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ROBERT WENDELIN

THE NATURE AND CHANGE OF BONDS IN
INDUSTRIAL BUSINESS RELATIONSHIPS

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The Nature and Change of Bonds in Industrial Business Relationships

Key words: Bonds, bond strength, bond stability, episodes, relationship, concrete bonds, abstract bonds, core bonds, support bonds, change, nature, truck producing industry

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In memoriam

Veikko Olavi Wendelin

3.7.1938 – 26.1.2004

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Robert Wendelin

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1. Introduction

The introduction of the study will have three subheadings before the purpose of the study is presented. *The nature of bonds* will discuss the nature of bonds in theory and the places in the theory where there still exist gaps that have to be bridged. *Effects of bonds* will discuss the effect episodes may have on bonds strengthening or weakening them and bonds effects on termination of relationships and gaps in theory. *Managerial interests* will present the managerial interests of the study.

Nature of bonds

In inter firm cooperation more importance has lately been put on the relationships between companies. If the relationships between companies are strong then it can usually be seen as a sign that the companies will cooperate for a longer time and that may affect the companies' competitive and financial strength positively (Storbacka, Strandvik and Grönroos 1994). This is the fact since focus can be on cultivating the current relationship instead of building new relationships. Different bonds that exist between the companies affect the relationships. "A bond must exist, in however weak a form when economic exchanges take place between supplier and customer" (Easton & Araujo 1986, p.11).

I define bonds in the following manner. Bonds are the concrete or abstract technical, time, knowledge, legal, economic, geographical, social, cultural, ideological, psychological and strategic value creating, neutral or value reducing factors that form the building stones of the industrial business relationship. Bonds can be mutually or one-sidedly value creating or value reducing. The sum of the total package of bonds in a relationship equals to the total value of the relationship. Bonds are value reducing if they are causing negative effects in the relationship functioning as exit barriers or if they are weakened and lead to negative effects weakening the relationship.

Regarding a definition on relationship I agree with Holmlund (1997, p. 335) and argue that a relationship is "equivalent to a dyad, it encompasses the whole value creation system of inter-linked processes of two firms, and consists of mutually oriented interaction".

There are different kinds of bonds that bind the customer and the supplier together. Bonds can be defined as exit barriers that tie the customer to the supplier and maintain the relationship (Liljander & Strandvik 1995). Even unsatisfied customers may have strong relationships to suppliers due to bonds that function as exit barriers (Liljander & Strandvik 1995). But bonds also have more positive connotations that are important for the continuation of the relationship or for the strengthening of the relationship.

The relationship between suppliers and industrial customers has changed so that at present stable relationships between suppliers and customers is a prerequisite for a good business climate. Demands for lower prices and an increase in profits, shorter product cycles and global competition is some of the forces affecting suppliers and customers in the industrial market pressing them to have stronger relationships (Holmlund & Kock 1995). Partnering with suppliers has become more important (Araujo, Dubois & Gadde 1999). Companies have decreased the number of suppliers and have instead started more intense cooperation with the remaining suppliers (Wendelin 2002a). A focus on

cooperative industrial business relationships has become more important. As a result the bonds between the companies become more important. This is due to that bonds are building blocks of relationships that affect the stability in the cooperation between the companies. The strength of bonds affects the strength of the relationship. Bonds affect termination of relationships because they often prevent termination of relationships even if the partners are dissatisfied with the cooperation. That can be seen as a negative perception of bonds. On the other hand it can be said that bonds affect the continuation of the relationship and may also affect the strength of the relationship in a positive way and lead to the strengthening of the relationship, which for instance may lead to increased profitability, or a growth in the volumes delivered.

When studying a dyad the relationships between two companies in a network are studied. The relationships between a supplier and a customer in an industrial dyad consist of a vast amount of different interactions and investments in bonds. (Holmlund & Kock 1995)

The IMP (Industrial Marketing and Purchasing) group has found six different kinds of bonds in the cooperation between companies. These bonds are technical, economic, time, legal, social and knowledge bonds. (Johanson & Mattsson 1987; Holmlund & Kock 1995)

Additional bonds have been suggested in the past years in service marketing. Bonds such as cultural, ideological, geographical and psychological bonds. (Liljander & Strandvik 1995; Storbacka, Strandvik & Grönroos 1994) By combining the bonds that the IMP group has found with those from the service marketing perspective a more comprehensive model has been created. Geographical, cultural, ideological and psychological bonds have also been found in industrial business relationships. (Wendelin 1998a, 1998b, 2000a, 2000b, 2002a, 2002b) Buttle, Ahmad & Aldlaigan (2002) have also noticed these ten bonds in industrial business relationships. There are still gaps in theory vis-à-vis the model with ten bonds from an industrial approach.

Bonds do affect the total value of business relationships. Bonds may have been seen as something positive and later on their character may change to something being perceived as negative, they become an exit barrier. Bonds may change character in different situations and what has been seen as positive is later being seen as negative. The nature of the character of bonds is that bonds may be viewed or perceived differently over time. Bonds are dynamic and change over time. Dynamics refer to the change of bond strength and thus also affect relationship strength since bond strength affect relationship strength. Bonds do not have to remain at status quo but may change in strength so that for instance strong bonds become weak and weak bonds change into strong. Change refers to bonds nature to change in strength. As an example can be mentioned the fact that social relationships, technical relationships or economic relationships may change over time from being seen as positive or neutral to negative and vice versa.

The effect that bonds have on the cooperation between industrial firms is an area of the literature that required more extensive studying since gaps existed regarding the dynamics and the nature of bonds.

The background of the study is mainly in the IMP literature e.g. Håkansson (1982), Hammarkvist, Håkansson & Mattsson (1982), Johanson & Mattsson (1987), Easton (1989), Kock (1991), Easton (1992), Holmlund & Kock (1995), Kock (1995). But I also use influences from services marketing e.g. Liljander & Strandvik (1995), Storbacka, Strandvik & Grönroos (1994). In order to be able to focus on bonds as they are presented in the IMP literature, e.g. Håkansson (1982), Hammarkvist, Håkansson & Mattsson (1982) as well as in the service management approach, e.g. Liljander & Strandvik (1995) and see where they stem from, I have benefited from reading sociology and social psychology where the theories regarding networks and bonds are grounded. These are also referred to in the IMP literature. These are for instance Simmel (1906), Small (1915), Wirth (1938), Homans (1950), McCall (1970), Turner (1970) and Granovetter (1973). The ones most referred to in the IMP literature are McCall (1970) Turner (1970) and Granovetter (1973). All these studies, both those with an industrial marketing perspective and those with a service management perspective have mainly had another issue as their point of focus and therefore not focused solely on bonds. The bonds that stem from sociology have on the other hand mainly focused on relationships between people and hence social bonds. There are exceptions such as the sociologists Macaulay (1963), Palmer, Friedland & Singh (1986) or Lincoln, Gerlach & Takashi (1992) who focused on bonds between companies. But all in all there have been few contributions focusing solely on bonds. Especially in the industrial market where there still seem to exist irregularities and gaps. There are issues that could be developed further regarding the concept of bonds. A more comprehensive model can be found by combining the IMP bonds with those from service marketing.

The development leading to the increase of bond studies in management literature is that some sociologists, for instance Macaluy (1963), Palmer, Friedland & Singh (1986) or Lincoln, Gerlach & Takashi (1992) focused on bonds between companies. Then management researchers like Håkansson (1982) and Wilson and Mummalaneni (1986) started writing about bonds referring to sociologists like McCall (1970), Turner (1970) and Granovetter (1973). These sociologists mainly focused on bonds between persons and families. These management researchers paved the way for other management researchers to write about bonds. Management researchers as Håkansson (1982) made it “socially” acceptable to apply a sociologic approach to management.

Is the nature of bonds different in industrial markets compared to service markets and are bonds in the cooperation between companies different from the bonds between members of families and groups of people like in for instance (Simmel 1906) or (Small 1915)? Is there really a difference between bonds in industrial business relationships and service relationships, and are the bonds in industrial business relationships more complex, since there is more invested and adapted, etc. in business-to-business relationships? Bonds in service marketing literature such as those found by Liljander & Strandvik (1995) have evolved from the service research tradition and the service tradition has often research connotations with simpler transactions like restaurants or hairdressers. Does this mean that the bonds are not as advanced as in B2B relationships? The notion that is indirectly argued by for instance the IMP group is that the bonds in industrial relationships are more advanced or more complex than when simpler services are being sold. That means that bonds are more complex when companies cooperate

than bonds are when individuals go to the barber, etc. Investments and adaptations are for example made based on knowledge regarding future prospects and markets.

Effects of bonds

How do bonds change in a relationship over time? Episodes may affect the bonds in the relationship strengthening or weakening the bonds in the relationship or preserving status quo. Routine or critical episodes may lead to the strengthening or weakening of bonds as well as the preservation of status quo.

It is important to be able to detect which episodes weaken the relationship and which episodes contain incidents that may dissolve the relationship, and to know what kind of episodes strengthen the relationship between the buyer and the supplier. (Liljander & Strandvik 1995)

There are concrete bonds such as economic and legal bonds and more abstract bonds like psychological and social bonds. Even if a customer is dissatisfied with a supplier's performance the bonds that exist between the supplier and the customer might prevent the customer from terminating the relationship (Storbacka, Strandvik & Grönroos 1994, Liljander & Strandvik 1995). The bonds can function as an exit barrier in a negative sense and trap one of the cooperating counterparts in the relationship. It can therefore sometimes be the bond - not the satisfaction - that keeps the customer in a relationship. Legal bonds such as contractual agreements might prevent a customer from terminating a relationship even if the customer is dissatisfied with the offering he receives.

Termination of business-to-business relationships has not been extensively studied. Lately studies have been made on issues concerning the dissolution of dyads and triads in the industrial market see, for instance, Tähtinen (1998, 2001), Alajoutsjärvi & Tähtinen (1997), Halinen-Kaila & Tähtinen (1997). Roos (1998) and Roos & Strandvik (1996) have studied the termination of relationships in the consumer market, whereas Wrangle (1997) has studied the termination of relationships in the service market. There is, however, a need to study the termination of business-to-business relationships and its effect on bonds more extensively. Residual bonds are bonds that remain after the cooperation between companies has ended (Easton & Araujo 1986). Residual bonds are the remains of bonds once built up and later broken. (Easton & Araujo 1986, 1989; Havila and Wilkinson 1997; Havila 2000)

It is suggested by Easton & Araujo (1986, 1989) regarding bonds that the effect bonds have on a relationship when termination has occurred and the bonds were disrupted or when bonds have stopped a relationship from ending should need more research. Easton & Araujo (1986, 1989) argue that it is not possible to fully understand bonds without studying terminated relationships and to study the nature of bonds when the relationship ended. No studies have been made regarding the nature of bonds when the relationship has ended and there is still a gap in theory regarding that. How do bonds change before termination of a relationship and are some bonds more prone to changes than others? It is important to compare bonds in a terminated relationship to bonds in an ongoing relationship in order to see if some bonds are more important for the relationship than

others and if there are differences in how easy bonds change in order to bridge the gaps in theory.

Bonds have only been looked at as already formed bonds and bonds that are already broken or terminated. There is a need to focus on the dynamics and change of bonds over time in business relationships. From a dynamic perspective, the change of bonds in the relationship is viewed, that is when the bonds in a relationship develop and change over time (Wendelin 2000a, 2002a). How bonds change over time in an industrial business relationship is still little known in both theory and management.

Managerial interests

Bonds are important regulators of industrial business relationships. By influencing the bonds one may have possibilities to strengthen or weaken the business relationship. Strengthen the business relationship in order to increase business and revenue and weaken the relationship in order to terminate business where the revenue is low or where there may be other problems in the relationship. By measuring the strength of different bonds it can for instance be possible to strengthen weak bonds in order to strengthen the relationship.

Strengthening of bonds due to for instance single source agreements may lead to more business meaning more revenue for both parts in the cooperation. Bonds may also be preserved at status quo and that means continuation of business as usual. Weakening of bonds due to negative critical episodes may partially terminate the business relationship or terminate the business relationship completely leading to a total stop of revenues from the relationship or decreased revenue stemming from the relationship.

It should be possible to manage bonds between the cooperating firms in order to strengthen or weaken the cooperation. There may be possible differences by how easy it is to manage bonds due to bonds difference in tendency to increase and decrease in strength. Is it possible to manage bonds one-sidedly or should bonds be managed mutually? It should also be possible to create a bond audit that can be used in order to know which bonds resources should be focused on in order to increase or decrease their strength.

1.1 The purpose of the study

In the discussion it has so far been established that the nature of bonds and the change of bonds represent an important area of research both from an academic and managerial point of view. The nature of bonds and the change of bonds in business relationships are a phenomenon that has not been studied extensively. Attempts have been made but most of the studies have had other issues as the main subject and have given the role of bonds a minor role. It was on these grounds that the purpose of the study was formulated.

The purpose of the study is to build a framework for understanding the nature and change of bonds in business relationships.

I will build up a framework regarding how bonds develop and change during the lifetime of an industrial business relationship. The aim is to create a framework for bonds on a general level and not a framework for bonds in the truck producing industry.

In order to grasp the nature of bonds and see how much they have endured before they are broken it is necessary to study cases where the business relationships have been terminated or almost terminated and compare these relationships with stable business relationships. By studying how the cooperation between suppliers and buyers function it will be possible to find out what kind of bonds do exist between the companies in the study and how these bonds affect the stability of the cooperation.

1.2 Delimitations of the study

The study will be limited to study bonds at department and company levels and not go into personal levels of bonds in the companies studied. This is done in order to limit the study and make it possible to handle the amount of information gathered. A further delimitation is that the study will deal with ongoing relationships and ended relationships and will not go into issues concerning the beginning of relationships, which is how relationships evolve.

In my study, I have focused on relationships with strong cooperation between the supplier and the buyer. The validity and reliability of my study is in accordance with arms around and fair play relationships, thus cooperative relationships. Arms around relationships are relationships where there is high cooperation and low competition, and fair play relationships are relationships with high cooperation and high competition. Arms around and fair play relationships are the notion of Gadde & Håkansson (1993, 1997), Wilkinson & Young (1994) and Strandvik (1999).

I will make a retrospective analysis of change. This means that I am looking at the state of the relationship at an earlier stage, the state of the relationship at present time and then I will analyze critical incidents that have happened along the way that have affected the bonding structure of the relationship. The informants have talked about the state of the relationship earlier as well as the state of the relationship now and also about critical incidents that have formed the relationship. The study will be made with a dyadic perspective taking into account the cooperation between different cases with cooperation between a supplier and a producer of trucks. One validating case with a buyer and its cases to suppliers will also be used.

1.3 Definitions of key concepts used in the study

The key concepts used in this study are presented in table 1 below.

Table 1. Key concepts used in this study

Concept	Definition
Abstract bonds	Abstract bonds are bonds that build up in the consciousness of people when companies cooperate or when people are using a company's products or services. Abstract bonds could be categorized as perceptions.
Adaptations	I agree with Easton (1992) on adaptation, and argue that adaptation is a continuous process, which results in changes in products, or services bought or sold, in processes of manufacture or in routines and administrative procedures, and which implies resource commitment.
Bonds	I define bonds in the following manner. Bonds are the concrete or abstract technical, time, knowledge, legal, economic, geographical, social, cultural, ideological, psychological and strategic value creating, neutral or value reducing factors that form the building stones of the industrial business relationship. Bonds can be mutually or one-sidedly value creating or value reducing. The sum of the total package of bonds in a relationship equals to the total value of the relationship. Bonds are value reducing if they are causing negative effects in the relationship functioning as exit barriers or if they are weakened and lead to negative effects weakening the relationship.
Bond stability	I define stability of bonds with bonds tendency to increase or decrease in strength during the relationship.
Bond strength	Bond strength can be defined as "the capacity to withstand a disruptive force" (Easton & Araujo 1986, p. 12; Easton & Araujo 1989, p. 101; Easton 1992, p. 10). Consequently the meaning of this is that bond strength is seen as something that binds the relationship or network together and bonds may change over time. Strong bonds results in a more stable structure that withstand change easier (Easton 1992).
Change	Change is an equivalent concept to dynamics. Change refers to bonds nature to change in strength.
Commitment	I agree with Dwyer, Schurr and Oh's (1987, p.19) definition of commitment that was "an implicit or explicit pledge of relational continuity between exchange partners".
Concrete bonds	Concrete bonds are tangible bonds that are developed when companies cooperate and hence adapt to each other and invest in the cooperation.
Cooperative relationship	Relationships that are characterized by a high level of cooperation.
Core bonds	Core bonds are very important bonds that have an immense importance for the relationship and for the continuation of the relationship. Core bonds are the technical, time, economic and strategic bonds
Critical incidents	My definition on critical incidents is that they are actions or episodes, depending on the duration of the incidents that deviate from a comparison standard. The critical incidents differ from what the counterpart in the cooperation perceives as normal in either a positive or negative sense.
Dyad	I agree with Holmlund (1997, p. 334) and argue that a dyad is an "equivalent concept to a relationship, which highlights the contribution of two firms to a relationship"
Dynamics	Dynamics refer to the change of bond strength and thus also of relationship strength. Bonds do not have to remain at status quo but may change in strength so that for instance strong bonds become weak and weak bonds change into strong.
Episode	I define an episode as an event limited in time that consists of several actions. Episodes can for instance be contract negotiations, product development, and product testing or delivery process.
Investments	I agree with Johanson and Mattsson (1986) and argue that investments are

	processes in which resources are committed in order to create, build or acquire assets that can be used in the future.
Exit barriers	Exit barriers reduce the will to terminate the business relationship.
Nature	Nature refers to bonds nature. The nature is the character of the bond, how important the bond is for the relationship and is also connected to how easy the bond changes in strength.
Negative critical episode	Negative critical episodes are episodes where a negative critical incident takes place and leads to a weakening of bonds. The negative critical episode should be of such a magnitude that it is remembered and it should affect the relationship through the weakening of bonds
Negative routine episode	Negative routine episodes are an accumulation of negative issues that in the long run lead to a weakening of bonds and a possible weakening or termination of the relationship. Many small routine episodes like small mistakes happening may weaken bonds in the long run.
Partial termination	The buyer or supplier may terminate only a part of the total business relationship.
Partnership	Partnerships in industrial relationships are characterized by intense cooperation between the supplier and buyer.
Positive critical episode	Positive critical episodes are episodes where a positive critical incident takes place and leads to a strengthening of the bonds. The positive critical episode should be of such a magnitude that it is remembered and it should affect the relationship through the strengthening of bonds.
Positive routine episode	Positive routine episodes are an accumulation of positive issues that in the long run lead to a strengthening of the bonds and a strengthening of the whole relationship. Several improvements may thus strengthen the bonds between the cooperating companies in the long run.
Relationship	I agree with Holmlund (1997, p. 335) and argue that a relationship is “equivalent to a dyad, it encompasses the whole value creation system of inter-linked processes of two firms, and consists of mutually oriented interaction”.
Relationship length	Refers to the longevity of the relationship.
Relationship strength	The combination of positive, neutral and negative bonds represents the strength of a relationship. Relationship strength refers to the relationships resistance to termination.
Routine episode	Routine episodes are small issues that take place in the daily cooperation between the counterparts that will either strengthen or weaken the bonds in the cooperation or not affect the bonds at all. It might be improvements or deterioration that occur slowly over time.
Routine episode with neutral connotation	There may also be routine episodes that have a neutral connotation and they do not affect the bonds or the relationship, the bonds remain at status quo. These routine episodes do not even transform into positive or negative routine episodes over time even if repeated. Their magnitude is so small that they do not affect the bonds. It may for instance be the manner in which routine invoices are programmed and sent on-line in a functioning system for on-line contacts.
Stable bonds	Stable bonds are not as prone to increase and decrease in strength as unstable bonds. Stability in this sense could well mean that the particular bond is extremely weak and continues to be so.
Support Bonds	Support bonds are affecting the relationship, thus strengthening or weakening the relationship. Support bonds are not as important for the relationship as the core bonds but they can affect the relationship more even leading to termination when the effects of them are accumulated. Support bonds are the knowledge, legal, geographical, social, cultural, ideological and psychological bonds.
Systematic combining	Gadde and Duboi’s (1999, p. 3) definition is as follow “we have identified this method as systematic combining where framework, data collection and analysis evolve simultaneously”. I have used the same definition.
Termination	Another definition of relationship termination by (Tähtinen & Halinen-Kaila

	1997, p. 561) is “If at a certain point in time, a relationship can be considered to have ended and the parties have no mutual expectation of its future reactivation, the relationship is dissolved”. I agree with this definition and have chosen to use it.
Unstable bonds	Unstable bonds have a higher tendency to increase and decrease in strength during the relationship than stable bonds. Unstable bonds like for instance technical, time, economic and strategic bonds are bonds that are the most likely to affect relationship termination if that occurs.

2 Research process

The strategy for the research process will be to present aspects that are connected to abductive reasoning and in connection to this comments and positioning of these aspects are made.

I have used systematic combining as the method for the empirical research in this study. Systematic combining is based on the logic of the abductive approach. The structure of the research path is made in the sense that first I will present the paradigm part of the method that will be used in the study in order to fulfill my purpose. First the method of abductive reasoning and systematic combining that is based on abductive research is presented. Then theories regarding case study research will follow since I will be making a case study. These will be followed with presentations of theories regarding pre-understanding and access including a discussion regarding my own pre-understanding of the case and access to the empirical material. In connection to the pre-understanding pilot studies are presented since these have affected my pre-understanding. A discussion presenting the empirical setting of the study will follow as well, that is what kind of cases there are in the study, the size of the players on the market, the types of relationships on the market, future prospects for the market and technical solutions at work in the market. The empirical setting is followed by a discussion regarding the gathering and interpreting of empirical data where the methods used for that are explained. A section where validity and reliability are discussed follows this. This is followed by presentation of the structure of the study. The structure of the research process is presented in Figure 1 below. The numbers in the figure represents the chapter numbers for the different chapters.

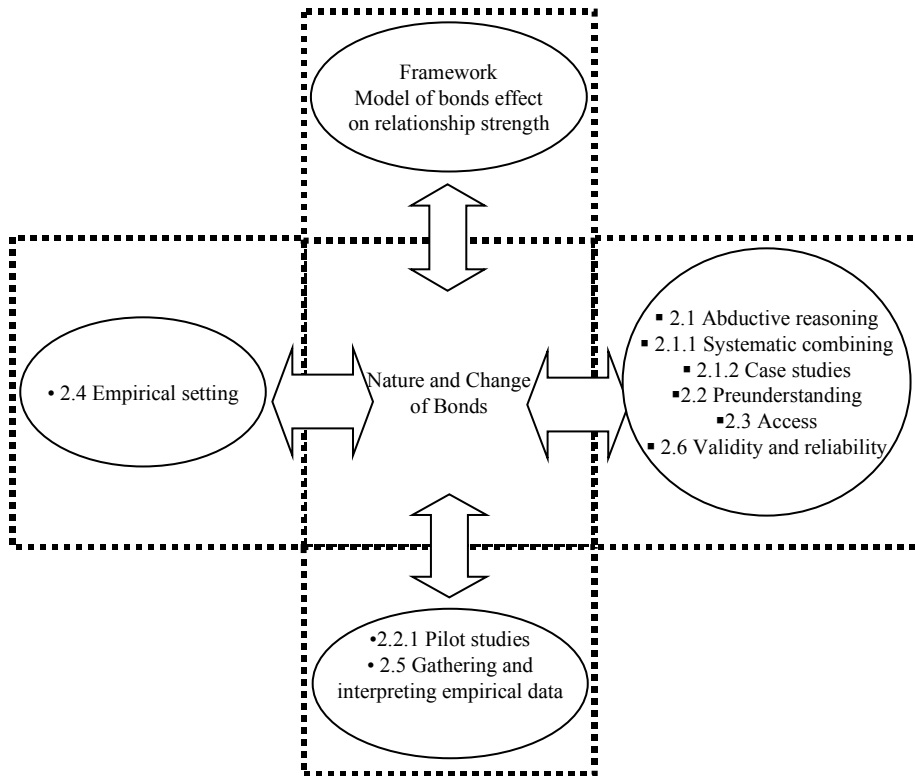


Figure 1. The structure of the research path

My framework was developed by comparing cases with stable relationships between a supplier and its customers to cases with terminated relationships between a customer and its suppliers and a supplier and some of its customers.

2.1 Abductive reasoning

Gummesson (2000) argues that all types of research become a blend of deductive and inductive research after the initial stages. Gummesson (2000) refers to this as abductive research.

Abductive research is probably in reality the most used method when it comes to case study research (Alvesson & Sköldbberg 1994; Coffey & Atkinson 1996). Researchers in most disciplines work and think abductively (Coffey & Atkinson 1996; Dubois & Gadde 2002). Abductive research means that a single case is studied using a hypothetical pattern that would explain the studied case assuming that the pattern is correct. The study should then be confirmed by new observations, i.e. new cases should be studied. The method is a combination of inductive and deductive research. During the process the empirical material is gradually developed when unanticipated empirical findings are made and the theory is refined and adjusted when used in reality. (Alvesson & Sköldbberg 1994; Dubois & Gadde 1999)

In other words the abductive approach is a repeated process of going back and forth between empirically saturated theory and theoretically saturated empirical material in order to increase understanding (Alvesson & Sköldbberg 1994; Yin 1994; Coffey &

Atkinson 1996). This means that it resembles the hermeneutic process or a hermeneutic spiral where empirical facts that we have a certain preunderstanding of are interpreted and the theory is further developed (Alvesson & Sköldbberg 1994). The hermeneutic circle may be defined in many ways such as question-answer-question, entirety-part-entirety, and pre-understanding-interpretation-understanding. The whole idea with the hermeneutic circle is that it is questioning the whole process of understanding and in particular when it comes to increasing one's own understanding to a higher level. (Helenius 1990)

According to Gummesson (2000) the hermeneutic circle should in fact be called the hermeneutic spiral because it is a process that keeps repeating itself. Each different stage of the research leads to new knowledge. That means that the level of pre-understanding rises with every stage of the research.

By focusing on the underlying patterns or causes the abductive approach is also positively differing from the less explanatory research methods inductive and deductive research. The difference in favor of the abductive method is that it also includes understanding. (Alvesson & Sköldbberg 1994)

Inductive research starts with the empirical material and the deductive research starts with theory. The abductive approach starts from empirical data just like in induction but does not dismiss theoretical assumptions and is in that case closer to the deductive approach. The analysis of the empirical material can be combined with or be preceded by studies of earlier theories in literature. These studies should be used as a source of inspiration in order to see patterns that leads to understanding, not in order to apply them mechanically to single cases. (Alvesson & Sköldbberg 1994)

There is alternation between earlier theory and empirical material during the abductive research process and this leads to both theory and empirical material being gradually redefined in the light of each other. (Alvesson & Sköldbberg 1994) The abductive research process uses existing knowledge and references in order to find theoretical patterns or deeper patterns that if they were applicable would explain the empirical inductive findings in a single case. The abductive process would then have to be validated (confirmed) by applying it to several cases. (Alvesson & Sköldbberg 1994) This is equal to Yin (1994) who argues that several cases should be studied in order to achieve saturation. Alvesson and Sköldbberg (1994) argue that the basis of abductive research is always coded empirical material rather than raw empirical material due to the fact that it is argued that the data is already structured in some aspect. This way we can also avoid a negative attitude towards inductive and deductive methodology. Inductive and deductive methodology can be seen as parts that have artificially been separated from abductive research. (Alvesson & Sköldbberg 1994)

Neither the inductive nor the abductive approaches are needed from a logical point of view, which means that there might be errors in the approaches. Due to the fact that the abductive approach lacks logical certainty and also may contain errors, several cases have to be used in order to crosscheck it. (Alvesson & Sköldbberg 1994) In my case I have crosschecked several different cases of relationships between truck producers and

suppliers in order to improve my understanding in accordance with the abductive approach.

