

# Charge the relationships and gain loyalty effects: Turning the supply link alert to IT opportunities

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## Abstract

The main purpose of this paper is to explore and analyze interconnected effects related to the use of IT, and in so doing, provide an understanding of integrative logistics operations in a supply chain link. We take a theoretical point of departure in the three factors of relationship investments, formalization and trust. Thereafter we will expand and elaborate these factors by discussing embedded elements and mechanisms, related to relationships and loyalty, which result in an outlined model for empirical research focused on operational and strategic partnerships. Based on an empirical analysis we propose that the use of IT, expressed as digitization, can be seen as a driving force for bridging a gap between the actual and potential pattern of integrative logistics operations in a supply chain link. Digitization activates mechanisms in trust, commitment, and solidarity, which are related to loyalty and simultaneously enable heterogeneous influences in relationship characteristics.

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## 1. Introduction

IT can be viewed as an instrument for achieving efficiency in material flows through cost rationalization (e.g. Laage-Hellman and Gadde, 1996). IT can also, metaphorically, be seen as a catalyst, facilitating and pushing new patterns of communication (Davenport, 1993). The triumph of IT makes it possible to communicate in real time, to low marginal costs, without own investments in infrastructure, and without any geographical limitations (e.g. Falk, 2000; Shapiro and Varian,

1999; Timmers, 1999). Decisions made about IT investments and measures of expanding communication links are related to several issues of operational and strategic character. Measures of integration and automation in supply chains affect the relationships and commitments between actors, as well as existing strategies and systems. Consequently, IT and the Internet cannot, as we see it, be treated successfully just as instruments for adding efficiency, such as automating transaction sequences, isolated from value creation activities, strategic positioning and overall strategies.

In this current study we primarily use the framework, proposed by Reve et al. (1995) as a point of departure, which identifies the factors of (1) relationship investments, (2) formalization and (3) trust, as related to performance of companies

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operating in a context of international competition. We assume that these three factors have an overall impact on the performance and activity patterns of exchange relationships in a supply chain link.<sup>1</sup> We believe, however, that the three factors need to be somehow elaborated on and extended, in order to give fruitful insights of modern integrative logistics operations between companies. The purpose of formalization, via systems and routines, is to enable the management of the logistics flows as efficient as possible (Reve et al., 1995). Formalization is to some extent related to digitization, since certain procedures and processes can be more standardized and regulated by the use of IT. Some investments in interorganizational information systems (IOS)<sup>2</sup> can be seen as relationship investments, which form new patterns of exchange and communication between parties in a supply chain. IT offers new managerial opportunities of gaining stability by digitization, which in turn often involves relationship investments, as well as new patterns of relationships where loyalty is valued and transformed.

We formulate the two related research questions as follows: What strategic and operational mechanisms are activated in a supply chain link influenced by digitization of transactions and interactions? Which relationship and loyalty effects concern the management of a supply chain link?

This paper proposes a model for systematic analysis of interconnected effects in automation of transactions and interactions in the context of integrative logistics operations in a supply chain link. We identify relationship effects, and mechanisms related to trust, commitment, and solidarity, here outlined as loyalty effects. We intend to integrate and combine theoretical elements concerning relationship and loyalty and elaborate a model for empirical research. The model is focused

on the material flows in two types of relationships, here expressed as operational and strategic partnerships. Our overall intention is to outline and test a new framework of interconnected effects related to IT, and in doing so, provide a better understanding of the advantages and disadvantages of IT-implementation in integrative logistics operations assigned to a supply chain link.

## 2. Methodology

The scope of the case study, as a part of the overall research design, is influenced by general theories within the field of interorganizational relationships, management and supply chain management, which guide our attention toward the specific issues and areas of inquiries. The case study is characterized as an exploratory type of study, even though we start in established theory. The managerial implications are reflected in the application of a proposed model for empirical analysis of relationship and loyalty effects in a supply chain link; see Chapter 6. One aspect of our purpose is to identify some critical issues for further investigation and research.

The empirical data collection is based on 18 semi-structured on-site interviews, and 10 structured interviews supplemented by documents such as organization charts, market plans etc. Each interview lasted for about one to four hours. Eleven interviews were taped and later transcribed. The respondents include managers (V.P.-rank), purchasing and logistics managers but also personnel from the technical and the administrative field. The basic purpose of the semi-structured interviews was to gain a broad understanding of the material flows and relations between the companies, as well as issues related to IOS. The structured interviews were based on a standardized questionnaire, previously displayed by one of the authors of this paper, which identifies the properties of the relationship structure. These interviews focused upon positioning in strategic sourcing and IT. During the research process, the two researchers have frequently interacted with the respondents in six occasions of formal meetings with representatives from the companies. Construct

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<sup>1</sup> The term “supply chain link” and the term “supply link” are used interchangeably.

