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Abstract

The relational and dynamic aspects of interfirm trust and dependence produce a crucial, but insufficiently addressed, challenge for successful relationship coordination. In this paper we concentrate on this issue by examining how trust and dependence co-evolve in customer-supplier relationships. Building on a case study, we develop propositions and a model that illustrates how inter-organizational trust and dependence co-evolve through the different phases of customer-supplier relationships and how we may distinguish cooperative and trustworthy actors from those who will behave opportunistically. Theoretical and practical implications are offered.

Keywords: Customer-supplier relationships; Trust; Dependence; Dynamic evolution

1. Introduction

Trust and dependence are elementary qualities in customer-supplier relationships of networked organizations. Some level of trust is a necessary condition for all repeated interorganizational transactions (Ring & Van de Ven 1992; Das & Teng 1998a), and as a relationship develops further the interdependence between the partners is likely to increase (Pfeffer & Salancik 1978). However, the increasing dependence may contribute the fear of partner's opportunistic behavior, the magnitude of expected coordination costs, and the difficulties of the relationship coordination (Gulati & Singh 1998; Krishnan, *et. al.* 2006). Indeed, due to the bounded rationality and uncertainty, it may be difficult to distinguish cooperative and trustworthy actors from those who will behave opportunistically (Williamson 1985). In the worst case, the deepening of the relationship may end up to the self interest seeking of the partner firm causing the termination of the relationship if proper development of interfirm trust is not ensured. Thus, the complex relationship between trust and dependence produces a crucial challenge for successful relationship coordination and ultimately firm performance.

Earlier research focused on interfirm relationships (see e.g. Ring Van de Ven 1992; Dyer & Singh 1998; Das & Teng 2000; Krishnan, *et. al.* 2006) is unanimous of the importance of trust in interfirm relationships in the increasingly complex and knowledge intensive business environment (Smith, *et. al.* 1995; Adler 2001). However, the relational and dynamic aspects of this construct, the relationship between trust and dependence in particular, has not received sufficient attention (cf. Ring & Van de Ven 1994; Doz 1996; Inkpen & Currall 2004).

Therefore, the aim of this paper is to address this research gap by examining how interfirm trust and dependence co-evolve in customer-supplier relationships. Building on a case study and earlier literature, we suggest a model that illustrates how inter-organizational trust and dependence are interlinked and co-evolve through the different phases of customer-supplier relationships. The proper understanding of the qualities of different evolutionary phases of an interfirm relationship provides us better possibilities to avoid the opportunistic behavior of the partner and to distinguish cooperative firms from the opportunistic ones. Thus, in addition to the theoretical contribution the model has direct implications for practice.

Comparing with earlier relationship literature, such as interorganizational relations in marketing and distribution channels (cf. Reve & Stern 1979; Stern & Reve 1980), strategic alliance formation (cf. Parkhe 1993; Doz 1996; Das & Teng 1998b), and joint venture arrangements (cf. Pfeffer & Nowak 1976; Hennart 1988; Inkpen & Currall 2004), this research focuses on industrial supplier relationships. Valuable research in the field of network relationships has been carried out, for instance, by Uppsala school for several years (see Håkansson & Sneholtz 1989). In this study we partially exploit these theories, but still recognize the importance of transaction cost approach (see e.g. Williamson 1979, 1985) for industrial organizations. In contrast to earlier literature, we position this study between network and transaction cost approach to extensively understand the dynamics between trust and dependence.

The rest of paper is organized as follows: In the second section we describe the conceptual background of the study and elaborate the specific research questions. The research design and data are illustrated in the third section. In the fourth section we

present the empirical evidence of the case study, identify the evolutionary dynamisms of trust and dependence in customer-supplier relationships, and develop a cyclical development model. Finally, we discuss about the contributions, limitations and managerial implications of the paper.

2. Theoretical framework

2.1. Interfirm trust

Trust has originally considered being an interpersonal phenomenon especially in social sciences (cf. Rotter 1967; Lewis & Weigert 1985), but several management scholars have recognized the role and importance of interfirm trust in industrial transactions (cf. Gulati 1995; Sako & Helper 1998; Zaheer, *et. al.* 1998). In certain argumentation, it has been seen that only individuals or teams can trust (see Blois 1999). Therefore, the main difference between interpersonal and interfirm trust is the object of trust (Zaheer, *et. al.* 1998). In interpersonal level, the object of trust is the member of the partner organization, but in the interfirm level the object is the partner organization itself. In this paper, we focus our examination of trust in interfirm level as it can provide more stability and continuity for the development of customer-supplier relationships than the interpersonal level of trust (Sako & Helper 1998).

The emergence of interfirm trust is a sum of several exchange specific factors which may be difficult to directly observe (Nahapiet & Ghoshal 1998; Sako & Helper 1998). Thus, to evaluate the level of trust in interfirm relationships, a closer consideration of the nature of trust is required. Following Tomkins (2001, p. 165), we define trust as “a

belief by one party in a relationship that the other party will not act against his or her interests, where this belief is held without undue doubt or suspicion and in the absence of detailed information about the actions of the other party". This definition highlights the fact that in an interfirm relationship there is always a possibility for the opportunistic behavior of the other party and that all uncertainty can never be removed. However, for more precise investigation of the interfirm trust, we have to split the concept into more manageable pieces.

Building on the work of Sako (1992), we may distinguish three types of trust: contractual (rests on an assumption that the other party will carry out its oral and written agreements), competence (concerns partner's ability to perform according to these agreements), and goodwill (focuses on partner's intentions to perform in accordance with those agreements). All these forms of trust are usually at least to some extent present in an interfirm relationship, and they develop dynamically over time. As the mutual trust develops further, the probability of partner's opportunistic behavior and goal conflict usually decreases and the predictability of partner's behavior increases leading to lower transaction costs (Gulati 1995; Zaheer, *et. al.* 1998). This is how trust can substitute formal control mechanisms and even generate competitive advantage for the partners (Dyer & Singh 1998).