Figure 2 below shows the inductive, deductive and abductive approach. In the abductive approach the first arrow is dotted in order to show that the abductive approach actually starts when it goes from empirical patterns towards theory. (Alvesson & Sköldberg 1994)

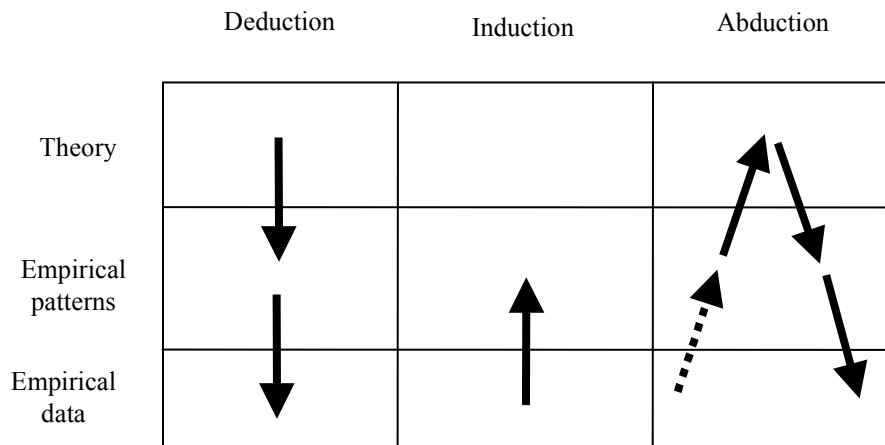


Figure 2. Deduction, induction and abduction (Alvesson & Sköldberg 1994)

2.1.1 Systematic combining

Dubois and Gadde (1999, 2002) have identified a method in which the research framework, collection of data and analysis evolve at the same time. This method is based on the logic of the abductive approach and is called systematic combining. (Dubois & Gadde 1999) Continuous movement between a model and an empirical world characterizes systematic combining (Dubois & Gadde 2002). Gadde and Dubois's (1999, p. 3) definition is as follows "we have identified this method as systematic combining where framework, data collection and analysis evolve simultaneously". I have used the same definition. The framework has a different role in the systematic combining approach in comparison with the framework's role in the pure inductive or deductive approaches. In the studies where the abductive approach is used the framework is modified due to for instance unanticipated empirical findings etc. but also due to theoretical insights gained during the process. (Dubois & Gadde 1999) Systematic combining is especially important when it comes to development of new theories since the theoretical framework, the collection of empirical material, and the analysis take place at the same time (Dubois & Gadde 2002).

The method of systematic combining takes into consideration new combinations that are developed from established theoretical concepts and totally new concepts that have been developed when the established concepts has been confronted with reality. (Dubois & Gadde 1999, 2002) It can be said that the different parts of this research method are intertwined. This is due to the fact that in the abductive approach the connection between the choice and development of theoretical models, research issues, research

design, methodology analysis and interpretation is very close. (Dubois & Gadde 1999) See Figure 3 for the intertwined parts of systematic combining.

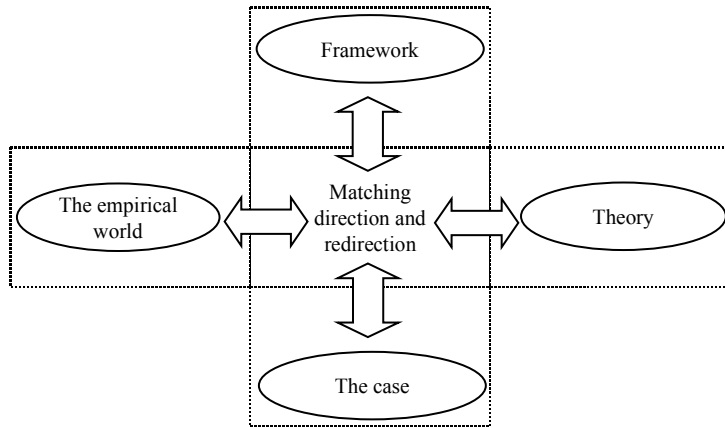


Figure 3. Systematic combining (Dubois & Gadde 2002)

Case studies as shown in Figure 3 have been described as a linear research process similar to other research conventional methods that have been developed for totally different purposes and for different contexts (Dubois & Gadde 1999, 2002). Making a case study on the relationships between suppliers and buyers in the truck producing industry differs quite much from a linear research process in for instance technology. Studying technical issues such as stress fractures in titanium differs from studying relationships. In technology earlier theory is confirmed or disconfirmed by exact testing of for instance material while studying relationships is not as linear of a research process.

The abductive approach requires an integrated approach in order to explain the characteristics and consequences of case studies. This is due to the fact that most of the problems regarding case studies seems to be the problem of handling the connection between the different elements during the work with the research. (Dubois & Gadde 1999)

The research process consists of different intertwined activities. Instead of looking at the research process as a number of phases following each other one should be going back and forth between different research activities. The theoretical framework may be affected by discoveries during the collection of data and analysis of the data. Data analysis may lead to an understanding of issues that should also be covered in the interviews etc. (Coffey & Atkinson 1996; Dubois & Gadde 1999) Going back and forth between theory and empirical material leads to a better understanding of both theory and empirical material (Coffey & Atkinson 1996; Dubois & Gadde 2002). This was also the case in my study. In the analysis of the first interviews, I noticed that I should also be using questions regarding possible termination of relationships as well as finding instances where relationships had been terminated. Theories regarding termination and

the effect termination may have on bonds were then added to the theoretic material. More interviews were conducted and analyzed and the theories were also refined. I have been going back and forth between theory, framework, my empirical cases and the analysis. Dubois and Gadde (1999) argue that a framework as well as a research question may develop late in the research process in the abductive approach.

Dubois and Gadde (1999) argue that it is important in systematic combining to use different sources of data and use data collection methods that complement each other. In my case I have used both open ended interviews and having had the possibility to look at internal documents, letters regarding the cooperation as well as technical documents.

Taking into consideration that my research is business-to-business marketing research regarding cooperation, it would be difficult to specify all the questions needed in order to cover all aspects of the cooperation without leaving anything important out. In an open ended interview it is possible to cover a big part of the cooperation and adapt to missing information by asking new questions or asking the interviewee to describe the circumstances of cooperation more thoroughly. Too specified, predetermined conceptual frameworks will restrict the researcher from what is the reality in the case study (Dubois & Gadde 1999). Strauss and Corbin (1990 p. 148) argue “There may be times when the analyst is not able immediately to find evidence of process in the data. Either it’s there, but not recognized as such; or there is insufficient data to bring it out. When this happens the analyst can turn to deductive thinking and hypothesize possible potential situations of change, then go back to the data or field situation and look for evidence to support, refute or modify that hypothesis”.

Strauss and Corbin (1990) argue that an attitude of skepticism should be maintained. Always check your questions, hypotheses or theoretical explanations about the data regardless if it stems from literature, experience or comparisons. Never accept anything as facts before it is tested in the actual data at hand. Hypotheses, categories etc. are always context specific so what works in one context does not necessary work in another context, i.e. it may fit the study from where it is taken but might not fit the study at hand. (Strauss & Corbin 1990)

One important aspect of systematic combining is the notion of active and passive data. Passive data appears when the researcher has set out to find answers to his questions. Active data on the other hand has to do with discovery, it appears when the work progresses. Interviews that are too structured will hinder the researcher from discovering something unexpected while interviews that are too loosely structured will perhaps cause problems with too much data. (Dubois & Gadde 1999) It is a tightrope to decide how structured the interviews should be. In my case the questions of the interviews were semi structured in order to get the interviewee to answer the questions as completely as possible. The interview was supposed to be more of an open discussion instead of a tightly structured interview. During the interview I use the so called funnel technique which means that I put forward the big open questions at first and then proceed with the more specific questions (Patel & Davidson 1994).

In the abductive approach it may be necessary to go back and ask interviewees new questions when new questions arise. The general understanding of the phenomenon is increased every time new data is gathered. (Dubois & Gadde 1999) This has also

happened in my study. Some of the interviewees have been interviewed as many times as three in order to increase my understanding of the case at hand. Questions have arisen when analyzing the data. All interviewees have welcomed me to approach them with additional questions during the research process. My access to data has been good.

The researcher should not be limited too much to previously developed theory in the systematic combining approach. Theory is developed over time. (Dubois & Gadde 2002) The theory is developed rather than generated in the systematic combining approach. It is more about refining existing theories than developing new theories. The framework is modified with time in studies with an abductive approach, partly due to empirical findings but also due to theoretical findings during the process. (Dubois & Gadde 2002)

Gummesson (2000 p. 65) argues “It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories instead of theories to suit facts”. I have tried to modify the theories so that they should suit the facts; this is possible due to the use of the abductive approach. Meaning that by going back and forth between the empirical and theoretical material it is possible to add theoretical material that is missing and thereby get a more complete theoretical part in the study.

One problem regarding the abductive approach is the structuring of the final report. This is due to the fact that putting the pieces together in some sequence and getting a structure into the report after going back and forth between framework, empirical material and analysis is difficult. (Dubois & Gadde 1999) I have solved this problem by deciding on a structure for the report in the beginning and by working with four different documents thus introduction and methodology, theory, empirical material as well as summary and contribution, thus keeping the inner structure of the report intact.

Even if most research in many fields often seems to follow an abductive approach the research report itself is structured in a deductive manner. The process is thought of as being linear, focused and problem centered. A problem is identified, literature is read, research questions are made up, a proper method is found, empirical cases are chosen, analysis is done and results, conclusions and implications are made. In reality all these parts have emerged from the process of the study that has been a confused mixture of everything. (Dubois & Gadde 1999) In studies using an abductive approach, the framework itself might be as much a result as the results in the end of the study. If the framework is presented in the beginning of the study then it usually is not showing the true abductive approach that has been taking place in the study. (Dubois & Gadde 1999) Dubois and Gadde (1999) also argue that since references to case description and analysis are needed before the method used in the study can be described, it is difficult to describe the method in an early stage of the process.

2.1.2 Case study approach

The case study approach is used in different areas such as sociology, psychology, history, anthropology, economics, management science, and political science (Yin 1994). The case study approach has not always been seen as a proper scientific method since the results of a case study could not be used for statistical generalization. (Yin

1994) According to Weick (1979) case studies were seen as being too situation specific and therefore not usable for generalization. Later on it was seen as a strength that case studies were situation specific. In order to better understand the interaction between the phenomenon studied and its context a case study method should be used. (Dubois & Gadde 1999)

Yin (1994, p. 13) defines a case study in the following way. “A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”.

Easton (1995, p. 388) has argued, “case studies are a powerful research method and one particularly suited to the study of industrial networks”. However in my research I only study several dyads instead of going into the whole dynamics of the immense networks surrounding these dyads in the truck producing industry. I still agree with what Easton (1995) argues.

Weaknesses in case study research

Easton (1995 p. 379) describes three types of weaknesses in case study research. “Some case studies are only rich descriptions of events from which the reader is expected to come to their own conclusions. Others are really examples of data that appear to provide, at best, partial support of particular theories or frameworks and are used in a quasi-deductive theory testing way. A third kind employs “multiple case” in a way that suggests that they are relying on some notion of statistical generalization”.

Silverman (1998a) has also noted the first of the problems regarding rich descriptions. Problems can for instance occur when a researcher presents exact quotations of what each informant has said. This gives the research an anecdotal character and is regarded to nothing more than journalism instead of research. (Silverman 1998a)

According to Helenius (1990) it is very important that the interpreter tries to put himself into the case that he is studying and uses the personal knowledge that he has acquired from his own life. This has certainly been the fact in my own case as is shown in the chapter regarding pre-understanding that follows. The interpreter should reflect over the object he is interpreting. If the researcher would only register the information given it would be journalism only. The texts written would be just like the text in a newspaper. (Helenius 1990)

Yin (1994) argues that a problem with case studies may be that the case study researcher has been sloppy and has let biased views grounded on uncertain evidence affect the findings and conclusions of the case study. This has not been the case in my study since I have used several cases backed up by a validating case and all cases have confirmed the findings of the study.

Multiple case studies

Problems with multiple case studies have been argued that the researcher might think that they have some sort of statistical significance in the material due to the fact that they have made several case studies. The advantages that are achieved by adding more

cases might however have disadvantages as a trade-off. (Easton 1995; Dubois & Gadde 1999) Easton (1995 p. 382) argues, “Researching greater number of cases, with the same resources, means more breath but less depth”. Dubois and Gadde (1999) argue that in order to understand the complexity of industrial phenomena depth should be more important than how many cases the study should contain. I have had the possibility to avoid the “more breath but less depth” problem since I have had time to analyze all of the interviews thoroughly and found that I have benefited from having several cases in my study.

2.2 Pre-understanding

Pre-understanding is vital in order to understand the problem studied. Pre-understanding refers to issues like knowledge, experience and insights that the researcher has before he starts researching a certain phenomenon (Gummesson 2000). Understanding on the other hand is the researchers improved knowledge regarding the research problem during the research process (Gummesson 2000).

It is very difficult to separate pre-understanding from understanding as well as it is difficult to separate it from the interpretation that gives us the understanding. Everything we understand is due to our own qualifications or knowledge. (Helenius 1990) The pre-understanding is also of a historical kind acquired by learning over time according to Gadamer (1975). (Helenius 1990)

According to Gummesson (2000), there are two different types of pre-understanding. Personal experience from both the private and professional area leads to firsthand pre-understanding, as shown on the left side in Figure 4 below, while secondhand pre-understanding is formed through intermediaries as shown on the right side.

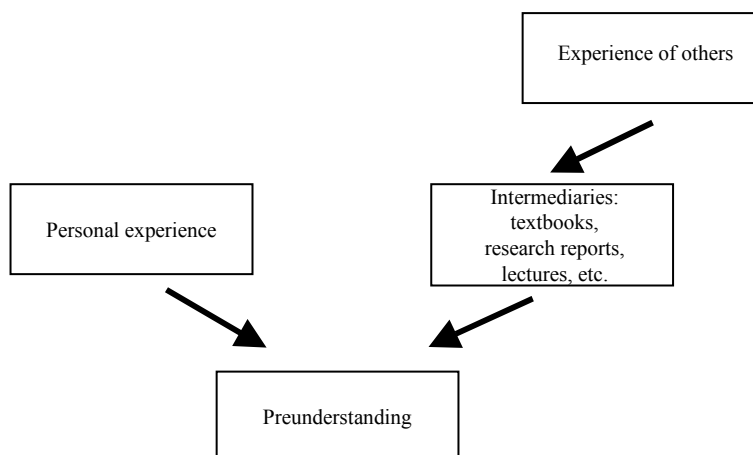


Figure 4. Sources for pre-understanding Gummesson (2000)

I had a good pre-understanding of the industry studied and this was a good starting point in order to understand the informants in the study. I have earlier been reading about the truck producing industry and done some consulting assignments for a supplier to the

truck producing industry. It can also be mentioned that I come from a family for which heavy trucks has been a natural part of life. The family's trucking business has been the main source of income for the family for over 50 years. So I have more or less lived in or close to trucks my whole life. I have read about trucks and the production of them, maintained them, traveled in them and driven them. My technical knowledge regarding engines and trucks is on quite a high level for one who is not an engineer and that has also helped me when I have been talking to engineers in the supplying and buying companies. My technical knowledge regarding engines has to do with the maintenance work I have done but also with the period I worked as a spare parts manager in the Asian division of Wärtsilä Diesels Marine engine division. (Wärtsilä Diesel, later Wärtsilä NSD (New Sulzer Diesel). At present Wärtsilä is the biggest producer of marine engines for ships in the world.)

During my time at Wärtsilä Diesel I learned how the processes in a engine producing company worked and learned a lot about lead times, shortages, shipping of products and buyer response and buyers preferences vis-à-vis speedy deliveries, technical issues and prices. At the same time there could be issues with the suppliers like late deliveries that would slow down the production process.

My personal knowledge and experience have helped me when I have collected and analyzed the data. Gummesson (2000) also argues that a researcher must be prepared to change his view of the world if the reality requires him to in order to come up with new concepts and models.

2.2.1 Pilot studies

In an earlier study (Wendelin 1998a) I studied bonds and relationship strength between a supplier and two buyers in two dyads. This was done in the truck producing industry in Europe and functioned as one of my pilot studies for the focal study. The second pilot study (Wendelin 1998b) also focused on relationship strength and bonds in the cooperation between a supplier and two of its buyers. This study was made as consultancy work. These studies increased my both my theoretical and empirical pre-understanding. The main focus of both studies was on bonds. In these papers, I was using a model produced by Holmlund (1996, 1997) used for positioning the concept of perceived relationship quality. Findings in both papers showed that bonds are important building blocks of business relationships and that the bonds affect the business relationships. The excess material that was not used in the first pilot study showed that bonds changed in strength during the business relationship and that sparked my interest for a study on the change of bonds in industrial business relationships.

The material from the pilot studies is to some extent identical with the material in this study. The same material and the excess material that was gathered in the pilot studies were gathered with the aim for further studies on bonds. The second pilot study that was made as consultancy work was made with the full intention on developing the material into a postgraduate study. The focus in the pilot studies was on stable relationships. The material including the excess material that was not utilized in the pilot studies was further elaborated on in this study and more thoroughly analyzed. Additional interviews

regarding terminated relationships and change of the relationship were made for this study.

I have been fortunate in that sense that the company first studied was the supplier where I made my first study (Wendelin 1998a). The supplier had an interest in my study in that they could use my results in order to improve their performance towards their customers.

2.3 Access

Access is the researchers' biggest problem (Gummesson 2000). "Access refers to the ability to get close to the object of study, to really be able to find out what is happening" (Gummesson 2000, p.25). That means that in order to get good access to information regarding the studied phenomenon one has to get access to the people controlling the information regarding the studied issue. One has in my case to get access to documents regarding the cooperation; possibilities to interview the right people and the experience to know which the right people are or at least be helped with finding the right people.

Gummesson (2000) talks about physical and mental access. Physical access is the possibility to access information continuously and not only initially. In this sense I have been fortunate since most of the interviewees have been very cooperative.

Mental access is the importance of understanding what is taking place in the organization, how one should get contact persons to describe it and how it should be described. (Gummesson 2000) My mental access has both to do with the fact that chose the possibility to conduct my study in an industry for which I have a good pre-understanding.

I have also had earlier contact with the supplier studied. The buyers were interested in the study since they could voice their opinion and they perceived that by being heard and having the opportunity to complain or give good feedback the level of service toward the buyers could improve. I was helped by the management of the studied companies in finding the right interviewees for the issue I was studying, people spoke openly and I was very well welcomed at the big truck producers' factories. I was shown around the assembly lines, warehouses, factory showrooms, lunching together with contact persons similarly as having free discussions with contact persons about cooperation, assembly, their view on social interaction as well as about personal interests like football, sailing etc. The same pattern followed on every occasion where I conducted interviews. I was always helped by senior managers to find the right interviewees for studying the issue at hand. The managers always found it important that I would get interviewees from all contact groups that were familiar with the particular cooperation in order to really find out the facts regarding the cooperation.

Gummesson (2000) seems to see "gatekeepers" and "informants" (Gummesson 2000 p.32) as two separate roles. Gatekeepers can open doors for you and informants can help you in finding the right people to interview. I noticed that in my cases the role of the gatekeeper and informant was usually a combined role of some contact person at management level.

The study is based on personal interviews with key persons in for instance logistics, purchase, sales, product development and quality assurance in the companies. I have been interviewing several interviewees in order to get saturation of the facts. When the results of the interviews are similar or show similarity then the results have high reliability (Silverman 1993; Yin 1994; Arbnor & Bjerke 1994; Gummesson 2000).

There might be problems with only interviewing people on a management level. It is a good approach if the companies in the study are very small companies where the managing director can control all that is happening in the company. Management level in big corporations is usually not involved in the day-to-day matters in the cooperation between buyers and suppliers. The important thing is to interview people who know about the cooperation and have contact with each other. It is less beneficial to interview somebody high up in the hierarchy in an organization with five levels because if you interview for instance the managing director he might not know all aspects of the cooperation. The key, however, is to interview the people cooperating on a more frequent basis.

2.4 The empirical setting

The truck producing industry and the suppliers to the truck producing industry usually has quite long relationships. Relationships usually last at least 5-7 years, which is the usual lifetime of a certain model of trucks according to informants at Suspension-Supply and GigaTruck. After that a new model of trucks is released on the market and the supplier might change. Relationships that have lasted 20 or 40 years are however not unusual in the industry according to informants at the case companies.

The names of the players in the heavy truck producing market globally in order of importance and size in 2001 were; the Daimler Chrysler Group (that manufactured 68000 Mercedes trucks, 45000 Freightliner, 14000 Sterling and 2000 Western Star trucks), followed by Volvo Group (61000 Volvo, 33000 Renault and 22000 Mack). Paccar Group (18000 Kenworth, 15000 Peterbilt, 24000 DAF and 1000 Foden). M.A.N. manufactured 46000 trucks, Scania 43000, Iveco 34000, International 24000, Hino 12000, Nissan Diesel 9000 and Mitsubishi 9000. (Laurell 2002)

The following is some examples on financial information of some of the players in the truck producing industry. The net sales in 2003 for Volvo Group amounted to 174,768 M (SEK), Scania 50,581 M (SEK), DaimlerChrysler Group 136,437 M (Euro). Earnings per share for the three example companies Volvo Group 0,70 (SEK)/share, Scania 15,2 (SEK)/share and DaimlerChrysler 0,44 (Euro)/share. (Volvo.com; Scania.com; DaimlerChrysler.com)

In 1965 there were still 40 manufacturers of trucks in Western Europe. In 2001 there were 7 left. These were Mercedes, Volvo/RVI, Scania, Iveco, M.A.N./ERF, Paccar/DAF and Sisu. Brands such as Bedford, Magirus, Krupp, Commer, Ford, Berliet, Pegaso, Dodge and many more have ceased to exist. There are several reasons why the number of truck producers has decreased in Europe and elsewhere. One reason is that small producers have been forced to sell their plants to bigger producers due to lack of

necessary capital to invest in product development due to the small number of trucks produced. Another reason is that new demands, regarding for instance environmental awareness put forward by the authorities, has put a strain on the engine producing departments of the factories. The costs for the development of the Euro 3 (Euro 3 was a more environmentally friendly engine according to the tightened Euro 3 standard) engine were billions of Euros for the truck producing factories. The upcoming Euro 4 and 5 engines will decrease the number of manufacturers even further. A small producer will not survive in the business without the help of larger producers. (Laurell 2002)

Most of the suppliers that supply products to the truck producing industry supply products to more than one producer of trucks. Information regarding the suppliers flows between the truck producers and the other suppliers at a rapid pace. If a supplier has made mistakes in the relationship with one of the truck producers then the other truck producers will know that. If one supplier has for instance had problems with product quality or other similar problems then that supplier will have problems with finding new customers according to informants at the case companies.

Since the market is restricted to a few large customers, most of the people dealing with each other know each other quite good or via acquaintances. This is due to the fact that for instance suspension components such as springs and stabilizers have their own buyers at the large corporations and there are not so many suppliers worldwide. The number of customers is decreasing due to company mergers. At present time the number of suppliers is also decreasing due to a change in strategies, the truck producers are striving to reduce their number of suppliers. Single Global Sourcing and single European Sourcing are issues that most truck producers have focused on the last few years, thereby reducing the number of suppliers according to informants at the case companies.

Investments are usually made in logistic systems and in development of products on both the supplier's and the customer's side. The investments are sometimes company specific and would be lost if the relationship would be terminated. Investments in logistic systems are necessary since most products are bought in relatively small batches or per sequence deliveries. Systems, for instance DELINS (delivery instructions), AVIEXP on-line deliveries of avis, and INVOIC a system for invoices are just some examples on EDI systems that are used to make the flow of information as fast as possible. The warehouses are quite small and the delivery instructions are sent to the supplier's logistics offices every night. The products are then delivered using a JIT system or in fact more in the manner of a vertical supply alliance where the size of the warehouses is smaller (Young, Gilbert & McIntyre 1996).

Vertical supply alliances are also more informal than JIT agreements and normal delivery agreements. The solidarity in vertical supply alliances is bigger than in JIT agreements, this means that the cooperation in a vertical supply alliance is more branded by partnership. (Boyle, Dwyer, Robicheaux & Simpson 1992)

Knowledge regarding the manufacturing of products that the supplier has is very highly regarded in the customer firms since the customer usually wants to outsource everything that is not absolutely necessary to have in house. If a relationship would be terminated

the knowledge that the supplier has would be lost and the customers would have to acquire the knowledge themselves or buy it from outside. The risk with acquiring new knowledge is that the new knowledge acquired may not always be of the same quality as the old knowledge but may be inferior to it.

The relationships in question are not arms-length relationships but relationships built on partnerships and intense cooperation between suppliers and customers. The relationships are cooperative. The relationships are also 1st tier relationships. There is a direct connection between supplier and buyer without any intermediaries in the case companies. For 1st tier relationships see e.g. Lambert, Cooper and Pagh (1998). The recommendations for arms-length relationships of earlier days seem to have been abandoned in favor of partnering with suppliers at current time (Araujo, Dubois & Gadde 1999). The value of the suspension components on one truck is about 10 % of the value of the whole truck. The suspension components are considered to be one of the most valuable parts when building a truck. Other valuable parts are the engine, transmission, cab, chassis and wheels. This makes a supplier of suspension components a fairly important supplier for the truck producing industry.

2.5 Gathering and interpreting empirical data

The gathering and interpretation of the data will be described in the next section.

2.5.1 Selection of cases

Yin (1994) argues that it is important to select the right case companies. Silverman (1998a) argues that by making sure that the cases are representative for the phenomenon studied the validity of the study is improved. The selection of cases was made based on access and availability as well as importance for the study. All four cases were of different nature and their outcomes were different. The findings are based on four case studies between a supplier of suspension components to the truck producing industry and four truck producing buyers of whom three are regarded as major players in the business. A case study with a major producer of trucks concerning its terminated relationships with suppliers and reasons for the termination has also been done.

I have crosschecked several different cases of relationships between producers of trucks and suppliers against each other in order to improve my understanding in accordance with the abductive approach. The names of all the buyers and the suppliers in the study have been disguised due to the wishes of the informants and the companies. The first four cases were chosen due to access and availability and all cases involved cooperation with the same supplier named Suspension-Supply. During discussions with the supplier I noticed four different cases that had different outcomes existed between the supplier and four of its buyers. In one case 1 involving TeraTruck there had been a total termination of the relationship. In case 2 involving GigaTruck there had been a partial termination of the relationship. In case 3 involving BigTruck negative routine episodes had taken place. Finally in case 4 involving KiloTruck positive critical episodes had taken place and strengthened the relationship. I chose these cases since I wanted to see

if there were differences in the way that bonds changed in these cases and also how termination affected bonds.

It was necessary to include a supplier that had encountered relationship termination in the cooperation with some of the truck-producing firms or to include a truck-producing firm that had terminated its relationship with a supplier. This was necessary in order to see how the bonds had affected the relationship between the firms and how weak or strong the bonds were when the relationship was terminated.

The first four cases including TeraTruck, GigaTruck, BigTruck and KiloTruck were in-depth cases where the different bonds were analyzed in depth. A last validating case involving the buyer GreatTruck was chosen due to access to the buyer. The difference with the last case was also that it only took into account the buyer's view on the relationship. GreatTruck was a different case viewing a large producer of trucks and its view on cooperation with its suppliers. The case GreatTruck was then used as a validating short last case in order to reaffirm the findings from the first four cases involving Suspension-Supply and to test if the framework created could be accepted. The most common reasons for termination are mentioned in the GreatTruck case as well as short examples of routine, negative and positive episodes leading to weakening or strengthening of bonds was also included. The case was analyzed by systematically trying to find all aspects of the framework.