<sup>2</sup> IOS is the computer-based automated medium in which information is retrieved, stored, processed, mixed and distributed across organizational boundaries (Wilson and Vlosky, 1998). The technical configuration of IOS can be manipulated according to requirements of security, access, availability and integrity.

validity has been established by respondent verification. Key informants have reviewed and discussed preliminary draft case study reports. As business is an applied field, the close interaction with practitioners has been stimulating and rewarding and helped us to contribute and focus attention on issues relevant for managerial decisions to improve desired outcomes.

### 3. Theoretical framework

Supply chain management can be defined in many different ways. In this paper we choose the following definition offered by the Council of Logistics Management (CLM):<sup>3</sup>

*Supply chain management is the integration of key business processes from end user through original suppliers that provides products, services and information that add value for customers and other stakeholders.*

The term “chain” can in some contexts better be illustrated as a network, since the connections between the focal company and its suppliers and customers can be seen as network connections instead of chains (cf. Aitken, 1998). In our approach, irrespectively of chain or network, we focus on the collaboration between companies as a significant element in management. This view emphasizes loyalty and stands in sharp contrast with the competitive and opportunistic view of interaction between buyers and sellers. Supply chain management is not the same as vertical integration by ownership (Christopher, 1998). In addition, some parts of the chain can be strongly attached through vertical integration by contracts (Jonsson, 1998), which is the case in one relationship in our study, expressed as a strategic alliance.

The interface between two parties in a supply link can be described as the supplier’s market strategies (interactive with the chain), and the

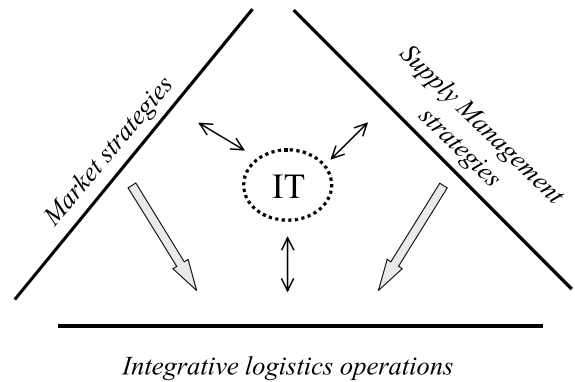


Fig. 1. The interface between the supplier’s market strategies and the customer’s supply management strategies displays the integrative logistics operations.

customer’s supply management<sup>4</sup> strategies (also interactive with the chain). The two parties’ individual strategies “merge” through the collective enterprise in developing an operational or a strategic alliance. The result of this mutual venture forms an operationalization of the flows in the supply link, which we choose to identify as *integrative logistics operations*; see Fig. 1. However, the application of IT is changing the conditions of the strategic content and the operational implications. Supply chain management builds on the logistics planning orientation that seeks to create a single plan for the flow of material and information. In addition, the linkages and coordination efforts between processes of other entities, such as suppliers and customers, are essential (cf. Christopher, 1998). This situation also gives a topical interest to the differentiation of being a key player or a loyal collaborator (cf. Lamming, 1993).

The flows comprise the material flows, originating from suppliers, production or assembly lines, and the interconnected information and financial flows. This signifies an aspiration of integrating logistics operations between the parties engaged in the specific link, but also within the chain. We choose the term *integrative logistics* in

<sup>3</sup> Defined by the International Center for Competitive Excellence, 1994. In 1996 the group changed the name to Global Supply Chain Forum, GSCF (Lambert and Cooper, 2000, p. 66).

<sup>4</sup> The term “supply management” is here used as the most expansive way of procurement, which includes all activities required by the firm to acquire goods and services (cf. Cavinato, 1989).

this context, since our focus is on the customer in one link and not the coordination and integration of the whole chain. The relevant term in the latter case would instead be *achieving an integrated supply chain*, which does not correspond to our view.

### 3.1. *Different types of relationships and modes of transactions*

The terms describing the content in relationships and exchange are not similar between authors. In this study we will use the structure presented by Jonsson (1998). The most fundamental relationships are simple competition-based transactional exchanges. These exchanges have a main stream of distributive strategies corresponding to the more basic types of supplier relationships, defined as classical purchasing. Another main stream consists of integrative strategies, reflecting a higher degree of collaboration between the parties. The modes of transaction are varying in their complexity. These may be arranged on an internal–external or on a horizontal–vertical basis. The structure (Jonsson, 1998) includes four categories or types of buyer–supplier relationships along a continuum: (1) classical purchasing, (2) operational cooperation, (3) strategic vertical cooperation and (4) vertical ownership. The identified categories closely correspond to the work presented by Ellram (1993) and Hendrick and Ellram (1993), which also includes relationship types from traditional “arms-length” to vertical integration, each type with different characteristics. The relation becomes more integrative in its character as one moves along the continuum towards vertical integration. Based on the described structure, the relationships between the interviewed companies in this study are analyzed and characterized.

