has the advantage of major resource heterogeneity. First, it can access resources from and through both actors which is more than each of the two can do in isolation. Second, it offers the stability needed for developing the interface between the different resources. It provides a greater variety which however is understandable and workable instead of a situation where everything is possible but where there is no 'structure' facilitating the doing. The increased variety from relationships favours innovation and new resource combinations as it directs or focuses the ambitions. These benefits can be taken advantage of in the short term but the resource ties can also have a dynamic content. As the two companies involved are different, they have different other counterparts and the ties will have to change over time, creating a certain variability. The team effect in a relationship with respect to resources offers possible benefits of innovation from increased variety and variability in the

resource collection that can be mobilized by the companies.

The third type of benefit regards the limits of what an actor is capable of and the actors' transcendancy. To do certain things together ('co-action') offers certain benefits that go beyond the pooling of the resources and activities. The team has always a larger 'field' to find economically advantageous options jointly in the relationships than any of the two single actors has in isolation. Actor bonds offer the actors possibilities to transcend their limitations and boundaries; they offer an increased 'opportunity space'. The two actors develop a joint framework for evaluation and framing. As it is clear who the counterpart is, it is easier for each of the two actors to get an evaluation of how it is perceived and what type of value it is creating for the other. In the short term, co-action can take advantage of certain complementarities in the two actors' framing of the situations met, in their respective interpretations and ambitions. Over time the co-action can become the dynamic force if cooperation is elicited. It creates a certain stability – the environment becomes controlled – which makes any long-term investment more secure and makes it possible to forecast the economic outcomes. It will make it possible to exploit the potential benefits from interdependency of activities and heterogeneity of resources and makes the actor bonds supportive for the 'doing'.

Taken together these three types of possible effects of a relationship open up the possibility that joint action (the team effect) in a relationship will have consequences for the economy; that the joint action will produce a certain economic value that can be utilized and exploited by those involved.

The dyadic function is interesting from the cost point of view. Strictly speaking the quasi-organization has no costs. There is no such a thing as 'team costs'. The costs of a relationship are not sustained by the relationship; relationships may be costly for the parties involved, who must sustain the costs of the relationship. The dyad as a 'quasi-organization' in itself has no costs as it does not possess the resources that are used up; at least if we do not want to get entangled in the discussion of opportunity costs. This makes the economy of the dyad peculiar and has some consequences for the behaviours of the parties.

This peculiarity of the relationship as a 'quasi-organization' has in practice two consequences for the behaviour of the actors in a relationship. The first is that there are no limits to how much the quasi-organization can find out to do if the companies do not impose any restrictions. A relationship tends to be non-conscious about the economy – it is an economically irresponsible unit. The quasi-organization will, given that it has got a certain 'living force', always perceive opportunities to do things better, make the linking better, utilize the heterogeneity of the resources better or to find new cooperative projects within the dyad. This, even when the costs for the parties are higher than the actual benefits. The tendency is inevitable as it is the individuals involved who activate the 'living force' and who may perceive the benefits while the costs are sustained by the companies involved. On the other hand in many organizations there is no inducement to take advantage of the possible benefits from 'team effects'. There is the need for the individual actors and the companies to have a certain

consciousness for how to take advantage of this potential. Even when there is no company-wide consciousness individuals within the company might see and take advantage of some of the possibilities. They will then probably have to fight against some internal principles which will be against such relationships.

A second consequence is that the cost effects for the companies involved tend to be easier to perceive than the benefits by the companies. Not only are they easier to calculate, they also become manifest at different moments; generally the relationship costs arise before the companies can reap the value of their benefits. To companies a relationship, i.e. dyadic function, can thus be seen both as a potential 'utility' which can be advocated but also as a potential 'black hole' from a resource point of view. In their struggle to economize on the costs of relationships, companies may prevent the relationships becoming the kind of 'quasi-organization' that offers the potential benefits.

8.2.2 Economy for third parties

Relationships are connected, that is, interdependent. The existence of one relationship and its substance and outcomes are dependent on, or at least related to, the substance and outcomes of other relationships. The effects of this connectedness have to be included in evaluating the economy of a relationship. A relationship has value to third parties because of its connectivity. Every relationship is a potential building block of the third party's own network the characteristics of which will affect its productivity, innovativeness and the perceived opportunity space. A relationship affects a third party's possibility to coordinate its own activities with those of others, the heterogeneity and thus the variety of resources it can make use of and the possibility to transcend boundaries and thus to co-act with others. In static terms the effect of a relationship on a third party can be positive or negative, it can be beneficial or costly dependent on its position with respect to the relationship. In practice the costs and benefits of a relationship on third parties will depend on how a change in a relationship, change in its substance, will affect third parties and how these will react to such a change.

A third party can react to change in a relationship in three possible ways: it can (1) support the change by adapting to it — a positive reaction, (2) ignore it — no reaction, (3) oppose it through some negative counter-action. Both (1) and (3) imply that the third-party reaction raises the costs and/or benefits of the relationship. The reactions can again be described as changes in links, ties and bonds that the third parties might bring about so as to support the initial change or to oppose it. Positive reactions can be seen as further investments in the change increasing its effect. Negative reactions are investments trying to offset the change thereby creating negative effects which might reduce the outcome of the change for the two initiating actors. The reaction pattern can in this way amplify or offset the primary dyadic effects. Consequently, the more third parties and the more strongly they react to or support the change, the larger the total investments in the change will be and the total benefits will increase. The reaction pattern

influences in this way the value of the primary links, ties and bonds. When others adapt positively they will become more valuable than when they remain 'isolated' items. On the other hand if the reaction pattern goes against them the positive primary effects will decrease and sometimes even become a negative burden.

Every change will cause a reaction pattern which is more or less strong and more or less favourable to the initial change. Only changes that do not lead to reactions can be analysed in isolation. All the others must be evaluated against the reaction pattern. In an attempt to analyse the reaction patterns in the case of technological development, Laage-Hellman (1989) distinguished between different triadic situations, showing for each how they could be related to the characteristics of the involved actors, to their perceptions and intentions as they look for competitive or cooperative opportunities. Looking at what a third party will react to, a starting point is that every actor is exposed to a stream of stimuli about changes in relationships in their contexts. Whether changes will be interpreted as an opportunity or as a threat will influence the reaction. A change will be perceived as influential either when it has an obvious direct effect or if there are major indirect effects so that a number of other actors adapt to it. Third-party reaction thus depends on how others are perceived to react. In interpreting a certain change an actor will also consider the likelihood of others' reactions. In general, a third party cannot escape the negative effects of change but in order to take advantage of positive effects it has often to make an investment. A conclusion is that most of those being affected in a negative way will react while those being positively affected can react but this is by no means certain.

With regard to how a third party might react there are different possibilities concerning 'intensity' and 'direction'. A change can by the reactions of a third party be transplanted to other fields; a technical change can create commercial or social reactions and vice versa. These chain reactions makes predictions of the effects of larger changes difficult – almost impossible. Effects of smaller changes are to some extent easier to predict. The vectors discussed earlier in chapter 6 may be of help. Changes in accordance with the main trend in a network will in general have a better chance of being accepted by third parties. They will also be seen as positive reactions to earlier actions in the same direction. Thus, if the changes are in accordance with the established pattern of changes we can expect a more positive reaction pattern. When the change goes in a different direction the problem becomes much worse. The outcome of such changes might be highly uncertain. The magnitude of the reactions, whether positive or negative, will be influenced by how consolidated the existing structure is. The structuring in all three dimensions (activities, resources and actors) will very much determine both the strength and the direction of the reaction pattern.

The reaction patterns are central for the dynamic function of the network. As long as there are differences in how the third parties interpret and react to changes there is a guarantee that different rationalization and development opportunities are made use of. This function is weakened when the network structure becomes too close to a hierarchy with a dominant interpretation or to a free market structure without much scope for co-action. The linking of activities, tying of

resources and bonding of actors become in both these cases too limited or too structured to remain efficient over time, given changes in related areas. These types of structure can only be efficient in stable environments. From an individual company's point of view it can in the short- as well as the long-term perspectives be more favourable with a hierarchy or a market situation (depending on its position) but if we look at the system as a whole the network structure is more favourable.

8.2.3 Economy of relationships for a company

Discussing the dyad we suggested different potential benefits from relationships. We also observed that parties sustain costs for developing and maintaining relationships. Costs and benefits of business relationships have cost and revenue consequences for the parties involved. What the cost/revenue consequences of a certain relationship will be for the company will depend on the characteristics of the relationship in itself and on how it is related to other elements of the company business: its resource collection, activity structure and organization.

Both costs and benefits of a relationship are company-specific to the extent its resource collection, activity structure and organization are specific and unique. Discussing the dyadic effects we suggested that these can be identified in relation to the three substance layers: links, ties and bonds. For the participating company the links influence its productivity, the ties influence its innovativeness and the bonds its capability to transcend its limits and boundaries and thus its opportunity space. There are rather obvious short-term cost/revenue consequences of productivity, innovativeness and perceived opportunity space and, perhaps less obvious but equally significant, cost revenue consequences over time of the effect the relationships have on how the productivity, innovativeness and opportunity space of a company.

Relationship benefits

In earlier chapters we claimed that the benefits stem from exploiting interdependencies in the activity pattern, the heterogeneity in the resource constellation and the transcendence in the web of actors. Activity links are used to exploit the interdependencies, resource ties are used to take advantage of heterogeneity and actor bonds to benefit from transcendence. An interesting question from an economic point of view is under what circumstances these opportunities are especially large for a company.