2.5.2 Gathering of empirical data

The findings are based on four case studies between a supplier of suspension components to the truck producing industry and four truck producing customers of whom three are regarded to be major players in the business. A case study with a major producer of trucks concerning its terminated relationships with suppliers and reasons for the termination has also been done. 37 semi-structured qualitative interviews have been done, each interview lasting an average of 2 hours. Interviews with key persons at the supplier Suspension-Supply and at customers such as TeraTruck, GigaTruck, KiloTruck and BigTruck have been made. Interviews have been made with key persons from logistics, quality assurance, product development, sales, buyers and other people involved in the cooperation between the companies, see Appendix B. These were the key informants in this study. The study is based on personal interviews. Documents covering the cooperation between Suspension-Supply, GigaTruck and KiloTruck have also been studied. Information regarding termination of relationships from the buyer's point of view was also collected at the office at GreatTruck, which is a large producer of trucks. For informants at GreatTruck see Appendix B.

The questions of the interviews (for questions see Appendices C and D) were semi structured in order to get the interviewee to answer the questions as completely as possible. The interview was intended to be more of an open discussion instead of a tightly structured interview. During the interview I use the funnel technique (Patel & Davidson 1994). That meant that I put forward the big open questions at first and then proceeded with the more specific questions if these were not covered by the discussion around the big open questions. The interviews were taped and transcribed in order to get

as much use of them as possible. Taping and transcribing data and using field notes helped to achieve validity in qualitative research (Silverman 1998a). I have also had access to internal and external documents regarding the cooperation between Suspension-Supply and its buyers GigaTruck and KiloTruck. The documents are confidential and will therefore be mentioned under disguised names in the reference list.

Strauss and Corbin (1990) argue that in the beginning of a study it is best to transcribe everything in an interview in other cases important data may be missing later. Eisenhardt (1989) argues that one should be writing down everything and all impressions. This was done in the analysis of the cases. I have transcribed all the interviews in order to hear differences in voice levels and in order to remember the interviews well. I have also made field notes of the reactions of people.

I have been conducting all the interviews myself at the truck producers and supplier plants in Europe. The interviews were made in English, German, Swedish and Finnish. The interviews were made between the 22.10.1996 and the 24.4.2001. The interviews lasted between 35 minutes and 3 hours, the average time being 2 hours. Most of the interviews were taped in order to get as much use of them as possible while some were not taped due to confidentiality matters.

The interviews were made in the office of every interviewee or in meeting rooms especially booked for the interviews. In all interviews the interviewer and the interviewee could close the door behind them in order to avoid disturbances from the surroundings. A time of two hours per interview was booked for the interviews with the decision that they could last a little longer if necessary. The interviewees in every company had a positive attitude towards being interviewed.

The fact that not all interviews were made in the interviewer's mother tongue may be seen as a problem since it could have been argued that some information would be lost due to this. But this has in fact not constituted a problem. Also in Germany an agent was present during the interviews in order to act as a translator if needed. It was however not needed. A certain difference between hierarchy and position in the companies was noted. Usually people with higher ranks in the organization were more sincere and were more specific and open when answering the questions that were by some seen as confidential. One could say that the higher the rank the more openly the confidential questions were answered.

During the interviews I have made field notes regarding for instance the reactions of the interviewee, see for instance Alasuutari (1995) as well as made notes regarding issues where I had to turn off the tape recorder due to confidentiality. I transcribed all of the interviews myself even if it took a considerable amount of energy and time, as I perceived it to be important to do the transcriptions myself. When doing the transcriptions I could hear from the voice level of the person and also from their reaction time their reactions to the questions, and also being able to compare this to my field notes was important. Dubois and Gadde (1999) argue that transcribing should be selective when theories develop; their point is that having over 1000 pages of transcribed material can be a problem regarding the analysis of the material. This has

however not constituted a problem when I have analyzed the material. The pros have outweighed the cons of transcribing the material.

Timeframe for the interviews

The first set of interviews was made with personnel from Suspension-Supply, case 2 GigaTruck, case 4 KiloTruck and case 3 BigTruck in 1996 and 1997. A second set of interviews was made with personnel from Suspension-Supply in 2001 regarding termination or partial termination of the relationships and the change of the relationships between 1996 and 2001. In the interviews regarding termination of relationships case 1 that is TeraTruck was added but it was not possible to make interviews regarding termination at case 1 that is named TeraTruck. It was also not possible to interview case 2 with GigaTruck, case 4 with KiloTruck and case 3 with BigTruck's factories since Suspension-Supply wished that I not interview them. I found that interviews regarding termination of relationships with two counterparts answering the questions would be difficult to arrange since there seemed to be a strong wish to avoid situations where both counterparts would take part. There was also a wish on Suspension-Supply's behalf that I should not mention their name when I tried to book interviews with truck producers regarding termination or partial termination of interviews since they saw this as having their name mentioned in a sense that could create negative connotations. The same experience happened when I had managed to book interviews at GreatTruck. But the difference was that no names of the suppliers were allowed to be mentioned and no interviews with cases where I could have made interviews with the supplier as well were given.

I however got much information regarding when there would be a risk that the relationship to the supplier would deteriorate or even break when I made the first set of interviews with Suspension-Supply's buyers in 1996/1997. I also got information regarding what the reasons for the problems could be and which issues were seen as important for the relationship. The interviewed buyers were as follows: in case 2 GigaTruck, in case 4 KiloTruck and in case 3 BigTruck.

I could then in later interviews with Suspension-Supply find out if the relationships had developed in a way that was mentioned as being positive, as for instance more technical cooperation, better EDI systems, more revenues etc. in the cooperation. The relationship between TeraTruck in case 1 and Suspension-Supply and the development and termination of the relationship was based totally on interviews with informants from Suspension-Supply in 2001. The view of the termination or the partial termination from the supplier's side also gave clues on how the relationship was valued and how for instance the time bonds had developed in times before the termination of the relationship.

I made interviews regarding termination of relationships with informants from the validating case GreatTruck in 2001, in order to get a buyer's view on issues leading to termination. In these interviews I got several stories regarding episodes that had led to the termination of relationships and also episodes that were critical but did not lead to termination of the relationships due to strong bonds functioning as exit barriers in the relationships. The strategy for analysis is presented in Appendix A.

2.6 Validity, Reliability and Generalizability of the Study

It is essential to give definitions on what validity and reliability mean. Usually when talking about validity and reliability quantitative researchers usually tends to think that only quantitative studies are reliable, that is when it is possible to exactly measure deviations, etc.

2.6.1 Validity

Validity is whether we are measuring what we want to measure, the validity of a test. Regarding a test or instrument for measurement it can be questioned whether an instrument or test measures what we want to be measured (Arbnor & Bjerke 1998). Regarding a result from a test it can also be questioned: Does this test really measure what we want to measure, is the result in fact true, does the result reflect the truth (Arbnor & Bjerke 1998). According to King (1994), validity in quantitative research is whether an instrument or a test actually measures what it claims to measure. In qualitative research a study is valid if it truly examines the topic, which it claims to have examined. In its essence validity is the same in both the quantitative and qualitative research traditions. The ideas regarding validity differ in the different research traditions in that way that in quantitative methods validity is focused on methods for instance the validity of the rating scales in a survey. In qualitative research, the main concern is for the validity of interpretations for instance whether a researcher's conclusion that x is the main theme to emerge from an interview is valid. Taping and transcribing data and using field notes help to achieve validity in qualitative research (Silverman 1998a).

Kvale (1983) argues that it is an advantage if different interviewers using the same interview guide vary in their sensitivity to particular themes or issues, as this will give a broader and richer overall picture of the topic. This does not however mean that the issue of possible researcher bias can be ignored when analyzing qualitative interviews. According to King (1994) a study is valid in qualitative research if it truly examines the topic, which it claims to have examined. According to Silverman (1998a) problems occur when researchers just show extracts of their studies without doing any analysis. (Silverman 1998a).

There are deviant cases provided in my study and field notes are made available to the reader. Field-notes can be provided as a reliability check according to Kirk and Miller (1987). Readers should be presented to the circumstances affecting the interview just as a researcher in a chemical laboratory makes his notes for every experiment. There are many minimal requirements for field-notes, field entries must for instance be legible and chronologically ordered and they must differentiate among categories of data.

Some of the defects in qualitative research studies are according to Silverman (1998a) atheoretical problems, which mean that categories are usually participants own or are ad hoc and common sense or normative concepts are sometimes accepted unproblematically. Data may be unreliable due to that only tidied up extracts of the data are given, no interview questions, etc., the extracts of data are sometimes replaced by

researchers summaries. The validity of the analysis may also be doubtful because there may be no deviant cases and some accounts may be retrospective.

The fact that I have chosen the truck producing industry is also a question of validity. The aim is to create a framework for bonds on a general level and not a framework for bonds in the truck producing industry. Is the truck producing industry then a great choice from a validity point of view? The truck producing industry, as well as the car producing industry, are mature businesses but still businesses where innovations regarding for instance product development as well as development of quality measures and standards are developed. Standards like QS 9000 that will change into TS 16949 in the near future have been developed in the automotive industry.

The truck producing industry is a combination of a mature business combined and an innovative atmosphere. The truck producing industry could be described as a combination between an old and very mature industry like the steel manufacturing industry and a very innovative industry like the telecommunications industry. Both industries are actually coexisting in this industry since truck assemblers both have cooperation with the steel manufacturing industry and the telecommunications and electronics industry. I consider that the truck producing industry was a good industry to use in order to create a framework for bonds.

Another issue connected to validity is pre-understanding and access. Pre-understanding is vital in order to understand the problem studied. Pre-understanding refers to issues like knowledge, experience and insights that the researcher has before he starts researching a certain problem (Gummesson 2000). My pre-understanding and access has been excellent as was mentioned earlier in chapters 2.2 and 2.3.

The validity and reliability of my study is in accordance with cooperative relationships. This means that the bonds I am focusing on may be different from the bonds one would see in a situation in which there would low levels of cooperation. As a result of this one can draw the conclusion that these bonds may not cover all different situations that exist since they are bonds that are limited by the fact that they have developed in the relationships with close cooperation.

2.6.2 Reliability

Reliability is whether our measurements are accurate. Reliability is according to (Yin 1987) “demonstrating that the operations of a study such as the data collections procedure can be repeated, with the same results”. The results of a test are reliable if the results stay unchanged when new measurements are done (Arbnor & Bjerke 1998). In quantitative research, the measures used will produce the same results when applied to the same subjects by different researchers. “The same yardstick applied to the same individual or object in the same way should yield the same value from moment to moment, provided that the thing measured has itself not changed in the meantime”(King in Cassell and Symon 1994).

When the results of the interviews are similar or show similarity then the results have high reliability (Silverman 1993; Yin 1994; Arbnor & Bjerke 1994; Gummesson 2000). Of course someone may argue that they have interviewed the same person four times but getting the same results out of the same person several times would just be repetition and not saturation. Silverman (1998a; 1998b) also argues that one can aim at reliability by systematically transcribing data in case studies where there are lots of data. This has been the fact in my case.

According to King (1994) reliability in qualitative research, that is when researchers try to describe and understand how people make sense of the world around them, does not require researchers to strive for objectivity nor inter-subjectivity and distance themselves from research participants. If the researchers would distance themselves from research participants in this case employees in the truck producing industry it would make good qualitative research impossible as the interviewers sensitivity to subjective aspects of his relationship with the interviewee is an essential part of the research process.

2.6.3 Generalizability

Generalizability has to do with the areas to which the results of the study apply (Gummesson 2000). The results of a study should apply to other cases as well (Alasuutari 1995; Coffey and Atkinson 1996; Silverman 1993). It has been argued that statistical generalization cannot be made from case studies Gummesson (2000). For instance Arbnor and Bjerke (1994) argue that generalizations are more valid and precise in the technical or natural sciences where it is possible to measure issues more thoroughly. Alasuutari (1995) argues that generalization as a word should be reserved for surveys only and word as “relating” could be a word used in case studies since “the researcher should show how the analysis relates to things beyond the material at hand”. (Alsuutari 1995, p. 156) Gummesson (2000) argues that generalization in case studies should be approached differently than generalization in quantitative studies. Generalization is closely related to validity and Gummesson (2000) finds that the traditional demand for generalizability is less important in case studies.

In qualitative research, it is important to discuss to what extent the researcher argue that the research made has general validity beyond the studied case or cases (Alasuutari 1995). Generalizability and the valuing of generalizability is not a single phase in the research process but should be viewed during the whole research process. (Alasuutari 1995) This has been the case for me during the whole research process. Several cases from the truck producing industry have been applied and other industries have also been taken into consideration in order to see the potential of generalization of the results. This way of dealing with issues avoiding operating with individual, isolated cases is one of the manners recommended by Alasuutari (1995) in order to solve the problem of generalizability. It is the combining of raw observations into meta-observations. Alasuutari (1995, p. 147-148) argues “When several different versions are collected of the same theme and the object of the study is defined at a metalevel so that it covers the variation amongst the cases included in the material, then we are not longer operating with isolated, individual cases. In the combining of raw observations into meta-observations you do not even need to be restricted to observations and cases found in the research material at hand. Any typology compiled on the basis of

the cases included in the material will be completed by a way of logical interference to cover all imaginable versions and variations – including those that are not presented in the material”. This has been the case in my study as described earlier.

From a qualitative point of view, it should be possible to generalize the results of the study. The results of the study regarding bonds and the change of bonds can be used in industrial marketing and management, business-to-business, business to consumer, service management, and relationship management. The choice of the different cases and the validating case with regard to the research questions and theoretical framework as well as the consideration of other imaginable versions and variations has resulted in the fact that the generalizability of the study is high. The study is however not generalizable to sociology or social psychology since relationships such as marriages differs from the studied business relationships.

2.7 Structure of the Study

My preliminary framework showing my initial understanding is presented in Figure 5 below. I have focused more on the bonds than what has been done in Figure 5 that was a model produced by Holmlund (1996, 1997) for studying relationship quality.

I have chosen bonds as a perspective on business relationships. I will analyze industrial business relationships by analyzing the bonds in these relationships. Other perspectives on business relationship have for instance been relationship quality or power dependence perspectives. Earlier the research of bonds has been successful in finding different bonds in relationships and residual bonds but how bonds change over time is an issue where there is a gap in the theory.

I have focused more on the bonds than what has been done in a comprehensive model of industrial relationships with a relationship quality perspective as showed in Figure 5 that was a model produced by Holmlund (1996, 1997) used for positioning the concept of perceived relationship quality. In Wendelin (1998a, 1998b) I have found that the bonds between the companies in the cooperation play an important role when it comes to relationship strength. Bonds are the main focus of the study since it is an area of the model that would require more extensive study. Several studies regarding value and quality already exist. In this study if positioning the bonds perspective in relationship to Holmlunds (1996, 1997) study I am primarily focusing on the shadowed areas in Figure 1. The shadowed areas are the cooperation, the routine and critical incidents as well as investments, bonds, the strength and length of the relationship as well as the profitability of the relationship.

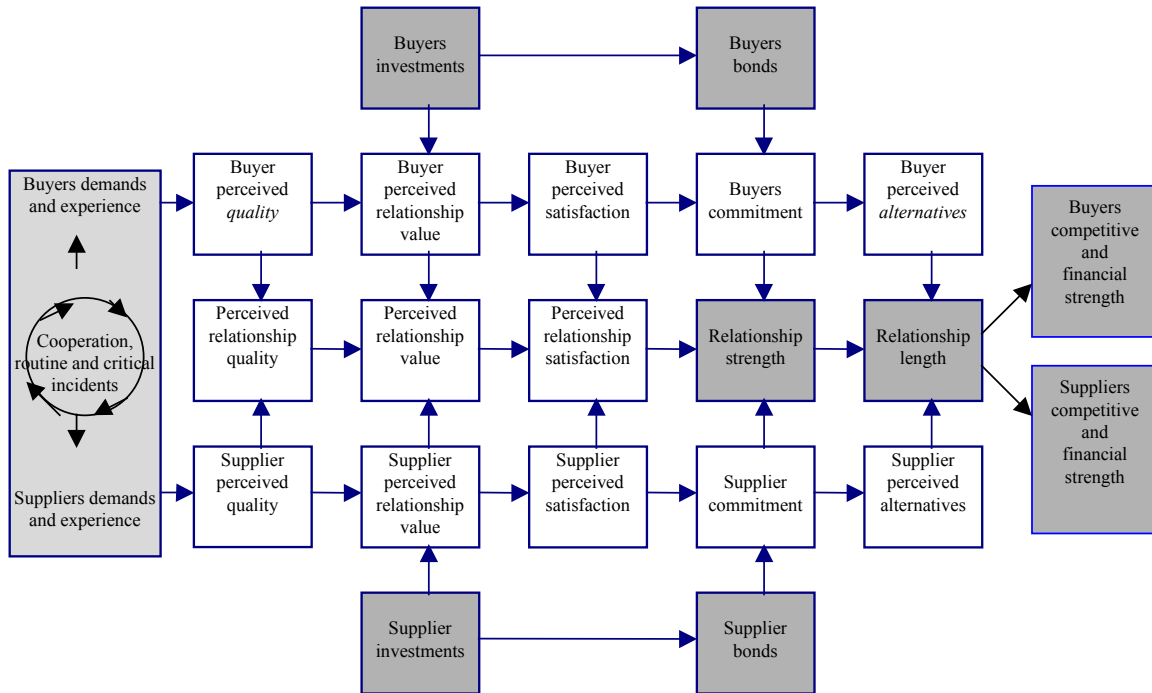


Figure 5. Preliminary framework in the study: issues that affect relationship strength and length, Holmlund (1996, 1997)

The structure of the study is the following. The **first chapter** includes the introduction of the study, purpose and delimitations. The aim of this chapter is to guide the reader into the setting and the research strategy chosen for achieving the purpose of the study and to build a framework for understanding the nature and change of bonds in business relationships.

The **second chapter** is the methodology chapter and it presents the method that is used in the study. The method is systematic combining that is based on abductive reasoning. One problem regarding the abductive approach is the structuring of the final report. This is due to the fact that putting the pieces together in some sequence and getting a structure into the report after going back and forth between framework, empirical material and analysis is difficult. (Dubois & Gadde 1999) However, often, even though most research in many fields seems to follow an abductive approach, the research report itself is structured in a deductive manner. The process is thought of as being linear, focused and problem centered. A problem is identified, literature is read, research questions are designed, a proper method is found, empirical cases are chosen, analysis is done and results, conclusions and implications are made. In reality all these parts have emerged from the process of the study that has been a confused mixture of everything. (Dubois & Gadde 1999)

I have tried to structure my study in accordance to the abductive approach as much as possible. My main framework is presented in the results of the study and the framework leading up to that, is different theories that I have found to fit into the framework. The final framework has been tested and found to be true in the waste empirical material I have used. My process has not been linear but it made more sense to me to write the

research report in a more linear way in accordance to the deductive approach rather writing it according to the abductive approach. I have chosen this path since it is easier to follow the trail of thought of the researcher when it is written in that manner.

The methodology chapter includes a presentation of theories regarding abductive research and combined to that systematic combining is presented since systematic combining is based on the logic of the abductive approach. Case study research is also presented in connection to the abductive research. There is a discussion regarding pre-understanding in connection to that the pilot studies are presented since these have affected my pre-understanding. A discussion regarding access is presented, followed by a part where I describe the empirical setting of the study. A discussion regarding the gathering and interpreting of empirical data is also presented. A section where validity and reliability matters are discussed follows this both from a theoretical as well as a practical perspective. This is followed by a presentation of the structure of the study.

The **third chapter** is the chapter containing the theoretical part with the nature of bonds containing theories regarding bonds between companies, static bonds and the development of the bond concept. In the part regarding bonds theories by for instance McCall (1970) Hammarkvist, Håkansson & Mattsson (1982), Easton (1992), and Liljander & Strandvik (1995) will be used. The difference between a static view on bonds and a dynamic view on bonds will be stated. Bonds will also be structured into abstraction levels of concrete and abstract bonds in order to make it easier to distinguish between different types of bonds. The development of the bond concept gives the reader a view on the development of the bond concept from Simmel (1906) to Wendelin (2002b).

The **fourth chapter** is called bond dynamics and change. In this chapter I will prepare for the coming of a dynamic view of bonds that is described in the analysis part of the study. That means that I will present issues affecting the dynamics of bonds such as for instance episodes and bond strength. The chapter will also be dealing with relationship termination. This is done since it has been argued by for instance Easton & Araujo (1986, 1989) that in order to grasp the nature of bonds one must also study relationships terminated regardless of bonds. Theories by for instance Alajoutsijärvi & Tähtinen (1997), Tähtinen (1999, 2001) and from the social psychological side by Duck (1982) and La Gaipa (1982) will be used. Additionally the chapter will be dealing with critical incidents between companies. Theories by for instance Edvardsson (1988) and Storbacka, Strandvik and Grönroos (1994) will be used.

The **fifth chapter** contains the empirical and analysis part of the study. Different cases with for instance cases strengthening the bonds between cooperating companies are being presented. Some cases with positive episodes that result in continuation of the relationship and increased revenue for the company are presented. Other cases regarding the weakening of bonds featuring negative episodes are also presented. The results of these negative episodes are termination or partial termination of the relationship. A case with routine episodes is also presented leading to a strengthening or weakening of bonds or preserving status quo. The aim with the chapter is to see the true nature of the bonds and how they change when they are put under strain.

The **sixth chapter** will compare the outcomes of different episodes and discuss how this has affected the bonds. The cases discussed will be the four cases with buyers that cooperated with the supplier Suspension-Supply. By comparing the different cases with outcomes as termination, partial termination, weakening and strengthening of bonds it is possible to grasp the bond dynamics.

The **seventh chapter** will contain conclusion, theoretical contribution and managerial implications and make suggestions for further studies.

Below the structure of the study is presented as a systematic combining model in Figure 6 as presented earlier in the discussion regarding the abductive approach. The numbers of the chapters are inserted in the figure.

The systematic combining approach shows how the study is made. The question with the aim of understanding the nature and change of bonds in business relationships has been placed in the middle. The surrounding issues are aspects and views that I have used when viewing the nature and change of bonds. That is the empirical world has been the truck producing industry where my case has been found, my framework has been built up during the study using theories regarding bonds, episodes, termination, etc. See Figure 6.

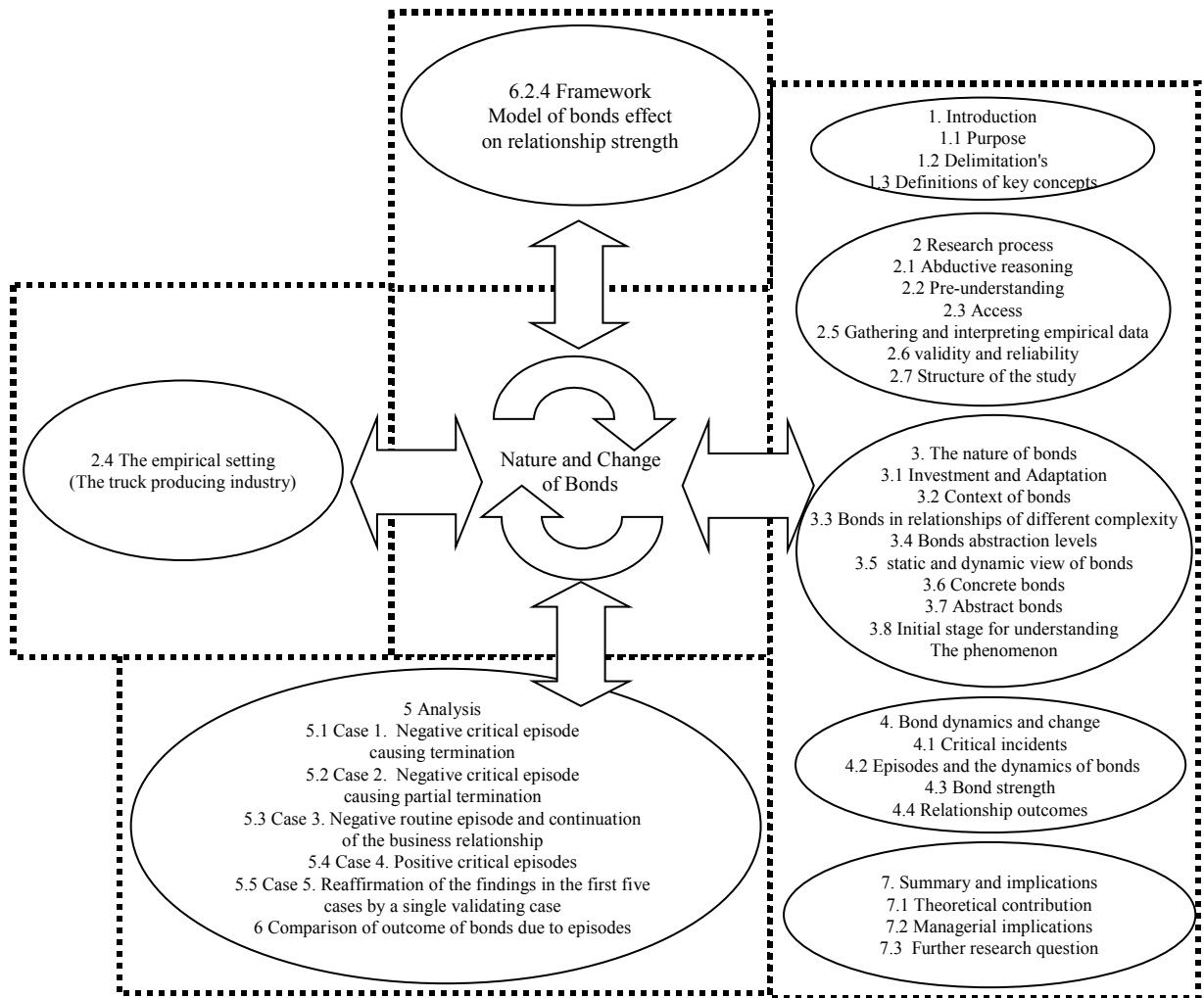


Figure 6. The structure of the study from a systematic combining approach

Figure 7 below shows the timeline for the study and how the study was made using the abductive approach and systematic combining. The study was made going back and forth between theory and empirical material in accordance with the abductive method. The study started with focusing on theory regarding bonds. This was followed up by formulation of the problem at hand and selection of proper methodology to capture the problem. Empirical material was gathered through interviews with a producer of trucks and a supplier. An analysis of the empirical material was made after which suitable theory was added. Additional interviews were made at two producers of trucks and the supplier supplying them. The interviews were analyzed and theory was added. Methodology was added after which interviews with the validating case was made. Analysis of the validating case as well as a second analysis of the previous cases was made. Theory that was completing the earlier theory was added after which a third analysis of the cases was made and a second analysis of the validating case. Conclusion were made and contribution. After the contribution was made some additional theory was added and changes and improvements of the manuscript was made. Finally the final contribution was added.