Traditional EDI solutions are built on established relations between parties, why EDI links are limited to those companies and sectors, where the prerequisites are present for such an investment. The Internet offers new opportunities for those already involved in EDI-linkages, so also for those companies entering the new arena and the technology base for electronic business (e.g. Falk, 2000). The integration of entities in a supply chain can nowadays be achieved at lower costs by ex-

ploiting the Internet. Business development can, by these means, happen at the same time as a reduction of transaction costs.

The current digitization related to different categories of relationships will, as we believe, enable heterogeneous influences and results depending on relationship intensity, the present design of the business communication transaction sequences, business content, and ongoing interactions. Digitization could improve or deteriorate the strength of the relationship linkages and promote an impact on effectiveness and strategy.

### 3.2. *Loyalty and its relation to trust, solidarity and commitment in buyer–supplier relations*

Webster (1992) provides a model, which expands the market hierarchy dichotomy with seven distinct intermediate forms of marketing relationships. A significant change occurs as one progresses from long-term relationships to buyer–seller partnership, since mutual trust replaces the adversarial design. The next type in the continuum represents strategic alliances, which embrace the joint creation of a new business venture. The emphasis on trust is usually increased as one moves along the continuum from pure market transaction toward more integrated forms of buyer–supplier relationships based on relational contracting. This is however not always the case, as we will further describe.

According to Morris and Imre (1992) there is a general transformation from an adversarial model toward an obligational model in buyer–supplier subcontracting relationships. The adversarial system is characterized by low trust, competitive tendering and multi-sourcing. In contrast, the obligational system is characterized by heightened interdependency, commitment, high trust, partnership posture, integration and closeness. It seems fruitful to distinguish between the technical or contractual mode of organization, or interorganizational coordination, and the social interaction in these modes. For example, trust does not necessarily have to be an ingredient in all types of alliances, if the manifested control mechanisms are based on hierarchical governance. Hence, there is a risk to overemphasize trust as correlated to ty-

pologies of organizational forms along the market and hierarchy continuum. Perry (1999), for example, concludes that collaborative subcontracting relationships often include hierarchical performance rating and accreditation programs.

Characteristics of a strategic alliance life cycle is that trust might be low in the development stage of the life cycle, but is building up through the stages and over time (Ellram, 1993). Strategic supplier partnering is likely to grow out of existing relationships rather than to develop from a new relation (Hendrick and Ellram, 1993). The level of trust is evidently not high in all existing or new business forms, why building trust might be more interesting and important in some modes of transaction than in others and increases in more integrated forms of relational contracting (cf. Webster, 1992).

Sako (1998) distinguishes between three types of trust: (1) contractual trust (implies shared moral norm of honesty and promise-keeping according to contractual agreements), (2) competence trust (implies shared understanding of professional conduct, as well as technical and managerial standards), and (3) goodwill trust (rests on the consensus of fairness). Ring (1996) has identified two distinct forms of trust in economic exchange. First, fragile trust emphasizes how business actors rely on trust as they characterize “the deal”, rather than how they characterize each other. Fragile trust can be described as an instrumental or calculated approach to think about trust. In this sense, trust reduces complexity and simplifies the economic exchange between parties. Second, the concept of resilient trust has some similarities with the concept of goodwill trust, as it constitutes an emotional interpersonal carefulness, integrity and concern, which goes beyond the immediate contractual platform. Hence, resilient as well as goodwill trust share some common attributes. Goodwill trust (Sako, 1998) has also been discussed by Hines (1994), in the context of the network sourcing system, where mutual interdependency is essential.

In certain types of effective groups, we come across a high degree of group cohesiveness and solidarity. To keep up the solidarity between members, rather high requirements must be put on

members when it comes to respecting the norms. The culture of the organization will generate belongings and loyalty to the organization, and values represented (Reve and Grønhaug, 1989). One dimension of commitments include the relational social norm of solidarity and fellowship, which emerge from the parties' common responsibilities, interests, and efforts to maintain the relation (Gundlach et al., 1995; Reve et al., 1995).

An interesting component in trust is loyalty. Ring (1996) has recognized loyalty as an element in resilient trust. Gundlach et al. (1995) signify that the attitudinal component of the construct of commitment shares common domains of meaning with loyalty. Consequently, trust is related to both loyalty and commitment. However, some forms of loyalty do not necessarily correspond to the cognitive dimension alone but also to the communality of expectations and predictability of outcomes based on formal arrangements and shared guidelines. The bases for loyalty can, for example, be specified in the regular operating code of integrative logistics activities by the elaboration of modern IT solutions. Hence, it seems reasonable that loyalty, to some extent, goes beyond the behavioral intentions, which can be manifested as “act of faith”. The outcome can though be described as loyalty with certain conforming elements of commitment addressing both behavioral and attitudinal aspects.