Benefits from the activity links will depend, first, on how extensive a certain activity is with respect to the company's own activity structure. The larger its share is of the total business, the larger the potential economic benefits from exploiting the existing interdependencies. The potential for cost savings through a better linking should be more or less directly proportional to the 'size' of the activity. A second factor is how the activity in question is connected to other activities performed by the actor or its counterpart. Activities which are

interdependent in several dimensions will have a larger potential benefits than activities with fewer or more marginal interdependencies. A third factor can be found in how difficult it is to connect the linking in the relationship with other relationships. If the activity structure is such that the interdependencies can easily be identified and handled, the benefits of the linking will increase.

Thus, the degree to which interdependencies between activities can be exploited depends on the relative and absolute volume of the activities, their degree of interdependency, and how they are structured/organized. To be more precise; the value of activity links in a relationship for a company is largest when:

- 1 the volume is large;
- 2 they are related to own activities or other relationships in several ways;
- 3 the activities are easy to connect to other relationships.

The benefits from resource ties stem from how the relationship holds together the resources of the company with the resources of the counterpart. They are used to exploit the heterogeneity in the resources. Resource ties will be especially important when the heterogeneity in resources in the resource collection of the company is high. One factor affecting the value of resource ties is how the item concerned in the relationship is related to either the capabilities of the company or to resources used or provided in its other relationships. The more interfaces there are the larger the potential benefits of ties in a relationship.

A second factor is related to the counterpart. If the counterpart is utilizing a composite set of resources again there will be larger possibilities to develop valuable new ties. Finally, the third factor is that the way the resource collection is structured affects the possibilities to benefit through such ties.

To state the influence of situational factors on benefits of resource ties more clearly; the value of ties with a specific counterpart is largest when:

- 1 the set of resources used by the counterpart is composite;
- 2 the exchanged resource element is closely related to the capabilities of the company or to its other relationships;
- 3 it is easy to connect the relationship to other relationships.

Finally, in relation to the actor dimension a relationship creates bonds which are functioning as some kind of mechanism to transcend the own boundaries. The value of these bonds is dependent on the potential for linking activities and tying resources but also to the number of alternatives perceived for each side. Bonds are a prerequisite for creating and exploiting the opportunities of linking and tying and they will consequently be more valuable in situations when the potential for these is large. If the counterpart has few alternatives the bonds are less valuable than when it has many. On the other hand when the company has few alternatives the bonds are more valuable than when it has many.

To state the hypothesized relations more clearly; bonds with a specific counterpart are more valuable when:

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- 1 the potential effects of links and ties are substantial;
- 2 the counterpart has many alternatives;
- 3 the company has few alternatives.

The analysis of the potential effects of the three types of substance in a relationship for one of the participating companies has revealed some influencing factors. Benefits from a relationship are situation-specific. The above discussion suggests they will be dependent on three types of factors: the exchange content of the relationship, the features of the counterpart and those of the company itself. The potential benefits of a relationship for a company are positively affected by two factors related to the exchange content of the relationship. One regards the volume and the other the dependencies existing between the item and other activities, resources or relationships of the company. In the same way we have identified two factors stemming from the characteristics of the counterpart. One factor concerns how complex the set of resources used by the counterpart is and the second how many alternatives the counterpart has. Finally, we have identified two factors related to the company. First, the number of alternative counterparts the company has and second how it has organized its activity structure and resource collection, i.e. if it is easy to connect the ties and links in the relationship to other important relationships.

Relationship costs

Various problems arise when we try to analyse and assess the cost effects of a relationship. Some of them are classical accounting problems of attribution and allocation of expenses while others are due to the relationship connectedness and thus to the fact that cost effects arise at different moments. In order to classify the various relationship costs we can use, first, the traditional distinction between direct and indirect costs. The direct costs can be labelled relationship handling costs and include all costs that can be directly traced to a single relationship. Examples can be the time spent in sales or service contacts, transportation and customer-specific adaptations. Most of the costs for monitoring the relationship, i.e. developing and keeping it going, can be included here. There are, however, also other costs: the indirect costs. These can be labelled relationship base costs and include the costs for internal activities that are a necessary condition to keep a certain relationship going (for example, production, storing and development of the products exchanged in the relationship) but that are also used for other relationships. Thus, we make a distinction between costs consequent to two types of internal activities, those which directly can be traced to a certain relationship and those which cannot.

The two types of relationship costs are closely related. Increased handling costs can decrease the base costs (adaptations leading to increased linking). Increased base costs (investments in flexible machines) can also reduce the handling costs in one particular relationship.

Another classification basis, that also seems relevant, is the distinction between

	<i>Day-to-day costs in relationships</i>	<i>Investment costs in relationships</i>
<i>Relationship handling costs</i>	Contacts	Communication system
<i>Relationship base costs</i>	Production, storing	Technical and administrative adaptations

Figure 8.1 Cost consequences of relationships

Source: Adapted from Eriksson and Asberg 1994

costs of day-to-day activities and investment costs. Every relationship causes some day-to-day costs but it is also possible for each side in a relationship to invest in technical and organizational facilities in order to decrease the day-to-day costs.

Combining these two dimensions gives a matrix with four categories of costs incurred because of a relationship for the companies directly involved (Figure 8.1). Each of the categories has some peculiarities but there are also important trade-offs between them. Relationship handling costs increase the closer or more extensive a relationship becomes, the more extensive links, ties and bonds are developed. More people will be in contact and more adaptations will be made. However, at the same time the closer the two companies get, the more involved they will become in each other. This increases the possibilities to lower the base costs for the relationship. The linking can be done better and the resources can be tied in a better way. Thus, one type of the cost increases and one decreases the 'closer' the two partners are to each other.

Regarding the balance between costs for relationship investments and day-to-day costs there are the obvious scale effects. The 'larger' the relationship is in terms of exchange, the more useful relationship investments can become. System activities can take over from *ad hoc* activities which in general will decrease the handling cost per unit as long as the relationship continues.

In summary, the costs of a relationship seem to increase as it is developed. Relationships offering the same benefits, that is, developed to the same extent, are still likely to have different costs. One counterpart can be less suitable and therefore more expensive to develop a relationship with. It can have activities which are not at all fitting from the start which makes the links more expensive; it can be 'different' and thereby difficult to understand which makes the bonds more expensive to develop; and its resources can be difficult to tie to the resources of the company, making the ties more expensive.

8.2.4 Cost and revenue consequences of relationships

So far we have discussed the economy of business relationships looking at the costs and benefits of a relationship. Such a perspective, however, needs to be completed by looking at the cost and revenue consequences of business relationships for a company.

The former perspective has led us to assert that relationships are potentially beneficial to productivity, innovativeness and the opportunity space of a company. From the point of view of a company the benefits of relationships often consist in their positive consequences for company costs. While handling relationships entails various types of costs and economizing on the costs of handling the relationships may be important, the benefits from a relationship often translate into significant cost reductions for a company. There are numerous examples of cost reductions achieved through supplier relationships in particular, from rationalization of relationship costs, from the development of their substance and from the reorganization of the supplier network (e.g. Gadde and Håkansson 1993). In a similar way there are numerous examples of cost reductions achieved by rationalizing the costs of handling customer relationships, developing their substance and reorganizing the customer portfolio.

While the relationships have direct cost consequences for the company dependent only on how these are shared by the parties involved, there are other, more indirect cost effects of relationships that depend on the combination effects. Rationalization of relationship costs does not seem to be the major factor for the cost consequences; relationship development is.

Revenue consequences of business relationships are in a similar way partly evident in the short term but partly they become manifest only more indirectly and over time. Most important is that the revenue consequences are directly related to the development of the substance of the relationship and their reorganization. Revenues of a company will reflect the benefits, and thus the value, produced in relationships, especially in the relationships to customers.

There seems to be three types of 'economies' in terms of cost/revenue consequences of relationships for a company:

'Economies of rationalization', that depend on cost savings that can be achieved in the relationship handling costs with given benefits from the relationships.

- 'Economies of development', that depend on cost savings arising from the benefits from supplier relationships and revenue increases from increase relationship benefits to customers.
- 'Economies of organizing', that depend on the long-term effects on the costs and revenues from the development of the position of the company within the network, that is, on its status.

Using the network approach leads us to observe that the 'economy' of a business enterprise depends largely on factors generally underestimated in management literature that by and large emphasizes the cost-efficiency. In particular the

network perspective suggests that a company does not have only internal assets to exploit but also external assets – the relationships with others. We have argued further that it is the external assets (and liabilities) that constitute the major factor in the 'economy' of the business enterprise.

From the earlier sections in this chapter we can perhaps make the requirements on the 'effective network actor' more precise. They have mostly to do with exploiting of the possibilities to accrue the benefit potential of relationships. These are then mainly dependent to the development of the 'quasi-organization' of a relationship, that is, to the linking of activities, tying of resources and bonding of actors.

- In relation to the dyadic function, this concerns exploiting the potential means to make certain that the dyadic function is exploited and to control the level of investments made in each relationship.
- In relation to third parties this involves being prepared to handle the negative reactions, and to try to enhance the positive reactions.
- In relation to the direct effects on itself it involves trying to direct the interest to those situations when the effects of ties, links and bonds are largest, and to minimize the costs.