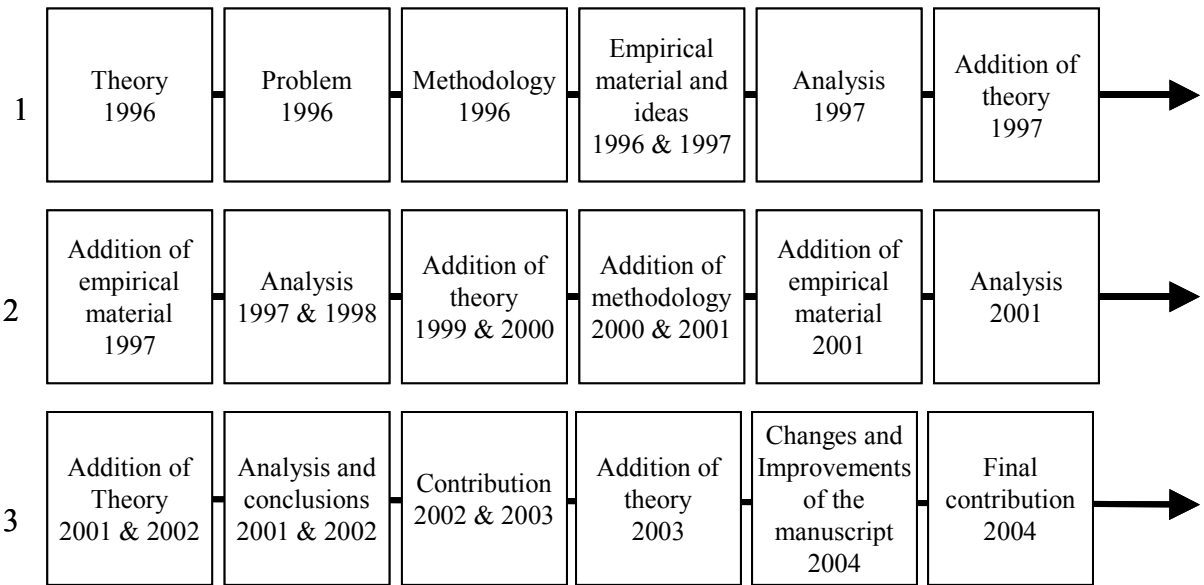


Figure 7. Timeline of the study

3 The Nature of Bonds

In this chapter I will argue for the use of the model with 10 bonds using a comprehensive literature review of theories regarding bonds. Support is found in the literature review for a view on bonds comprising 10 different bonds. The aim with the literature review is to find support from earlier research for a view comprising of 10 bonds in business-to-business relationships. Most authors have used a categorization that is easy to put in to the framework comprising of 10 bonds. Some authors as Arantola (2003) have also used the approach with 10 bonds. For instance Arantola (2003) found that almost all of the 10 bonds with the exception of ideological bonds existed in consumer relationships and Liljander and Strandvik (1995) found 10 bonds to exist in a service marketing perspective. Wendelin (2000a) and Buttle, Ahmad and Adlaigan 2002 found the model of 10 bonds to exist in an industrial perspective as well. This model with 10 bonds will then be tested empirically in a business-to-business setting in order to see if the assumption founded in earlier literature is correct. The aim with the literature review is hence to seek for confirmation that the approach using 10 bonds can be used in industrial relationships as well.

It is shown that it is possible to structure the literature regarding bonds in the model comprising of 10 bonds and therefore not only have to lean on some authors. (e.g. Liljander and Strandvik 1995, Arantola 2003, Wendelin 1998a, 1998b, 2000a, 2000b, 2002a, 2002b, Buttle, Ahmad and Aldlaigan 2002).

The aim of the chapter will be to analyze the nature of bonds. I will present the development of the bond concept that is the conceptual history of the bond concept and how it has developed. The starting points are found in sociology of, for instance, Simmel (1906) and the incorporation into industrial marketing was made by Wilson and Mummalaneni (1986).

The structure of the chapter will be the following: First I will present theory regarding investments and adaptations that lead to bonds. This will be followed by the context of bonds where I will describe which kind of relationships the study is limited to followed by a discussion of the development of the bond concept. Theories regarding bond importance, potential bonds and residual bonds will be presented shortly followed by a discussion about the complexity of the relationships that bonds have been studied in. This is followed by a novel division of bonds into abstraction levels and presentation of theories regarding bonds with a static view of bonds. Chapter 3 ends with a presentation of definitions of bonds and the bond model used in this study comprising of 10 bonds.

3.1 Investment and adaptation forming bonds

Before presenting theory regarding bonds I will present issues that lead to the building of bonds, that is investments and adaptations. These are the constituting mechanisms that lead to bonds.

3.1.1 Investments

Investment is an element of relationships. “Investments are processes in which resources are committed in order to create, build or acquire assets which can be used in the future” (Johanson & Mattsson 1986). Hard investments are traditional investments such as the purchase of a machine specifically for a certain customer. Soft investments are when resources like people and time are invested into the relationship. It may be time spent in order to establish social relationships, learning about the technical, logistic or administrative characteristics of the counterpart in the cooperation, and so on. (Easton 1992)

Relationship specific investments are just one type of investment that companies make and they will therefore both affect and be affected by the other types of investments that are made. Distinguishing between different kinds of investments is not easy. When for instance a new machine is bought it is difficult to decide whether it is an investment in a new technology or new market, and it may also be an investment in several customer relationships. (Easton 1992)

When investments are made in for instance EDI or CAD/CAM it can usually be used with several customers and it can therefore not be seen as a relationship specific investment. Most investments are usually of that type that they can be used also with other customers or suppliers.

When the investment is highly relationship specific its alternative value is low or zero (Easton 1992). This could for instance be when time has been spent wining and dining with a specific person. The same goes for gifts given to certain people as business gifts, bribes, etc. This could be seen as bond building.

Investments argued for by production cost considerations attract buyers and suppliers but these investments can, however, be hazardous. By making investments of car designs, information systems, knowledge and people the supplier/buyer has specified itself to a certain segment of buyers/suppliers. The investments cannot be used in cooperation with every other supplier/buyer. Such investments are called customized, relationship specific or idiosyncratic. The danger is clear and means that the supplier or buyer can breach its promises and know that the counterpart that is specialized in the cooperation has to tolerate that kind of opportunistic behavior without punishing it. The counterpart in the cooperation can stop the factory of the supplier/buyer and has the possibility to do that without any after effects. (Bensaou & Anderson 1999)

By avoiding specific investments and by having no or only loose couplings with suppliers or buyers companies decrease the risk of for instance technical obsolescence and retain the possibility to terminate a relationship and switch to other partners with for instance better technical capabilities. (Bensaou & Anderson 1999)

Relationship-specific investments lead to further investments over time. As the relationships evolve over time the relationship-specific investments lead to

communication familiarity, a specialized language and trust. These investments would be lost if the relationship were terminated. (Bensaou & Anderson 1999)

3.1.2 Adaptations

Interactions in the cooperation often lead to adaptations. Adaptation is a possible effect of some occurrence that has taken place in an episode. This means that the adaptations affect the relationship. Specific investments, made in order to adapt resources for cooperating with a specific buyer or supplier, are adaptations to the relationship (Ford 1980; Hallén, Johanson & Seyed-Mohamed 1991).

The creation of specific assets is an important strategic issue. Specific assets, i.e. adaptations are both a source of competitive advantage and a barrier to exit of a relationship. (Hallén, Johanson & Seyed-Mohamed 1991; Möller & Wilson 1995; Turnbull, Ford & Cunningham 1996; Bensaou & Anderson 1999) Adaptations can be seen as exit barriers (Hallén, Johanson & Seyed-Mohamed 1991; Han, Wilson & Dant 1993; Brennan & Turnbull 1999; Arantola 2002). The investments made in adaptations to the counterpart in the cooperation limit the choice of alternative relationships (Wilson & Jantrania 1995; Han, Wilson & Dant 1993; Brennan & Turnbull 1999). This is due to the fact that the resources are limited. The cost for adapting to one business relationship in order to lower the costs in that specific relationship may incur costs in the form of lost possibilities for alternative relationships (Brennan & Turnbull 1999).

Adaptations strengthen bonds between the cooperating companies and make the relationships stronger and more enduring. It makes it easier to have discussion as a resolution to conflicts since it is neither as easy nor attractive to exit from the relationship. (Johanson & Mattsson 1987)

The ties between buyer and supplier require them to make adaptations in for instance product, process or personnel vis-à-vis each other (Wilson & Mummalaneni 1986).

“Adaptation is a continuous process which results in changes in products or services bought or sold, in processes of manufacture or in routines and administrative procedures and which implies resource commitment.” (Easton 1992) Easton (1992) Johanson & Mattsson (1987) and Hagberg-Andersson (2001) argue that five different types of adaptations exist; these are technical, logistical, administrative, knowledge and financial adaptations. Gadde & Håkansson (1993); Håkansson & Gadde (1997) and Håkansson & Snehota (1995) on the other hand argue that adaptations in or due to a relationship can be of several kinds. The adaptations are according to Gadde & Håkansson (1993); Håkansson & Gadde (1997) technical, Knowledge-based, administrative, economic and legal adaptations. Bonds have been regarded to be similar to adaptations in many cases (Arantola 2002). Technical investments and adaptations may lead to shared technical and social bonds (Hammarkvist, Håkansson & Mattsson 1982; Wilson & Mummalaneni 1986; Turnbull, Ford & Cunningham 1996).

A product can be adapted to fit into the production process of the supplier; a production process may have to be altered in order for the supplier's products to fit into it.

Production, product development and delivery timetables may perhaps need adaptation in order to fit certain buyers' needs. Adaptations may also be needed regarding routines for handling invoices, administrative routines or exchange of information such as for instance investment in EDI systems. (Håkansson & Snehota 1995) These adaptations that are made in a relationship can be made by either or both of the two cooperating counterparts but will always affect both companies. Adaptations are used to solve problems in a certain relationship; they emerge over time in an unplanned way in a specific relationship between a buyer and a supplier. (Håkansson & Snehota 1995)

The buyer and the supplier may have different views on adaptations. Adaptations taken by the own company are usually noticed more than adaptations taken by the counterpart. (Brennan & Turnbull 1997, 1999) A controversial finding was made by Wendelin (1998a) when doing research in the truck producing industry, when adaptations taken by the counterpart in the cooperation were noticed more than adaptations made by the own company. This was due to the fact that a lot of the adaptations were not seen as relationship specific but were thought to be of use for other customers/suppliers as well.

An example of adaptations is how large car producers expect their suppliers to adopt the latest quality standards, for instance BS 5750, ISO 9000 or QS 9000. Large counterparts in the cooperation can affect the smaller counterparts to adapt in important ways for instance by investing in research. Large car producers do not comprehend how much more administrative pressure this puts on a small supplier. (Brennan & Turnbull 1997, 1999) The supplier and the buyer may also have different views on how good for the relationship adaptations are. While a buyer could think that an adaptation is very good for a relationship a supplier might think that the same adaptation has forced the supplier to make the adaptation and thereby exploited its power and thereby damaged the relationship severely. (Brennan & Turnbull 1997, 1999)

Reasons for adaptations differ between companies. Some companies may make adaptations without any specific decision, therefore that adaptation is unplanned. Other companies plan the adaptation extensively and base the adaptations on decisions after a vigorous analysis of the expected outcomes. (Brennan & Turnbull 1997, 1999) Important adaptations can emerge over time when a series of relatively unimportant decisions have been added. (Brennan & Turnbull 1997, 1999)

High levels of adaptation are connected to high levels of trust and a positive atmosphere in the relationship. (Brennan & Turnbull 1997) People get along fine and they can play with open cards without any of the cooperating counterparts taking advantage of that for their own purposes. High levels of adaptation influence the relationship positively and increase the levels of trust and cooperation further (Brennan & Turnbull 1997). Too high levels of adaptation from the supplier's side may, however, result in too strong dependence on the buyer and that may constitute a risk for the supplier (Hagberg-Andersson 2001). A lack of adaptations may be due to a lack of trust and to a bad atmosphere between the cooperating companies (Brennan & Turnbull 1997). A lack of adaptation may also be due to arms-length relationships.

Adaptation would be unnecessary if all the cooperating counterparts were identical and bought the same volumes, were similar technologically, etc. This means that the greater

the differences between the cooperating counterparts, the greater the need for specific adaptations. These specific adaptations are made for instance in order to make companies use the unique attributes of the counterpart, and to decrease costs. (Gadde & Håkansson 1993; Håkansson & Gadde 1997)

3.2 Context of bonds

In this study I have limited myself to relationships that can be considered as being in the vicinity of fair play and arms around relationships. This means that the relationships are characterized of having strong cooperation between the supplier and the buyer. This means that the bonds I am focusing on are different from the bonds one would see in a situation where there would be a street fight relationship. See Figure 8 and the following discussion.

		Competition	
		0	+
	+	Arms around	Fair play
Cooperation			
	0	Arms length	Street fight

Figure 8. Nature of the relationship Strandvik (1999) as well as adapted from Wilkinson & Young (1994), Gadde & Håkansson (1993; 1997)

Wilkinson and Young (1994) discuss four different relationships between companies. These relationships are relationships where there are low cooperation and low competition, low cooperation and high competition, high cooperation and high competition and finally low competition and high cooperation (Wilkinson & Young 1994). These four relationships are described below.

Low cooperation and low competition

Relationships with low cooperation and low competition are relationships where there is a non-important relationship between the counterparts in the cooperation. These relationships have little or no interdependence with each other partly due to that the relationship could be new and has not formed any bonds yet or it is almost over and no bonds remain. An example of this could be relationships that are uninvolved. (Wilkinson & Young 1994) Relationships could for instance be between customers and

barbers and hamburger franchises. I have chosen to call these relationships **arms length** relationships in accordance with Strandvik (1999).

Low cooperation and high competition

Relationships with low cooperation and high competition are seen as the classic bad relationships or relationships that are about to end. There might be conflict in the relationship vis-à-vis financial arrangements, delivery etc. The communication between the cooperating counterparts might be poor due to for instance geographic or physic distance or due to the fact that they might deliberately withhold information in order to get an advantage or to retaliate for earlier perceived wrongdoings. The cooperating companies are very self-interested and frequently disappoint the counterpart in the cooperation when they strive to fulfill their own interests. These kinds of relationships are under a constant stress. Sometimes these relationships end and sometimes they continue due to contracts, i.e. legal bonds between the cooperating companies. (Wilkinson & Young 1994)

It is also possible that the relationship is improved due to increased cooperation or a decrease in competition. This means that the relationship moves towards another type of relationship (Wilkinson & Young 1994) i.e. relationships where there are many possible suppliers supplying a basic product. To give an extreme example, minerals such as iron ore where there are many suppliers and the price is decided upon on the commodities market. I have chosen to call these relationships **street fight** relationships in accordance with Strandvik (1999).

High cooperation and high competition

Relationships with high cooperation and high competition are seen as effective relationships. Wilkinson & Young (1994) found that 66 % of these relationships were described as good working relationships while only 8 % were described as poor. This is due to the fact that good social and operational functioning outweighs many of the problems connected with high competition. (Wilkinson & Young 1994)

Opportunism is not perceived as inappropriate but rather as sound business practice. The cooperating companies mislead one another once in a while. One reason that the cooperating companies behave opportunistically regardless to the bonds they have to each other is that the interdependence between them are based on a mutual history rather than the contributions they can for each other. They may have had a good cooperation so far and think that they can continue with the good cooperation. These kinds of relationships are relationships that operate in an industry with volatile conditions where it is difficult to build and maintain relationships. The volatile industry environment is probably the reason for a high level of competitiveness and the fact that they can still have a successful cooperation under these conditions is the reason for the high cooperativeness. The bonds are probably stronger if the companies share technologies or have common systems and procedures for their work. (Wilkinson & Young 1994) I have chosen to call these relationships **fair play** relationships in accordance with Strandvik (1999).

Low competition and high cooperation

Relationships with low competition and high cooperation are seen as the optimal relationship for companies to try to develop. It can for instance be long relationships with strong social bonds between the companies. Even if there is a contract between the companies it is usually not seen as important. The transactions in this kind of relationship are mostly routine transactions with delivery times and rates being renegotiated periodically. There is no desire to terminate the relationship and even if there would be the high level of interdependence it would make it difficult to find a replacement for the current partner. (Wilkinson & Young 1994) In Wilkinson & Young's (1994) study the focus was on a small supplier delivering 35% of its output to a customer that was significantly larger than the supplier. The bonds between the cooperating companies become stronger and stronger as well as more important for the counterparts in the cooperation over time (Wilkinson & Young 1994). This could for instance be the case with a company who has supplied a certain buyer for 20 years. I have chosen to call these relationships **arms around** relationships in accordance with Strandvik (1999).

3.2.1 Definition of bonds

Some authors have earlier describes bonds as follow:

"Bonds are the psychological, emotional, economic or psychical attachments in a relationship that are fostered by association and interaction and serve to bind parties together under relational exchange." (McCall 1970)

McCall's (1970) definition from sociology shows that people are bonded together by psychological, emotional, economic or physical attachments in a relationship such as a marriage. This definition and view has then been incorporated into the industrial marketing approach e.g. Wilson and Mummalaneni (1986).

"When the cost-benefit analysis yield favorable results and people move toward greater involvement with each other, certain ties or bonds develop linking them together strongly". (Wilson & Mummalaneni 1986)

This focus on bonds as aspects of relationships has then been widely accepted in different management approaches. Bonds of different character have been found to exist.

"Links are based on relationships over time. Relationships differ from individual transactions. Relationships, such as standing contracts, comprise streams of transactions or exchanges, which may or may not be directly tied in with any specific delivery of goods" (Thorelli 1986).

Development of bonds in that bonds start to exist and then develop and dies has been discussed in some more developed definitions of bonds. This coincides from my point of view with the idea regarding change of the strength of bonds.

"Bonds of various kinds are developed between firms as an aspect of relationships" (Johanson & Mattsson 1987). "Bonds of various kinds are developed between firms. Relationships are based on these different kinds of bonds, which develop over time and through which the actors are tied to each other" (Proenca & Castro 1998). "An important feature of the relationships that develop between the companies in a network is that they can be characterized as bonds. The bonds are of different character and have different purposes" (Hammarkvist, Håkansson, Mattson. 1982). "Central to the Network Approach as

applied to industrial markets is the concept of the bond. This is the relationship formed between supplier and customer organizations. At its most fundamental a bond must exist, in however weak a form when economic exchanges take place between supplier and customer. When they cease to do so the bond may be considered severed. With infrequent purchases it may not be clear when the bond comes into existence or when it dies" (Easton & Araujo 1986).

Bonds have been found to be due to investments and adaptation in the relationship according to the following definitions. The idea with bond being barriers to exit or constraints is presented in the later of the definitions presented below.

"Bonds are investments that lead to adaptations" (Kock 1991). "As the relationship continues there is an ongoing process of exchanges, interactions and investments. Every relationship is unique by content, intensity, history, value and time as the actors invest in the relationship by making adaptations and spending time and effort. Consequently bonds emerge between the interacting actors in the relationship" (Holmlund & Kock 1995). "Bonds develop through investments and adaptations. The bonds make the relationship more stable and make a good base for continued cooperation. These bonds will have the character of exit barriers since the cost for building up new relationships becomes high and the investments that has been made in the relationship are lost if the relationship is terminated" (Kock 1995). "Bonds are ties which bind two parties together. Bonds result from repeated interactions and relationship-specific adjustments and investments, and provide opportunities and constitute constraints for the focal firms" (Holmlund 1997).

Some authors as follows below consider bonds to have the focus on being exit barriers and thus function as value reducing factors that have a negative affect on the relationship. This is due to the entrapment the counterpart that is affected by the exit barrier in the relationship feels. This coincides with the burden of relationships idea of Håkansson and Snehota (1995b). And since it is a burden I would regard it as factors that reduce value. This focus on exit barriers has been used in service marketing, consumer marketing as well as in business-to-business marketing.

"Exit barriers seem less common in consumer markets than in industrial and organizational markets"; bonds are considered as exit barriers (Dwyer, Schurr & Oh 1987). "A bond implies a measure of tying, albeit unspecified, between partner firms. Firms are bonded together and are not usually entirely free to dissolve those bonds at will" (Easton 1992). "Bonds are seen as switching barriers beside customer satisfaction" (Naude & Buttle 1999). "Bonds are exit barriers that tie the customer to the service provider and maintain the relationship. These are legal, economic, technological, geographical, time, knowledge, social, cultural, ideological and psychological bonds" (Storbacka, Strandvik & Grönroos 1994). "Bonds can be defined as exit barriers that tie the customer to the supplier and maintain the relationship. These are legal, economic, technological, geographical, time, knowledge, social, cultural, ideological and psychological bonds" (Liljander & Strandvik 1995).

Järvinen 1997 presents an idea that bonds have different properties such as different importance, strengths, are of different types and there are tensions between the bonds.

"Bonds are defined to bind firms together, they tend to develop over time, and there are different types of bonds characterizing long term relationships between the two channel members. Moreover, bonds have properties, such as types, tensions, importance and strength." (Järvinen 1997)

Arantola (2001, 2002) has tried to sum up most of the characters of bonds and her definitions on bonds are as follows. These definitions are including the idea of exit barriers, the fact that several bonds exist in a relationship and that the relationship is the context of bonds. She argues that bonds can be positive, negative or neutral in a relationship.

“A bond is a perception by the customer of disincentives for switching suppliers. The context of bonds is a relationship. Negative bonds are barriers to exit when the customer has an incentive to leave the relationship, while positive bonds are incentives to continue the relationship even when a switching possibility presents itself” (Arantola 2001). “Bond is a perception of an actor in a customer relationship of a driver for continuing the relationship. The context of bonds is a relationship, and there can be several bonds in a relationship. Bonds can be negative, neutral or positive. The combination of bonds constitutes the state of commitment for an actor. In the case of negative commitment, a bond/bonds can act as barriers to exit when an actor has an incentive to leave the relationship. When commitment is positive, there is a will to continue the relationship in the future” (Arantola 2002).

I define bonds in the following manner based on the cumulative process above. *Bonds are the concrete or abstract technical, time, knowledge, legal, economic, geographical, social, cultural, ideological, psychological and strategic value creating, neutral or value reducing factors that form the building stones of the industrial business relationship. Bonds can be mutually or one-sidedly value creating or value reducing. The sum of the total package of bonds in a relationship equals to the total value of the relationship.*

Bonds are value reducing if they are causing negative effects in the relationship functioning as exit barriers or if they are weakened and lead to negative effects weakening the relationship.

3.2.2 Development of the bond concept

Bonds tend to have different names depending on the author. Bonds can be named as such or as ties and links. For simultaneous use of ties and bonds for the same phenomenon see for instance Turner (1970), Wilkinson & Young (1994) or Buttle, Ahmad & Aldlaigan (2002). For links being used meaning the same as bonds see e.g. Wilson & Mummalaneni (1986) and Thorelli (1986). In most cases the difference between bonds, ties and links is unclear. The same phenomenon is described using different words. I have used the notion bonds since this is a concept that gives more potential for my purposes. Bonds are a more open concept and since this is an area of the theory that is not yet extensively studied and it gives me a wider potential. For the concept of bonds see e.g. Simmel (1906), Small (1915), Wirth (1938), McCall (1970), Wilson & Mummalaneni (1986) and Easton & Araujo (1986, 1989).

The concept of bonds has developed since the concept first was used in social sciences in the 19th century. Social bonds in a modern form are described by Small in 1915 in the American Journal of Sociology (Small 1915). Small's (1915) paper is almost identical to McCall's (1970) and bears great similarity to Turner's (1970). Most authors, such as Wilson and Mummalaneni (1986), in the business-to-business literature refer to McCall (1970) and Turner (1970) who are also sociologists. (for instance Wilson & Mummalaneni 1986 refers to a high degree to both these authors) Another author who is also referred to frequently is Granovetter (1973) with his article “The Strength of weak ties” also from the American Journal of Sociology”. In fact the foundation to the interaction approach to industrial marketing was based on social exchange theory like for instance Homans (1958) (Johansson & Mattsson 1993).

Bonds of different kinds are said to develop between cooperating companies due to mutual adjustment between the counterparts. This affects the exchange processes between the companies, future adaptation processes and also the costs of switching to another supplier or buyer (Mattsson 1987). Bliemel & Eggert (1997) argue that members in a network need bonds to assure themselves among other things against opportunistic behavior.

There are different kinds of bonds in theory. In the first IMP (International Marketing and Purchasing Group) affiliated papers there were only two bonds present namely technological ties and social bonds (Håkansson 1982). Later the number of bonds was raised to five, including technical, time, knowledge, social and economic/legal bonds (Hammarkvist, Håkansson, & Mattson 1982). Some years later in 1987 there were six bonds present, i.e. technical, planning, knowledge, social, economic and legal bonds (Johanson & Mattsson 1987). The IMP group has found six different kinds of bonds in the cooperation between companies. These bonds are technical, economic, time, legal, social and knowledge bonds. These six bonds do however not give a picture that would cover industrial relationships completely (Wendelin 2000a). Additional bonds have been recognized in the past years in service marketing, such as cultural, ideological, geographical and psychological bonds. (Liljander & Strandvik 1995) In service marketing the number of bonds varied through the years and the 10 bonds that I am using today stems from Liljander and Strandvik's model published in 1995. Buttle, Ahmad & Aldlaigan (2002) have also applied these ten bonds in an industrial perspective. Arantola (2003) found that almost all of the 10 bonds with the exception of ideological bonds existed in consumer relationships as well.

The model structure containing 10 bonds is the richest and most expanded view on bonds at present. It incorporates findings from sociology, industrial and services marketing and it is bridging gaps that have existed in the industrial business relationships literature. Gaps regarding for instance cultural, ideological and psychological bonds. It is also a manageable structure that is easy to use and utilize for analyzing empirical material even though the structure is rich and I perceive it to be the most suitable preliminary model for my purpose.

The 10 bonds are as follow. **Technical bonds** see e.g. Hammarkvist, Håkansson, Mattson (1982), Johanson & Mattsson (1987), Easton (1989), (Kock 1991) and Erbismann, Kock & Strandvik (1998). Technical bonds stem from the characteristics of the products and services that are exchanged. Companies adjust the technical products and processes according to their counterpart's specifications (Easton 1989, 1992). **Time bonds** see e.g. Johanson & Mattsson (1987) and Kock (1995). Time bonds develop when the companies in the relationship adapt their logistic functions to each other (Johanson & Mattsson 1987). **Knowledge bonds** see e.g. Kock (1991), Proenca & Castro (1997) and Nonaka (1994). Knowledge bonds develop with time as the cooperating companies learn more about each other's strengths and weaknesses, opportunities and problems. This happens when companies for instance develop products together. **Social bonds** see e.g. Simmel (1906), Small (1915), McCall (1970), Granovetter (1973), Håkansson (1982) and Wilson & Mummalaneni (1986). Social bonds develop between personnel from the companies that cooperate in the dyad and not between the companies themselves (Kock 1991; Erbismann, Kock & Strandvik

1998). For **legal bonds** see e.g. Macaulay (1963), Palmer, Friedland & Singh (1986) and Johanson & Mattsson (1987). A long-term contract is a legal bond (Palmer, Friedland & Singh 1986; Johanson & Mattsson 1987; Mattsson 1987). A contract overall or other articles of involvement or ownership can also constitute legal bonds (Halinen 1994). Quality certifications like ISO 9001, QS 9000, EMAS, and environmental certifications like ISO 14001 or even more stringent military quality certifications than QS 9000 can also be considered as legal bonds between companies (Wendelin 1998b). For **economic bonds** see e.g. Johanson & Mattsson (1987) and Kock (1991). Special credit arrangements constitute economic bonds (Johanson & Mattsson 1987; Halinen 1994). Mutual investment in the business by the competing firms that is investing in each other's business also constitutes an economic bond (Proenca & Castro 1997; Proenca & Castro 1998; Proenca & Castro 2000). For **geographical bonds** see e.g. Lincoln, Gerlach & Takahashi (1992), Liljander and Strandvik (1995) and Wendelin (2000a). Geographical bonds have to do with how suitably located the supplier is from the buyer's point of view. The view of how suitably located the supplier is can vary over time in the relationship depending on for instance the global strategy for the company and the lead-times. Wendelin (1998a, 1998b) For **cultural bonds** see e.g. Liljander & Strandvik (1995), (Roslin & Melewar 2000) and Wendelin (2000a) Cultural bonds develop between suppliers and buyers with a similar cultural background (Liljander & Strandvik 1995). **Ideological bonds** are such bonds that make a buyer choose suppliers that for instance manufacture green products, or domestically manufactured products (Liljander & Strandvik 1995). **Psychological bonds** develop when for instance the buyer is convinced that the products manufactured by the supplier or a service are of superior quality (Liljander & Strandvik 1995).