Reichheld (1996) discusses loyalty in the context of loyalty-based management. In purchasing and supply management literature most of the loyalty discussion is linked to responsibilities to the employer (e.g. Fearon et al., 1993). A strategic view of loyalty is presented by Lamming (1993) who proposes that a supplier can adopt two model strategies in a lean supply context. The pro-active key player strategy implies establishing a first-tier technological lead in certain areas as well as building capabilities of absorbing or acquiring technologies. A supplier interesting to become a responsive partner, rather than a true “equal” in a lean supply chain, has to exhibit loyalty to the customer (Lamming, 1993).

By loyalty we imply the individual or organizational conduct and manner towards internal policy, regarding business exchange, systems and

procedures, so also external established linkages to suppliers, customers and others. The information system and its supporting routines, interorganizationally connected in a supply chain context, gives prerequisites for loyalty appearance. Loyalty can be unilaterally enforced upon parties or be the result of a bilateral voluntary agreement. Questions about value creation caused by loyalty could be raised, as also about the link between profitability and loyalty. Anyhow, in this study we are leaving the value-added discussion outside.

Loyalty can be achieved by relationship investments. Underlying properties in loyalty seems to be looked at as operating mechanisms related to moral integrity and trust, but also to solidarity and commitments. Some of those mechanisms might be embedded, others more visible, such as the mechanisms behind resilient trust. Loyalty could be obtained by dependency (forced by someone/something), by persuasion (rewards or personality, i.e. charismatic personal character) or by formalization (routines, procedures, guidelines etc.). Loyalty is regarded as a dynamic concept, which can be studied as such, although the value of loyalty effects, as a separate and distinct construct, remains to be fully demonstrated in future research. In our opinion, loyalty can be considered as the observed individual or organizational behavior, as well as the attitudes towards and intentions for someone or something, with underlying causes.

#### 4. Proposed model of analysis

The supply link includes the following three interconnected types of flows: the primary material flow and the support flows of information and finance. The material flow is derived from the management of raw materials through the delivery of the final product. The information flow can be described in the context of access, information types, and the technical configuration of IOS. Open information is accessible to all parties, while relationship-specific information only is available for specific partners, or individuals, and closed for others (Wigblad and Jonsson, 2000). The type of information communicated between companies is defined in relation to purpose of use. The infor-

mation types are characterized as technical, administrative or commercial (cf. Gadde and Håkansson, 1998). Except for payment transactions, the financial flow could be related to financial standing, analysis or accounting. The technical and functional features of the IOS give prerequisites for information availability, which in turn gives access to a prioritized role for promoting and permitting action through the system.

The combining of elements from existing research, as summarized in the last paragraphs in 3.1 and 3.2, has outlined our theoretical framework. The overall unit examined is the interaction between digitization, loyalty effects, and relationship effects which jointly constitute interconnected effects in automation of transactions and interactions in the supply link; see Fig. 2.

Digitization implies the digital transformation of communication sequences in the supporting financial and information flows in order to increase the effectiveness and efficiency in the main physical flow, here equivalent to the material flows between the companies. Moreover, digitization provides the means for developing new techniques of organizing and managing business activities. Digitization is viewed as an operationalization of the dynamic catalyst, activated by the use of IT. This presumably generates desired, as well as non-desired loyalty and relationship effects. Moreover, the model describes an interconnection between the two areas of effects. Certain mechanisms are activated by measures of digitization, which in

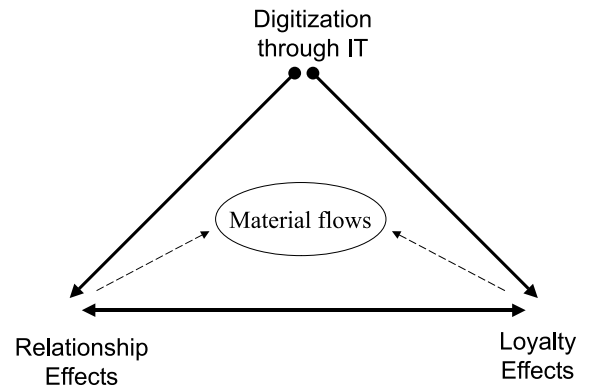


Fig. 2. Interconnected effects in automation of transactions and interactions.

turn generate interactive effects on both loyalty and relationships, thus establishing the development pattern of integrative logistics operations.

**5. The empirical settings**

As a prelude to the analysis chapter, this section presents a brief descriptive outline and discusses some profile characteristics of the three interviewed companies in the supply chain structure; see Fig. 3.

The buying company, here called Mechanical, is a large transnational manufacturer of mobile mechanical vehicles and products. Mechanical has two primary production (assembly) lines, called flows. The first flow produces standardized product-units and the second flow produces customized product-units. Mechanical holds a market-leading position in the domain of customized product-units, with a worldwide market share of approximately 40%. The company is currently taking measures to develop the electronic interaction support with suppliers as well as with final-application customers, by elaborating an IT solution based on the Internet.