In order to do this a critical question is to identify the relevant counterparts. Without specification of the counterparts it is impossible to have any basis for estimating the above effects. While in the short term the counterparts can be regarded as given, the counterparts of the company are not any given parameter over time but a variable, in itself important for the development potential of the company.

Given our earlier arguments regarding the ever-changing network there is very little meaning in trying to estimate the short-term efficiency. A network structure is never in balance or in any type of equilibrium. Consequently it is important to define efficiency in a dynamic perspective, which, of course, in itself is a contradiction. One possibility might be to regard efficiency in terms of some process characteristics. In a network there are always different forces fighting against each other, as we described in chapter 6. During some periods this fighting results in an increased structuring of the network, in other periods in a break up of at least some parts. The structure of the company must develop with what is happening in the external structure. The important question is how this successive development can be managed. How can an actor get a continuous flow of both ideas how to and a distinct pressure to develop its efficiency in relation to the network? The answer is obvious. A company can only get the ideas of how to develop by looking at some key aspects of its network, by evaluating its main relationships in regard to developments in different sub-networks (for example, a certain technology network, the supplier network or the customer network). In the same way the only external units who can be interested and therefore mobilized in a company's development process are its major counterparts.

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There seems to be three levels of effects of business relationships on the costs and revenues of a company; some are immediate, others only become manifest over time. First, business relationships impact directly on the bulk of the sales revenues from customers and on the costs of purchasing that as a rule represent the major portion of costs of a company. What is paid to suppliers and received from customers can be traced directly. Second, there are the less immediate and more indirect effects of business relationships on the costs and revenues of the company; there are the costs of handling the relationships, both to suppliers and customers, and the effects relationships have on the actual productivity of the company, that is, on its resource transformation efficiency. These effects reflect the past development of company's relationships. Repeatedly we argued that the capabilities of the company originate to a large extent in its business relationships. There are, finally, the effects of relationships to suppliers, customers and others that matter for the future capabilities and capacity of the company to 'produce value' for others. Relationships are, we argued, a critical factor for the future cost efficiency and revenue generating capacity of a company.

We argued that statics cannot explain what happens in ever-changing markets. One we abandon the static view and look at the dynamics of a company's economic performance the economizing on the costs of handling relationships is important but exploiting the potential relationship benefits is even more important. It is the benefits side of relationships and not the costs they entail that appear to be the critical variable in a management perspective.

Relationship benefits originate in 'co-action', that is, in the team effects that can be realized in a relationship. It takes two to make a relationship. No actor can ever completely dominate a relationship, no actor alone can achieve any of the possible team effects and thus produce the respective benefits in isolation. A company is thus always dependent to some extent on its relationship counterparts for creation and appropriation of the benefits. Not only are the others thus an asset; every company is to some extent 'driven by others'. For the same reason — the team effects — it becomes so difficult to set the boundaries of a company with respect to others. Every existing company has the needs 'external' assets. We have argued elsewhere (Håkansson and Snehota 1989) that 'no business is an island' and that every business enterprise is a product of its context as much as a force shaping the context; therefore it has no given boundaries with respect to its context and always is but 'part of the mainland'. Every company has a number of interfaces through which it exploits its context and is being exploited. Its economic performance will therefore depend on how instrumental it is to its context, which is to the business network structure — the direct and indirect counterparts. Both costs and revenues of a business enterprise depend on its role and on the value for others, that is, for the business network as a whole. The role and value of the company in the network is then not simply a matter of the static efficiency it can achieve in resource transformation. Such a view is too narrow. Rather, it is a matter of how the company contributes to the economic efficiency

of the overall structure, that is, how effective it is in its contribution to 'reforming of the structure' and making it more efficient.

The costs and revenues and thus the economic performance of the company will reflect its value for the network structure and each and every one of its parts. Not only is it dependent on how the company can exploit its context through relationships to others but on how much it can be exploited by others.

Given the cost revenue consequences of relationships for a company we need to reconsider the role of co-action and of the competitive action in the economy of a business enterprise. We also need to reconsider the meaning of competitiveness. Throughout we emphasized the importance of exploiting the potential relationship benefits in the economy of a company and thus the importance of the co-action and of creating of the value for others. It is common to think of competitiveness as a company's 'capacity to outperform others'. That assumes that the relevant dimensions of 'performance' are clear and common to different companies. Following the network perspective we have argued that this is hardly ever the case. We emphasized that what matters for a company's economy is to exploit the benefits of relationships and that means to produce value together with others and for others. We argued that producing value for others is more than achieving efficiency in resource transformation and that what is valued by others is subject to continuous change and always specific for the parties in a relationship. Value for others is not produced simply by economizing and saving on the costs of relationships, rather, it is achieved mainly by improving the pay-offs from relationship investment. It is achieved by managing the relationship's benefits, by developing and exploiting the activity links, resource ties and actor bonds in business relationships, which in turn is improving the economic efficiency of the overall network structure.

Notes

CHAPTER 1

1 The pervading consequences of assuming interdependence in interorganizational relationships has been pointed out repeatedly by those focusing on the interfirm organization (e.g. Phillips 1960, Astley 1984, Pfeffer 1987, Zajac and Olsen 1993). We find an effective formulation of the issue in Phillips (*ibid.*: 603): 'Under conditions of mutual interdependence, neither market strategies nor market equilibria can be analysed through the traditional profit-maximization approach, since the very existence of interdependence transforms the context in which decisions are made.' Later the issue has been raised and debated in relation to 'collective strategies' (Astley 1984).

2 The theory development in this book builds on a research tradition initiated at five European universities and business schools at the end of the 1970s around a project called IMP (Industrial Marketing and Purchasing). The project included an extensive empirical research on industrial markets that became a base for the development of an analytical framework with respect to business relationships. The findings have been reported in a number of publications (e.g. Håkansson 1982, Turnbull and Valla 1986, Ford 1990).

3 Much of the material used in this book comes from the work undertaken by a group of researchers linked in the IMP2 project, an ongoing research project building on the tradition of the first IMP project. Researchers in seven countries — France, Germany, Great Britain, Italy, Japan, Sweden and USA are linked in the second IMP project with the purpose of further developing the conceptual framework for network analysis of business markets.

CHAPTER 2

1 Alderson proposed micro-functionalism as opposed to macro-functionalism in the analysis of the market system. Instead of starting from defining the macro-function of the larger system, the micro-functional approach is set to identify the functions performed by the elements of the system, without defining any overriding purpose for the broader system as a whole.

2 A similar approach has been advocated by Axelrod (1984:38 ff.) when analysing the outcome of interactive behaviour.

3 The assessment of the magnitude of certain changes in the substance of business relationships will be discussed further in chapters 3—5. The normative implications for management will be explored more in depth there.

4 The importance of rules and routines as means of coping with complexity is a theme

not new to behavioural theorists. It raises the broad issue of formation of effective rules of conduct and of the role they play in 'rational behaviour'. It is relatively recent in the management literature, traditionally building on a conception of rationality that calls for assessment of each choice situation strictly on its own merits.

CHAPTER 3

1 Among many others, see, for example, Begg, Fischer and Dornbusch 1991, Mansfield 1980, Samuelson 1980.

2 This way of conceptualizing activities can be traced back to Weick (1969) pointing out the importance of organizing, and Silverman (1970) formulating the action frame of reference.

3 The way the adaptation of activities is carried out is very much in accordance with Cyert and March (1963) and their emphasis of bounded rationality and local search, with Thompson (1968) and his focus on uncertainty and interdependencies, with Silverman (1970) and his interest for the interplay between action and meaning. The theoretical frame of reference is well summarized by Scott (1992) in his Type IV Open Natural System model.

4 The concept of activity chain is closely related to the classical network term 'connectedness' (Aldrich and Whetten 1981). Relationship within a network by definition (Cook and Emerson 1978) involves connection to each other. An activity chain is a way to identify a specific type of connection which also is supposed to follow a certain logic (from a technical as well as timely point of view). The notion of activity chain is specular to that of 'technological filliere' (see Dosi and Orsenigo 1988) used to describe the branching of the use opportunities for a certain type of resource as well as of 'value chain' (Porter 1985).

5 Path-dependence has been identified and analysed by e.g. David (1985) and Lundgren (1994).

6 The activity pattern is our concept for covering the embeddedness of activities. Embeddedness has in more general terms been discussed by Granovetter (1985) and by several of the contributors to Ebers (1993) and to Nohria and Eccles (1992). Embeddedness can in turn be seen as a specification of how the interface between the organization and its environment looks (Thompson 1967, Aldrich 1979, Astley 1984, Pfeffer 1987). Activity pattern can also be seen as an attempt to 'deepen' the market concept. A market and thereby also an industry is usually defined as consisting of two activities (production and consumption). These are supposed to be quite homogeneous in order to be able to coordinate through the price mechanism.

7 The influence of the environment on the company's way of functioning is a classical question and has been dealt with by for example, Dill (1958), Evan (1966), Thompson (1967), Aldrich (1979). The company as a part of a network is somewhat newer but has been discussed by, for example, Piore (1982), Burt (1982), Powell (1990) and Snow, Miles and Coleman (1992).

CHAPTER 4

1 The use of resource ties as a concept is an attempt to pinpoint the effects of the interplay of various resources. The interface between two resources can be developed through finding characteristics which can be combined or 'interlocked'. Similar argument can be found in several of the contributions in Baker (1979) and Dosi *et al.* (1988). The same type of arguments can, of course, also be used with regard to the interplay between whole resource collections (e.g. von Hippel 1978, 1988).