An alternative conceptualization to that used in this study is to use the activities, actors and resources model. In the network approach some researchers (Håkansson 1987; Easton 1989; Håkansson & Johanson 1992; Håkansson & Snehota 1995) have structured the bonds in a way that is different from my way of structuring bonds, which is the model with ten bonds. They however talk about the same issues. They split up the bonds in the relationship into activity links, resource ties and actor bonds. This model is very abstract and leaves room for interpretation. It is used in numerous studies even though it is a difficult model to use. Due to the level of abstraction it is a model that is very difficult to use due to the problems with limitations regarding the model. Even IMP researchers may encounter problems when using the model (e.g. Holmen, Pedersen & Rosenbröijer 2000) and find that only actor bonds and resource ties are created in a case study leaving out activity links. At the same time one could argue that activity links are needed in order for actor bonds and resource ties to be created. I have gone with the "traditional" way of structuring bonds as presented by Håkansson (1982), Hammarkvist, Håkansson & Mattsson (1982), Easton (1989), Liljander & Strandvik (1995), thereby avoiding the actors, activities and resources approach as presented for instance by Håkansson & Snehota (1995). This is done in order to make these issues as clear as possible.

I perceive trust, commitment and attraction as nothing more than mere building stones of social bonds as do authors in sociology i.e. McCall (1970). In a relationship trust, attraction and commitment are the factors that are considered to be social bonds. You trust the people in the company with which one has cooperation. Trust them to do the

things required fulfilling your needs. The same goes with commitment. The people in the other organization must be committed in order to fulfill their duties. Trust and commitment are imported from sociology and social psychology (McCall 1970; Turner 1970).

Bonds can also be divided into lower level bonds and higher-level bonds. Lower level bonds such as economic, social bonds and technical bonds are less abstract than higher-level bonds such as attraction, trust and commitment. (Liljander & Strandvik 1995)

The background of the study is mainly in the IMP literature e.g. Håkansson (1982), Hammarkvist, Håkansson & Mattsson (1982), Johanson & Mattsson (1987), Easton (1989), Kock (1991), Easton (1992), Holmlund & Kock (1995), Kock (1995). However, I also use influences from services marketing e.g. Liljander & Strandvik (1995), Storbacka, Strandvik & Grönroos (1994) since the IMP literature has certain gaps regarding bonds that are possible to bridge by incorporating theories from services marketing. In order to be able to focus on bonds as they are presented in the IMP literature, e.g. Håkansson (1982), Hammarkvist, Håkansson & Mattsson (1982) as well as in the service management approach, e.g. Liljander & Strandvik (1995) and see where they stem from, I have benefited from reading sociology and social psychology where the theories regarding networks and bonds are grounded. These are also referred to in the IMP literature. These are for instance Simmel (1906), Small (1915), Wirth (1938), Homans (1950), McCall (1970), Turner (1970) and Granovetter (1973). The ones most referred to in the IMP literature are McCall (1970) Turner (1970) and Granovetter (1973). All these studies, both those with an industrial marketing perspective and those with a service management perspective have mainly had some other issue as their point of focus and therefore not focused solely on bonds. The bonds that stem from sociology have on the other hand mainly focused on relationships between people and hence social bonds. There are exceptions such as the sociologists Macaulay (1963), Palmer, Friedland & Singh (1986) or Lincoln, Gerlach & Takashi (1992) who focused on bonds between companies. But all in all there have been few contributions focusing solely on bonds.

a) Potential bonds

Potential bonding is mentioned in this study due to the fact that they are connected to residual bonds in the manner that the residual bonds may be seen as potential bonds in situations when cooperation is restarted.

In start-up situations when a company starts to give offers in order to supply to a certain industry, a company will attempt to build bonds in order to establish a structure for the business. Strong social ties between companies may have been built up. Adaptations as 24-hour service or stockholding may have been made. Joint ventures between potential suppliers have been made. (Easton & Araujo 1986, 1989) Easton and Araujo (1986, 1989) call this state a potential bond. The company has not received an order yet but both the supplier and the potential customer agree that the probability for an order is high. The order has not yet been placed since the time is not right or due to that there is another supplier supplying the same product at the time being, but the current supplier is seen as being in a vulnerable position and may be replaced. “Re-bonding” with a

supplier or customer that has been lost may be less traumatic than expected if potential bonds already are in place. (Easton & Araujo 1986, 1989)

Potential bonding is risky especially for potential suppliers since they make investments before they can expect any reward. (Easton & Araujo 1986, 1989) Investments in, for instance, production tooling or other investments in the production can become very costly if they are made in vain. The same goes for investments in electronic systems like EDI applications.

b) Residual bonds

Residual bonds are bonds that remain after the cooperation between companies has ended. (Easton & Araujo 1986, 1989; Bengtsson, Havila & Åberg 2001) It is the remains of bond once built up and now broken. In the automotive industry there are for instance suppliers that use standards, procedures and methods that were forced upon them by car producers they no longer supply. (Easton & Araujo 1986, 1989)

The residual bonds can usually be used with other customers or suppliers after one relationship have ended. In for instance the truck producing industry the standards and methods used by the suppliers and customers are similar or alike, and what has been built up with one customer can easily be used with another customer. It is easier for a supplier who has previously supplied the truck producing industry to start supplying other truck producers. Companies often seek new suppliers or customers where it would be easy to re-establish the residual bonds and in that sense be able to start the business fast (Easton & Araujo 1986, 1989).

Residual bonds are also potential bonds in that way that for instance a supplier whose relationship to its cooperating counterpart has been terminated has a good chance to attack the newly established relationship (Easton & Araujo 1986, 1989). It is easier for a supplier with remaining residual bonds to affect the newly established relationship, terminate it and retake the new supplier's place instead. The old supplier still has remaining bonds and can use these in order to affect the relationship with the new supplier that has caused the termination, for instance, due to lower prices. The new supplier may have difficulties with complying with delivery times, social issues or quality on the products whereas the old supplier have these issues covered through familiar faces, flexible production systems and accreditation according to satisfying quality standards.

Havila (2000) and Havila and Wilkinson (1997) as well as Bengtson, Havila & Åberg (2001) argue that there are still remaining bonds after the business exchange has stopped. Havila (1997) looked at six relationships in the aftermath stage of the business relationship, i.e. after the business exchange has stopped. Havila (2000) and Bengtson, Havila & Åberg (2001) have found that since different types of bonds still exist after a business relationship has ended and business exchange has stopped, the process of relationship termination may not have come to an end yet. Technological, knowledge as well as social bonds and what Havila (2000) calls administrative routines and what I would call time bonds are found to be left after the business exchange has stopped in the six specific relationships. (Havila 2000) Havila and Wilkinson (1997) argue that a

relationship may not end totally since there may still be social bonds left that have been developed during the relationship and that the relationship may even be re-established later on.

3.3 Bonds in relationships of different complexity

Bonds are supposed to be of different kinds in different kinds of relationships. That has to do with the fact that some relationships are supposed to be more developed than other relationships. Hence the notion is that that the bonds are more developed, or more complex in industrial relationships, that is when companies cooperate bonds are more complex than bonds are when individuals go to the barber, etc. Investments and adaptations to name a few are made based on knowledge regarding future prospects, markets, etc.

Complexity of relationships and consequences

In Figure 9 I divide the relationships in the matrix between simple relationships that have simple consequences, Simple relationships that have complex consequences, complex relationships that have simple consequences as well as complex relationships with complex consequences.

When making this Figure I wondered if the bonds would look different or be different in different relationships. I classified several bond studies made by classifying the kind of relationship they are in and what kind of consequences the relationships lead to. I found that the bulk of the studies were made in relationships that could be said to be complex having complex consequences.

An example of a **simple relationship** with **simple consequences** could be the following. A relationship where one goes to the barber for a haircut could be seen as a simple relationship. The consequences of a haircut are also simple, you walk in to the hairdresser or barber, your hair is cut, you pay, and you leave. Liljander and Strandvik (1995) have used an example with a hotel and that could be seen as a simple relationship with simple consequences.

A definition of a **simple relationship** with **simple consequences** could be said to contain the following elements:

- Only operative level in the relationship
- Short transaction
- Simple performance
- Fast performance
- No investment in the relationship

The definition could be summed up by saying that a simple relationship with simple consequences is: *“A short transaction with simple and fast performance where no investment is made into the relationship that only includes the operational level between the counterparts in the relationship”*.

A **complex relationship** with **complex consequences** could for instance be the case when one is a member of a team deciding the team of suppliers for the next modules to

the new Airbus 380. Whereas the consequences of the decision to choose a certain supplier to deliver parts or modules to the new Airbus are complex and so is the relationship. This is because they might for instance result in investments in new plants built by the supplier close to the assembly plant when the supplier is adapting to the buyers' needs. This is for instance the case for Håkansson (1982). Complex consequences of complex relationships may be that there are not only single consequences connected to the transaction but there may also be consequences for instance due to transfer of technology, development of products or training.

A definition of a **complex relationship** with **complex consequences** could be said to contain the following elements:

- Both strategic and operative level in the relationship
- Time consuming transaction
- Complex performance
- Adaptations made for the relationship
- Investments in the relationship
- Transfer of knowledge

The definition could be summed up by saying that a complex relationship with complex consequences is: *“A time consuming transaction with complex performance where knowledge is shared and that requires investments and adaptations to be made into the relationship that includes both strategic and operational level between the counterparts in the relationship”*.

A case where a **simple relationship** leads to **complex consequences** could be in banking to give an example. A relationship between a customer and a bank is usually very simple. You use a bank for instance to withdraw money, ask for a loan, sell stocks. This could however have consequences for the bank that has to adapt to the customer's needs, for instance by building on-line systems for trading so that the customer could use the Internet when he does his trading. This is for instance why I have put authors like Proenca & Castro (2000) that are writing about banking in the part of the matrix for simple relationships leading to complex consequences.

A definition of a **simple relationship** with **complex consequences** could be said to contain the following elements:

- Only operative level between counterparts in the relationship
- Short transactions, long relationship
- Simple performance
- Adaptations made by one party to the relationship
- Investments by one party to the relationship
- Transfer of information

The definition could be summed up by saying that a simple relationship with complex consequences is: *“A short transaction with simple performance in a long relationship where information is shared, requires investments and adaptations to be made into the relationship by one party of the relationship. The relationship only includes the operational level between the counterparts in the relationship”*.

A case where a **complex relationship** may have **simple consequences** could be like Bachrach (1997) puts it “people that an organization has an emotional bond to are trusted”. Legal bonds that specify a certain transaction in an industrial relationship could be said to have simple consequences. Contracts and social norms could be effective enhancers of the performance of the relationship (Cannon, Achrol & Gundlach 2000).

A definition of a **complex relationship** with **simple consequences** may contain the following elements:

- Both strategic and operative level in the relationship
- Short episode, long relationship
- Simple performance
- Emotions may affect
- Legal requirements forcing one counterpart to comply
- Social norms forcing one counterpart to comply
- Adaptations made for the relationship
- Investments made in the relationship

The definition could be summed up by arguing that a complex relationship with simple consequences is: “*A short episode with simple performance in a long relationship where information is shared requires investments and adaptations to be made into the relationship. Emotions may affect the relationship and social norms or legal requirements may force one of the counterparts in the relationship to comply. The relationship includes both the strategic as well as the operational level between the counterparts in the relationship*”.

The different definitions or parts of definitions on different complexity of relationships and consequences have been categorized in the matrix in Figure 9 below.

	Simple consequences	Complex consequences
Simple relationships	<ul style="list-style-type: none"> • Only operative level in the relationship <ul style="list-style-type: none"> • Short transaction • Simple performance • Fast performance • No investment in the relationship 	<ul style="list-style-type: none"> • Only operative level between in the relationship <ul style="list-style-type: none"> • Short transaction, long relationship • Simple performance • Adaptations made by one party to the relationship <ul style="list-style-type: none"> • Investments by one party of the relationship • Transfer of information
Complex relationships	<ul style="list-style-type: none"> • Both strategic and operative level in the relationship <ul style="list-style-type: none"> • Short episode, long relation • Simple performance • Emotions may affect • Legal requirements forcing one counterpart to comply <ul style="list-style-type: none"> • Social norms forcing one counterpart to comply • Adaptations made for the relationship • Investments made in the relationship 	<ul style="list-style-type: none"> • Both strategic and operative level in the relationship <ul style="list-style-type: none"> • Long transaction • Complex performance • Adaptations made for the relationship <ul style="list-style-type: none"> • Investments in the relationship • Transfer of knowledge

Figure 9. Different definitions of complexity of relationships and consequences

I have tried to follow these rules when categorizing some bond studies into the matrix. It can however be said that some studies were floating between different parts of the matrix so they could not be strictly classified. For instance the sociological studies were in the vicinity of complex relationships with simple consequences and complex relationships with complex consequences. Sociological studies may be partly complex relationships with simple consequences since these studies have mainly focused on bonds between people and groups of people and have also debated that social norms and contracts can keep people or one part of the marriage bound to a marriage, see e.g. McCall (1970). Emotions can also affect so that a complex relationship has simple consequences. Sociological studies can on the other hand also be partly complex relationships with complex consequences since the relationships in these studies are long term and the adaptation and investments in the relationship is made by both parts and the performance is complex. For examples of studies with different relationships and different consequences see Figure 10 below.

	Simple consequences	Complex consequences
Simple relations	Liljander & Strandvik (1995) Dwyer, Schurr & Oh (1987)	Storbacka, Strandvik & Grönroos (1994) Seyed-Mohammed & Thunman (1994) Järvinen (1996) (1997) Hines (1997) Proenca & Castro (1997) (1998) (2000) Smith (1998) Arantola (2001)
Complex relations	Bachrach (1997) Roeckl (1996) Cannon, Achrol & Gundlach (2000) Roslin & Melawar (2000)	Macaulay (1963) Granovetter (1973) IMP Ford (1980) Håkansson (1982) Hammarkvist, Håkansson, Mattson (1982) Schmidt & Wagner (1985) Easton & Araujo (1986) (1989) Friedland, Palmer & Singh (1986) Axelrod (1986) Wilson & Mummalaneni (1986) Thorelli (1986) Johanson & Mattsson (1987) Turnbull & Wilson (1989) Bowersox (1990) Kock (1991) Easton (1992) Kock (1995) Håkansson & Snehota (1995) Turnbull, Ford & Cunningham (1996) Håkansson & Gadde (1997) Paulin, Perrien & Ferguson (1997) Sheth & Sharma (1997) Wendelin (1998, 2000)
	Simmel (1906) Small (1915) (1950) Homans (1950) McCall (1970)	Wirth (1938) Gross & Martin (1970) Turner (1970)

Figure 10. Relationships of different complexity

The consequence with the above for me is to show the reader that relationships where bonds have been studied have been of a different character. I have however studied industrial relationships and my study is focusing on bonds in a complex relationship with complex consequences like most others within IMP.

3.4 Bonds abstraction levels

Bonds have been said to have different abstraction levels before. There has for instance been the notion made by Halinen (1994) that there are **operational** bonds and **relationship** bonds where operational bonds were formed in day-to-day interaction between the cooperating counterparts. The relationship bonds, however, have a more abstract character and have to do with what the parties in the cooperation expect from the cooperation in the future. These are considered to be attraction, trust and commitment. (e.g. Halinen 1994) I do not quite agree with the reasoning because it is not in line with what earlier research have found, see for instance Wilson and Mummalaneni (1986) for a reference from industrial marketing, mainly because social bonds are said to be under operational bonds whereas only attraction, trust and commitment are placed under relationship bonds.

Attraction, trust and commitment are only parts or building blocks of social bonds see for instance McCall (1970) for sociology and Wilson & Mummalaneni (1986) for IMP. Social bonds have certainly an abstract character - even if they are formed in day to day work it is nothing tangible that you can touch, and since they contain attraction (Halinen 1994), trust (Thorelli 1986) and commitment (Tuominen 1999) they are said to be future oriented bonds. The social bonds are future oriented as well.

Turnbull and Wilson (1989) as well as Wilson (1995) structure bonds into **structural** and **social** bonds. Turnbull and Wilson's (1989) idea is that a structural bond cannot be used after the relationship has ended may to some extent be accurate but usually time bonds like EDI systems can be used with other customers.

Structural bonds, for instance investments in product development and technology, make relationship termination difficult and expensive. Structural bonds have four components according to Turnbull, Ford and Cunningham (1996). These are investments, termination procedures, social pressures and available alternatives. Structural bonds indicate that the cooperating partners are committed to maintain the relationship and function thereby as exit barriers. JIT production and lean production are structural bonds where the cooperating partners have tried to be efficient and gain synergetic effects (Bliemel & Eggert 1997). Structural bonds cannot be used when the relationship ends. (Turnbull and Wilson 1989; Wilson & Jantrania 1995; Bliemel & Eggert 1997; Naude & Buttle 1999; Pettersen 2001) A relationship can be difficult to terminate due to strong structural bonds (Grønhaug, Henjesand & Koveland 1999). Structural bonds are according to Wilson and Jantrania (1995) a richer version of the transaction cost analysis framework (TCA). Companies that have weak structural bonds to their suppliers or customers may find a relationship to another supplier or customer to be as good or even better (Naude & Buttle 1999).

Structural bonds are related to the structure of the relationship, how the relationship is governed and how norms are institutionalized in a relationship: the agreements, procedures, rules and policies that give the relationship a formal structure. (Smith 1998; Pettersen 2001) The routines or norms govern interaction informally. These issues, systems and technologies such as E-mail, EDI, etc. that make interaction easy can constitute psychological, legal and psychical ties that binds the cooperating counterparts

together in a relationship and make it difficult to consider other partners to cooperate with. (Smith 1998) Structural bonds may, however, restrict the freedom to switch suppliers, positive issues such as outsourcing of strategically important activities and activities that require specific investments, as well as reduction of time to market of products can compensate this freedom. (Bliemel & Eggert 1997)

Smith (1998) has on the other hand structured bonds into **functional, structural and social** bonds. Functional bonds are the economic, performance or instrumental ties that promote continuity in a relationship. Turner (1970) refers to these as task bonds. **Functional** bonds are due to the economic, strategic, technological (that is knowledge or information) and instrumental (product or service related) benefits that the cooperating counterparts have from the cooperation. These benefits are compared with the benefits that would come from alternative relationships that the company could have. (Smith 1998)

I will present a new notion by organizing bonds in abstraction levels of **abstract** and **concrete** bonds. Concrete bonds are tangible and are developed when companies cooperate and hence adapt to each other and invest in the cooperation. There are also abstract bonds that develop and exist in the minds of people when companies cooperate or when people are using a company's products or services.

I will not use the division into operational or relational bonds that are used by Halinen (1994) since that division divides attraction, trust and commitment into relational bonds that have an abstract character while social bonds are considered to belong to operational bonds. According to my view attraction, trust and commitment are parts of social bonds as mentioned by for instance Wilson and Mummalaeni (1986).

I have also chosen not to divide the bonds into abstraction levels of structural or social bonds as Turnbull and Wilson (1989) does since their idea is that structural bonds cannot be used after the relationship has ended and that is not always accurate. Different systems such as EDI systems can be used after the cooperation has ended just to name one example. The division also argues that since only social bonds are left after a relationship has ended it does not take into account the knowledge regarding the industry that is left residual and that could be used if cooperation is resumed. The same goes for the residual standardized systems for instance for delivery information that may be used with other buyers or suppliers and may be used again if cooperation starts.

Smith has used the notion structural, functional and social bonds and I will not use that division since it is a division into three different abstraction levels. Functional bonds are due to the benefits that the cooperating counterparts have from the relationship. But structural and social bonds can also be beneficial for the counterparts in the relationship.

All of the previous abstraction levels had some drawbacks so I chose to divide bonds into a new model with two abstraction levels. A new model that makes bonds easier to grasp follow were bonds is organized into **abstraction levels of concrete and abstract** bonds. See Figure 11. The organization into abstraction levels of concrete and abstract bonds is a result of the method of systematic combining.

Concrete	Abstract
<ul style="list-style-type: none"> •Technical 	<ul style="list-style-type: none"> •Social Commitment/Relational Attachment Attraction Trust Emotional
<ul style="list-style-type: none"> •Time/Planning/Logistical/ Electronic/Administrative/ Informational/Organizational 	<ul style="list-style-type: none"> •Cultural
<ul style="list-style-type: none"> •Economic/Financial 	<ul style="list-style-type: none"> •Ideological
<ul style="list-style-type: none"> •Legal 	<ul style="list-style-type: none"> •Psychological
<ul style="list-style-type: none"> •Geographical 	<ul style="list-style-type: none"> •Knowledge Organizational knowledge
<ul style="list-style-type: none"> •Knowledge Organizational knowledge 	

Figure 11. Abstraction level of bonds

Examples on concrete bonds are when companies build up **timesaving** systems for communication, which are used in the cooperation with the counterpart. Plants may be built up, **technical** adaptations are done both in the production process and product development process as well as in others. When the companies have cooperated for a longer time, they get to **know** each others' strengths and weaknesses and they also make up standardized routines for cooperation etc. **Legal** frameworks for the cooperation are drawn up and financing for common projects and prices of products and other **economic** issues are decided. If so requested suppliers may start producing products closer to the buyers if the **geographic** distance is making the cooperation difficult.

Abstract bonds on the other hand are bonds that build up in the consciousness of people. Such bonds are for instance the **social** bonds that form when people cooperate with each other and become friends or enemies.

When it comes to being certain that some products are superior to others even when they are technically similar it is also a matter of **psychological** issues that are built up in the mind and hence also abstract. The same goes for **ideological** issues where certain companies prefer domestic parts in assembly of for instance trucks, since the end customer prefers trucks with a high domestic content, etc. **Cultural** issues like a common language is also part of an abstract bond. **Knowledge** bonds can also be abstract since knowledge is spread through social interactions.

Knowledge bonds are difficult to place since they can be placed both on the concrete and the abstract side; they are in a grey area, but concrete in the sense that standardized routines for cooperation etc. are made up. But they can also be abstract when the cooperating companies learn about each others strengths and weaknesses and about the

way they do business through social interaction. This is the reason that knowledge bonds are placed on both the concrete and abstract side of the table in Figure 10.

3.5 A Static and a Dynamic View of Bonds

One of the contributions of this study is that I have divided bonds into a static and dynamic perspective. A static perspective on bonds is regarded, as the perspectives that have been used earlier in theory when bonds have been viewed as if they would be frozen in time and the development of bonds over time had not been looked at. I have noticed the development of bonds and the weakening and strengthening of bonds in my analysis of the empirical material and found a dynamic perspective of bonds. The division into a static and dynamic perspective of bonds has rarely been made before.

When the change of bonds in the relationship is viewed from a dynamic perspective, the bonds in a relationship develop and change over time. I am describing the concrete and abstract bonds in the relationship from a static perspective. The division into concrete and abstract bonds will not be made in chapter four where I present theory regarding the dynamic perspective. In the analysis part the concrete and abstract bonds will be shown from a dynamic perspective.

3.5.1 A Static View of Bonds

In a static perspective of bonds we view bonds, as if they would be frozen in a particular moment, similar to a snapshot view of the bond structures, e.g. when the relationship between two companies is strong, weak, etc.

3.6 Concrete bonds

Concrete bonds are more or less tangible bonds that are developed when companies cooperate and hence adapt to each other and invest in the cooperation.

3.6.1 Technical bonds

Technical bonds are also called technological bonds by some authors (for instance Liljander & Strandvik 1995). Technical bonds stem from the characteristics of the products and services that are exchanged. Companies adjust the technical products and processes according to their counterpart's specifications. (Easton 1989, 1992) Two companies are technically bonded when they adapt to each other technically. The supplier may develop products that suit a certain type of customer and the customer may bind itself to a technical idea that may be difficult to change in the short run. (Hammarkvist, Håkansson, Mattson 1982; Johanson & Mattsson 1987) Technical bonds also exist when the supplier and customer adapt their products or processes to each other. (Easton 1992; Kock 1995; Holmlund & Kock 1995; Erbismann, Kock & Strandvik 1998) Adaptations between the cooperating parties can also be the change of systems and specific investments in equipment. Technical bonds exist for instance when the buyer and seller adapt their technical processes to each other. (Johanson & Mattsson

1987; Easton 1989, 1992; Kock 1991; Erbismann, Kock & Strandvik 1998) Products developed when companies have partnerships fits both supplier and buyer better, meaning that they demand less resources to produce than products that are made totally in-house (Campbell & Cooper 1999). Technical bonds can be very difficult to break for a new supplier (Kock 1991; Holmlund & Kock 1995).

If the supplier has a technical lead in some area the technical bond between supplier and customer may be strong. This could for instance be the case if the supplier has a patented product such as a tubular stabilizer that saves weight on trucks with 20 kg compared with a regular stabilizer (Wendelin 2000a, 2002a). Such special value enhancing products that will be the standard products of tomorrow can bind a buyer to a supplier very tightly, at least if you are first to market with the product (Bliemel & Eggert 1997). Architectural interdependence is usually common in auto manufacture when the buyer's product is assembled out of a large number of parts, components and subsystems delivered by different suppliers. These items are separate but functionally interrelated. Sometimes the interface between the supplier's component and the assembled vehicle is critical for how well the buyer can sell his product on the market. Less critical components can have standard technical solutions and standard technical specifications that are defined in the contract. Critical technical solutions, however, are e.g. changes in design, quality, etc. that changes made to one part usually require changes in the other parts design, development, assembly, etc. Complex components need to be customized according to different models. (Bensaou & Anderson 1999)

In a study by Brennan & Turnbull (1999) they found that a car producing company without protest said yes to an 8 % price increase on a certain product from one supplier at the same time as the company demanded price reductions from its other suppliers. In this case the supplier had a worldwide technological lead in the product area so that the buying power of the car-producing giant was decreased (Brennan & Turnbull 1999). If a supplier has a worldwide technical lead regarding some important components they can raise the price without any consequences (Brennan & Turnbull 1997).

Technical bonds exist for instance when a customer purchases a specific brand and therefore has to continue to use a certain dealer in order to buy original spare parts or to get the product service. (Liljander & Strandvik 1995) Technical bonds may also be in question when a producer builds products or has standards that are not compatible with parts or products or standards of different brands; this may create technical exit barriers (Estelami 1999). Solutions to a buyer's problem that are tailor made for that specific buyer will function as a technical bond creating an exit barrier. Especially if the buyer is the only customer buying the specific solution and the supplier is the only supplier of that particular solution. (Erbismann, Kock & Strandvik 1998)

The technical knowledge acquired when cooperating may be specific to the relationship (Easton 1992; Järvinen 1996). Computer links between a bank and a customer as well as knowledge links and access to financial information are also regarded as technical bonds (Proenca & Castro 1997, 1998 and 2000). The mutual computer technology and electronic documentary channels that the cooperating counterparts have planned and built together in order to automate routines are seen as technical bonds. (Järvinen 1997)

Conclusion on the views of technical bonds

In this study I argue that adaptation in either product or process, cooperation regarding technical development, investment in equipment, technical lead as for instance through a patented product or bond due to brands, in order to get spare parts or service, constitute technical bonds.

The variation of the perceptions of what constitutes technical bonds is small. Most authors as for instance Hammarkvist, Håkansson and Mattson (1982), Johanson & Mattsson (1987), Easton (1992), Kock (1995) and Holmlund & Kock (1995) perceive that the buyer and supplier should adapt to each other, either that they adapt their processes or their products to each other.