The supplier, Alpha, is a SME subcontractor to Mechanical and has been ascribed preferred sup-

plier status. The company manufactures vital components and systems to its main customer Mechanical, which stands for more than 25% of Alpha’s turnover. We characterize the relationship between Alpha and Mechanical as a single-source-based strategic alliance (Jonsson, 1998; Hendrick and Ellram, 1993). The supplier has, to some extent, its information system integrated on line with the customer. The parties have expressed the ambition of further integrating the shared information system, in order to gain benefits from tighter co-ordination and synchronization of logistics operations. This partly involves the integration with seven new second-tier suppliers.

Beta, a large multinational enterprise, is Mechanical’s overall largest supplier of components and spare parts, mainly on a single source basis. The buying company is served from two different Beta-units (production facilities), where each unit has its own formal organization, related to production, logistics, ordering etc. The present business exchange between Beta and Mechanical is defined as an operational partnership of two kinds: a business alliance and an operational alliance (Jonsson, 1998; Hendrick and Ellram, 1993). Beta 1 supplies Mechanical with a broad range of customized and standardized components and spare

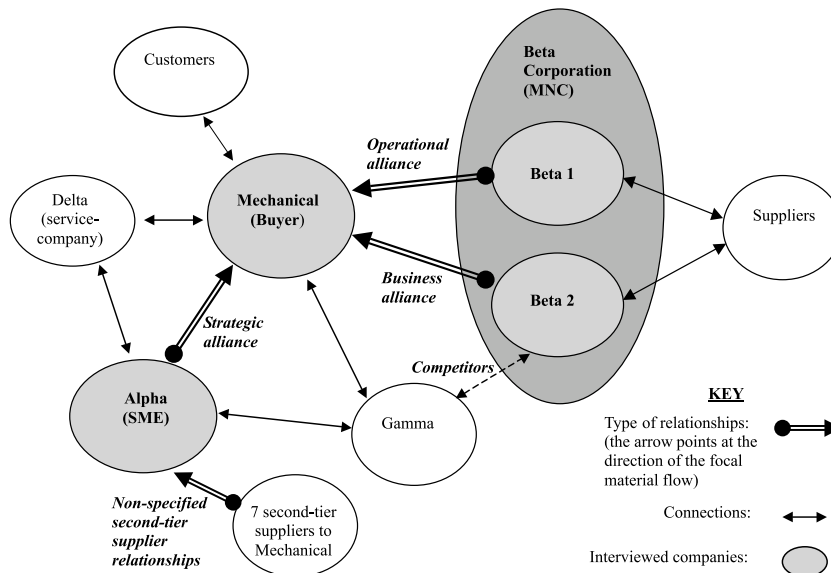


Fig. 3. The supply chain structure.

parts. The exchange also includes just-in-time deliveries, design, construction and product developments. Mechanical stands for approximately 40% of Beta 1's turnover. Beta 2 supplies some special designed components, but mostly standardized components to Mechanical, at a total of approximately 15% of the supplier's turnover.

Gamma and Beta 2 are competitors (dotted line in Fig. 3) and Mechanical applies a dual sourcing strategy in this specific product area. Finally, Delta is a small company that supplies Mechanical with technical construction services. The roles of Gamma and Delta will not be further discussed in this paper.

## 6. Analysis and discussion

The business exchange between Alpha and Mechanical includes significant deliveries of advanced modularized components, as well as some deliveries of less complex components and spare parts. Alpha does not only manufacture components, but has also an assembly line similar to Mechanical's but in a "miniaturized form", in which it is producing advanced final customer applications. The transaction-specific investments are very considerable, including adaptations to manufacturing processes, tools and equipment. Alpha has also developed its internal competence and organization with the purpose of handling and serving the customer.

The material flow between Beta 2 and Mechanical is characterized as standardized; therefore the risk and complexity are relatively low. Beta 1 has, however, made significant component adaptations in the sales to Mechanical. An example of this is the broad range of components. The focal business exchange also includes specially designed spare parts, and, at times, design and product development ordered by the customer. Hence, the product complexity is high, as well as the risk.

### 6.1. Extending the supply link activities

The strategic alliance between Mechanical and Alpha is currently within a major stage of development. Mechanical is making major changes in

the supply structure, reducing the total number of suppliers, and as a consequence, Alpha has received the responsibility of a number of new sources of supply. Today Alpha has taken over the supply operations related to seven new second-tier suppliers, who earlier used to sell directly to Mechanical. In the following stages Alpha will be responsible for supplying at least some hundreds of new components, which approximately concerns 25 suppliers, today delivering directly to Mechanical. On an operational level the challenges lie in synchronizing logistics operations in time and space and successively integrate second-tier suppliers in the extended supply chain. For the long-term planning, the parties have informally agreed upon that Alpha will undertake the manufacturing and assembling of a new generation of advanced mobile vehicles, which today is initially performed in-house at Mechanical. The relationship intensity between the parties increases, as Alpha gradually becomes an integrated part of Mechanical's production capacity (cf. Christopher, 1998; Lamming, 1993).