2 The use of the resource constellation concept is close to several quite different research traditions. One important one is the resource perspective of organizations

(e.g. Pfeffer and Salancik 1978); another one is a tradition within economic geography (e.g. Scott 1988, Saxenian 1991 and Storper and Walker 1989); a third one concerns technical development and innovations (e.g. van de Ven, Angle and Poole 1989).

CHAPTER 5

1 We adopt here the view on 'rationality' or 'purposeful behaviour' that has a long-standing tradition, spelled out by for example Coffman (1974), Tversky and Khaneman (1981) and underlying some of the writing on management issues like March (1978, 1988).

2 The notion of organizations as patterns of interlocking (coordinated) behaviours rather than of 'contrived' systems is, as we see it, part of a stream of research in organization theory that counts numerous proponents. It certainly goes back to the representatives of the so-called Carnegie School (e.g. March and Olsen 1976, March 1988) and has been advocated and developed by the works of Weick (1969), Silverman (1970) and Scott (1992), among many others. We find this view of organizations particularly fruitful and consistent with the relationship perspective and the network approach.

3 The mechanism of identity formation in interaction among individuals has a long tradition in sociology where the more recent research tends to relate to classical works of sociologists like Simmel (1950) and Schutz (1967). We have borrowed some of the concepts from this tradition.

4 It is not only sociologists who have been concerned with and have advocated the mechanism of identity and the role of identity formation in interaction. We feel on this point that some of the marketing research literature deals with related issues, when it introduces and discusses the concept of 'positioning' and its impact on market exchange (e.g. Rice and Trout 1972).

5 Several works of industrial economists and management scholars concerned with entrepreneurship have observed the importance of interpersonal networks (e.g. Johannisson 1990) and close webs for collective learning (e.g. Rogers and Larsen 1984).

6 This and the related issue of 'psychic distance' have been explored in relation to the process of internationalization of firms by the proponents of the so-called 'Uppsala model' (e.g. Johanson 1994).

7 To some, much more limited extent, the interdependence of outcomes has made inroads in the research on business strategy around the concept of 'collective strategies' (e.g. Astley 1984, Jarillo 1988, Bresser 1988).

8 The actual type of product and other data in this case have been disguised at the request of the company.

CHAPTER 6

1 This section builds, albeit loosely, on impulses we found in the so-called Austrian School of economics (e.g. von Mises 1949, Schumpeter 1934, Hayek 1945, Kirzner 1973) and their emphasis on market process, change and entrepreneurship, as opposed to the focus of neoclassical economics on the market equilibrium. It provides, in our opinion, a different and relatively fruitful perspective on the issues of factors of change in industrial systems, joint action, and the organizing process in the market.

Notes 401 CHAPTER 7

1 Approximately 55 per cent of Philips' global turnover is purchased from outside suppliers. It is estimated that 20 per cent of all Dutch firms having more than five employees are suppliers of Philips.

2 Source: *Business Week International*, 'AT&T Slowly Gets Its Global Wires Uncrossed', February 4, 1991, pp. 30-33.

3 Source: *Business Week International*, 'Genentech is Climbing Down from its High Horse', February 11, 1991, p. 54.

CHAPTER 8

1 The assumption of business actors acting 'under the norms of rationality' has been borrowed from Thompson (1967). We share the view expressed by Demsetz (1992), that without retaining the assumption of rationality (however weak) any attempt at explanation of the business behaviour will tend to become meaningless.

Bibliography

- Achrol, R.S., 1991, 'Evolution of the Marketing Organization: New Forms for Turbulent Environments', *Journal of Marketing*, Vol. 55 (Oct.), pp. 77–93.
- Aiken, M. and Hage, J., 1968, 'Organizational Interdependence and Intra-Organizational Structure', *American Sociological Review*, Vol. 33 (Dec.), pp. 912–930.
- Alchian, A.A. and Demsetz, H., 1972, 'Production, Information Costs, and Economic Organization', *The American Economic Review*, Vol. 62, pp. 777-795.
- Alderson, W., 1957, *Marketing Behavior and Executive Action*. Homewood, Ill.: Richard D. Irwin Inc.
- Alderson, W., 1965, *Dynamic Marketing Behavior*. Homewood, Ill.: Richard D. Irwin Inc.
- Aldrich, H., 1979, *Organizations and Environments*. Englewood Cliffs N.J.: Prentice-Hall.
- Aldrich, H.E., and Whetten, D.A., 1981, 'Organisation-sets, Action-sets and Networks. Making the most of simplicity', in Nystrom, P.C. and Starbuck, W.H. (eds), *Handbook of Organizational Design*, Vol. 1, Oxford: Oxford University Press, pp. 385–408.
- , Aldrich, H., Auster, E.R., Staber, U.H. and Zimmer, C., 1986, *Population Perspectives on Organizations*. Uppsala University.
- Alster, N., 1986, 'Dealbusters: Why Partnerships Fail', *Electronic Business*, April 1, pp. 70-75.
- Alter, C. and Hage, J., 1993, *Organizations Working Together*. Newbury Park, Cal.: Sage.
- Anderson, E. and Weitz, B., 1989, 'Determinants of Continuity in Conventional Industrial Channel Dyads', *Marketing Science*, Vol. 8 (Fall), pp. 310–323.
- Anderson, J.C. and Narus, J.A., 1990, 'A Model of Distributor Firm and Manufacturer Firm Working Partnerships', *Journal of Marketing*, Vol. 54 (Jan.), pp. 42–58.
- Anderson, J.C. and Narus, J.A., 1991, 'Partnering as a Focused Market Strategy', *California Management Review*, Vol. 33, No. 3, pp. 62–74.
- Argyris, C. and Schon, D.A., 1981, *Organizational Learning*. Reading, Mass.: Addison-Wesley.
- Arndt, J., 1979, 'Toward a Concept of Domesticated Markets', *Journal of Marketing*, Vol. 43 (Fall), pp. 69–75.
- Arrow, K., 1974, *The Limits of Organization*. New York: Norton.
- Astley, G.W., 1984, 'Toward an Appreciation of Collective Strategy', *Academy of Management Review*, Vol. 9, No. 3, pp. 526-535.
- Astley, G.W. and Formbrun, C.F., 1983, 'Collective Strategy: The Social Ecology of Organizational Environment', *Academy of Management Review*, Vol. 8, pp. 576-586.
- Axelrod, R.M., 1984, *The Evolution of Cooperation*. New York: Basic Books.
- Axelsson, B. and Easton, G., 1992, *Industrial Networks –A New View of Reality*. London: Routledge.
- Axelsson, B., 1987, 'Supplier Management and Technological Development', in Håkansson, H. (ed.), *Industrial Technological Development. A Network Approach*. London: Croom Helm.

Bibliography 403

- Azaroff, L.V., 1982, 'Industry–University Collaboration: How to Make it Work', *Research Management*, May, pp. 31–34.
- Baker, M.J. (ed.), 1979, *Industrial Innovation: Technology, Policy, Diffusion*. London: Macmillan.
- Baradocco, Jr, J.L., 1991, *The Knowledge Link*. Cambridge, Mass.: Harvard University Press.
- Barney, J.B., 1986, 'Strategic Factor markets: Expectations, Luck and Business Strategy', *Management Science*, Vol. 32 (Oct.), pp. 1231–1241.
- Barney, J.B., 1991, 'Firm Resources and Sustained Competitive Advantage', *Journal of Management*, March, pp. 99–120.
- Begg, D., Fischer, S. and Dornbusch, R., 1991, *Economics* (3rd edn). Maidenhead: McGraw-Hill.
- Benassi, M., 1993, *Dalla Gerarchia alla Bete: modelli ed esperienze organizzative*. Milan: Etaslibri.
- Beneken, J.E.W., 1988, 'De Problematiek van Communicatie binnen de Medische Technologie' ('The Problems of Communication within Medical Technology'), paper presented at the WTCE Seminar on Medical Instrumentation and Communication, Sept. 14.
- Berman, E.V., 1990, 'The Economic Impact of Industry-funded University R&D', *Research Policy*, Vol. 19, pp. 349–355.
- Berry, L.L., 1980, 'Services Marketing is Different', in Lovelock, C.H., *Services Marketing*. Englewood Cliffs, N.J.: Prentice-Hall, pp. 29–37.
- Biemans, W.G., 1990, 'Manufacturer–User Relationships in Testing Newly Developed Prototypes, in Research Developments in International Industrial Marketing and Purchasing', Fiocca, R. and Snehota, I. (eds), *Proceedings of the 6th IMP conference September 24–25*, Milan, pp. 132–150.
- Biemans, W.G., 1992, *Managing Innovation within Networks*. London: Routledge.
- Biggart, N.W. and Hamilton, G.G., 1992, 'On the Limits of a Firm-based Theory to Explain Business Networks: The western Bias of Neoclassical Economics', in N. Nohira and R.G. Eccles (eds), *Networks and Organizations: Structure, Form, and Action*. Boston, Mass.: Harvard Business School Press.
- Blankenburg, D., 1992, 'Kopplade relationer i industriella natverk'. Department of Business Studies, Uppsala University (licentiate thesis No. 18).
- Blankenburg, D. and Johanson, J., 1990, 'Managing Network Connections in International Business', *Scandinavian International Business Review*, Vol. 1, No. 1, pp. 5–19.
- Blau, P.M., 1964, *Exchange and Power in Social Life*. New York: Wiley and Sons.
- Blois, K.J., 1972, 'Vertical Quasi-integration', *Journal of Industrial Economics*, Vol. 20, No. 3, pp. 253–272.
- Borys, B. and Jemison, D., 1989, 'Hybrid Arrangements as Strategic Alliances: Theoretical Issues in Organizational Combinations', *Academy of Management Review*, Vol. 14, pp. 234–249.
- Botkin, J.W. and Matthews, J.B., 1992, *Winning Combinations; The Coming Wave of Entrepreneurial Partnerships Between Large and Small Companies*. New York: John Wiley and Sons.
- Bradach, J.L. and Eccles, R.G., 1989, 'Price, Authority and Trust: From Ideal Types to Plural Forms', *Annual Review of Sociology*, pp. 97–118.
- Bresser, R.K.F., 1988, 'Matching Collective and Competitive Strategies', *Strategic Management Journal*, Vol. 9, p. 375–385.
- Brunsson, N., 1982, 'The Irrationality of Action and Action Rationality: Decisions, Ideologies and Organizational Actions', *Journal of Management Studies*, Vol. 19, No. 1, pp. 29–44.
- Bund-Jackson, B., 1985, 'Build Customer Relationships that Last', *Harvard Business Review*, (Nov.–Dec.), pp. 120–128.
- Burt, D.N., 1989, 'Managing Suppliers up to Speed', *Harvard Business Review* (July–August), pp. 127–135.