Bliemel and Eggert (1997) argue that special products at the forefront of the development of products may bind a buyer to a supplier strongly and is a technical bond. Brennan and Turnbull (1997, 1999) argue that a technical lead and thus a strong technical bond can lead to insensitivity in price awareness from the buyer's point of view. This differs a bit from the adaptation view and is more of an exit barrier that new technique creates that will bind the buyer to the supplier due to a superior solution that will be a competitive advantage. Brennan and Turnbull (1999) also argue that a technological lead can be an effective exit barrier. This barrier is an exit barrier in a negative sense since the new technology used may be such a big advantage to the buyer that the prices can be increased steeply without a termination of the relationship.

In a third view on technical bonds, Liljander & Strandvik (1995) argue that technical bonds can be exit barriers that are due to brand where brand loyalty must be kept in order to get spare parts or service.

3.6.2 Time bonds

Time bonds are also called planning, logistical, electronic, administrative, informational, or organizational bonds. There are some minor differences between some of the bonds that are shown below but otherwise the differences are small. Short examples of the different bonds gathered under the name time bonds follow below.

For instance Roeckl (1996) argues that **electronic** bonds make it possible for service providers to exchange information regarding customer orders using EDI.

Logistical bonds are according to Easton (1992) in place when companies adjust logistically to each other regarding physical transfers of products.

Administrative bonds are administrative systems. Cooperating companies have to have similar interfaces or be able to adapt the interfaces to each other so that information can flow and tasks can be performed between the companies. (Easton 1992) Järvinen (1997) perceives administrative bonds as electronic contacts between cooperating counterparts as well as frequent visits and ease of getting hold of contact persons.

Informational bonds are connected to the information exchanged between counterparts in the cooperation (Proenca & Castro 1997, 2000). This includes everything from the tone of voice in a telephone conversation to the formal exchange of orders and invoices. When the communication connections are up to date and working then information can be transmitted very easily. (Easton 1992)

Logistical coordination is an example of **planning** bonds (Johanson & Mattsson 1987). Planning bonds develop when the cooperating companies' delivery systems are connected. Using on-line computer for scheduling deliveries may connect the companies administratively. (Kock 1991) Just-In-Time or similar systems are seen as a planning bond (Holmlund & Kock 1995; Erbismann, Kock & Strandvik 1998).

Organizational bonds cover all organizational and administrative aspects of cooperation between customer and supplier, i.e. everyday administrative routines, contact availability. (Seyed-Mohamed & Thunman 1994)

I have, however, decided to go with the notion time bonds as used for instance by Hammarkvist, Håkansson & Mattson (1982). It is the most covering view on bonds involving logistic coordination, visits of personnel, etc. The essence of the meaning of all approaches to time bonds is the same: coordinate and make the flow of information and goods as fast and flexible as possible in order to save time and money for both counterparts in the cooperation, thus efficiency and effectiveness of the flow of information. After the short examples given a more thorough presentation of time bonds follow below.

Companies in a network have a need for a strong coordination when it comes to time. By coordinating business units according to time in the product-chain the capital costs may be reduced heavily. Lateral activities should also be coordinated in order to avoid delays or similar problems. To avoid stops in the production process all deliveries should be accurately planned. This is due to the fact that warehouses are becoming smaller. Cost for warehousing may be reduced in this way (Kock 1995). Administratively this means that different routines should be coordinated (Hammarkvist, Håkansson, Mattson, 1982). This could be done by for instance using on-line contacts between computers.

Time bonds develop when the companies in the relationship adapt their logistic functions to each other i.e. logistical coordination is an example of time bonds (Johanson & Mattsson 1987). Cooperating companies adjust logistically to each other regarding physical transfers of products or when services are produced. These adjustments may be of permanent or flexible character. (Easton 1989, 1992) Time bonds develop when the cooperating companies' delivery systems are connected. This is possible if the companies are part of the same production chain. Using on-line computer for scheduling deliveries may connect the companies administratively. (Kock 1991) JIT deliveries, according to which a supplier must deliver according to a time plan, is also an example of a time bond (Kock 1995; Holmlund & Kock 1995; Erbismann, Kock & Strandvik 1998).

If a company uses JIT deliveries, vertical supply alliances or EDI (electronic data interchange) connections then the supplier knows how much of a certain product a customer's production process requires and when the customer needs the products (Kock 1995; Wendelin 1998a). By using EDI, the customer could for instance send the supplier information regarding what the customer needs in the production process a week from current time and the specifications of these products. By doing this no unnecessary products are manufactured and the company does not have to use more money for manufacturing the products or warehousing than what is absolutely necessary. (Wendelin 1998a) Sheth and Sharma (1997) find that linkages such as EDI will reduce both the suppliers' and buyers' costs and dramatically shorten cycle times. Time bonds create an interface between local and long distance suppliers making it possible for them to exchange information regarding customer orders, etc. Protocols like EDI or HTML can be used (Roeckl 1996). The same topics are followed when it comes to CAM (computer aided manufacturing) as Han, Wilson and Dant (1993) point out. New product developments that have a particular timetable and are urgent for the organization put pressure on the supplying company to adjust to the buying company's rhythm. The partner company must learn how to adjust to certain important activities of the buyer. (Easton 1992; Wendelin 1998b) Partnerships can shorten development time and decrease development costs (Campbell & Cooper 1999). By using CAD (computer aided design) the cooperation between the design and development departments in the cooperating companies becomes closer and thereby shortens the development process (Han, Wilson & Dant 1993; Wendelin 1998a).

The time bond is similar to the technical bond as it includes everyday routines. It may be connected to the computerized environment with electronic contacts between the cooperating counterparts. Reorganizing and automating routines from earlier manual back-office routines to electronic routines saves time. (Järvinen 1997) This means that time bonds use the administrative systems that vary from organization to organization. When companies cooperate, the administrative systems, however, have to have similar interfaces or to be able to adapt the interfaces to each other, otherwise different routines have to be developed to cope with the problem of incompatibility. That means having a routine that bypasses the system that is usually used so that information is passed on between the companies. (Easton 1992)

Frequent visits and ease of getting hold of the contact person constitute a time bond (Järvinen 1997). Time bonds cover all organizational and administrative aspects of cooperation between a customer and a supplier. They can be issues such as ownership connection, everyday administrative routines, contact availability. (Seyed-Mohamed & Thunman 1994) The supplier may build a warehouse or factory near the buyer to make JIT even more economical. Over time the cooperating counterparts will have made substantial investments in resources in each other and these co-specialized assets will make it possible to generate a lot of added value for the auto-maker both in cost savings and product differentiation. (Bensaou & Anderson 1999)

Fluctuations in volume required are common in business and for instance for automakers the risk of volume shifts can be put on the suppliers. This is advantageous for the automakers. (Bensaou & Anderson 1999) Costs for warehousing are usually substantially reduced when JIT is introduced (Holmlund & Kock 1995). Time bonds

can also be due to that service provider's business hours or appointment systems that are suitable for the customer (Liljander & Strandvik 1995).

What Easton (1992) calls an informational bond resembles a time bond. Information is important in relationships between companies. For all other bonds to exist communication between companies is needed so that information can be shared. This includes everything from the tone of voice in a telephone conversation to the formal exchange of orders and invoices. A warehouse of information is regarded as an investment that companies can make on account of these partners. When the communication connections are up to date and working then information can flow around a network very quickly. (Easton 1992) Informational bonds are connected to the volume, importance and ownership of the information exchanged between counterparts in the cooperation. (Proenca & Castro 1997, 2000)

Conclusion on the views of time bonds

In this study I argue that adaptation of logistic functions, flexibility in the flow of information as for instance utilizing EDI, CAD systems, and delivery precision and issues connected to delivery precision or easiness of appointments constitute time bonds.

The perception of time bonds varies to some extent between different authors. Some of the authors consider the time bonds to be mostly focused on technical solutions like interfaces using EDI and the technical part of the time bond see Roeckl (1996), Easton (1992) and Kock (1991). Others focus on JIT and other logistic systems see Johanson & Mattsson (1987), Holmlund & Kock (1995), Erbismann, Kock & Strandvik (1998).

Liljander & Strandvik's (1995) perception of time bonds is that time bonds also can be due to business hours or appointment systems that are suitable for the customer. This can also be relevant from an industrial perspective since the system with summer time, time differences or vacations may influence the possibility to contact people if for instance the switchboard closes early. Business appointments may be difficult to book due to time differences etc. On a higher level of abstraction the similarities between the different issues regarded as time bonds is larger than the differences.

3.6.3 Knowledge bonds

"Information is a flow of messages, while knowledge is created and organized by the very flow of commitment and beliefs of its holder" (Nonaka 1994 p.15). This means that even if the terms knowledge and information often are used interchangeably there is a strict distinction between knowledge and information (Nonaka 1994). The distinction is that information is useless if one does not possess the knowledge that makes it possible to process the information.

Knowledge bonds develop with time as the cooperating companies learn more about each other's strengths and weaknesses, opportunities and problems. This happens when companies for instance develop products together. (Kock 1991) Cooperation during

product development is one way of developing knowledge bonds (Kock 1995; Erbismann, Kock & Strandvik 1998). The needs of the other company in the cooperation are also something that the companies learn to recognize over time (Seyed-Mohamed & Thunman 1994).

When two counterparts cooperate for some time they learn each other's strengths and weaknesses and how they perceive problems. Knowledge bonds develop when information is exchanged (Holmlund & Kock 1995; Erbismann, Kock & Strandvik 1998). The customer learns the supplier's way of doing business and what the supplier can achieve and how he can use the supplier's ability in an optimal way. The supplier learns how the customer uses the product. The needs of the other company in the cooperation are also something that the companies learn to recognize over time (Seyed-Mohamed & Thunman 1994). The cooperating companies develop knowledge about each other (Johanson & Mattsson 1987; Nonaka 1994; Järvinen 1997). Both actors know how the counterpart solves problems (Kock 1991). This development of knowledge can be seen as an investment in the relationship. The knowledge of each other's possibilities, needs and problems usually affects how the companies build up their research and development strategies and this may strengthen the bond in the future. (Hammarkvist, Håkansson, Mattson, 1982) It is easier to cooperate with a counterpart if it is known what it may be able to do (Kock 1991).

Knowledge bonds are made up of the knowledge of the structure, processes and clients of the company with whom one cooperates. This includes all organizational and all market aspects of the counterpart in the cooperation. (Proenca & Castro 1997, 1998, 2000) Knowledge bonds may function as exit barriers since the cooperating counterparts have good information about each other making it more difficult to start to cooperate with new counterparts (Liljander & Strandvik 1995; Hocutt 1998).

Knowledge bonds also exist when the cooperating organizations learn common rules regarding each other's organizations (Kock 1995). These may be rules regarding contracting, a common language regarding technical issues, standardization of processes, routines and products. The cooperating counterparts' knowledge about how the other organization handles organizational problems, their view of business ethics and about their technical philosophy also constitute as knowledge bonds. This mutual knowledge takes a long time to build up since it is based on personal experience about the relationship. (Johanson & Mattsson 1987) Mutual knowledge is the background knowledge that all parties in the cooperation are assumed to have when communicating with each other. Training, know-how and expertise of the cooperating counterparts are part of knowledge bonds. Personal contacts are important for knowledge bonds. (Järvinen 1997) This is since the personnel in the companies have the knowledge and personal contacts make it easier to get hold of the knowledge.

There may be specific investments as a sign of commitment and over time this may lead to closer cooperation between the cooperating counterparts in for instance design, research and development. The successful joining of knowledge may affect technological innovation. As an example Toyota engineers know the design, engineering and manufacturing capabilities of some of their closest suppliers very well. Toyota has developed several generations of new products with these first-tier suppliers.

They have used joint teams to achieve a greater information transparency and to develop more trust, and this has led to joint long-term technology planning and joint research, etc. (Bensaou & Anderson 1999)

Conclusion on the views of knowledge bonds

In this study I argue that familiarity of strengths and weaknesses, opportunities and problems regarding the counterpart in the cooperation, cooperation regarding development of products, mutual knowledge regarding rules and routines based on personal knowledge constitute knowledge bonds.

There is very little variation between the perceptions of knowledge bonds between different authors. Kock (1991) perceives that knowledge bonds develop with time as the cooperating companies learn more about each other's strengths and weaknesses, opportunities and problems. This happens when companies for instance develop products together. Johanson & Mattsson (1987), Nonaka (1994) and (Järvinen 1997) make the same notion. Kock (1995) has a notion that knowledge regarding common rules regarding each other's organizations is important for knowledge bonds; knowledge about rules regarding contracting, a common language regarding technical issues, standardization of processes, routines and products. The essence of the meaning of all approaches to knowledge bonds is the same which is learning more about the counterpart in the cooperation.

3.6.4 Legal bonds

Legal bonds mean that the actor is bound by a contract. This could be an amount specified in the contract of goods delivered a financial agreement or a joint-venture agreement. Legal bonds could also be when one counterpart owns a part of the company it cooperates with. (Macaulay 1963; Kock 1991, Kock 1995; Holmlund & Kock 1995; Erbsmann, Kock & Strandvik 1998; Halinen 1994; Håkansson & Snehota 1995) Palmer, Friedland & Singh (1986); Johanson & Mattsson (1987) and Mattsson (1987) argue that a long-term contract is a legal bond. Contracts overall or other articles of involvement or ownership can also constitute legal bonds.

Contracts help to ensure that the cooperation will continue by clarifying the obligations and the expectations that the cooperating counterparts have on each other. Contracts also set up a structure in which adaptations can be taken in order to adapt to unexpected events. (Macaulay 1963; Cannon, Achrol & Gundlach 2000) A negative point connected to contracts is that there could also be lots of costs if a counterpart sues the other counterpart in the cooperation for breaking a contract. (Macaulay 1963) "Holding the customer to the letter of a contract is bad for customer relationships. Suing a customer who is not bankrupt and might order again is poor strategy" (Macaulay 1963, p. 66).

For instance Macaulay (1963) argues that even though certain issues may not be specified in a contract, companies that cooperate ensure that both counterparts understand the obligations on both sides. Those who cooperate know the customs of

their industry and how you are supposed to deal with each other. Products are tested in order to see if they comply with specifications of the order. If there are problems or default products buyers usually have more suppliers supplying the same products so that default products will not stop the assembly lines at the buyer's plant. Contact persons in companies are also faced with angry customers if some deliveries have been delayed or products have been defect. (Macaulay 1963) In such situations peer pressure functions as a contract. Hands on agreements are usually seen as more binding than written contracts (Macaulay 1963; Wendelin 1998a; Cannon & Perreault 1999).

Legal bonds are easy to grip but may not be as binding as they appear to be. The reason for having a legal contract may be that the other bonds may not be working as well as they could. (Easton 1992) Later it has been argued that it does not have to be a long-term contract in order to constitute a legal bond since most contracts are renegotiated on a yearly basis anyway (Wendelin 1998a).

Legal bonds are binding contractual agreements that are used to specify the cooperating parties' roles and obligations. Exit barriers may be contracts that stipulate the time of cooperation where customers are prevented from switching suppliers due to high penalties stipulated in the contract (Estelami 1999). Contracts help to ensure the continuing exchange by clarifying obligations and expectations that the cooperating counterparts have on each other. (Macaulay 1963; Cannon, Achrol & Gundlach 2000) For instance contracts regarding logistical systems between companies should include a contingency plan if the relationship should dissolve (Bowersox 1990). If contracts are characterized like this it means that they are less flexible and harder to adapt. Highly detailed contracts make it harder to manipulate the cooperation in ones own favor. (Cannon, Achrol & Gundlach 2000) When there is technical uncertainty contracts written with third parties are left more open due to that they are more difficult to specify and control. (Bensaou & Anderson 1999)

A contract is relationship-based when parties are unable to reduce important terms to well defined obligations. Contractual arrangements may take place in an environment were the future is uncertain. The cooperating counterparts often cooperate in long-term exchanges where the relationship is important and where there are expectations that the relationship will give future and mutual benefits to the counterparts. Personal relationships, extensive communication and elements of non-economic personal satisfaction characterize relationship contracts. (Paulin, Perrien & Ferguson 1997)

If the cooperating counterparts share a highly developed social structure, what benefit is there with a highly specified contract or any contract at all (Macaulay 1963; Cannon, Achrol & Gundlach 2000). Contracts are important because they help to reveal unspoken assumptions and create a common understanding from the beginning of the relationship. Contracts are also important because governance by social norms can be limited. Due to that those norms are not formally codified unclear expectations and misunderstandings can arise that undermine coordination. (Cannon, Achrol & Gundlach 2000)

Legal and economic bonds were closely knit together in the early industrial marketing literature. They were seen as one bond in Hammarkvist, Håkansson & Mattson (1982).

Contracts, cooperation agreements that have a long time-span and influences from the owners are examples of legal bonds. Economic bonds like help with financing are usually combined with some kind of legal contract. (Hammarkvist, Håkansson & Mattson 1982) The legal contracts are often a complement to other bond types. In cases when companies are purchased the legal bonds can result in the development of other bonds. (Hammarkvist, Håkansson & Mattson 1982)

Contracts between suppliers and buyers in the automotive industry are usually drafted for specific cars or models. The length of the contract depends on how long the production of a certain car model will continue and hence for how long time the supplier is needed in order to supply parts adapted for that model series. (Backhaus & Büschken 1999) If the supplier has a product that has a technical lead on the market then it could be possible to force the customer to accept their terms of contract or to adapt the customer's standard terms of contract to fit the supplier (Brennan & Turnbull 1999).

Quality certifications like ISO 9001, QS 9000, EMAS, etc. and environmental certifications like ISO 14001 or even more stringent military quality certifications than QS 9000 can also be considered as legal bonds between companies (Wendelin 1998b, 2000a, 2002a, 2002b). Some customers require certifications of its suppliers (Wendelin 1998b, 2000a; Abraham, Crawford, Carter & Mazotta 2000). Non-certified suppliers may automatically be eliminated from further considerations when suppliers are asked for offers (Wendelin 1998b; Abraham, Crawford Carter & Mazotta 2000). That way they create a bond between the supplier and the customer that might be stronger than ordinary written contracts. It can for instance be more difficult for a customer of standardized products to find a replacing supplier quick that also has a certification if the current relationship to the supplier is terminated. (Wendelin 1998b) The buyer's customer may also require certification down the product chain.

Conclusion on the views of legal bonds

In this study I argue that written contracts, quality certifications or environmental certifications constitute legal bonds.

There is some variation between the perceptions of legal bonds between different authors. The sociologist Macaulay (1963) describes contracts in business relationships. Similar views to what Macaulay is writing in 1963 are then later put forward by for instance Hammarkvist, Håkansson & Mattson (1982) as well as by Johanson and Mattsson (1987) and by Mattsson (1987). The legal bonds are according to all authors written contracts that are made up that bind the actors and specify their roles and obligations. It may be an amount specified in the contract of goods delivered a financial agreement or a joint-venture agreement. Legal bonds could also be when one counterpart owns a part of the company it cooperates with or when financial agreements are made. Quality certificates as well as environmental or military certifications have also been seen as legal bonds e.g. Wendelin (2000a). These certifications can be seen as legal bonds since some buyer may see it as prerequisites that the supplier is certified in order to conduct business with the supplier. The certifications are an addition to normal contracts and are important as such since they can affect the whole business

relationship. The certifications and the audits for the certifications have become an important part of the legal framework of the cooperation.

3.6.5 Economic bonds

Economic bonds are also named financial bonds by some authors as for instance Arantola (2002). Palmer, Friedland & Singh (1986) talk about interlocks between companies and how interlocks can exist between companies and not only between directors in the boards but also in the way of joint ventures, inter-corporate stockholding or common ownership by a family or a third corporation. I categorize all of these as economic bonds. More formal economic bonds exist when companies invest in each other and when they form joint ventures (Palmer, Friedland & Singh 1986)

A shareholding tie as used by Lincoln, Gerlach & Takahashi (1992), cross-shareholding, is regarded as an economic bond. This is for instance what takes places in Japanese business networks where different companies in a Keiretsu network own shares in each other. This is the most visible control structure that Japanese companies use in order to build bonds to business partners. (Lincoln, Gerlach & Takahashi 1992) Mutual investment in the business by the competing firms that is investing in each other's business also constitutes an economic bond (Proenca & Castro 1997, 1998, 2000). Part of the economic bonds is also the problem with how much money the cooperating counterparts should invest before they get the perfect match between systems. A problem correlated to this is how close the relationship can be before some of the counterparts may loose the independence or identity.

Another important issue that should be considered is also that adaptations in the relationship make the relationship more durable. Disagreements must be settled inside the relationship. If the relationship would end, money invested in the relationship would be lost. To find a new supplier/customer is not the easiest way to solve problems. (Kock 1991) Suppliers that have long-term relationships suffer on some economic dimensions such as margins but they profit on other things such as inventory holding costs. Bensaou and Anderson (1999) argue suppliers that have long-term relationships grow their overall business and improve their return on investment and make profit that way.

Terms of payment are also considered to be economic bonds (Kock 1991, Kock 1995; Holmlund & Kock 1995). The price agreed to pay for the products and services exchanged are an economic bond (Palmer, Friedland & Singh 1986; Wendelin 1998a).

Special credit arrangements constitute economic bonds (Johanson & Mattsson 1987; Halinen 1994). Economic bonds are bonds that exist when the companies that cooperate give credits or prolong the time for payment (Liljander and Strandvik 1995). Economic bonds can also be that the supplier gives discounts because of a relationship with the customer (Turnbull & Wilson 1989; Liljander and Strandvik 1995). The monetary benefits and discounts must differ positively from that of the competition in order to create a financial bond (Arantola 2002). It is common practice to give discounts for long lead times, that is when buyers order far in advance in order to retain buyers who have

several options and might order from other suppliers otherwise (Keskinocak, Ravi & Tayur 2001; Wendelin 1998a).

The time spent on the relationship constitutes an economic bond (Järvinen 1997). When non-economic aspects play a part in the relationship the price becomes less important. The stronger the other bonds the less important are the economic bonds. (Easton 1992) Economic bonds can also be due to that a lack of resources on behalf of the customer may force the customer to choose a specific supplier that fit the customer's budget. (Liljander & Strandvik 1995)

Conclusion on the views of economic bonds

In this study I argue that cross-shareholding, credit arrangements such as discounts, special payment time arrangements and price constitute economic bonds. I will also add that profit margins, the share of products or services supplied or bought, opportunity costs and bottleneck products affect economic bonds.

There is variation between the perceptions of economic bonds between different authors. Palmer, Friedland & Singh (1986) talk about interlocks between companies and joint ventures, intercorporate stockholding or common ownership by a family or third corporation. Several authors such as Lincoln, Gerlach & Takahashi (1992) present cross-shareholding and investment as economic bonds. Other authors such instance Arantola (2002) focus more on the discount and time for payment and consider them to be economic bonds. The essence of the message on a high level of abstraction is, however, that economic bonds exist when there is financial cooperation.

Seyed-Mohamed & Thunman (1994) and Proenca & Castro (1998) argue that when price on the parts from different producers does not differ and when the parts that different suppliers supply are homogenous then the price should decide which supplier the customer uses. This is however not always true. Customers that buy small quantities of products can have problems in finding a supplier that is willing to supply small quantities. This is due to the fact that suppliers favor larger customers that order larger batches of products that do not cause disturbances in the production process. As a result of this a small customer is usually forced to pay a higher unit price than larger customers.

It is common practice to give discounts for long lead times, that is when buyers order far in advance in order to retain buyers who have several options and might order from other suppliers otherwise (Keskinocak, Ravi & Tayur 2001). Discounts could be for instance from 30 days net to 120 day's net. The customers of Wärtsilä NSD get discounts on up till 22.5 % of the price of a product when they order spare parts for marine engines depending on how far in advance the customer orders the parts. In this way it is possible to estimate the need of different parts in the production process. Different customers usually also get different terms for payment depending on how solid they are. Economic bonds can also exist when for instance a supplier is selling a large part of its production to one single customer, that is that a supplier is very dependent on a single customer.

3.6.6 Geographical bonds

Geographical bonds make it more difficult for the customer to buy products from suppliers that are situated far away because of the distance between the supplier and the customer (Liljander and Strandvik 1995). Liljander and Strandvik (1995) regarded a service management perspective. The distance between and the location of companies are powerful influences affecting the companies' willingness to cooperate (Lincoln, Gerlach & Takahashi 1992). Lincoln, Gerlach and Takahashi (1992) regarded an industrial perspective.

Ford (1980, 1984) writes about geographical distance but it equals to geographical bonds. Geographical distance cannot be affected by the supplier, but the distance as the gap is can be bridged or at least reduced by establishing local offices or by sending staff out to the buyer on a residential basis. (Ford 1980) This can be residential staff such as residential engineers or consultants.

A second example of bridging the gap of distance with geographical bonds could be the case with the seat producer Recaro's factory that was built opposite to the Mercedes-Benz factory in Bremen. It delivers seats solely for the Bremen factory's production of certain models of Mercedes. In the bid for the contract Mercedes considered only suppliers that were willing to move their production plant near to the Mercedes factory. The building of the seat-producing factory vastly improves Recaro's chances to win further and future contracts with Mercedes both regarding new and existing models at the Bremen factory. (Backhaus & Büschken 1999)

In an industry setting the importance of geographic distance concerns mostly goods with a low price and a high weight that would not be economically sound to buy due to the high transportation costs (Wendelin 2000a). This could for instance be the case with wheels for trucks that it would not be economical for truck producing companies in Europe to buy from the US, because the weight of the wheels and the bulk size of the wheels would make the transport very costly.

Geographical bonds may exist even if the supplier is situated far away from the customer if the supplier lead-time or throughput-time in the production is short. If a supplier is situated at a greater distance from the customer than the competing supplier but has a shorter lead-time in the production then the geographical distance has lost its importance. The supplier situated more far away from the customer can actually deliver the goods faster to the customer than the supplier situated closer to the customer can due to the shorter lead-time. (Wendelin 2000a)

Conclusion on the views of geographical bonds

In this study I argue that the geographical distance between supplier and buyer, the delivery precision, and issues that bridge the geographical distance all affect geographical bonds. Issues that bridge the geographical distance are for instance warehouses, residential staff such as residential engineers.

The authors that have written about geographical bonds have all discussed the importance of the geographical distance between supplier and buyer. A short distance between buyer and supplier is seen as optimal but a long distance is seen as a drawback for the cooperation depending on the nature of the products. A long distance can be bridged by building factories close to the supplier or by having residential staff or by decreasing the lead times in the production.

Ford (1980) writes about bridging the gap by establishing local offices or by sending staff out to the buyer on a residential basis. This could be the case in for instance banking in the US where the banks are regionally based and companies do business with regional banks since there are fewer big multinational banks.

Geographical bonds can be the reason for instance for termination of the relationship if the supplier is situated at a large distance and there are several time zones and a time difference that causes problems for the cooperation. A European buyer may for instance have a supplier in California and the time difference may be so large that problems arise. Hence daytime in Europe is night in California and vice versa. A problem that needs solving quick and cannot be solved by the few persons being on call all night, such as a technical problem, will have to wait regardless of all the technical applications existing that would transfer information quickly. Distance can also be a large problem for engineers that have to cover vast distances by plane in order to solve some problems and this also costs time.

3.7 Abstract bonds

Abstract bonds are bonds that build up in the minds of people when companies cooperate or when people are using a company's products or services. Abstract bonds could be categorized as perceptions.

3.7.1 Social bonds

The chapter presenting theory regarding social bonds will be structured in the manner that it goes in chronological order starting with the first theories and presenting theories from sociology where the concept of social bonds has its roots. One industrial marketing paper Wilson and Mummalaneni (1986) that is grounded in sociology is also discussed in this part.