The material flow between Beta 2 and Mechanical has an extended dimension concerning coordination of drop-shipment deliveries. Beta 2 strives to reduce inventories and utilize the Beta-group's information system, in achieving direct deliveries from different production facilities within the group. Beta 1 has some deliveries of spare parts directly to Mechanical's customers, although this was not much emphasized during the interviews.

### 6.2. Relationship types and loyalty

Shift in the supply chain entails changes in the exchange between actors and opens up opportunities for strategic positioning (cf. Porter, 1996). The shift creates changes in the value chain and scope for longer and more profound relationships between customers and first-tier suppliers. The business exchange between Mechanical and Alpha is characterized as a high trust/high risk contractual situation (Ring and Van de Ven, 1992). The contractual characteristics in the relation between Beta 1 and Mechanical differ in one particular dimension, since the reliance on trust is relatively low as compared with the Alpha case. The parties



strive to regulate and secure the coordination of the material flow. Beta 1 encounters the coordination of the material flow as a very problematic issue, not relying on received information. Mechanical does not comply in opens up a relationship-specific information channel, by exposing the dynamics in its internal assembly schemes. This situation stands in contrast with Beta 2, which relies on market governance. The price mechanism is salient, since Mechanical strives to activate a double source, namely Gamma.

In the theoretical framework of this paper, we have previously shown the connection between business relationship types and loyalty and also discussed the communication platform and changes in the value chain between parties. The empirical material expresses an aspiration and need to develop the dimension of digital communication between the parties, by standardization and improvement of the transaction sequences, as well as change the strategic dimension of material flows. It is evident that the business exchange between Alpha and Mechanical, which includes system deliveries, creates anticipated beneficial effects on relationship development. Advantageous effects also concern the loyalty by persuasion and formalization between the parties, through an increased automation by digitization of certain sequences of the business communication. It is likely that this digitization, put into practice, also can incorporate Alpha's new second-tier suppliers.

The situation of Alpha is in some points similar to Beta 1, since the formalization through digitization can generate constructive outcomes on loyalty. The Beta Corporation could be looked at as a global and local business partner at the same time. The local presence gives the provincial advantages to the partnership, while the global dimension creates possibilities to business development between the parties by knowledge exchange, strategic sourcing, comparative advantages, and changes within the product life cycle. Experiences from the logistics structure could also be transferred to the customer.

In the Beta 2 situation, flexibility is emphasized and corresponding investments in formalization can produce loyalty. The Beta Corporation has an existing IT strategy and structure, which is used

internally within the group as well as externally coordinated. Locally in Sweden Beta has production units focusing on standardized digital links and coordination. Accordingly, there are prerequisites, which have to be considered. This leads us to the issue of knowledge exchange.

### 6.3. *Supplier relations and knowledge exchange*

Alpha's emphasis on the customer relationship is congruent with a customer orientation approach, in which the sources of profitability in the supply link are not only based upon customized products, but also signify good personal relationships based on goodwill trust (cf. Reve et al., 1995; Sako, 1998). These kinds of socially influenced relationships serve as a value-creating platform. Besides the fact that the customer base is advanced, and thereby also the risk-exposure, there are possibilities that the new customer portfolio will generate competence feedback effects on the alliance and further change the pattern of development. In the same way as openness can be contrived between buyers and sellers, *network sourcing* imply openness between competing suppliers in an established supplier network.<sup>5</sup>

The empirical observations indicate that both parties in the relationship between Alpha and Mechanical express a high level of mutual trust (cf. Ellram, 1993). The parties also share a high level of openness in dealing with technical and commercial strategic information. The constructive outcomes of these valuable commitments can later be activated in solving potential conflicts around issues of disagreement (solidarity mechanisms; Reve et al., 1995; Sako, 1998). Both parties would probably be able to handle and solve a conflict situation since there is a sincere desire, expressed from both sides, to work in a constructive-minded way and maintain the trustworthy climate in the relation. The supplier is by all means an example of an

<sup>5</sup> Network sourcing is a system in which a Japanese manufacturing company maximizes the substance from its purchase from an established supplier network which primarily is based on parallel suppliers and not single sourcing in simultaneous cooperation and competition among suppliers (cf. Hines, 1994).

interactive customer developer, where the buyer and the supplier strive to integrate their individual resources in the shared link connecting them. This can also be described as the joint ambition to carry through a value chain extension and, in consequence, the endeavors of developing a lean supply chain (cf. Lamming, 1993).