- Burt, R.S., 1982, *Toward a Structural Theory of Action: Network Models of Social Structure, Perception and Action*. New York: Academic Press.
- Burt, R.S., 1992, *Structural Holes*. Cambridge, Mass.: Harvard University Press. *Business Week*, 1987, 'Closer together', March 30.
- Buzzell, R.D. and Gale, B.T., 1987, *The PIMS Principles*. New York: The Free Press. Cateora, P.R., 1987, *International Marketing* (6th edn). Homewood, Ill.: Irwin.
- Chandler, A.D., Jr., 1990, *Scale and Scope. The Dynamics of Industrial Capitalism*. Cambridge, Mass.: Belknap Press of Harvard University Press.
- Coase, R.H., 1937, 'The Nature of the Firm', *Economica*, N.S.4, pp. 396—405.
- Cook, K.S. and Emerson, R.M., 1978, 'Power Equity and Commitment in Exchange Networks', *American Sociological Review*, Vol. 43, No. 5, pp. 721—739.
- Cook, K.S. and Emerson, R.M., 1984, 'Exchange Networks and the Analysis of Complex Organizations', *Research in the Sociology of Organizations*, Vol. 3, pp. 1—30, Greenwich, Conn.: JAI Press.
- Cowley, P.R., 1988, 'Market Structure and Business Performance: An Evaluation of Buyer/ Seller Power in the PIMS Database', *Strategic Management Journal*, Vol. 9, pp. 271—278.
- Cunningham, M.T. and Homse, E., 1986, 'Controlling the Marketing—Purchasing Inter-face: Resource Development and Organisational Implications', *Industrial Marketing and Purchasing*, Vol. 1, No. 2, pp. 3—27.
- Cyert, R.M. and March, J.G., 1963, *A Behavioral Theory of Firms*. Englewood Cliffs, N.J.: Prentice-Hall.
- David, P.A., 1985, 'Clio and the Economics of Qwerty', *American Economic Review*, Vol. 75, pp. 332-337.
- Dekker, W., 1986, "'Transfer" — Het Belang van de Overdracht van Kennis tussen Universiteit en Bedrijfsleven' ("Transfer" — The Importance of Transfer of Knowledge between University and Industry), Address during the Business Day '86 of Leyden, Academic Hospital University of Leyden, Nov. 20.
- Demsetz, H., 1988, 'The Theory of the Firm Revisited', *Journal of Law, Economics and Organization*, Vol. 4, No. 1, pp. 141—161.
- Demsetz, H., 1992, 'The Emerging Theory of the Firm's', *Acta Universitatis Upsaliensis: Studio Oeconomiae Negotiorum*, No. 33. Uppsala: Almqvist and Wiksell International.
- Dietrich, J.J. and Sen R.K., 1981, 'Making Industry—University—Government Collaboration Work', *Research Management*, September, pp. 23—25.
- Dill, W.R., 1958, 'Environment as an Influence on Managerial Autonomy', *Administrative Science Quarterly*, No. 2 (March), pp. 409-443.
- Dore, R., 1983, 'Goodwill and the Spirit of Market Capitalism', *British Journal of Sociology*, Vol. 34, pp. 459—482.
- Dosi, G., 1982, 'Technological Paradigm and Technological Trajectories: A Suggested Interpretation of the Determinants and Directions of Technical Change', *Research Policy*, Vol. 11, pp. 147—162.
- Dosi, G. and Orsenigo, L. 1988, 'Coordination and Transformation: An Overview of Structures, Behaviours and Change in Evolutionary Environments', in Dosi, G., Freeman, C., Nelson, R. and Soete, L. (eds), *Technical Change and Economic Theory*. London: Pinter.
- Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L., (eds) 1988, *Technical Change and Economic Theory*. London: Pinter.
- Drucker, P.F., 1998, 'The Coming of the New Organization', *Harvard Business Review*, (Jan.—Feb.), pp. 45—53.
- Dwyer, R.F., Shun, P.H. and Oh, S., 1987, 'Developing Buyer—Seller Relationships', *Journal of Marketing*, Vol. 51, April, pp. 11—27.
- Ebers, M., (ed.), 1993, *Proceedings of the Workshop on Inter-Organizational Networks: Structures and Processes in Berlin 6—7 September 1993*. European Science Foundation.

- Eccles, R.G., 1981, 'The Quasifirm in the Construction Industry', *Journal of Economic Behavior and Organization*, Vol. 2, pp. 335—357.
- Eliasson, G., 1990, 'The Firm as a Competent Team', *Journal of Economic Behavior and Organization*, Vol. 13, pp. 275—298.
- Eriksson, A-K, and Asberg, M., 1994, *Kostnadseffekter av affarsrelationer— Fallet Gardin and Person AB*. Uppsala: Department of Business Studies, Uppsala University.
- Evan, W.M., 1966, 'The Organization Set: Toward a Theory of Interorganizational Relations', in Thompson J.D. (ed.), *Approaches to Organizational Design*. Pittsburgh, Penn.: University of Pittsburgh Press, pp. 173—188.
- Evan, W.M., 1976, 'An Organization-Set Model of Interorganizational Relations', in Evan, W.M. (ed.), *Interorganizational Relations*. New York: Penguin Books, pp. 78—89. Evan, W.M. (1976), *Interorganizational Relations*. New York: Penguin Books.
- Feller, I., 1990, 'Universities as Engines of R&D-Based Economic Growth: They Think They Can', *Research Policy*, Vol. 19, pp. 335—348.
- Fiocca, R. and Snehota, I., 1989, 'High Technology and Management of the Market Differential', in Hallen, L. and Johanson, J. (eds), *Networks of Relationships in International Industrial Marketing*. Greenwich, Conn.: JAI Press, pp. 199—210.
- Ford, D.I. (ed.), 1990, *Understanding Business Markets*. San Diego, Cal.: Academic Press.
- Ford, D.I., Håkansson, H. and Johanson, J., 1986, 'How Do Companies Interact?' *Industrial Marketing and Purchasing*, Vol. 1, No. 1, pp. 26—41.
- Fowler, R.D., 1984, 'University—Industry Research Relationships', *Research Management* (Jan—Feb.), pp. 35—41.
- Frazier, G.L., Spekman, R.E. and O'Neil, C.R., 1988, 'Just-in-time Exchange Relationships in Industrial Markets', *Journal of Marketing*, Vol. 52 (October), pp. 52—67. Freeman, C. and Perez, C., 1988, 'Structural Crises of Adjustment, Business Cycles and Investment Behaviour', in Dosi et al. (eds) *Technical Change and Economic Theory*. London: Pinters.
- Gadde, L-E. and Håkansson, H., 1993, *Professional Purchasing*. London: Routledge. Gadde, L-E. and Mattsson, L-G., 1987, 'Stability and Change in Network Relationships', *International Journal of Research in Marketing*, Vol. 4, No. 1, pp. 29—41.
- Gambetta, D., 1988, 'Can We Trust Trust', in Gambetta, D., (ed.), *Trust: Making and Breaking Cooperative Relations*. New York: Blackwell.
- Gemunden, H.G., 1985, "'Promotors" — Key Persons for the Development and Marketing of Innovative Industrial Products', in Backhaus, K. and Wilson D.T. (eds), *Industrial Marketing —A German American Perspective*. Berlin: Springer, pp. 134—166.
- Gerlach, M., 1987, 'Business Alliances and the Strategy of the Japanese Firm', *California Management Review*, Vol. 30, pp. 126—142.
- Glete, J., 1983, *Asea under 100 aar, 1883—1983, (Asea Company 1883 to 1983)*. Stockholm: Stenstroms Bokforlag.
- Goffman, E., 1974, *Frame Analysis: An Essay on the Organization of Experience*. New York: Harper and Row.
- Grabher, G., (ed.) 1993, *The Embedded Firm. On the Socioeconomics of Industrial Networks*. London: Routledge.
- Granovetter, M., 1973, 'The Strength of Weak Ties. A Network Theory Revisited', *American Journal of Sociology*, Vol. 78, No. 3, pp. 3—30.
- Granovetter, M., 1985, 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology*, Vol. 91, No. 3 (November), pp. 481—510.
- Grant, R.M., 1988, 'On "Dominant Logic", Relatedness and the Link Between Diversity and Performance', *Strategic Management Journal*, Vol. 9, No. 6 (Nov./Dec.), pp. 639—647.
- Grant, R.M., 1991, *Contemporary Strategy Analysis; Concepts, Techniques, Applications*. Oxford: Basil Blackwell.