The more specific conditions found to be conducive to the emergence of interfirm trust are introduced in Table 1. Although trust is distinguished in three different types, these are closely related to each other. The effects of one trust building method do not limit, in practice, only in one type of trust at a time, but may affect all types of trust. Nevertheless, the effects to other types of trust are usually slighter or non-existent.

Altogether, the described practices to enhance different types of trust can be seen as guidelines when evaluating the mutual trust of the relationship.

Place Table 1 Here

2.2. Interdependence

In addition to trust, also interdependence between partners occurs at least into some extent in all customer-supplier relationship. The main sources for the interfirm dependence include switching costs (see e.g. Williamson 1979, 1985), valuable resources (see e.g. Gulati, *et. al.* 2000; Das & Teng 2000), and monetary value of deliveries (see e.g. Frooman 1999). The switching costs arise especially from the small numbers bargaining (see e.g. Jacobs 1974) and the transaction specific investments of the relationship (Williamson 1979, 1985).

Transaction specific investments lock both supplier and buyer into the transaction because the value of this capital in other uses is much smaller and without these investments alternative suppliers cannot produce the item as cost efficiently as the current supplier can. At the same time, transaction specific investments decrease the number of alternative suppliers or customers leading to the situation of small numbers bargaining. Yet, small numbers bargaining can also be a market specific factor (Johanson & Mattsson 1987), for example, as a consequence of the high specialization or the relatively small size of the market.

Small numbers bargaining arise especially due to the concentration of the markets or transaction specific investments made by customer or/and supplier (Jacobs 1974; Williamson 1985). By transaction specific investments, building of trust, and mutual adaptation the parties can enhance the nonmobility and nonsubstitutability of the relationship specific resources (Johanson & Mattsson 1987; Peteraf 1993; Dyer & Singh 1998). This is how these mutual commitments increase the interdependence between partners and enhance the valuable resources of the relationship.

2.3. Matching trust and interdependence

In relationships characterized by deep interdependence the risks of opportunism, poor coordination, and unreliability are high and the behavior of the partner may be difficult to monitor. This means that trust is needed to attenuate opportunism (Sheppard & Sherman 1998), or more specifically, as Wicks *et. al.* (1999) propose, a firm should find fit between the levels of interdependence and trust by identifying the appropriate level of trust. In order to do that we first distinguish interfirm relationships into four categories, namely market-based, opportunistic, recurrent contracting, and relational contracting (see Figure 1).

Place Figure 1 Here

Market-based relationships are characterized by the high number of market alternatives, the seeking of short-term benefits, the lack of transaction specific investments, and the reliance on price mechanism. These characteristics protect parties against the

opportunistic behavior of the other party, maintain the switching costs at low level, and restrain the development of interfirm trust.

Damaging behavior is most probable in opportunistic relationships due to the risks caused by high interdependence and lack of interfirm trust. If the monetary dependence of these relationships is high, the financial damages of the possible opportunistic behavior may be significant. Therefore, the parties should manage these relationships, for example, by organizing them as hierarchies, terminating them, or increasing the level of mutual interfirm trust if possible.

Cooperative relationships, namely recurrent and relational contracting, are positioned in Figure 1 on the diagonal or above it and above the moderate level of trust. Recurrent contracting is a low-risk relationship where the parties are independent due to the low asset specificity and the high number of alternative partners in the presence of high mutual trust. Over time, recurrent contracting between parties permits greater reliance on trust by decreasing the amount of legal sanctions and contracts (Ring & Van de Ven 1992).

Relational contracting is characterized by high asset specificity, small bargaining condition, and high level of trust (see Ring & Van de Ven 1992). The high mutual trust is necessary due to the contracting risks of the relationship and uncertainty arising from the interdependence between partners. The long-term orientation and cooperative nature of these relationships increase the amount of social relations between the partners and thus distinguish them from market-based and opportunistic relationships. A successful relational contracting relationship may provide many benefits through the presence of

high level of interfirm trust for the partners like increased flexibility, extensive use of relationship specific assets (Sako 1992), decreased transaction costs (Barney & Hansen 1994; Dyer & Chu 2003), improved relationship coordination, and enhanced openness between parties (Tomkins 2001). However, relational contracting does not constitute a legal framework in customer-supplier relationships and therefore unsuccessful relational contracting can end up in opportunistic behavior of the other party. The opportunistic behavior of relational contracting can be prevented, for instance, by umbrella agreement which spells out a flexible framework of principles for future contractual decisions instead of immediate contractual agreement (Mouzas 2006; Mouzas & Ford 2006).

Altogether, the awareness of different types of trust-dependence relationships makes it possible to evaluate the organization's portfolio of customer-supplier relationships. However, due to the progress of the customer-supplier relationships, both of these factors are under continuous and dynamic change. Therefore, to match these characteristics of a relationship properly, we need more specific understanding of the co-evolution of trust and interdependence. Moreover, we do not have enough knowledge how to manage these dynamic and changing relationships in order to avoid the opportunistic behavior of the partner. Thus, these concerns and research gaps lead to the research questions of this study:

Research question 1: How do interdependence and interfirm trust co-evolve in customer-supplier relationships?

Research question 2: What kinds of effects may different customer-supplier development efforts have on the evolution of trust and interdependence?

3. Research design

The empirical research was carried out as a case study in Finnish paper industry. The study contains one supplier network and two customers of the network covering in total 12 dyadic interfirm relationships. The supplier network consists of seven small and medium sized enterprises operating in the fields of maintenance, engineering and consulting (see Figure 2). For the purpose of supplying large deliveries, the suppliers can be organized as an equal network where any of the suppliers can operate in the position of a main supplier if necessary. The customers are international companies, one pulp and paper producer (Customer 2) and another focusing on paper machine production (Customer 1).