The customer's incentive in pursuing a supplier development strategy is based on the need to find competent suppliers that not necessarily retain core competence, but are willing to engage in a complementary relationship mode (Håkansson, 1982). Mechanical has successively increased the volume and complexity in the purchase content from Alpha. As a consequence, this has strengthened Alpha's internal operations as well as the relationship, since the supplier continually has engaged in corresponding to new requirements of competence, quality and capacity. An outcome of building an intensive relationship is substantial, because integrated resources are difficult to separate. Hence the relationship should be stable over time. Problems could arise if the buyer solitary defines the exchange as a traditional capacity-based subcontracting arrangement and, in times of lower degree of utilization of capacity, decides to "source in" the operation. Outsourcing based on volume buffering does not correspond to the supplier's strategy of relation-specific investments and vertical integration through cooperation, in situations of economic decline.

Concerning the Beta Corporation, the buying company could define the OEM products as outside core competencies but still be of great importance for the end product. In order to keep control of next-generation competencies, the partnership between the buying and the selling company could represent a learning race. By extending the relationship the value-creating platform can take effect. Beta has an extensive experience from international, demanding customers in the mechanical sector. Many of them are world leaders in their product segments. Production and logistics approaches such as quality management, time compression, and lean production can be expressed as customers' demands.

The components and spare parts are in this case on an OEM-basis. When the assembling company

is buying different parts from an original-equipment-manufacturer, it is of importance that the buyer in reality makes good use and integration of the technology, platforms and those products and systems that the original-equipment-manufacturer is offering. Also of importance are the possibilities to achieve resource leverage, by using the alliance in an active way. This could be seen as borrowing resources from each other, by gaining access to the skills of the partner. Benchmarking of certain business processes can be initiated, so also other arrangements from the partnership-sourcing concept. One important and actual item is the decision base for the IT project and its implementation, where experiences might be found and valued from the supplier side of the alliance.

#### 6.4. *Operational and strategic effects*

The parties, in the case study, are currently engaged in developing a communication platform. The existing communication activities are based on traditional devices since Mechanical has no EDI solution with its production suppliers. The parties are seeking communication solutions based on *Extranet* and *Intranet* to gain advantages spawned by the current IT shift, as well as avoiding the vast investment cost of EDI applications. Specific investments can be seen as a measure to reduce uncertainty in communication related to asymmetrical distribution of information. The decisions made by the supplier based on available information differ as compared to the available customer information, at the time of decisions. Decisions are therefore based on speculation instead of facts.

The parties involved can, for different reasons, choose to prioritize a focus on information technology as means for improving the operational effectiveness. Distinct sequences or sub-sequences in the transaction mode can be digitized. By applying a digitization approach, the companies will realize the operational improvement, which originates from rationalization measures. By means of inspection and follow-up procedures, the companies will be able to indicate if they succeeded in reducing costs in a particular transaction sequence. A more thorough analysis can indicate if economic value is added in the link and not only appears in

the form of process benefits. The endeavor of outperforming the competitors with similar activities is a significant objective in creating operational effectiveness. IT and the Internet yield great possibilities of expanding the company's productive horizon. The enterprise of creating operational effectiveness is necessary, but not always a sufficient objective in a long-term perspective. The competitors can imitate technologies, improvement measures, and gain differential advantages in meeting customers needs, as activities become generic in nature (Porter, 1996).

The strategic dimension is important in developing the supply chain. Porter (1996) presents aspects of the strategic dimension and he points at three types of positioning strategies: variety-based, needs-based and access-based. The types are built on activity systems and not on individual activities. IT can here be used as an instrument for business development and not as previously discussed as means of cost rationalization. The strategic dimension formulates a structure for the Internet and electronic business, as well as for outline process prioritization, coordination and strategic sourcing. The notion of "strategic fit" can be a significant ingredient among these activities, since it creates a "pressure" and incentives for the operational effectiveness. The performance level in individual activities can produce or erode value in other activities. Abell (1978) has coined the term "strategic window" which emphasizes the timing aspect in matching the companies' specific core competencies with demands emanating from the market. An investment should be abandoned when "fit" no longer exists. Hence, time has caused value erosion (Porter, 1996).

The IT approach emphasizes operational effectiveness through digitizing and reconfiguring various sequences in the transaction mode. The companies seek to standardize and integrate the communication platform and boost value through formalization and tighter coordination of the supply link. This reflects the principle applied in the three focal alliances (between Mechanical, Alpha and Beta Corporation). Nevertheless, the companies perceive a significant challenge of gaining strategic advantages through relationship investments, leveraging the accessibility of key

players' integrated skills (cf. Reve et al., 1995; Lamming, 1993).