I will arrange **attraction**, **trust** and **commitment** under social bonds since I chose to categorize these as parts or building blocks of social bonds following for instance McCall (1970) for sociology and Wilson & Mummalaneni (1986) for IMP. The **relationship** bonds describe when individuals have relationships to each other according to Gross and Martin (1950) so these will also be placed under social bonds. **Emotional** bonds and trust are used interchangeably; see Bachrach (1997), so the same applies for that. The theoretical presentation of these bonds will be placed after the main part discussing social bonds since these are placed within subgroups under social bonds.

The sociological roots of the social bond concept

The ability for social teamwork is very important. Teamwork is an essential part of social bonds according to Small (1915). Ritter (1999) calls the ability for teamwork social qualifications but it has the same meaning. If people have difficulties in cooperating with others social bonds do not exist. Small (1915) argues that the Japanese, for instance, have a capability for teamwork due to their culture. Teamwork is more difficult for a person whose culture has striven more for individualism than in cultures where cooperation is more natural. (Small 1915)

Social bonds are according to McCall (1970) split up into five different types of social bonds. These are ascription, commitment, attachment, investment and reward dependability. These bonds usually blend completely in most relationships but they are however different from each other and vary in strength independently of each other. This resembles to what Wilson and Mummalaneni (1986) have found when they split social bonds up to investment, trust, attachment and commitment.

Ascription is when people are linked to each other in a relationship due to kinship or other social groupings. Passive ascription is when one is satisfied with one's current social grouping, for instance with the supervisor-employee relationship. Active ascription is however when one strives to be part of a certain group for instances doctorates, licensed accountants. (McCall 1970)

The members of a relationship can be bound by attachment (McCall 1970; Turner 1970). A small group can be bound together only by personal attachment as well as a large group can be held together partly by personal attachment within cliques (Turner 1970). Wilson and Mummalaneni (1986) argue that the psychological bond of attachment and not repeat purchase ensures the stability of relationships.

Investment is a powerful bond between persons. When someone has spent time and money on establishing and maintaining a relationship he cannot end the relationship before he has got a return on his money that he has spent on the relationship (McCall 1970). The combination of investments and the level of satisfaction determine how committed to the relationship counterparts in the interaction are (Wilson & Mummalaneni 1986). If the relationship ends abruptly the person would lose the money and time spent on the relationship. Since the bond is a joint venture we also have to consider the other counterpart's investments in the cooperation. (McCall 1970)

These were the main thoughts in the theory from the social approach where the industrial IMP approach on bonds has its roots. The text that follows also has some sociological influences but is to a higher extent based on the industrial marketing as well as service management research.

The development of the concept of social bonds

Interpersonal ties exist between individuals and the tie strength affects how much the individuals' friendship networks overlap each other (Granovetter 1973). When people like each other it can be defined as a social bond (Johanson & Mattsson 1987; Proenca

& Castro 1997, 1998, 2000). Social bonds are close personal relationships between people in cooperating companies (Turnbull & Wilson 1989; Naude & Buttle 1999). The main parts of the contacts between companies are contacts on a personal level. Due to this the relationship will consist of social elements. These social elements are important since they complement the legal agreements that are made up (Håkansson 1982; Kock 1995). Legal agreements are usually not covering the total agreement and that makes it important for the cooperating persons to trust each other (Håkansson 1982). It is usually first when the counterpart been tested in some situation that he can be trusted. It usually takes a long time. The social bond is therefore also seen as an investment. (Hammarkvist, Håkansson, Mattson 1982)

Social bonds develop between personnel from the companies that cooperate in the dyad and not between the companies themselves. (Kock 1991; Erbismann, Kock & Strandvik 1998) Social bonds can develop between personnel at all levels in the companies when representatives from the companies learn to know each other and start to trust each other (Kock 1991; Holmlund & Kock 1995; Easton 1992; Turnbull, Ford & Cunningham 1996). Personal contracts can also be of importance in the maintenance of relationships to customers (Turnbull, Ford & Cunningham 1996). By developing trust in each other it is even possible to solve difficult issues over the phone and the cooperation between the companies becomes stronger. The more frequently individuals interact with each other the stronger their feeling of friendship for each other tends to be (Homans 1950). Social bonds may be formed by just being friendly or through socializing with clients (Hocutt 1998). The more similar two persons are in various ways, the stronger the social ties between them (Granovetter 1973). The social bonds are not only improved in work related occasions but also in the spare time (Kock 1991, 1995; Erbismann, Kock & Strandvik 1998). For instance through watching ice hockey, playing golf, sauna or social evenings. By becoming friends and starting to trust each other the written contracts can be replaced with hands on agreements. Hands on agreements can contain much more than formal written contracts. Personnel are important in networks. Social bonds, trust, power and expertise are often more person specific than company specific. An example of this is that sales or other personnel often take clients with them when moving from one company to another. (Thorelli 1986)

Social bond does not have to have positive results but could also be negative in some sense. If the cooperating partners are starting to take each other for granted then this could result in that the cooperation degenerates. This is due to that when the customer is perceived to be a loyal customer then the company could stop in striving to do its best to maintain the customer because the customer is perceived to be loyal anyway. The company may stop to improve its products due to this. Another negative aspect with social bonds is that one often remembers the negative experiences better instead of remembering the good ones. (Kock 1991) If a customer feels that he has been treated unfairly then a personal relationship could worsen the situation and this could result in long-lasting problems if the relationship ends (Halinen & Salmi 2001).

The different personalities and backgrounds that the employees in the cooperating companies have lead to that every employee will act differently in social exchange between companies. How they react in different episodes when cooperating can affect how the relationship develops. The individual experience can result in bias towards

certain customers or suppliers for instance suppliers from a certain country. This affects how the employees behave and the employee's attitudes towards these suppliers. (Håkansson 1982) Social bonds can also be due to family ties or to common school backgrounds. (Simmel 1906; Macaulay 1963; Turner 1970; Lincoln, Gerlach & Takahashi 1992; Seyed-Mohamed & Thunman 1994; Björkman & Kock 1995; Proenca & Castro 1997, 1998, 2000; Håkansson, Havila & Pedersen 1999; Halinen & Salmi 2001; Roslin & Melewar 2000).

Social bonds are also in question when people from cooperating companies sit on each other's board of directors, or when one director sits on the board in both companies. The director builds social bonds to directors in the cooperating company since they meet on a regular basis. The director then may give information regarding the directors in the cooperating company to the directors on the own board and vice versa. Directors that maintain the bonds know and trust each other. Directors know and trust a candidate before they appoint him to the board. (Palmer, Friedland & Singh 1986) This is similar to what Granovetter (1973) calls "friends" or "friends of friends".

Social bonds can in some cases explain a behavior that in other cases would seem meaningless and irrational and that is why social bonds between individuals both in the company and outside the company should be emphasized more. Social bonds can also replace economic bonds as the main reason for the relationship between companies to continue (Easton 1992; Arantola 2002). The bonds could for instance affect the strategy in a company if a new person in a leading position is hired. The person may be from another line of business and may therefore have another social network than the old decision-makers in the company. When problems occur or when decisions are made it is therefore possible that the new decision maker will consult people from his own social network and this may lead to different decision than what has been made earlier in the company and this may change the strategy (Kock 1995). Cultural similarities can also be a social bond between people (Proenca & Castro 1997, 1998, 2000). I, however, prefer to see cultural similarities as a cultural bond.

According to research made by (Järvinen 1997) it takes around two years before the personal relationships between contact persons turn into friendship and it is therefore important that contact persons stay in their positions for long periods. Too close personal relationships may not be seen as harmful but managers might control the relationships of their employees and the permission of manager's may be needed for social events. (Järvinen 1997) Some companies actually rotate people with intervals of approximately 1.5 years in order to avoid friendship between for instance buyers and sellers. As it is seen that such friendship could lead to partial relationships, thus that for instance the buyer take the suppliers part against their employers.

Subgroups to social bonds

The following elements can be seen to be belonging to social bonds as subgroups under social bonds.

Commitment

Commitment is also an important component of social bonds. A person may to a varying extent have committed himself publicly or privately to a restrictive agreement or a trade agreement with another part. He uses the other part in the cooperation almost exclusively for certain specified purposes. Commitment is a strategy for insuring and increasing the dependability of a source. A person is under a moral obligation to fulfill his commitment even if it would not be made on moral grounds. If you commit yourself to something you would have to have a very good excuse to withdraw from your agreement to be able to break the commitment without losing face. (McCall 1970) Commitment leads to more investments and continued interaction with the counterpart in the cooperation (Wilson & Mummalaneni 1986).

“Commitment is defined as the parties’ intentions to act and their attitude towards interacting with each other” (Liljander & Strandvik 1995). This definition reflects the core meaning in the earlier definitions of the concept (Liljander & Strandvik 1995).

Commitment is the highest stage of relationship bonding, which occurs when a customer or supplier is committed to the specific firm (Dwyer, Schurr & Oh 1987; Halinen 1994; Arantola 2002). Commitment is the most advanced bond and takes the longest time to develop. Commitment is affected by the earlier history of the relationship. Commitment is when the parties in the cooperation implicitly or explicitly say that they will continue the relationship (Tuominen 1999; Batt 2001). Committed partners are still aware of alternative partners to cooperate with but they do not test them constantly. (Tuominen 1999)

Trust

Trust is closely related to power and influence. It is confidence that the mutually satisfying relationship will continue. Trust is a future oriented concept even though it is based on reputation and the past performance of the cooperating parties (Thorelli 1986; Tuominen 1999). Trust is defined by an example of Thorelli (1986, p. 444) “as an assumption or reliance on the part of A that if either A or B encounters a problem in the fulfillment of his implicit or explicit transactional obligations, B may be counted on to do what A would do if B’s resources were at A’s disposal”. Trust can be seen as the confidence of the voters in politics or as brand reputation. (Thorelli 1986) Trust meaning that the counterpart in the cooperation can be trusted to fulfill his promises and obligation and is considered to be important in an industrial market. (Liljander & Strandvik 1995) Trust is necessary in order to increase commitment (Wilson & Mummalaneni 1986; Liljander & Strandvik 1995). Or as Canning and Hanmer-Lloyd (2001) put it; commitment is a consequence of trust.

Trust is built up when people interact and personal friendship and social bonds are developed. In Asian cultures trust supports contracts and may even replace them. Mutual trust is a much better way for companies to protect themselves against unpleasant surprises than formal agreements (Gadde & Håkansson 1993; Håkansson & Gadde 1997). When contracts are made up or under the negotiations the establishment of trust usually takes more time than Western businessmen are used to or have patience for. (Thorelli 1986)

Organizations or individuals can be trusted. One dimension of trust is the perceived credibility of a partner with whom the company is cooperating, that is can one rely on the partner's word or written contract. Contracts can often be self-enforcing, that is that the contract will not be violated since this would backfire on the counterpart that goes against the contract (Bensaou & Anderson 1999). Another dimension of trust is that the cooperating counterparts are genuinely interested in each other's welfare and are motivated to see to that both parties gain from the cooperation. Trust is also the fact that the cooperating counterparts believe that their needs can be fulfilled in the future by the other party in the cooperation. (Tuominen 1999)

Trust is an emotional bond (Bachrach 1997; Arantola 2002). According to Bachrach (1997) Aristotle has once said. "No appeal to logic is ever as successful as an appeal to emotion". We trust people that develop emotional bonds between themselves and us. We also trust people or companies to whose products, services or goals we are emotionally bonded. When talking about products or services for instance it is essential to first create emotions to the products or services and after that features and benefits of the services. It is easier to develop a certain product features than to create emotions about the product. (Bachrach 1997)

Conclusion on the views of social bonds

In this study I agree with the views of the authors and argue that commitment, trust, personal relationships, and social interaction affect social bonds.

I will also add that contacts and unofficial contacts between personnel constitute social bonds. Contacts, unofficial contacts and interaction are on a lower level of abstraction parts of personal relationships. Turnover of personnel does also affect the social bonds since a high turnover of personnel will lead to that the people cooperating have less time learning to know each other and are hence less prone to develop trust and personal relationships to each other.

There is variation between the perceptions of social bonds between different authors. The essence of the message put forward by most authors is however very closely related. By having commitment or trust or other elements of social bonds to the counterparts in the cooperation it is possible to for instance complement legal agreements and the cooperation becomes smoother. Social qualifications are important in order to form social bonds and to cooperate with other people. Social bonds are developed when people interact both professionally as well as in their spare time. The more similarities there are between cooperating persons the easier it is for them to get along. Social bonds can also be due to family ties or to common school backgrounds.

3.7.2 Cultural bonds

"The culture of a group of people can be defined as: shared patterns of behavior embedded in their values, beliefs, meaning and understanding" (Roslin & Melewar 2000, p.52). The perspective of

sharing the same culture is seen as an integrating mechanism that binds members in organizations together (Roslin & Melewar 2000).

Cultural bonds develop between suppliers and customers with a similar cultural background (Liljander & Strandvik 1995). Ford (1980) refers to cultural bonds as cultural distance and says that employing local people is the only way to bridge it. Cultural bonds might be the way working methods, norms or values are similar due to national characteristics (Ford 1980). It is also important to know that the management practices are culturally dependent and varies from country to country so that what works well in one country might not work in another (Roslin & Melewar 2000). National values may affect the cooperation between companies (Harris & Dibben 1999). The language spoken, religion or which country the company comes from might result in that the customer identifies himself stronger with some companies (Wendelin 2000a, 2002a).

Conclusion on the views of cultural bonds

In this study I argue that a similar cultural background, religion, language or company culture constitute cultural bonds.

There is not much variation between the perceptions of cultural bonds between different authors. The culture of a group of people or the culture of an organization is on a higher level of abstraction connected to the language, religion, and backgrounds of the people in the organization or outside the organization at a national or international level. Similar cultural background like a common language, religion, and way's of solving problems etc. is regarded to be cultural bonds.

3.7.3 Ideological bonds

Ideological bonds are bonds that make a customer choose suppliers that, for instance, manufacture green products, or favor domestically manufactured products (Liljander & Strandvik 1995). Products that can be recycled or a supplier that has a proof of environmental audit as for instance an ISO 14001 certification might be favored. Environmental awareness can give an advantage in the fierce competition with other suppliers, as the truck producing industry becomes more and more environmentally aware (Wendelin 2000a).

The Gallup International Institute (Chen 2001) has found that 65% of Americans, 59% of Germans and 31% of Japanese would like to buy green products and also pay a higher price for these products. The customer would also feel psychologically better once they had bought an environmentally friendly product. The green products are hence being promoted by a demand from the end customers. Examples of green products can be Melitta's unbleached coffee filters and electric cars (Chen 2001). There are also water-soluble paints for cars and trucks, lower emission cars and trucks.

Regarding environmentally friendly standards or "green" standards the BS7750 that later changed into the ISO 14001 (In April 1997) is worth mentioning (Mouritsen,

Ernst, & Jørgensen 2000). The BS 7750 is a voluntary certification regarding “development, implementation and maintenance of environmental management systems aimed at ensuring compliance with stated environmental policy and objectives” (British Standard 7750, Section 1, 1992). Certification to the BS 7750 standard means that a company has established a set of guidelines and procedures that it complies with, and is therefore more concerned to protect the internal and the external environment than companies that are not certified. (Mouritsen, Ernst, & Jørgensen 2000)

Why would companies be interested in protecting the environment? Standards such as BS 7750 can be viewed as putting restrictions on the companies and to be burdens for them. Certification makes it difficult to organize the sales and production freely and can be costly to apply (Mouritsen, Ernst, & Jørgensen 2000; Chen 2001). In a study by Mouritsen, Ernst and Jørgensen (2000) it was shown that by implementing green standards the companies could be more competitive. The standard changes that could be made had little to do with protecting the environment in itself.

By getting a certificate that shows that the company follows a certain environmental standard the company can show the public that it is within the law and that the production does not endanger the environment. A certificate may end rumors about the company such as rumors regarding the company’s use of toxic materials, pollution, etc. (Mouritsen, Ernst, & Jørgensen 2000). By complying with a technical standard the company has profiled itself as a company that has prepared for new laws and has thereby created new market opportunities by creating an image of a company that cares (Mouritsen, Ernst, & Jørgensen 2000).

After a while the customers would want the company to comply with the standards. (Wendelin 1998a, 1998b) Standards such as BS 7750 or ISO 14001 could be considered as compulsory in some industries (Wendelin 1998a, 1998b; Mouritsen, Ernst, & Jørgensen 2000). Environmental protection is regarded as common sense, the right thing to do. If you are for it you are on the right track not much argumentation is needed. Institutional argumentation is easy and meets no resistance. It’s easy to follow the crowd. (Mouritsen, Ernst, & Jørgensen 2000)

Standards help in achieving cost reductions and to develop new markets. Environmental standards make it easier for the company to avoid questions regarding environmental issues. If the company has an environmental standard it is usually quite easy to fend off questions by underlining that a company that is certified has control while a company that is not certified would have to have good explanations regarding environmental issues even if it would be a “greener” company. (Mouritsen, Ernst, & Jørgensen 2000)

A green standard could improve the market share for a product and therefore improve a company’s competitive power. A standard as BS 7750 identifies the product as environmentally friendly. (Mouritsen, Ernst, & Jørgensen 2000) If a customer works according to some environmental standards such as the BS 7750 or the ISO 14001 it puts pressure on the supplier to use the standard as well and this also put demand on the supplier to improve its competence and develop as well. (Wendelin 1998a, 1998b; Mouritsen, Ernst, & Jørgensen 2000)

Conclusion on the views of ideological bonds

In this study I will argue that considerations regarding domestic content of products or services and issues connected to environmental awareness such as a green product or process or green standards affect ideological bonds.

Issues connected to environmental awareness such as green standards as well as domestic issues such as a required domestic content of the product or services are regarded to be ideological bonds. My conclusion is due to the fact that green standards as for instance mentioned by Wendelin (1998a) or Mouritsen, Ernst and Jørgensen (2000) is increasing in importance for what is considered to be a green product or service and hence is becoming more important from an ideological bonds perspective. Green standards such as ISO 14001 are considered as compulsory in many industries. To have an environmental standard can also be seen as a competitive advantage. A standard could be seen as a seal for the environment even if the standard itself may not lead to improved environmental awareness in the organization. Chen (2001) also argues that the end customer feels psychologically better once they have purchased an environmentally friendly product. Ideological considerations regarding domestic issues or the increasingly important environment are considered to be important.

3.7.4 Psychological bonds

Psychological bonds develop when for instance the customer is convinced that the products manufactured by the supplier or a service are of superior or inferior quality (Liljander & Strandvik 1995). Psychological bonds where the customer is convinced of products or services superiority is a very effective exit barrier (Liljander & Strandvik 1995; Storbacka, Strandvik & Grönroos 1994). Brand loyalty can be very strong ties (Järvinen 1997). If a customer for instance is convinced that Mahle pistons are of superior quality compared to the pistons other suppliers manufacture then the customer will buy pistons of the brand Mahle even though there would be cheaper and better pistons available on the market (Wendelin 2000a).

Kennedy (1977, p.130) quoted a Philips company report: "In this age of technology and competition, the buying public is being increasingly faced with a wide choice of similar designs and features within each price range for all kinds of products. It is clear that when there are no obvious differences in price, quality, design and features, the purchase decision may increasingly be influenced by a positive reputation of the brand and of the manufacturer". This is still as true at present time as it was in 1977. More competing brands, fast communication and the fast spreading of information has made brand reputation even more important. (Christensen & Askegaard 2001)

The idea behind an increased emphasis on brand names and quality is that they both have a strong effect on loyalty. This has been found to be the fact on both consumer and business markets. (Selnes 1993) Brand reputation has been defined as a perception of quality associated with the brand name (Selnes 1993). Different levels of brand reputation exist. At product level the reputation will only be associated with a service or product with the brand such as Pepsi, Avis etc. Customers can in other situations

connect several products or services with a brand name such as IBM etc. Brand reputation is not necessarily connected to a product or service but can also in business-to-business or service industries be connected to the reputation of a company. (Selnes 1993)

Image may strengthen the psychological bond (Liljander & Strandvik 1995). Psychological bonds can affect the customer very strongly. According to Arantola (2002) attachment combined with repeat purchase behavior is true loyalty in a buyer seller relationship and this constitutes a psychological bond. Selnes (1993) found that brand reputation had a strong and consistent effect on loyalty and the strategic role of the brand name was found important not only regarding physical products but also for service and business-to-business industries.

Corporate image is connected to the knowledge, feelings and beliefs that people have regarding an organization, that is what one thinks of when the logo is seen or the name is heard (Bennett & Gabriel 2001a). Reputation is different from image in that manner that it is a subjective judgment of an organization built on the past performance of the organization. It could stem from personal experience, word of mouth, or from the organizations PR or media profile. (Bennett & Gabriel 2001a) Bennett and Gabriel (2001a, p. 426) define the difference between image and reputation: "An image can be created very quickly; a reputation needs to evolve over time".

The benefits connected to a positive reputation can be that it is easier to survive negative publicity that takes parts sometimes, higher levels of customer purchase intentions occur, as well as higher levels of customer loyalty, industrial buyers have a more positive attitude towards the organization and the competitive advantage is higher. (Bennett & Gabriel 2001a) The competitive advantage due to a positive reputation is due to the fact that reputation is important for how a supplier's products, prospects and strategies are perceived in comparison to those of competing organizations. That means that a positive reputation is a competitive advantage for the company. (Bennett & Gabriel 2001a)

Bennett and Gabriel (2001b) further argue that the image of a company's products might be positive while the image of the company supplying the products might be negative. This may have to do with the fact that the buyer may have information that makes the perception of the whole company negative while the perception of the products is positive. (Bennett & Gabriel 2001b)

The image of a supplier on the market would for instance be hurt if the supplier as the only domestic supplier would not deliver to the only domestic producer of trucks. The image of the supplier would be questioned both domestically and internationally and that might be the reason why a domestic supplier supplies the only domestic buyer even if the business relationship might be an unprofitable one.

Conclusion on the views of psychological bonds

In this study I argue that a belief of product or service superiority or inferiority, brand, image or reputation can affect the psychological bonds.

This is due to the fact that for instance Selnes (1993) found that brand reputation was affecting loyalty and hence psychological bonding is considered to be important in business-to-business settings as well. Bennett and Gabriel (2001a) found that a positive reputation can have benefits like for instance higher levels of customer purchase intentions, higher levels of customer loyalty, industrial buyers have a more positive attitude towards the organization and the competitive advantage is higher. Liljander and Strandvik (1995) also argue that image may affect the psychological bond positively strengthening it. This leads to the conclusion that the description and the words with which psychological bonds are described differ somewhat but I have chosen to categorize all these parts such as perceived superiority, brand, image or reputation under psychological bonds. This is due to the fact that all these issues are on higher level of abstraction nothing more than psychological perceptions of superiority or inferiority of products, services or organizations.

3.8 Initial stage for the understanding the phenomenon

These different bonds bond tie the customer to the supplier and make it more difficult for the cooperating companies to terminate the relationship and break the existing bonds. This is among other things due to the fact that it would be expensive to build up new relationships with other suppliers or customers. The money and time invested in the relationship would also be lost. (Wendelin 1998a, 1998b, 2000a)

Some may argue that the time bonds and geographical bonds are similar but there are some differences. Time bonds are more focused on the logistical functions of the companies whereas geographic bonds have more to do with the direct distance between the supplier and the customer. Geographical bonds can for instance lead to a different choice of supplier because of a great distance between the customer and the supplying company when the choice of supplier is made. This could be done due to a greater cost for transportation or other problems linked to the distance between supplier and customer. (Wendelin 2000)

Cultural bonds also exist in industrial settings and differ from the social bonds that exist in the IMP approach. The cultural bonds that exist between people in companies are strong and affect the relationship and the process when choosing a supplier strongly. It is perceived as positive to be able to speak the same language, have the same religion or come from a specific country. Once again these are not features that are restricted to a service perspective. (Wendelin 2000a)

Ideological bonds are not found in the IMP framework but are however important in an industrial setting as well as in a service setting. How environmentally aware the products that the supplier supplies are can in some heavy industries affect decisions of choice. The level of environmental awareness can give advantages in the fierce competition with other suppliers, as the industry becomes more and more environmentally aware. (Wendelin 2000a)

Psychological bonds are also used in a service-marketing framework but could be used in an industrial framework as well. Wilson and Mummalaneni (1986) use attachment and psychological bonds interchangeably but attachment can however not be said to cover the big frame of psychological bonds fully. Psychological bonds can affect buyers on the industrial side as much as consumers. If a buyer is convinced that the products supplied by a certain supplier are superior to those of another supplier then the buyer will choose the products that are thought to be superior.

I will continue by using ten bonds, that is technical, time, knowledge, legal, economic, geographical, social, cultural, ideological and psychological bonds see Figure 13. The first six bonds are concrete bonds. **Concrete** bonds are more or less tangible bonds that are developed when companies cooperate and hence adapt to each other and invest in the cooperation. The last four bonds are abstract bonds. **Abstract** bonds are bonds that build up in the minds of people when companies cooperate or when people are using a company's products or services. By doing as for instance Halinen (1994) or Tuominen (1999) are doing and splitting up social bonds and focusing on them would lead to that we would be focusing too much on a single issue. One way of action would of course be to do just that and break up every bond into several different bonds. One example of this would for instance be to split up technical bonds into product and process bonds. The IMP approach in which I position myself looks at six bonds but leaves out geographical, cultural, ideological and psychological issues. Issues, which also are important in order to fully understand an industrial relationship and the nature of the bonds both from a theoretical and a managerial point of view. The model structure containing 10 bonds incorporates findings from sociology, industrial and services marketing and it is bridging gaps that have existed in the industrial literature. It is also a manageable structure that is easy to use and utilize for analyzing empirical material even though the structure is rich and I perceive it to be the most suitable preliminary model for my purpose. The definitions on the 10 different bonds in my model are described below. The essences of the different definitions are as follow.

3.8.1 Definitions on bonds on a higher level of abstraction

The tactic with the presentation of the definitions of bonds is to present the definitions on a higher level of abstraction before the analysis is made and on a lower level of abstraction after the analysis. A lower level of abstraction means that the definitions are more specified and broken up into smaller parts. In this manner it is possible to show the reader how the definitions have developed and deepened though the analysis of the case. The definitions were left on a higher abstraction level on the basis of the literature study. I was however forced to take into account issues connected to the definitions on a lower abstraction level when analyzing the material in order to be able to classify the material. The definitions at a lower level of abstraction are presented at the end of the study. The outcome is that, that I have created a tool that is not only usable on a theoretically high level of abstraction but also on a lower operational level. The definitions at a higher level of abstraction are presented below.

These definitions are made using the abductive approach and as such make it possible to use some empirical material in the definitions at this early stage. Later in the study after

a more thorough analysis of the empirical material is done the definitions will be presented at a lower level of abstraction. This is done in chapter 7.

A technical bond is a bond that generally includes technical adaptation in either process or product, and cooperation regarding technical development. It may require investments in equipment. A technical lead as for instance a patented product or process can also result in a technical bond. A bond due to a brand can also constitute a technical bond.

My definition for **technical** bonds includes the following elements:

- Technical adaptation to the counterpart in the cooperation
- Cooperation regarding technical development
- Investments in equipment
- Technical lead as a patented product or process
- Bond due to brand in order to get spare parts or service

A time bond is a bond that generally includes adaptation of logistical functions, requires flexibility in the flow of information or is affected by delivery precision and issues connected to delivery precision.

My definition for **time** bonds includes the following elements:

- Adaptation of logistical functions
- Flexibility of flow of information (e.g. EDI systems etc.)
- Delivery precision and issues connected to delivery precision

A knowledge bond generally requires familiarity of the strength and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation. It may require cooperation regarding development of products, a mutual knowledge regarding rules and routines of the counterpart and it is based on personal experience.