Place Figure 2 Here

Case study research approach was used as it provided the opportunity to combine effectively qualitative and quantitative data (see Eisenhardt 1989; Yin 1994). Without the qualitative data, the understanding of the development and the evolution of the relationship specific characteristics would have been insufficient and so in-depth interviews were considered compulsory. The data collection consisted of total 26 one-to two-hour in-person interviews and 12 of them were structured. The interviewed persons were the managing directors of the suppliers and the purchasing and maintenance managers of the customers.

The research process was organized as follows:

1. All respondents of the suppliers were interviewed individually by a researcher. Based on these interviews, suitable customers for the research were selected. The selection was based on the size of the customer, the consultation provided by the suppliers' respondents, and the preferred high number of networks' suppliers having a relationship with customer.
2. A questionnaire was made for the structured interviews based on earlier literature. It consisted of fifteen quantitative questions which evaluated both the level of interfirm trust and interdependence. The questionnaire was used as it made possible to carry out consistent evaluation of trust and dependence in every studied customer-supplier relationship.
3. The questionnaire was sent beforehand to all respondents. This provided a possibility for the representatives to prepare for the actual interview situation.
4. The structured interviews with the representatives of the suppliers were carried out using the questionnaire.
5. The representatives of the customers were interviewed individually: the first part of these interviews was structured where same but slightly revised questionnaire was used, and the second part consisted of additional qualitative questions complementing the standard questions of the questionnaire.
6. Additional interviews were made with the suppliers in order to collect qualitative data regarding the customer-supplier relationships.

The questionnaire consisted of two sections: first 12 questions evaluated the level of trust and the last three were related to the interdependence of the relationships. Trust was evaluated by measuring the levels of certain characteristics of the relationships. The selection of these characteristics was based on earlier literature (see Table 1) and

included issues like, openness between partners, risk sharing agreements, intense of supplier competition, decentralization of decision making, and projected length of trading. The more relationship had these characteristics conducive to the emergence of trust the higher the evaluated level of relationship's mutual trust was.

The evaluation of interdependence was based on the valuable resources and the switching costs of the supplier. The higher the level of both the switching costs and the valuable resources was the more partners were dependent on each other. The value of the suppliers' resources was not measured directly as all the suppliers had complementary and valuable resources for the customer. Instead, the level of mutual transaction specific investments was evaluated using a 5-item Likert scale, as these enhance the valuable resources of the relationship and increase the switching costs of the supplier. The switching costs were also measured by the number of alternative suppliers. Large number of alternative suppliers indicated independence and small number interdependence between the partners.

By mutual interviews, we gained both firms' perspectives on the relationship which has noted being valuable for the evaluation of the interfirm relationships (Krishnan, *et. al.* 2006). This mutual data collection provided value as it revealed clearly the differences in the perspectives of the parties about the relationship and its closeness.

As noted by for example Tsai and Ghoshal (1998), the relationships between corporate actors can change over time. Thus, the respondents were asked to answer the questionnaire on the basis of their recent years' experience of the exchange relationships. As a consequence of the presence of a researcher at all interview

situations all questionnaires were filled out and returned. The risk of misunderstandings was minimized as the researcher clarified questions when necessary. A couple of questions were not answered by the Customer 2's respondents because they did not have proper knowledge about the specific characteristics of the supplier relationships. Similarly to Nooteboom *et. al.* (1997), we aimed to maintain comparability between relationships by designing the questionnaires of the customers to be completed horizontally: the respondents answered a question for all relationships before moving on to the next question.

4. Findings

4.1. Classification of the customer-supplier relationships

All the studied dyadic customer-supplier relationships were classified based on the results of the interviews and answers to the questionnaire. The classification was done on perspectives of both customers and it is summarized in Figure 3 where the closeness of the relationship is evaluated by the amount of both trust and interdependence. The size of the supplier's figure indicates the dispersion of the numerical answers. The wider the figure is the more there is differences in the evaluation of the interdependence between the customer and the supplier. The height of the figure reflects the dispersion of the calculated average of interfirm trust. This is how the figure highlights the fact that in an interfirm relationship there may even be considerable differences in perceived trust to the other party between the partners. In order to match trust and interdependence, supplier should be situated on the diagonal of the figure or near of it.

Place Figure 3 Here

In the case of Customer 1, the levels of interfirm trust have increased properly as the interdependence of the relationships has increased. Instead, Customer 2 has slightly failed to match trust and interdependence. Most of the suppliers are positioned below the diagonal and so they are quite near to the dangerous area of opportunistic behavior. Luckily, the monetary value of the deliveries of these suppliers is relatively low, in practice less than one per cent of the total purchases of Customer 2, so their possible opportunistic behavior is not financially very damaging.

Two important differences can be noticed about the relationship management practices of the customers which affect the balance between trust and interdependence. First, Customer 2 has forcefully centralized purchases during last few years causing the increase of interdependence compared to the level of interfirm trust due to the low number of alternative suppliers. The representative of Customer 2 stated that one of the case relationships was considered as a single sourcing situation where no alternative suppliers were available. In addition, in the case of four other relationships only two or three suppliers could be used for a service category. However, the level of interfirm trust has not increased in these case relationships because Customer 2 has not made additional commitments towards the suppliers, which has enhanced the imbalance between trust and interdependence.

Second, the purchases and the investments of Customer 2 have stayed at low level and even decreased since the beginning of the 21st century, due to the uncertainty of the business environment. Hence, the dependence of the suppliers and trust levels have

stayed low due to the relatively small share of Customer 2's deliveries compared with the turnovers of the suppliers and the decrease of the relationships' interaction. In the case of five studied relationships, less than ten per cent of supplier's turnover came from Customer 2 indicating weak monetary dependence between the parties. Yet, the amount of alternative suppliers has not increased. These problems have led to one-sided dependency, which is characteristic to the opportunistic behavior, (see e.g. Cousins 2002) and to lower performance in most of the case relationships compared to the relationships of Customer 1. However, none of the case relationships has drifted fully to the area of opportunistic behavior. The main reason for this has been the proper supplier selection criteria which emphasize the importance of good reputation and competence of the supplier along with the valuable resources controlled by the supplier. Thus, building on these findings we propose:

Proposition 1: If the amount of relationship specific commitments and investments increase in line with both the decrease of alternative partners and increase of purchasing volumes, the proper development between interfirm trust and interdependence can be sustained.