- Hagedoorn, J., 1990, 'Organizational Modes of Inter-Firm Co-operation and Technology Transfer', *Technovation*, Vol. 10, No. 1, pp. 17–29.
- Hagg, I. and Johanson, J., 1982, *Foretag i Natwork. Ny syn pa konkurrenskraft (Enterprise in Networks. New perspective on Competitiveness)*. Stockholm: SNS.
- Håkansson, H., 1980, 'Marketing Strategies on Industrial Markets: A Framework Applied to a Steel Producer', *European Journal of Marketing*, Vol. 14, No. 5/6, pp. 365–377.
- Håkansson, H., (ed.), 1982, *Internal Marketing and Purchasing of Industrial Goods – An Interaction Approach*. New York: Wiley.
- Håkansson, H., 1987, *Industrial Technological Development. A Network Approach*. London: Croom Helm.
- Håkansson, H., 1989, *Corporate Technological Behavior. Cooperation and Networks*. London: Routledge.
- Håkansson, H., 1993, 'Networks as a Mechanism to Develop Resources', in Beije, P., Groenewegen, J. and Nuys, O. (eds), *Networking in Dutch Industries*. Apeldoorn (the Netherlands): Garant.
- Håkansson, H. and Johanson, J., 1987, 'Formal and Informal Cooperation Strategies in International Industrial Networks', in Contractor, F.J. and Lorange, P. (eds), *Cooperative Strategies in International Business*. Lexington, Mass.: Lexington Books.
- Håkansson, H. and Ostberg, C., 1975, 'Industrial Marketing – An Organizational Problem?', *Industrial Marketing Management*, Vol. 4, pp. 113–123.
- Håkansson, H. and Snehota, I., 1989, 'No Business is an Island', *Scandinavian Journal of Management*, Vol. 5, No. 3, pp. 187–200.
- Håkansson, H. and Wootz, B., 1975, *Foretags inkopsbeteende (Industrial Purchasing Behaviour)*. Lund: Studentlitteratur.
- Hallen, L., 1986, 'A Comparison of Strategic Marketing Approaches', in Turnbull, P.W. and Valla, J.P. (eds), *Strategies for International Industrial Marketing*. London: Croom Helm, pp. 235–249.
- Hallen, L. and Johanson, J. (eds), 1989, *Networks of Relationships in International Industrial Marketing*. Greenwich, Conn.: JAI Press.
- Hallen, L., Johanson, J. and Seyed Mohamed, N., 1989, 'Relationships and Exchange in International and Domestic Business', in Hallen, L. and Johanson, J. (eds), *Networks of Relationships in International Industrial Marketing*, Greenwich, Conn.: JAI Press, pp. 7–25.
- Hamel, G., Doz, Y.L. and Prahalad, C.K., 1989, 'Collaborate with Your Competitors – and Win', *Harvard Business Review* (Jan–Feb.), pp. 133–139.
- Hamfelt, C. and Lindberg, A-K., 1987, 'Technological Development and the Individual's Contact Network', in Håkansson, H. (ed.), *Industrial Technological Development. A Network Approach*. London: Croom Helm.
- Hempel, C.G., 1966, *Philosophy of Natural Science*. Englewood Cliffs, N.J.: Prentice-Hall.
- Hayek, F.A., 1945, 'The Use of Knowledge in Society', *American Economic Review*, Vol. 35 (Sept.), pp. 519–530.
- Hayek, F.A., 1967, *Studies in Philosophy, Politics and Economics*. London: Routledge and Kegan Paul.
- Hedberg, B., 1979, 'How Organizations Learn and Unlearn', in Nystrom, P. and Starbuck, W., (eds), *Handbook of Organizational Design*, Vol. 1, pp. 3–27, Oxford University Press.
- Heide, J.B. and John, G., 1990, 'Alliances in Industrial Purchasing: The Determinants of Joint Action in Buyer–Supplier Relationships', *Journal of Marketing Research*, Vol. 27, (February), pp. 24–36.
- Henders, B., 1992, 'Position in Industrial Networks. Marketing Newsprint in the UK', Ph.d-dissertation, Department of Business Studies, University of Uppsala.
- Henderson, J.C., 1990, 'Plugging into Strategic Partnerships: The Critical IS Connection', *Sloan Management Review*, Spring, pp. 7–18.

- Hirschman, A.O., 1970, *Exit, Voice and Loyalty*. Cambridge, Mass.: Harvard University Press.
- Hise, R.T., Futrell, D.M. and Snyder, D.R., 1980, 'University Research Centres as a New Product Development Resource', *Research Management*, May, pp. 25–28.
- Hull, F., and Slowinski, E., 1990, 'Partnering with Technology Entrepreneurs', *Research and Technology Management*, Vol. 33, No. 6, pp. 16–20.
- Imai, K., 1984, 'Network Industrial Organization and Incremental Innovation in Japan', Working Paper, (December), Tokyo: Hitotsubashi University.
- Imai, K., Nonaka, I., and Takeuchi, H., 1984, 'Managing the New Product Development Process: How Japanese Companies Learn and Unlearn', Working Paper, presented at Harvard Business School.
- Itami, H., 1987, *Mobilizing Invisible Assets*. Cambridge, Mass.: Harvard University Press.
- Jarillo, C.J., 1988, 'On Strategic Networks', *Strategic Management Journal*, Vol. 9, pp. 31–41.
- Johannisson, B., 1990, 'Economies of Overview – Guiding the External Growth of Small Firms', *International Small Business Journal*, Vol. 9, No. 1, pp. 32–44.
- Johanson, J., 1966, 'Svenskt specialstal pa utlandska marknader' ('Swedish Special Steel on Foreign Markets'), University of Uppsala, Department of Business Administration (dissertation, mimeo).
- Johanson, J., 1994, *Internationalization, Relationships and Networks*. Uppsala: Acta Universitatis Upsaliensis.
- Johanson, J. and Mattsson, L-G., 1985, 'Marketing Investments and Market Investments in Industrial Networks', *International Journal of Research in Marketing*, Vol. 2, pp. 185–195.
- Johanson, J. and Mattsson, L-G., 1986, 'Interorganizational Relations in Industrial Systems: A Network Approach compared with a Transaction Cost Approach', *International Studies of Management Organisation* Vol. 17, No. 1, pp. 34–48.
- Johanson, J. and Mattsson, L-G., 1988, 'Network Positions and Strategic Action – An Analytical Framework', Working Paper, University of Uppsala, Dept. of Business Studies.
- Johanson, J. and Wootz, B., 1986, 'The German Approach to Europe', in Turnbull, P.W. and Valla, J-P. (eds), *Strategies for International Industrial Marketing*. London: Croom Helm.
- Johnsson, G., 1988, 'Rethinking Incrementalism', *Strategic Management Journal*, Vol. 9, No. 1, pp. 75–91.
- Johnston, R. and Lawrence, P., 1988, 'Beyond Vertical Integration – The Rise of the Value-Adding Partnership', *Harvard Business Review* (July–August), pp. 94–101. Kanter, R.M., 1989a, *When Giants Learn to Dance*. New York: Simon and Schuster. Kanter, R.M., 1989b, 'The New Managerial Work', *Harvard Business Review*, Nov.–Dec., pp. 85–92.
- Kagono, T., Nonaka, I., Sakakibara, K., and Okumura, A., 1985, *Strategic vs. Evolutionary Management: A US–Japan Comparison of Strategy and Organization*. Amsterdam: North-Holland.
- Kelley, H.H. and Thibaut, J.W., 1978, *Interpersonal Relations: A Theory of Interdependence*. New York: Wiley.
- Kirzner, I.M., 1973, *Competition and Entrepreneurship*. Chicago, Ill.: The University of Chicago Press.
- Kirzner, I.M., 1992, *The Meaning of Market Process: Essays in the Development of Modern Austrian Economies*. London: Routledge.
- Kutschker, M., 1982, 'Power and Dependence in Industrial Marketing', in Håkansson, H., (ed.), *International Marketing and Publishing of Industrial Goods – An Interaction Approach*. New York: Wiley.
- Laage-Hellman, J., 1984, 'The Role of External Technical Exchange in R&D. An

Empirical Study of the Swedish Special Steel Industry', MTC Research Report No. 18. Stockholm: MTC.

Laage-Hellman, J., 1987, 'Process Innovation Through Technical Cooperation', in: Håkansson, H. (ed.), *Industrial Technological Development. A Network Approach*. London: Croom Helm.

Laage-Hellman, J., 1989, 'Technological Development in Industrial Networks', *Acta Universitatis Upsaliensis*, Comprehensive Summaries of Uppsala Dissertations from the Faculty of Social Sciences, No. 16, Uppsala University.

Lewis, J.D., 1990, *Partnerships for Profit; Structuring and Managing Strategic Alliances*. New York: The Free Press.

Lindblom, C.E., 1959, 'Science of "Muddling Through"', *Public Administration Review*, Vol. 19. (Spring), pp. 79—88.