## 7. Conclusions

According to the discussion in the introduction chapter, IT can be seen as a catalyst, an enabler for business development, as well as an instrument for reducing transaction costs. Moreover, the guiding theoretical framework has led us to identify the following essential factors, related to the performance of companies operating in an international market: relationship investments, formalization and trust. We have expanded and elaborated these factors by discussing embedded elements and mechanisms related to relationships and loyalty. The theoretical discussion of relationships started with a description of types of relationships and modes of transactions. The discussion of relationships was augmented in the analysis chapter, briefly pointing at some aspects of relationship investments, uncertainty, and risk. In the theoretical framework we discussed the concepts of trust, commitment, solidarity and loyalty. We established that certain mechanisms in trust were related to loyalty, for example, resilient trust. We also discussed that certain mechanisms in commitment and solidarity were related to loyalty. Loyalty was considered addressing both behavioral and attitudinal aspects with underlying causes, which contain elements, related to mechanisms attached with trust, commitment and solidarity.

The synthesis of elements in relationships and loyalty was described in terms of effects in the proposed model of analysis. In the analysis chapter we have operationalized IT as a catalyst in which the use of IT results in loyalty effects and relationship effects. The use of IT, expressed as digitization, can be seen as a driving force for bridging a gap between the actual and potential pattern of integrative logistics operations in a supply chain link. The mechanisms we have studied have been more or less transparent in the actual empirical context, since the dynamism between different factors can produce effects with multiple significance across the two domains of relationships and loyalty.

The conclusions drawn from this study points at three salient aspects. First, the strategic outcome of digitization of a supply link corresponds to evident shifts in strategic positions. Digitization facilitates a company's aspiration to gain advantages from an extended supply link. It enables a company to gain access to an exchange partner's corporate competence yield related to digital infrastructure and international operations. For instance, Mechanical could access the strength and competence of its supplier Beta as a way of leveraging its own value-added process. Similarly, Alpha could more thoroughly add and integrate second-tier suppliers, in which the linkage to Mechanical would reverberate in the extended link.

Another strategic aspect focuses on digitization measures designed for cost rationalization. By digitizing transaction sequences in communication, differential cost advantages can be achieved. For instance, in the relationship between Beta 1 and Mechanical, the supplier explicitly strives in the direction of reducing uncertainties related to the information exchange. By infusing agreed procedures, the supplier and the customer seek to absorb uncertainties in the material flows. The rationalization measures are also evident in the relationship between Mechanical and Beta 2, even though the supplier simultaneously maneuver for an advanced customer position through business development (e.g. the suggestion of establishing an on-site stock keeping service unit).

Secondly, the relationship effects reflect the changing mode of cooperation. Digitization of a supply chain enables a company to transform its role toward a partner. An example is how Alpha advances its relationship with Mechanical and transforms the cooperation into another contractual mode. As a consequence, the content, scope and intensity of the relationship take a new and novel direction as the partner's operational responsibilities are given topical considerations. IT enables Mechanical to develop a network sourcing strategy, in which Alpha could take a leading position instead of a follower's. This could be done if Mechanical recognizes the opportunity of acting as a parallel supplier to Alpha. Alternatively, Alpha and Mechanical could improve, by using the partnership-sourcing model, as an integrated

supply chain approach, which accordingly requires solidarity. Based on the empirical material some key informants at Mechanical did not recognize this "reversed" supplier posture, although mutual trust was remarkably high. Mechanical promotes opportunities for Alpha to take a leading position in the digitization process. Alpha is although conformable with the role of being a follower since it emphasizes the convenience in using the buyer's established procurement system for the specific product areas. Hence, the integrative strategy could be constrained due to the unbalanced postures between the parties in the alliance. This leads us directly to the third conclusive aspect.

Thirdly, the loyalty effects reflect, to some extent, the duration and changing modes of posture between parties as interconnected effects of digitization is given topical managerial interest. For example, the loyalty dimension between Mechanical and Beta 1 is built on regulating the information exchange in a more formalized fashion. The loyalty effect is mostly built on formalization in combination with low trust. Hence trust and loyalty go in somehow separate directions since loyalty is mostly system-based. The parties have shared a relatively long history together, previously in a kind of system integration mode. As new IT applications enter the arena Mechanical has an opportunity to work in a more adversarial mode concerning certain product areas. The changes in loyalty will correspond to how the parties choose to apply the IT application, in expanding its function beyond the regulative mode or tighten the control. A customer can also utilize the global strength of a supplier, as mentioned earlier. In the case of Alpha, loyalty is partly shaped by posture of persuasion and good-will trust. The dependence situation is also evident which requires policy, as well as regulation of agreements through commitment. Concerning the loyalty effects, it is interesting to notice that the interaction between the three factors of commitment, solidarity and trust influences sub-domains related to trust at times, but not always.

The interviews have been an essential phase in order to identify critical aspects of importance. The generalization of the results is on an analytical level and therefore not constrained due to the

limited number of interviews. In this study we have identified some novel managerial issues. We suggest that the nature of loyalty effects in partnerships should be further examined and analyzed in developing integrative logistics operations in a supply chain context. An endeavor for future research is to refine and operationalize the concept of IT-propelled loyalty effects in transformational buyer–supplier relations.

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