The increase of purchases was not considered to enhance the perceived trust directly although the decrease of the purchasing volumes appeared to attenuate the perceived trust of the suppliers. The repeated interaction and mutual adaptation, caused by the increase of purchases, were considered to be the sources for the enhanced trust. This happened in the case of Customer 1, where the delivery volumes of the suppliers stayed continuously high or increased. In practice, the delivery volumes were about five times higher than in the case of Customer 2. The high purchasing volumes also limited the

supplier base as the smallest suppliers were not able to provide larger deliveries causing concentration in the amount of alternative suppliers. Hence, the dependency became mutual in most of the case relationships of Customer 1. Repeated interaction between Customer 1 and its suppliers due to the high purchasing and investment volumes has ensured the proper development of mutual trust levels in relation to the interdependence of relationships. Thus, these findings lead to the following proposition:

Proposition 2: If the purchases of the customer decrease, it is likely to attenuate the supplier's trust to the customer causing the imbalance between interfirm trust and interdependence.

4.2. Partner selection and mutual trust building

The interviews revealed that both the customers and the suppliers view interfirm trust and complementary valuable resources of the supplier as the key elements in the partner selection process. The level of the price of the delivery had to be competitive when supplier was selected but still the significance of the price was evaluated less important than the trust and the valuable resources. All the respondents of the customers added to this that in the long-run a competent supplier is more cost effective than a supplier offering low price products or services at the expense of deliveries' quality. Thus, these findings lead to the following proposition:

Proposition 3: If the partner selection is based on both mutual trust and complementary resources of the partner, the proper co-evolution of interfirm trust and interdependence may be ensured.

The role of trust and valuable resources in the selection process changed as the relationship developed further. In the case of selecting a new supplier, the interfirm trust created by the supplier's good reputation and the complementarity of suppliers resources compared to the resources controlled by customer were the most important selection criteria. However, the selection of the partner from the existing supplier base for further development of the relationship was based on the trust to supplier's competence and transferability of supplier's resources along with the resource complementarity. The role of resource transferability appeared especially in the case of Customer 1 who purchased some of the services through its maintenance department. As the supplier delivered the service, the employees of the customer's maintenance function learnt how to handle minor problems and adjustment works of the delivery. Thus, the customer's need for the suppliers' help and services decreased and the purchasing costs of the maintenance function was economized.

In the case of substantial deliveries, the mere competence trust and separate valuable resources were not enough to convince the customer. In this situation, the customer expected the suppliers to have general business and project management competence along with valuable resource bundles which may enhance significantly the competitive advantage of the customer when aligned with resource base of the customer. In practice, the high expectations of the customers about the large deliveries appeared when the small suppliers organized in the form of network and tried to compete against the bigger suppliers. The network organization did not get any deliveries as the customers did not trust enough to its competence to manage large projects due to the lack of reputation and earlier interaction as a networked organization. However, three individual suppliers,

namely B, C, and E, were used by the customers to deliver middle-sized projects where subcontracting was needed. These suppliers had project management skills and the capability to bundle together valuable resources of several organizations by subcontracting.

Unlike competence trust, the role of contractual trust was very insignificant during the development of all the studied relationships. Both customers had corporate wide purchasing practices which prevented the development of mutual contractual trust. These practices included the use of non disclosure agreements and written contracts in every notable purchasing relationship. In the case of Customer 1, the use of written contracts was quite flexible, for instance, as some of the services could be delivered before any written agreement had been made. Instead, the respondents of Customer 2 highlighted the importance of written agreements. This is why, especially in the case of Customer 2, the contractual trust of the relationships stayed at very low level. In spite of the lack of contractual trust in all case relationships, the proper development of interfirm trust and interdependence was possible and three of the relationships deepened as far as near or into the area of relational contracting (cf. Figure 1).

The main means for the mutual trust building in the case relationships were transaction specific investments and the customers' commitment to the relationships. Most of the transaction specific investments were made in the early stages of the relationship by the suppliers as a result of learning-by-doing and transfer of skills. These transaction specific investments especially enhanced the trust of customers to the competence and goodwill of suppliers. On the basis of the fostered interfirm trust, customers built up commitment and goodwill trust in the later stages of the relationship by sharing

information about their predicted demand on the maintenance and engineering services, increasing the projected length of trading, and partially decentralizing the decision making power.

The long-term commitment was realized through annual contracts with the suppliers which were related to minor services of maintenance and engineering. These contracts and the information sharing of the relationships were done only in the cases of the most competent suppliers who controlled valuable resources for the customer. By these arrangements, customers could partially narrow their supplier bases, implement effective governance structures, and ease the resource exchange between partners. As a whole, the arrangements enhanced the valuable resources of the relationship creating more competitive customer-supplier relationships. Altogether, the following proposition summarizes these findings:

Proposition 4: Interfirm trust enhances the valuable resources of a customer-supplier relationship.

The partial decentralization of the decision making happened in the case of three suppliers (B, C, and E). These suppliers delivered sometimes larger projects especially for the Customer 1. In these projects, the suppliers usually had to subcontract some services using between one to four suppliers. For example, Supplier C has provided projects where it has subcontracted services from Suppliers B, E, F, and G and sometimes it has also used suppliers included out the case network. The decision making power of the subcontracting arrangements was given almost completely for the suppliers and they had also free hands for the design of the delivered projects and

services. For the rest of the suppliers, the customers had given quite free decision making about delivered services but these suppliers delivered only occasionally or never moderate-sized projects where subcontracting could be used.