Lorange, P., and Roos, J., 1991, 'Why some Strategic Alliances Succeed and Others Fail', *The Journal of Business Strategy*, January/February, pp. 25—30.

Lorentz, E.H., 1988, 'Neither Friends nor Strangers: Informal Networks of Subcontracting in French Industry', in Gambetta, D. (ed.), *Trust: Making and Breaking Cooperative Relations*. New York: Blackwell.

Lorenzoni, G., 1990, *L'Architettura di Sviluppo delle Imprese Minori*, Bologna: I1 Mulino.

Lorenzoni, G. and Ornatì, J.P., 1988, 'Constellations of Firms and New Ventures', *Journal of Business Venturing*, Vol. 3, No. 1, pp. 41—57.

Lundgren, A., 1994, *Technical Innovation and Industrial Evolution*. London: Routledge.

Lundvall, B.-A., 1988, 'Innovation as an Interactive Process: From User—Producer

Interaction to the National System of Innovation', in Dosi *et al.* (eds) *Technical Change and Economic Theory*. London: Pinter.

Lundvall, B.-A., 1990, 'Explaining Inter-firm Cooperation and Innovation — Limits of the Transaction Cost Approach'. Paper presented at the workshop on the Socioeconomics of Interfirm Cooperation, Wissenschaftszentrum, Berlin, June 11—13.

Lyons, T.F., Krachenberg, A.R., and Henke, J. W., Jr., 1990, 'Mixed Motive Marriages: What's Next for Buyer—Supplier Relations?', *Sloan Management Review*, Spring, pp. 29—36.

Macaulay, S., 1963: 'Non-contractual Relations in Business: A Preliminary Study', *American Sociological Review*, Vol. 28, No. 1, pp. 55—67.

McDonald, D.W. and Gieser, S.M., 1987, 'Making Cooperative Research Relationships Work', *Research Management*, July—August, pp. 38—42.

Macneil, I.R., 1980, *The New Social Contract: An Inquiry into Modern Contractual Relations*. New Haven, Conn.: Yale University Press.

Mansfield, E., 1980, *Economics, Principles, Problems, Decisions* (3rd edn). New York: W.W. Norton and Company.

March, J.G., 1976, 'The Technology of Foolishness', in March, J.G. and Olsen, J.P. (eds), *Ambiguity and Choice in Organizations*. Oslo: Universitetsforlaget, pp. 69—81.

March, J.G., 1978, 'Bounded Rationality, Ambiguity, and the Engineering of Choice', *Bell Journal of Economics*, Vol. 9, No. 2, pp. 587—608.

March, J.G., 1988, *Decisions and Organizations*. Oxford: Basil Blackwell.

March, J.G. and Olsen, J.P., 1976, *Ambiguity and Choice and Organizations*. Oslo: Universitetsforlaget.

March, J.G. and Simon, H.A., 1958, *Organizations*. New York: Wiley.

Mattsson, L.-G., 1969, *Integration and Efficiency in Marketing Systems*. Stockholm: Stockholm School of Economics.

Mattsson, L.-G., 1976, 'Foretagets oklara gränser' ('The Diffuse Boundaries of the Firm'), *Forskningsprofil -75*, Uppsala University.

Mattsson, L.-G., 1989, 'Development of Firms in Networks: Positions and Investments', in Hallen, L. and Johanson, J. (eds), *Networks of Relationships in International Industrial Marketing*. Greenwich, Conn.: JAI Press, pp. 121—140.

- Miles, R., and Snow, C., 1986, 'Organizations: New Concepts for New Forms', *California Management Review*, Vol. 28, pp. 62–73.
- Miles, R., and Snow, C., 1992, 'Causes of Failure in Network Organizations', *California Management Review*, Vol. 34, No. 4.
- Nelson, R.R. and Winter, S.G., 1982, *An Evolutionary Theory of Economic Change*. Cambridge, Mass.: Belknap Press of the Harvard University Press.
- Nevens, T.M., Summe, G.L. and Uttal, B., 1990, 'Commercializing Technology: What the Best Companies Do', *Harvard Business Review* (May–June), pp. 154–163.
- Niederkofler, M., 1991, 'The Evolution of Strategic Alliances: Opportunities for Managerial Influence', *Journal of Business Venturing*, Vol. 6, pp. 237–257.
- Nohria, N. and Eccles, R.G. (eds), 1992, *Networks and Organizations: Structure, Form, and Action*. Boston, Mass.: Harvard Business School Press.
- Nonaka, I., 1991, 'The Knowledge-creating Company', *Harvard Business Review* (Nov.–Dec.), pp. 96–104.
- NRC Handelsblad*, 1990, 'Nieuwe Philips-Catechismus Moet Leiden tot Cultuurschock' (New Philips Gospel Needs to Result in Culture Shock'), October 30, p. 14.
- Nunnally, J.C., 1978, *Psychometric Theory* (2nd edn). New York: McGraw-Hill.
- Olson, P.D., 1990, 'Choices for Innovation-Minded Corporations', *The Journal of Business Strategy*, January–February, pp. 42–46.
- Pasinetti, L., 1981, *Structural Change and Economic Growth. A Theoretical Essay on the Dynamics of the Wealth of Nations*. Cambridge: Cambridge University Press.
- Pavitt, K., 1986, 'International Patterns of Technological Accumulation' in Hood, N. (ed.), *Strategies in Global Competition*. New York: Wiley.
- Penrose, E.T., 1959, *The Theory of the Growth of the Firm*. Oxford: Basil Blackwell.
- Perrone, V. (ed.), 1989, *Dettagli, Orizzonti and Ingrandimenti*. Osservatorio Organizzativo Milan: CRORA-Bocconi University.
- Perrone, V., 1990, *Le strutture organizzative d'impresa; criteri e modelli di progettazione*. Milan: EGEA.
- Pfeffer, J., 1987, 'Bringing the Environment Back In: The Social Context of Business / Strategy' in Teece, D.J. (ed.), *The Competitive Challenge. Strategies for Industrial Innovation and Renewal*. New York: Harper and Row.
- Pfeffer, J. and Salancik, G.R., 1978, *The External Control of Organizations: A Resource/Dependence Perspective*. New York: Harper and Row.
- Phillips, A., 1960, 'A Theory of Interfirm Organization' *Quarterly Journal of Economics*, Vol. 47, pp. 602–613.
- Piore, M.J., 1992, 'Fragments of a Cognitive Theory of Technological Change and Organizational Structure', in Nohria, N. and Eccles, R.G. (eds), *Networks and Organizations: Structure, Form and Action*. Boston, Mass.: Harvard University Press.
- Piore, M.J. and Sabel, C.F., 1984, *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books.
- Polanyi, K., Arensberg, C.M. and Pearson, H.W. (eds), 1957, *Trade and Market in the Early Empires*. Glencoe, Ill.: Free Press.
- Porter, M.E., 1980, *Competitive Strategy*. New York: Free Press/Macmillan.
- Porter, M.E., 1985, *Competitive Advantage*. New York: Free Press/Macmillan.
- Powell, W.W., 1987, 'Hybrid Organizational Arrangements: New Form or Transitional Development?', *California Management Review*, Fall.
- Powell, W.W., 1990, 'Neither Market nor Hierarchy: Network Forms of Organization', in Staw, B.M. and Cummings, L.L. (eds), *Research in Organizational Behavior*, Vol. 12, Greenwich, Conn.: JAI-Press, pp. 295–336.
- Quinn, J.B., 1980, *Strategies for Change: Logical Incrementalism*. Homewood, Ill.: Irwin.
- Reve, T., 1990, 'The Firm as a Nexus of Internal and External Contracts', in Aoki, M., Gustayson, B. and Williamson, O.E. (eds), *The Firm as Nexus of Treaties*. London: Sage.
- Reve, T. and Stern, L.W., 1979, 'Interorganizational Relations in Marketing Channels',

Academy of Management Review, Vol. 4, No. 3, pp. 405-416.

Rice, A. and Trout, J., 1972, 'Positioning Era', *Advertising Age* (April/May).

Richardson, G.B., 1972, 'The Organization of Industry', *Economic Journal*, Vol. 82, pp. 883-896.

Riedle, K., 1989, 'Demand for R&D Activities and the Trade Off Between In-House and External Research: A Viewpoint from Industry with Reference to Large Companies and Small and Medium-Sized Enterprises', *Technovation*, Vol. 9, pp. 213-225.

Robbins, L., 1932, *An Essay on the Nature and Significance of Economic Science*. London:

Macmillan.

Roberts, E.B. and Peters, D.H., 1982, 'Commercial Innovation from University Faculty', *Research Management*, May, pp. 24-30.

Rogers, E.M. and Larsen, J.K., 1984, *Silicon Valley Fever*. New York: Basic Book.

Sahal, D. (ed.), 1980, *Research, Development and Technological Innovation*. Lexington Mass.: Lexington Books.

Samuelsson, P.A., 1967, *Economics – An Introductory Analysis*. New York: McGraw-Hill.

Samuelsson, P.A., 1980, *Economics* (11th edn). New York: McGraw-Hill.

Saxenian, A., 1991, 'The Origins and Dynamics of Production Networks in Silicon Valley', *Research Policy*, Vol. 20, pp. 423-437.

Scherer, F.M., 1970, *Industrial Market Structure and Economic Performance*. Chicago, Ill.: Rand McNally and Company.

Schon, D.A., 1983, 'Organizational Learning', in Morgan, G. (ed.), *Beyond Method, Strategies for Social Research*. Beverly Hills, Cal.: Sage, pp. 114-128.

Schonberger, R.J., 1987, *World Class Manufacturing Casebook: Implementing JIT and TQC*. New York: Free Press.

Schumpeter, J.A., 1934, *The Theory of Economic Development*. Cambridge, Mass.: Harvard University Press.

Schutz, A., 1967, *The Phenomenology of the Social World*, Evanston, Ill.: Northwestern University Press.

Scott, A., 1988, *New Industrial Spaces*. London: Pion.

Scott, R.W., 1992, *Organizations: Rational, Natural, and Open Systems*. Englewood Cliffs, N.J.: Prentice-Hall.

Shaw, B., 1986, 'The role of the Interaction between the User and the Manufacturer in Medical Equipment Innovation', *R&D Management*, Vol. 15, No. 4, pp. 283-202. Shaw, B., 1988, 'The Role of Networking in the Development of Successful Innovations

by Small and Medium Sized Firms in the UK Medical Equipment Industries', in

Turnbull, P.W. and Paliwoda, S.J. (eds), *Research Developments in International Marketing*, Proceedings of the 4th IMP conference, UMIST, September 7-9, pp. 511-522. Silverman,

D., 1970, *The Theory of Organisations*. London: Heinemann.

Simmel, G., 1950, *The Sociology of Georg Simmel*. New York: Free Press.

Simon, H.A., 1957, *Administrative Behavior*, New York: Free Press.

Simon, H.A., 1972, 'Theories of Bounded Rationality', in: Mcguire, C. and Radner, R. (eds), *Decisions and Organization*. Amsterdam: North-Holland, pp. 161-176. Simon, H.A.,

1983, *Reason in Human Affairs*. Stanford, Cal.: Stanford University Press. Singer, B. and Benassi, V.A., 1981, 'Occult Beliefs', *American Scientist*, Vol. 61. No. 1, pp. 49-55.

Smith Ring, P. and van de Ven, A., 1994, 'Developmental Processes of Cooperative Interorganizational Relationships', *Academy of Management Review*, Vol. 19, No. 1, pp. 90-118.

Snehota, I. 1990, *Notes on A Theory of Business Enterprise*. Dept. of Business Studies, Uppsala University.

Snow, C., Miles, R. and Coleman, H. Jr., 1992, 'Managing 21st Century Network Organizations', *Organizational Dynamics*, Vol. 20 (Winter), pp. 5-19.

Snyder, D.R. and Blevins, D.A., 1986, 'Business and University Technical Research

- Cooperation: Some Important Issues', *Journal of Product Innovation Management*, Vol. 3, pp. 136–144.
- Souder, W.E. and Nassar, S., 1990a, 'Choosing an R&D Consortium', *Research and Technology Management*, Vol. 33, No. 2, pp. 35–41.
- Souder, W.E. and Nassar, S., 1990b, 'Managing R&D Consortia for Success', *Research and Technology Management*, Vol. 33, No. 5, pp. 44–50.
- Spekman, R.E., 1988, 'Strategic Supplier Selection: Understanding Long-Term Buyer Relationships', *Business Horizons*, July–August.
- Stalk, G. Jr. and Hout, T.M., 1990, *Competing Against Time*. New York: The Free Press.
- Starbuck, W.H., 1985, 'Acting First and Thinking Later: Theory Versus Reality in Strategic Change', in Pennings, J.M. (ed.), *Organizational Strategy and Change*. San Francisco, Cal.: Jossey-Bass.
- Steele, L.W., 1990, 'Managing Joint International Development', *Research and Technology Management*, Vol. 33, No. 4, pp. 6–26.
- Stern, L.W., 1969, *Distribution Channels: Behavioral Dimensions*. Boston, Mass.: Houghton Mifflin.
- Stinchcombe, A., 1985, 'Contracts as Hierarchical Documents', in Stinchcombe, A., and Heimer, D., *Organization Theory and Project Management*. Bergen: Norwegian University Press, pp. 121–171.
- Storper, M. and Walker, R., 1989, *The Capitalist Imperative*. New York: Basil Blackwell.
- Takeuchi, H. and Nonaka, I., 1986, 'The New New Product Development Game', *Harvard Business Review* (Jan./Feb.), pp. 137–146.
- Teece, D.J., 1980, 'Economies of Scope and the Scope of Enterprise', *Journal of Economic Behavior and Organizations*, Vol. 1, No. 1, pp. 233–247.
- Teece, D.J., 1988, 'Technological Change and the Nature of the Firm', in Dosi, G., Freeman, C., Nelson, R. and Soete, C. (eds), *Technical Change and Economic Theory*. London: Pinter Publishers.
- Teramoto, Y., 1990, *Network Power*. Tokyo: NTT Press.
- Thompson, J.D., 1967, *Organizations in Action. Social Science Bases of Administrative Theory*. New York: McGraw-Hill.
- Thorelli, H.B., 1986, 'Networks, Between Markets and Hierarchies', *Strategic Management Journal*, Vol. 7, pp. 37–51.
- Tirole, J., 1989, *The Theory of Industrial Organization*. Cambridge, Mass.: The MIT Press.
- Tumbull, P.W. and Valla, J. P. (eds), 1986, *Strategies for International Industrial Marketing*. London: Croom-Helm.
- Tversky, A. and Khaneman, D., 1981, 'The Framing of Decisions and the Psychology of Choice', *Science*, Vol. 211 (January), pp. 453–458.
- Twedt, D., 1964, 'How Stable are Advertiser–Advertising Agency Relationships?' *Journal of Marketing*, Vol. 28 (July), pp. 83–84.
- van Dierdonck, R., Debackere, K. and Engelen, B., 1990, 'University–Industry Relationships: How does the Belgian Academic Community Feel About It?' *Research Policy*, Vol. 19, pp. 551–566.
- Van de Ven, A.H., Emmit, D.C. and Koenig, R., 1975, 'Frameworks for Interorganizational Analysis', in Negandni, A.R. (ed.), *Interorganizational Theory*. Kent, Ohio. Kent State University Press.
- Van de Ven, A., Angle, H. and Poole, M.S. (eds), 1989, *Research on the Management of Innovation: The Minnesota Studies*. New York: Ballinger/Harper and Row.
- vanden Abeele, P. and Christiaens, I., 1987, 'De Klant als Generator von Innovatie in "High-Tech" Markten – Een Conceptuele en Empirische Studie', *Economisch en Socia Tijdschrift*, No. 1, pp. 27–56.
- von Hippel, E.A., 1976a, 'The Dominant Role of Users in the Scientific Instrumentation Innovation Process', *Research Policy*, Vol. 5, pp. 212–239.
- von Hippel, E.A., 1976b, 'Has A Customer Already Developed the Next Product?', *Sloan*

Management Review, Vol. 8, No. 2, pp. 63–67.

von Hippel, E.A., 1978, 'Successful Industrial Products from Customer Ideas', *Journal of marketing*, Vol. 42, No. 1, pp. 39–49.

von Hippel, E.A., 1988, *The Sources of Innovation*. New York: Oxford University Press. von Mises, L., 1949, *Human Action*. New Haven: Yale University Press.

Waluszewski, A., 1990, 'Framvaxten av en ny massateknik – en utvecklingshistoria' (The Development of a New Pulp Process Technology) (dissertation), *Acta Universitatis Upsaliensis, Studia Oeconomia Negotiorum*, Vol. 21. Stockholm: Almqvist and Wiksell.

Webster, F.E., 1992, 'The Changing Role of Marketing in the Corporation', *Journal of Marketing*, Vol. 56, Oct. pp. 1–17.

Weick, K.E., 1969, *The Social Psychology of Organizing*. Reading, Mass.: Addison-Wesley.

Willems, W., 1985, 'Marktaspecten Medische Technologie' (Market Aspects of Medical Technology), University of Technology Delft, Center Medical Technology, April (working paper).

Williamson, O.E., 1975, *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.

Williamson, O.E., 1981, 'The Modern Corporation: Origins, Evolution, Attributes', *Journal of Economic Literature*, Vol. 19 (Dec.), pp. 1537–1568.

Williamson, O.E., 1985, *The Economic Institutions of Capitalism*. New York: The Free Press.

Williamson, O.E. and Ouchi, W.G., 1981, 'The Markets and Hierarchies Program of Research: Origins, Implications and Prospects', in van den Ven, A.H. and Joyce, W.F. (eds), *Perspectives on Organization Design and Behavior*. New York: Wiley, pp. 347–370.

Wilson, D.T. and Mummameni, V., 1986, 'Bonding and Commitment in Buyer–seller Relationships: A Preliminary Conceptualization', *Industrial Marketing and Purchasing*, Vol. 1, No. 3, pp. 44–58.

Winter, S.G., 1987, 'Knowledge and Competence as Strategic Assets', in Teece, D.J. (ed.), *The Competitive Challenge. Strategies for Industrial Innovation and Renewal*. New York: Harper and Row.

Wright, L., 1991, 'Success Factors Across Different Service Types', Pennsylvania State University, Institute for the Study of Business Markets, Report 11-1991.

Zajac, E.J. and Olsen, C.P., 1993, 'From Transaction Cost to Transaction Value Analysis: Implications for the Study of Interorganizational Strategies', *Journal of Management Studies*, Vol. 3 (January), pp. 131–45.

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