In the case of these three suppliers with more decision making power, the mutual trust of the relationship was enhanced furthermore. Increased openness between these partners and additional transaction specific investments created conditions that were conducive to the addition of trust. In these cases, the customers had courage to give even strategically important information to the suppliers which increased notably the level of mutual trust. Once again most of the transaction specific investments were made by suppliers. All these suppliers had employees who provided services nearly full-time to these close customers. In addition, some of these employees worked physically in the office spaces of the customers. Supplier B had one engineer working in the facilities of Customer 2 and one of the engineers of Supplier C worked in the office of Customer 1. This transaction specific know-how deepened these relationships even more. Thus, these findings lead to suggest the following proposition:

Proposition 5: The building of goodwill and competence trust during the development of an interfirm relationship ensures the proper co-evolution of interfirm trust and interdependence.

4.3. Interdependence of the relationships

All the suppliers and the customers stated that the most important factors which create dependence between partners are the valuable resources of suppliers and the switching

costs of the partner. The specific competence controlled by the supplier and the access to these resources were especially valuable for the customers. In the case of Customer 1, the dependency arises from the supplementary and complementary resource alignment in the relationships (see also Das & Teng 2003). The resources of suppliers complete the resource base of Customer 1 creating valuable combinations which may enhance the competitive advantage of the customer. Instead, Customer 2 has outsourced nearly all maintenance and engineering know-how. Therefore, Customer 2 needs greater amount of the resources controlled by the suppliers than Customer 1 to maintain high capacity utilization rate.

All the studied suppliers had some single competencies which increased significantly the interdependence of both of the customers. The respondents of the customers stated that although they (especially Customer 1) maintain quite wide supplier base, nearly all relationships are important as they provide some specific complementary resources for the resource bases of the customers. For instance, Supplier E has specific competence about the gearing of paper machines and Supplier A controls competence about vibration, hydraulic, and pneumatic analyses of the paper machines. These competencies of the both suppliers are nearly exclusive in the Finnish paper machine markets because alternative suppliers are not as effective and skilful as these suppliers are. Due to the complementary resources of the supplier base, direct connections to the suppliers were considered important. The customers did not want to regularly purchase the services of the suppliers indirectly through other suppliers and therefore only minimal reductions of the supplier base were possible.

The switching costs of the studied suppliers were high as a consequence of the long-term and repeated interaction along with mutual adaptation facilitated by the transfer of transaction specific skills. During the relationship, especially the representatives of the suppliers learn to operate in the facilities of the customer, and to get along with the production process and machinery of the customer increasing the effectiveness of the supplier and enhancing the valuable resources controlled by the supplier. In addition, the respondents of suppliers argued that the customers of the forest industry require higher quality from the services and the products of the suppliers than the other customers. This indicates the need for more extensive adaptation from the employees of suppliers than in the case of ordinary customer. The learning and adaptation, which can be seen as transaction specific human-capital investments (see e.g. Williamson 1979) of the supplier make the relationship effective and decrease the transaction costs of the relationship. This is why, in the case of both customers, the respondents argued that it takes several years after a new supplier is as effective as the current suppliers are. The high human asset specificity along with small supplier base has especially locked Customer 2 to its suppliers. Altogether, these findings lead to the following proposition:

Proposition 6: Transaction specific investments and commitment affect three central dimensions of an interfirm relationship: interfirm trust (competence and goodwill), valuable resources, and switching costs.

In the case of maintenance and engineering services, the monetary volume of the deliveries was not considered important factor when evaluating the customer's interdependence to the suppliers. Instead, the representatives of suppliers felt that monetary dependence on the customers was a considerable factor when assessing the

risks involved in the possible centralization of their sales. Therefore, all the suppliers observed closely the proportions of the most important customers in contrast to their turnovers. As the proportion of one customer was too great, the supplier aimed to widen its customer base to other related industries. This is how the studied suppliers acted after the purchases and the investments of the paper industry fell down in the beginning of the 21st century.

4.4. The cyclical evolution of customer-supplier relationships

The overall evolution of the 12 studied dyadic customer-supplier relationships is illustrated in Table 2. The development is distinguished into three stages: screening, commitment and mature. Screening stage represents the phase when customer is selecting a new supplier and the established market-based relationships. All the studied dyadic relationships developed through this stage to the commitment stage where customer centralizes a part of its purchases to competent suppliers by long-term contracts. In these relationships the level of both trust and interdependence are moderate (see Figure 3). The customers' respondents stated that the deepening of the case relationships was facilitated by the good reputation and competence of the studied suppliers. However, in the case of several other maintenance or engineering suppliers, customers did not develop the relationships further especially due to the lack of suppliers' competence during the interaction. These relationships were either remained as a form of market-based relationships or terminated by the customer. The competent nature of the suppliers describes the fact that three of the relationships evolved as far as to the mature stage where the mutual commitment of the relationships is quite extensive along with the decentralization of the decision making power. In the mature stage of the

relationship the level of both trust and interdependence increase to high level which eventually leads the relationship to the area of relational contracting (see Figure 1).

Place Table 2 Here

The findings and propositions of this study lead us to suggest a development model of interdependence and trust (Figure 4). The proposed model consists of four phases which cause the gradual and proper deepening of an interfirm relationship. The phases formulate a circle and as the relationship deepens it can go through the circle several times. This highlights the cyclical development of an interfirm relationship (see e.g. Ring & Van de Ven 1994; Doz 1996). As a result of the first development circle the relationships goes through the screening stage. The second development circle leads the relationship to the commitment stage, and the third circle ends up to the mature stage of the relationship.

Place Figure 4 Here

The development circle begins as the customer selects a new supplier or an existing supplier from its supplier base to increase purchases from that specific supplier. To ensure the proper development and success of the relationship, the selection should be based on both interfirm trust and valuable resources controlled by supplier. As the amount of purchases increases, transaction specific investments are made as a consequence of mutual adaptation, transfer of skills, and learning-by-doing. This increases also the monetary dependence between the customer and the supplier. The transaction specific investments affect many dimensions of the relationship. They

increase the amount of trust and valuable resources along with reducing the number of alternative suppliers (see e.g. Peteraf 1993). Due to the reduced number of alternative suppliers, the switching costs of the supplier increase causing higher interdependence between partners. The last phase of the circle includes the growth of the interfirm trust. The addition of mutual trust is gained through increased information exchange (see e.g. Dyer & Chu 2003) and long-term commitment to the relationship. Finally, the higher level of interfirm trust increases the amount of relationship's valuable resources as trust is a rare and imperfectly imitable resource due to its significant degree of social complexity (see e.g. Barney & Hansen 1994).

5. Discussion and conclusion

5.1. Theoretical contributions

The primary contribution of our study was to illustrate the co-evolution of interfirm trust and interdependence to understand the development dynamics of customer-supplier relationships. In line with the suggestions of Krishnan *et. al.* (2006), our model brings out that the significance of both interfirm trust and interdependence should be taken into account when studying the success of the interfirm relationships. We also combined this aspect with the notion of Das and Teng (2002) who argued that a partner's perceived trustworthiness and the shared resources will evolve during the development of an interfirm relationship as the conditions, the development stage, and the business environment of the relationship change over time.

Our model especially pays attention to the conditions (e.g. the amount of transaction specific investments, commitment, and interdependence), and the development stage (early, commitment or mature) of the relationship. The effects of the relationship's business environment are limited to the number of alternative suppliers or customers which affect the interdependence between the customer and the supplier. Contrasting to the study of Das and Teng (2002), our model also more closely considers the central role of trust in the development of relationships and brings out how and why, in practice, the role of trust and valuable resources evolve during the relationship. The transaction specific investments were considered especially important factors in the development of customer-supplier relationships as they affect to the components of both interfirm trust and interdependence.

Similar to prior observations (Sako 1992; Madhok 1995; Inkpen & Currall 2004), the significance of price and competitive bidding was noted to decrease as the relationship developed further from the market-based relationships and other factors, that is, trust and complementary resources were considered more important by both the customers and the suppliers. The important role of trust (Das & Teng 2002; Stewart 2003) and complementary resources (Van de Ven & Walker 1984; Madhok 1995) in the partner selection and buying decision has been recognized by several authors. Our findings support those views as the development and deepening of all the studied customer-supplier relationships leant almost completely on trust and valuable resources of the suppliers.

In earlier literature, the development of interfirm relationships has also been modeled, but on different perspective compared to this research. For example, the study of Ring

and Van de Ven (1994) illustrated the development process of a cooperative interorganizational relationship mainly on the perspective of interpersonal relations where the commitment made by the individual representatives of the organizations affects widely the development of the relationship. This research complements the study of Ring and Van de Ven by examining the cooperative development process on the perspective of the organizational events.

Significant work in the field of network approach to economic organizations has been done by several authors (see e.g. Johanson & Mattsson 1987; Håkansson & Snehota 1989). This research views firms through the lenses of social exchange and resource-dependence theories (Johanson & Mattsson 1987). In line with this approach we have recognized the importance of valuable resources and social capital, namely trust, in the development of interfirm relationships. In addition, we have observed that transaction cost economics approach to organizations cannot explain entirely the behavior of industrial organizations, but still gives an interesting and valuable insight into this topic. Therefore, our work has partially combined the network approach with the transaction cost economics to provide wider understanding on the co-evolution between trust and dependence.

Consistent with the findings of Doz (1996) our study reveals that the learning and the transfer of both skills and intangible resources are in the key position as successful interfirm relationships develop through evolutionary cycles over time. However, Doz discussed the success of alliances where both parties are equally powerful. In our research, the perspective is customer-supplier relationship where the decision power is usually asymmetrically balanced to the customer. Our study suggests that learning and

mutual commitment, caused by the interaction between the supplier and the customer during the current development stage, lead to outcomes which are evaluated by the customer before the relationship may move on to the next development stage. If the efficiency and the competence of the supplier have not enhanced properly the relationship is not likely to end up in successful outcomes. The customer is likely to choose the more competent and efficient supplier for the further development of the relationship.

Inconsistent with the work of Sako (1992), we have suggested that contractual trust is not a necessary condition for the existence of a close customer-supplier relationship. Sako (1992) presented that contractual trust is one central element of an obligational contractual relation (OCR) where partners prefer high trust cooperativeness along with long-term trading. The OCR relationships were expected to have increased contractual trust and most of them did have and only a couple of them lacked this feature. However, our findings clearly suggest that close and cooperative relationships can develop without the increase of contractual trust between the partners. In all dyadic relationships discussed in this study, the contractual trust was considered to be at low level and notably lower than the levels of other forms of trust.

5.2. Limitations and future directions

Some limitations of the research should also be considered. First, a major limitation of these findings is the extent of the study. The empirical part of the study covered only 12 customer-supplier relationships in the service sector of Finnish paper industry. The empirical data was quite narrow and further research should be carried out before the

proposed development model of interfirm relationships can be used as a managerial tool.

Second, the study focuses only on the Finnish institutional environment. For example, Sako & Helper (1998) and Dyer & Chu (2003) have noticed that cultural differences between institutional environments may influence the development of interfirm relationships and thus affect the evolution of interfirm trust. Therefore, the findings of the study can not be directly generalized to other institutional environments. However, the observations can be a fertile basis for further research, for example statistical analysis on the proposed model would be needed. In addition, our study concentrated on interfirm level of trust and inter-personal trust stayed in the background. Thus, the inter-personal effects on the evolution of customer-supplier relationships could be more closely addressed in future.

5.3. Managerial implications

The findings of the study raised up three important issues that should be noticed in decision making concerning customer-supplier relationships:

- Supplier selection should not be based merely on competitive price, but the role of interfirm trust and valuable resources of the supplier should also be considered. By using these two supplier selection criteria, customer can create mutual trust and dependence between partners and thus, enhance the balanced co-evolution of interfirm trust and dependence.
- Organization should be careful especially with relationships characterized by low interfirm trust and deep dependence between partners due to possible

opportunistic behavior. The main ways to deal with this kind of relationships are mutual trust building and/or decreasing the dependence between the parties. Mutual trust building requires, for instance, information sharing, long-term commitment, and repeated interaction (see e.g. Pajunen 2006). The dependence of the relationship can be affected by changing the amount of alternative partners and transaction specific investments.

- The use of extensive supplier coordination tools like risk and profit sharing agreements and/or open-book accounting should be considered primarily if trust and interdependence are properly balanced in the relationship. In practical case studies about open-book accounting (see e.g. Mouritsen, *et al.* 2001; Kajüter & Kulmala 2005) trust has been noticed to be important success factor for the interfirm arrangement. Similar findings have been revealed in the case of risk and profit sharing (see e.g. Jarimo, *et. al.* 2005). Therefore, it is crucial that partners can balance trust and interdependence before using open-book accounting to support risk and profit sharing agreements of the relationship. Additionally, the success of these arrangements can be supported by umbrella agreement which can provide further balance for the certainty and calculability of the relationship.

Overall, this study has highlighted the fact that co-evolution of trust and dependence takes place in customer-supplier relationships and this concept should be taken account in organization's supplier management practices.

6. References

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Table 1. Conditions conducive to the emergence of contractual, competence, and goodwill trust in customer-supplier relationships.

Type of Trust	Conditions conducive to the emergence of trust	Author
Contractual trust	Reliance on oral agreements Contracting costs are avoided Legal sanctions like non-disclosure agreements are not used	Sako, 1992 Dyer & Singh, 1998 Gulati & Singh, 1998 Pisano, 1990
Competence trust	Good and competent reputation Consistent deliveries of high quality products in a timely accurate manner Transaction specific investments and commitment Repeated interaction Minor use of formal output controls	Barney & Hansen, 1994 Gulati et al., 2000 Cooper & Slagmulder, 2004 Sako, 1992 Suh & Kwon, 2006 Gulati, 1995 Tsai & Ghoshal, 1998 Das & Teng, 2001
Goodwill trust	Cooperative supplier management practices: avoiding competitive bidding, supplier selection based on competence rather than price Decentralization of decision making The fairness of the relationship: risk sharing and profit distribution agreements Sharing of valuable information Long-term projected length of trading	Sako & Helper, 1998 Sako, 1992 Ring & Van de Ven, 1992 Das & Teng, 1998a Jarillo, 1988 Dyer & Chu, 2003

Table 2. The development stages of the customer-supplier relationships

	Development stage		
	Screening stage	Commitment stage	Mature stage
Partner selection: -Interfirm trust -Valuable resources	supplier's good reputation, complementary valuable resources	trust to supplier's operative competence, transferability of valuable resources	trust to supplier's overall competence, bundles of valuable resources
Interaction: -Transaction specific investments and commitment -Increase of purchases	supplier: learning by doing customer: transfer of skills to the supplier	customer: long-term commitment increase of information exchange supplier: learning by doing	customer: additional openness decentralization of decision making supplier: increase of human asset specificity, site specific investments
Outcome: -Interfirm trust -Valuable resources -Switching costs -Monetary dependence	trust to supplier's competence supplier: increase of effectiveness	trust to customer's goodwill decrease of transaction costs supplier: increase of effectiveness decrease of alternative partners increase of monetary dependence	trust to customer's goodwill trust to supplier's competence decrease of transaction costs supplier: increase of effectiveness decrease of alternative partners increase of monetary dependence

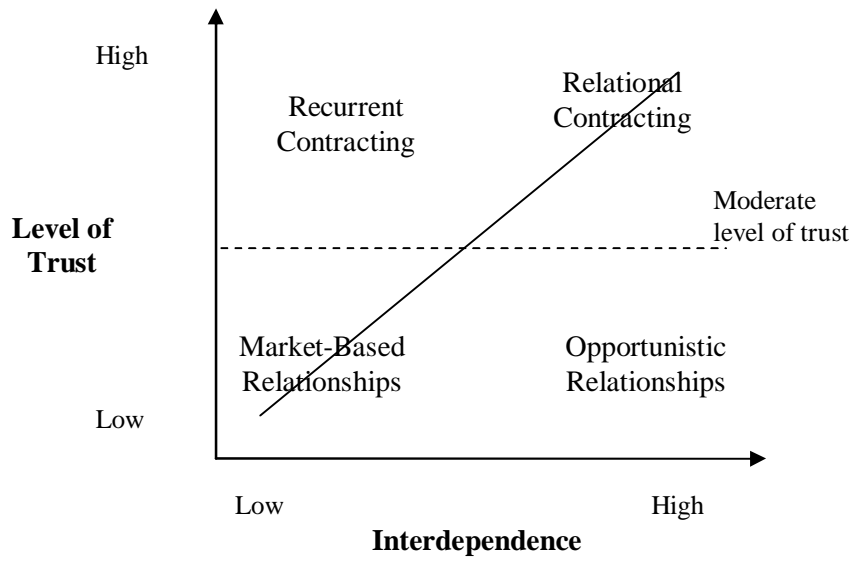


Figure 1 - Matching Trust and Dependence Levels (see also Ring & Van de Ven, 1992; Wicks et al., 1999)

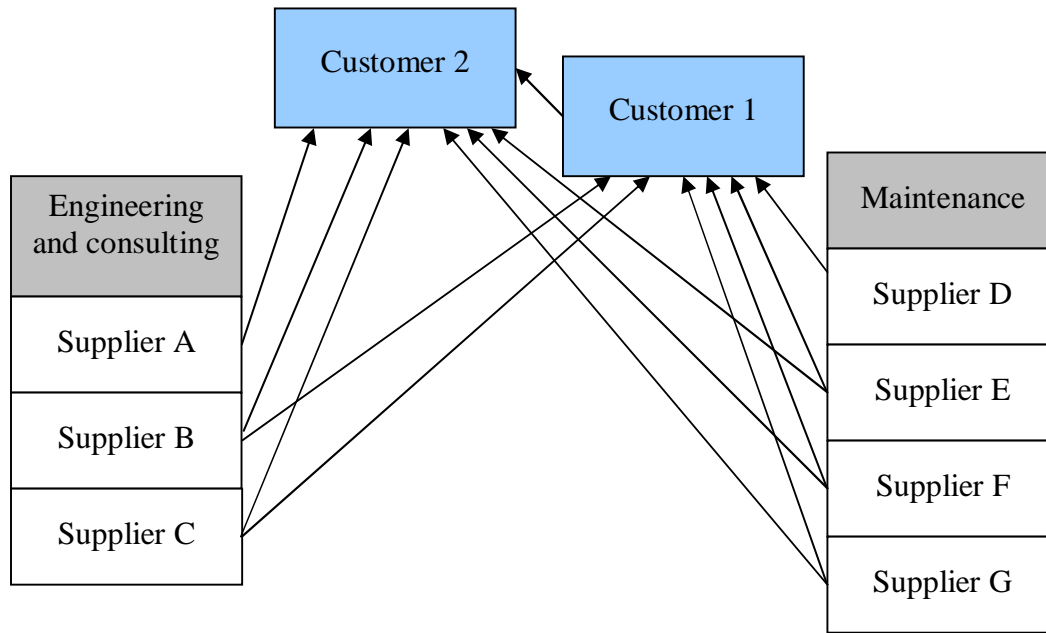


Figure 2 – Customer-supplier relationships of the case firms

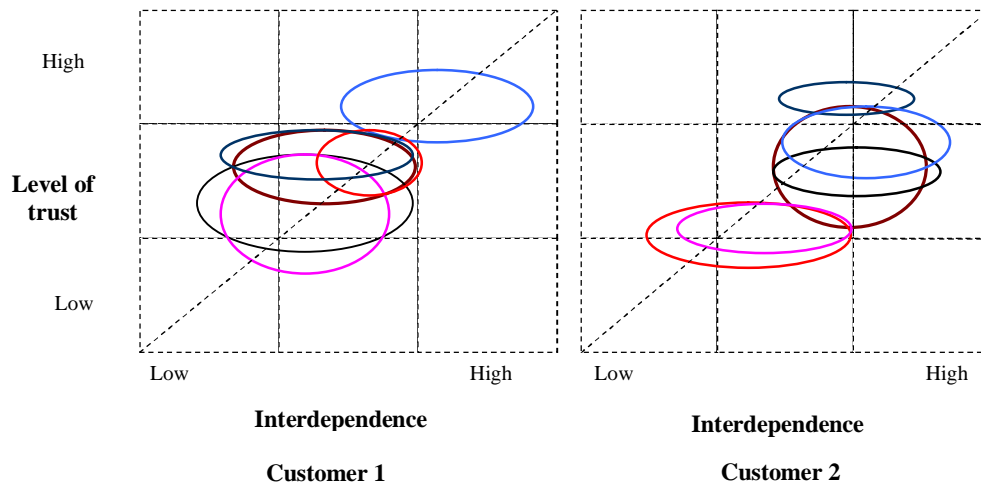


Figure 3 - Classification of the customers' supplier relationships

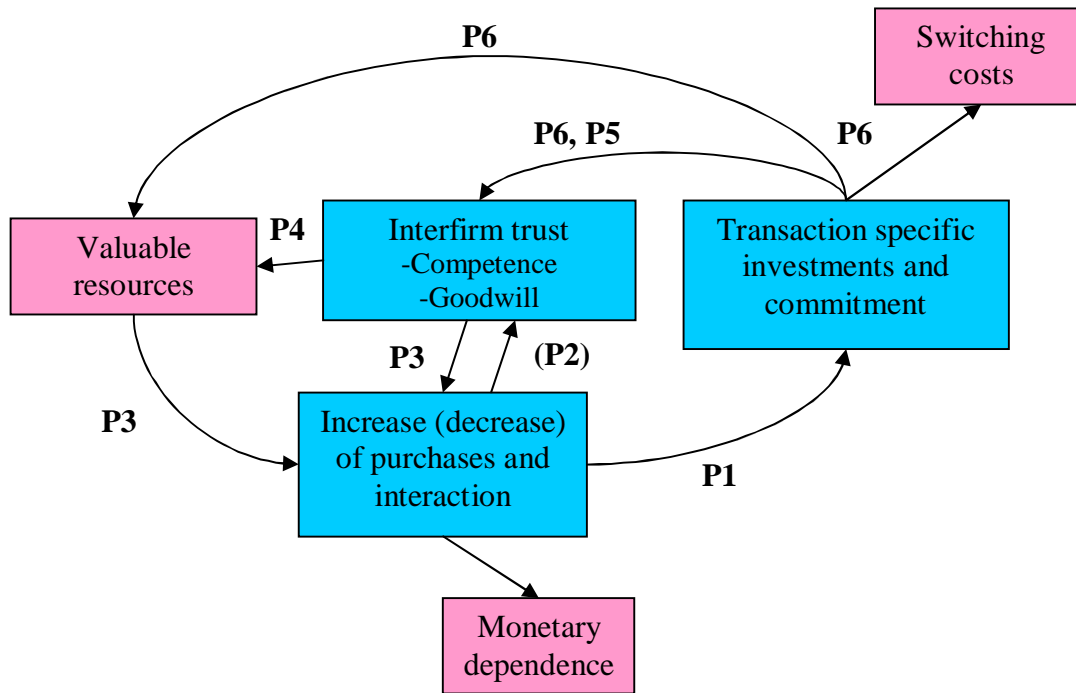


Figure 4 – The proposed cyclical development model of a customer-supplier relationship. (P2) refers to negative effect, other propositions to positive effect.