My definition for **knowledge** bonds includes the following elements:

- Familiarity of the strength and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation
- Cooperation regarding development of products
- Mutual knowledge regarding rules and routines
- Based on personal experience

A legal bond requires written contracts, quality certifications or environmental certifications.

My definition for **legal** bonds includes the following elements:

- Written contracts
- Quality certifications as for instance QS 9000
- Environmental certificates as for instance ISO 14001

Credit arrangements, payment times, price, profit margins, share of products, existence of bottleneck products and opportunity costs generally affect an economic bond.

My definition for **economic** bonds includes the following elements:

- Credit arrangements such as discounts
- Payment times
- Price (low for buyer/high for supplier)
- Profit margins
- Share of supplied or bought products
- Possible bottleneck products
- Possible opportunity costs

The distance to the counterpart in the cooperation, delivery precision, warehouses and technical cooperation generally affect the geographical bond.

My definition for **geographical** bonds includes the following elements:

- Distance to buyer/supplier
- Good delivery precision
- Warehouses at buyers plant
- Technical cooperation/residential staff such as residential engineers

A social bond is generally affected by turnover of personnel, contacts between personnel, personal relationships, unofficial contacts between personnel, commitment, and trust.

My definition for **social** bonds includes the following elements:

Social bonds develop between personnel from the companies:

- Turnover of personnel (contact persons) in the cooperating companies
- Contacts between personnel
- Personal relationships
- Unofficial contacts between personnel
- Commitment
- Trust

A cultural bond is generally affected by cultural background of the cooperating counterparts, company culture, religion or language.

My definition for **cultural** bonds includes the following elements:

- Similar cultural background
- Similar company culture
- Similar religion
- Common language

Issues regarding environmental awareness, green product or process or the domestic content of the product generally affects the ideological bond.

My definition for **ideological** bonds includes the following elements:

- Environmental awareness
- Green product or process, e.g. ISO 14001 certified process
- Domestic products

A psychological bond is generally affected by a believed superiority of the product, the brand name or the image.

My definition for **psychological** bonds include the following elements:

- Believed superiority or inferiority of product or service
- Brand name
- Image or reputation

Figure 12 below with the model with ten bonds is the first part of the framework used for understanding the nature and change of bonds in industrial business relationships. The model structure containing 10 bonds mentioned in the list of definitions above is the most suitable structure for my purposes. It is fairly easy to grasp and encompasses all elements of a business relationship. The model should be seen in a manner that investments and interactions in the cooperation between the supplier and the buyer lead to bonds and these bonds are affected by episodes. The following chapter will present bond dynamics and change and present the rest of the theoretical framework.

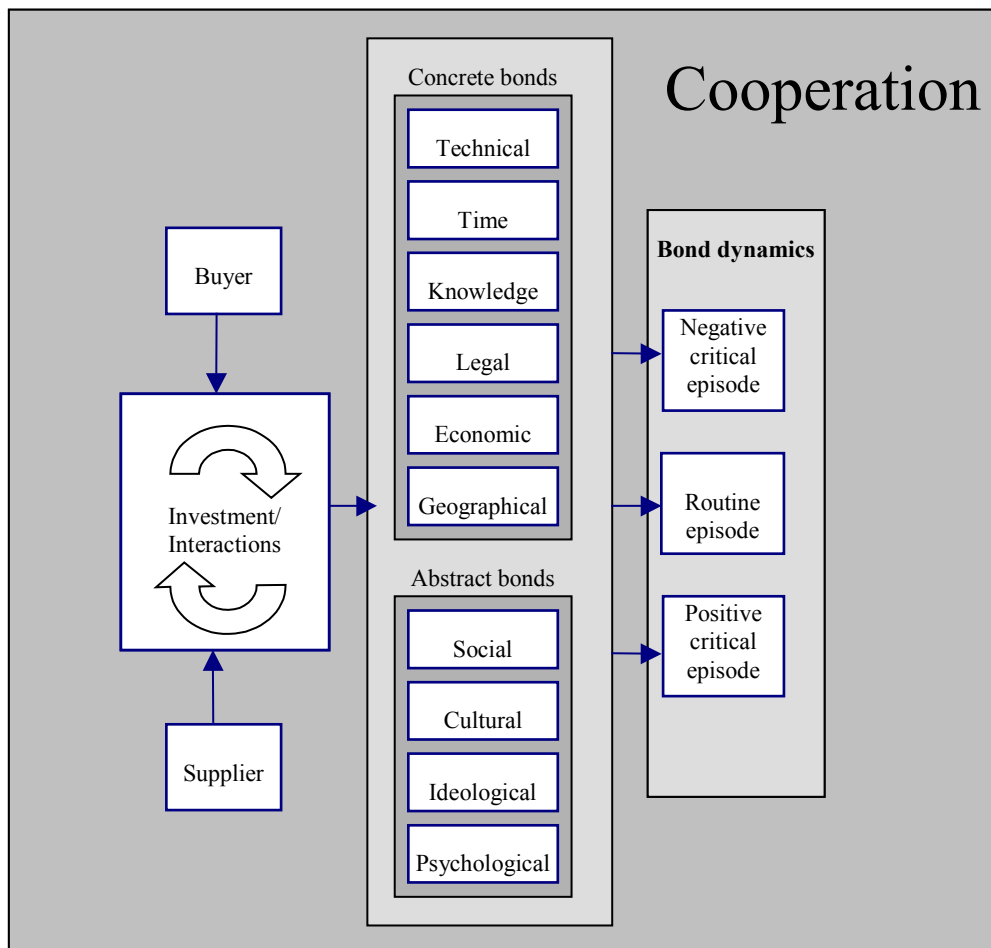


Figure 12. Initial stage in the framework for understanding the nature and change of bonds in business relationships.

4 Bond Dynamics and Change

In this chapter I will prepare for the coming of a dynamic view of bonds that is described in the analysis part of the study. That means that I will present issues affecting the dynamics of bonds such as episodes, critical incidents and bond strength. I will also present theories that are connected to the outcome of bond dynamics that is relationship strength and termination and partial termination of relationships.

When viewed from a dynamic perspective the change of bonds in the relationship is viewed, that is when the bonds in a relationship develop and change over time. I am describing the bonds in the relationship from a dynamic perspective as in the matrix introduced in Figure 13. The structure of the Figure was made as a tool; for me that helped to structure the study. This division into concrete and abstract bonds will not be made in chapter four where I present a framework regarding the dynamic perspective. This is due to the fact that theory regarding a dynamic perspective on bonds does not exist. Instead I present theories regarding issues affecting bond strength and outcomes of bond dynamics such as termination, partial termination and relationship strength. In the analysis part the concrete and abstract bonds will be shown from a dynamic perspective when analyzing the bonds as seen in Figure 13.

The shadowed area of Figure 13 represents the dynamic part of bonds that will be presented in this chapter. The dotted line dividing the concrete and abstract bonds is dotted in order to show that there is no division between concrete and abstract bonds in the theory regarding dynamics of bonds.

	Concrete bonds	Abstract bonds
Static perspective		
Dynamic perspective	<ul style="list-style-type: none"> •Technical •Time •Economic •Legal •Geographical •Knowledge 	<ul style="list-style-type: none"> •Social •Cultural •Ideological •Psychological •Knowledge

Figure 13. A dynamic perspective on bonds

The view that will be taken of bonds in the analysis part is such that there will be a division into concrete and abstract bonds when dynamic bonds are analyzed.

The structure of the chapter regarding theory will be as follows. First, I will present the structure of the study followed by a presentation of the context of termination where I describe which kind of relationships that the study is limited to. The rest of the chapter will be structured as presented in the boxes titled bond dynamics and relationship outcome in Figure 14 below. Critical incidents are included in the theory since critical incidents affect the episodes that lead to the strengthening and weakening of bonds. A literature review regarding episodes is presented since I perceive that episodes affect the strengthening or weakening of bonds or maintaining status quo, as can be seen in Figure 14 below. Theory regarding bond strength and issues connected to the strength of bonds is also presented since this is connected to the dynamics of bonds as seen in Figure 14, and how bonds weaken and strengthen in a business relationship. The relationship strength box in Figure 14 will contain theories regarding termination and partial termination as well as relationship strength since relationship strength that is how strong the relationship is after the weakening or strengthening of the bonds is connected to the relationship outcome of bond dynamics.

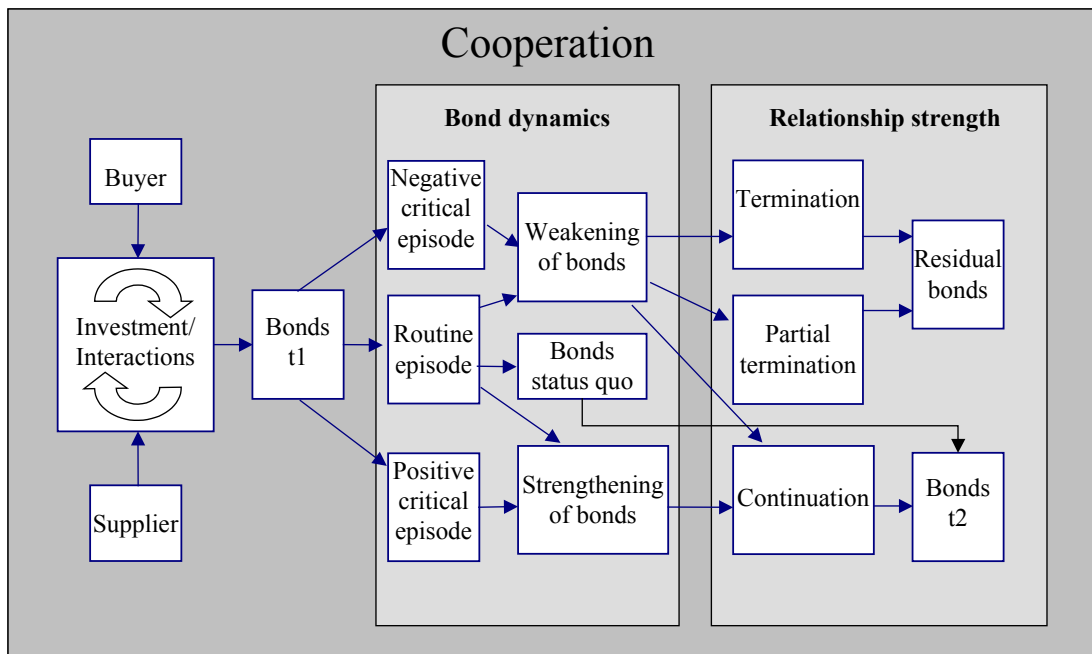


Figure 14. Bond dynamics and relationship strength

4.1 Critical incidents

Critical incidents are included in the theory since it is critical incidents that affect the episodes that lead to the strengthening and weakening of bonds. Critical incidents are something that the counterparts in the cooperation remember as especially positive or negative and tell in the form of stories when asked about them (Stauss 1993). This

means that critical incidents differ from what a counterpart in the cooperation perceives as normal in either a negative or a positive sense (Flanagan 1954; Edvardsson 1988, 1992; Stauss 1993; Stauss & Hentschel 1992; Olsen 1994; Bejou & Edvardsson 1996). Bejou and Edvardsson (1996) further state that a critical incident should deviate “significantly” in a negative or positive sense from the normal or expected levels and it should be possible to describe it in detail. Critical incidents can either be positive leading to satisfaction or negative leading to dissatisfaction (Holmlund & Strandvik 1999c). Critical incidents may start actions that affect the development of the relationship both on short and long term (Holmlund & Strandvik 1999a, 1999c). The cooperating counterpart’s sensitivity and attention levels are raised in critical incidents (Holmlund & Strandvik 1999a). Edvardsson (1992)

Critical incidents affect the strength and length of the relationship. A critical incident can be defined in the following way:

“ Critical incident means a problematic, unpleasant situation, which places special demands on the service-producing company’s resources, especially on its personnel: for example, a customer meeting that fails to avoid friction. The customer may demand customer adaptation of hardware, special training, special terms of guarantee, short delivery time or a special financing model. Other examples of critical incidents are agreements that have not been kept and missing or incorrect information.” (Edvardsson 1988, p. 427) Edvardsson’s (1988) definition regards a negative critical incident.

Holmlund and Strandvik (1999c) define critical incidents in business relationships and theirs is a little more specified definition than Edvardsson’s (1988) above. “Critical incidents are significant actions or episodes, which deviate from a comparison standard. An incident is significant when it triggers perceptual attention or behavioural attention or both. Compared to the comparison standard the firm can experience the incident as negative or positive. In a business dyad both parties’ perceptions should be considered. These matched perceptions represent one of eight perception configurations depicting a critical incident. This configuration represents either a unilateral or bilateral perception of criticality”. (Holmlund & Strandvik 1999c, p. 4)

Halinen, Havila and Salmi (1995 p. 575) argue that “the term critical events or critical incidents” are interchangeable. Critical incidents have been used in service marketing by for instance Edvardsson (1988) and their effects on customer satisfaction and service quality have been discussed. While in business relationships the case has been that critical events have been used when discussing events that have an important effect on the development of the relationship (Halinen, Havila & Salmi 1995). In the service and psychology literature a critical incident has however mostly been defined as an incident that is remembered, see for instance Flanagan (1954) for psychology or Stauss (1993) for service marketing. The first definition by Flanagan (1954) was that a critical incident was something that was remembered.

Flanagan’s (1954) article that is referred to in practically all papers presenting theory regarding critical incidents was published in the *Psychological Bulletin* so the theory regarding critical incidents mainly stems from psychology.

My definition on critical incidents is that critical incidents are actions or episodes, depending on the duration of the incidents that deviate from a comparison standard. The critical incidents differ from what the counterpart in the cooperation perceives as normal

in either a positive or negative sense. Critical incidents affect the bonds and thus the relationship in either a positive or negative sense.

Stress is connected to critical incidents and arises when goals and expectations are not met. It concerns both episodes that do not fulfill the aims of the relationship as well as day-to-day interactions. Stress is the strain in the relationship, and it can vary from non-existent to significant. (Holmlund & Strandvik 2002) An understanding of critical incidents is important since depending on how they are handled they sometimes result in a weakened or terminated relationship and sometimes in a strengthened relationship (Edvardsson 1988).

Critical incidents are important for the relationship between supplier and buyer. If a critical incident is handled properly the result is often a stronger relationship between the cooperating companies. If critical incidents are handled well less importance is put on smaller incidents in the interaction. The bonds between the companies may strengthen and there is more focus on cooperation. If the supplier succeeds in solving the critical incident then the buyer will remember this for a long time. Critical incidents also give the supplier a possibility to show the buyer its excellence in solving critical incidents and can impress the buyer in that way. (Storbacka, Strandvik & Grönroos 1994; Edvardsson 1988, 1992; Hedaa 1997) If the supplier fails to solve the critical incident, the result may be dissatisfaction and a terminated relationship as well as a negative reputation about the company on the market (Edvardsson 1992; Bejou & Edvardsson 1996). If the critical incident is not handled with the aim of satisfying the buyer, the buyer will be dissatisfied, and the buyer will have a negative attitude towards the supplier and the relationship might end. Buyers that have ended their relationships due to critical incidents are not very prone to start business relationships with the same supplier again. (Edvardsson 1988) How you handle critical events sends a message to the customer (Freiberg 1998).

Critical incidents can for instance be problematic situations like buyers demanding short delivery times, adaptation of products or machinery, special financing, special terms of warranty, training or adapted systems. From the supplier's side it might be late deliveries. Other critical incidents can be promises or deals that are broken. If handled well and solved in accordance with the buyer's demands the critical incidents will strengthen the relationship (Edvardsson 1988; Hedaa 1997).

Halinen, Havila and Salmi (1995) discuss three different settings where critical incidents may take place: critical incidents that stem from companies in a dyad, critical incidents stemming from the interaction in the dyad and critical incidents stemming from outside the dyad that is from the network. Critical incidents that **stem from companies in the dyad** may be changes in personnel, changes in management and changes of strategy. Critical incidents that **stem from the interaction in the dyad** may be changes in business, marketing or purchasing strategies as well as acquisitions, mergers, switching of partners and bankruptcies. Poor coordination and adaptations between counterparts in the cooperation has also been seen as critical incidents when business relationships are developed. Critical **incidents stemming from the network** may be political, economic, and social factors as well as technological development, such as economic recessions. (Halinen, Havila & Salmi 1995) This coincides with the

viewpoints of Flint, Woodruff and Gardial (1997) who argue that supplier located changes, customer located changes and environment located changes are trigger events that may lead to change in the relationship.

4.1.1 Triggers to critical incidents

A trigger event is included in the study since a critical episode start with a triggering factor or event (Olsen 1994). The trigger then affects the critical incident or incidents that take place within the episode and lead to the outcomes of the incident (Olsen 1994). Triggers then affect the critical incidents that affect the outcome of the incident in the episode thus strengthening or weakening the bonds and eventually the relationship.

A trigger event is defined by Flint, Woodruff and Gardial (1997, p.165) as “a stimulus in the customer’s environment that is perceived by the customer to be relevant to his/her goals, which result in some form of change in values (personal and/or organizational), desired value, and/or value judgements”. (Flint, Woodruff and Gardial 1997, p.165)

Roos and Strandvik (1996) have put it in a shorter way. The essence of the meaning is the same and it also fits business-to-business relationships well even if it stems from consumer marketing. “The trigger is defined as any factor that alters the current state of the relationship in such a way that the termination process is initiated”. (Roos & Strandvik 1996, p. 3)

Trigger events initiate change. A trigger can be both a single event as well as a culmination of a series of events. It can for instance be an event that focuses one’s awareness to issues that have previously been unrecognized. It can be incidents that are the last nail in the coffin in a series of problems. These trigger events must in all cases trigger something like a raised awareness, change of view of the market, a higher sensitivity to problems with a supplier and possibly a reassessment of the supplier. A trigger event may also come from without the relationship as for instance when a competitor to the supplier may have a new product, service and that may cause a reevaluation of the current supplier’s value. (Flint, Woodruff and Gardial 1997, p.165)

Critical incidents can be sequentially connected so that one critical incident triggers the following critical incident etc. What the result of a single critical incident will be is depending on how well they are handled by the counterparts involved. If handled professionally, the result will most probably be positive and the incident might stop there if not then there will probably follow more critical incidents. Most buyers understand that it is human to err but ignorance, trying to find excuses or trying to deny that there is a problem usually worsens the critical incident. (Hedaa 1997)

Holmlund (1997) and Holmlund and Strandvik (1999a) found triggers to critical incidents in **selling companies** to be tooling, manufacturing, personnel or be connected to organizational issues. Triggers in **buying companies** could be information need and time schedules. On an **interaction in relationship** level it could be sharing of information, how the agreement is interpreted, distance, style of communication, solving of conflicts, how responsibility is divided and personal compatibility. On a **network** level the triggers could be timetable, sharing of responsibility, choice of supplier and dependence. And finally on an **environment** level the triggers could be

that the competitors price level is unchanged and a new label of environmentally friendly products that a competitor provide function as a trigger. (Holmlund 1997; Holmlund and Strandvik 1999a)

4.1.2 Outcomes of critical incidents

Edvardsson (1988) found in his study of 205 critical incidents in mechanical companies that only 12 incidents or in 5.8% of the cases critical incidents lead to the termination of the relationship. It seemed as if the negative critical incidents were overlooked when they did not take place on a frequent basis. Edvardsson (1988) also found that critical incidents if handled properly would render the supplier goodwill. If a supplier solved the problem in a satisfying way then the buyer could perhaps find new qualities in the supplier and this creates a positive picture of the supplier. (Edvardsson 1988) Edvardsson however found in the same study that “customers having been lost in connection with critical incidents are very unwilling to turn to the selling company again” (Edvardsson 1988, p. 443) Most critical incidents were taking place in the logistical chain, i.e. when products are delivered to the buyer. Delivery precision and information regarding deliveries are important. (Edvardsson 1988)

New or strengthened ties of friendship, i.e. social bonds may be established between personnel in the supplying and buying companies due to positive handling of critical incidents (Edvardsson 1988).

A badly handled critical incident may also be the last thing that is needed in order to terminate an already weak relationship. (Storbacka, Strandvik & Grönroos 1994). The buyer may not have perceived the relationship as important but has not allocated the time it takes to find a new supplier. A poorly handled critical incident may then lead to that the buyer is convinced of the suppliers incompetence and starts looking for a new supplier actively and this results in the termination of the relationship. (Storbacka, Strandvik & Grönroos 1994).

The findings are that one should focus as much as possible on solving the critical incidents that take place in relationships in order to avoid unsatisfied customers so that the customers’ expectations vis-à-vis the supplier would not suffer. There is a great risk that the customer becomes more or less dissatisfied if a great importance is not placed on solving the critical incident between the companies with the aim of satisfying the customer. (Edvardsson 1988)

Peters and Austin (1986) in Edvardsson (1988) argue that very dissatisfied customers can be turned into more satisfied customers than ever only by phoning and apologizing. Bitner, Booms & Tetreault (1990) have found that in critical incidents the buyers want knowledge regarding the situation and information alone can ease dissatisfaction or create satisfaction.

“It is only when the customer is not offered or does not get what he expects or demands that he is conscious of what he “normally” gets. It is in these critical incidents that service quality is realized. These are the moments of truth that, in a special way, remain in the long time memory of the customer.”

(Edvardsson 1988, p. 431) The moment of truth is also mentioned in Edvardsson (1992 and in Bejou & Edvardsson (1996)

4.2 Episodes and the Dynamics of bonds

Since ‘episodes’ is an important concept in the model presented above in Figure 15 on bond dynamics and relationship strength it is an important concept to build on.

It is important to make a difference between the relationship and the individual episodes that it consists of (Ford 1980). An episode is defined by (Gadde & Håkansson 1993) as a type of event, limited in time. Issues that can comprise episodes between buyer and seller are for instance a joint development project, testing a new product, re-negotiating a long-term contract, or an individual order-to-delivery process of a certain customer order. (Ford 1980; Gadde & Håkansson 1993; Håkansson & Gadde 1997)

Holmlund (1997) who belongs to the same discipline puts forward an almost identical definition when she states that: an episode is “Several interconnected actions that are perceived as a minor natural entity of interactions, for example, a negotiation process”. (Holmlund 1997, p. 332) Actions and episodes are the lowest levels of interaction (Tuominen 1999).

The definitions for episodes are very similar and no obvious differences exist between business-to-business marketing and service marketing literature. Liljander and Strandvik (1995) who belong to the service marketing discipline present exactly the same definition as the industrial marketers, with the exception of the use of the word service exchange. “An episode can be defined as an event of interaction which has a clear starting point and an ending point and represents a complete service exchange. Within the episode, there can exist several interactions (acts).” (Liljander & Strandvik 1995, p. 148)

I have chosen to use the main thought of the definitions of episodes that have been put forward and I define an episode as an event limited in time that consists of several actions. Episodes can for instance be contract negotiations, product development, and product testing or delivery process. The reason for the definition is that when using the abductive method it has been possible to form the definition with help of the empirical material. I have had the possibility to look at the phenomenon in retrospective. Episodes in the empirical material have proved to be limited in time and to consist of several actions such as delivery processes etc.

Episode is according to Holmlund (1997) one of the aggregation levels of relationships. There are five different types of interaction on five different aggregation levels that are action, episode, sequence, relationship and partner base. (Holmlund 1997; Holmlund & Strandvik 1997, 1999b) Voima (2001) only uses the first four levels. For the first four levels see Figure 15 below.

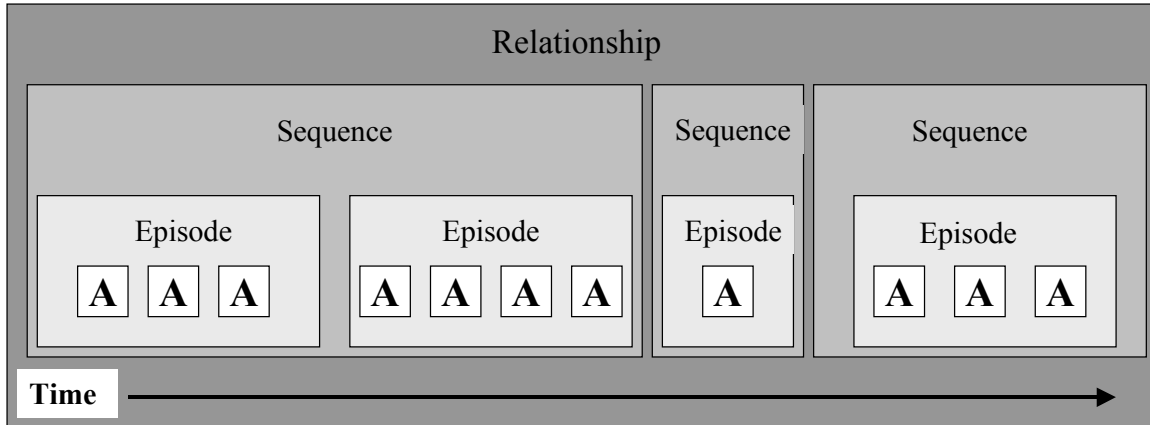


Figure 15. Different aggregation levels in a relationship, Holmlund 1997

An episode can for instance be something that consists of a number of acts such as a negotiation process or a shipment process. (Holmlund 1997; Holmlund & Strandvik 1997, 1999b; Järvelin 2001) It could also be a product or manufacturing development process, a logistic project, an audit (such as QS 9000 or ISO 14001) process, etc. An episode could also consist of only one act such as an ATM withdrawal etc. (Liljander & Strandvik 1995). Episodes can then again be grouped into a sequence as for instance a project, etc. (Holmlund 1997; Holmlund & Strandvik 1997, 1999b; Voima 2001). The relationship level takes into account the whole relationship with all sequences, episodes and actions (Voima 2001).

Holmlund (1997) argues that for instance visits, tests, signing of the contract, audits, surveys, production, and means of transport constitute acts. I do not agree with Holmlund (1997) in that a large difficult progress like an audit could constitute an act but I chose to define an audit as belonging to the episode category. This is due to the fact that an audit most certainly consists of a number of acts. Acts are exchange elements such as products, information, financial or social contacts (Håkansson 1982; Holmlund 1997; Holmlund & Strandvik 1997, 1999b). An act can for instance be a phone call (Holmlund & Strandvik 1999b). Several interrelated acts constitute episodes.

Ford (1980) argues that every episode is affected by the norms of the relationship and the general way business is being done in the relationship as well as the atmosphere of the relationship (Ford 1980; Håkansson 1982; Brennan & Turnbull 1995). The atmosphere of the relationship is in turn also affected by every episode (Brennan & Turnbull 1995). The atmosphere of the relationship i.e. is there conflict or good cooperation affecting the relationship. Sometimes the relationship might even be terminated due to one single bad episode. But these bad episodes are usually nothing more than a culminating episode in an already poor relationship. (Ford 1980) Each episode in the relationship is affected by the other episodes in the relationship and in turn affects them; episodes do not take place in isolation (Ford 1989).

If one episode has been dissatisfactory, it does not have to break the relationship if previous episodes have been satisfactory. The relationship may have benefited from previous episodes so that the relationship is considered to be valuable. (Liljander &

Strandvik 1995) The value can be perceived to be both of tangible value as for instance monetary benefits, technical benefits etc, or imaginary value e.g., social, psychological etc. It is important to be able to detect which episodes weaken the relationship and which episodes contain incidents that may break the relationship, and know which kind of episodes that strengthens the relationship between the buyer and the supplier (Liljander & Strandvik 1995).

I have presented theories regarding critical incidents, trigger events and episodes. These theories are presented since they are parts of the critical episode process as described by Olsen (1994) in Figure 16 below. Olsen's (1994) model is actually a model from a bank relationship, thus a simple relationship with complex consequences but using the abductive method I have noticed that the model works well in a complex relationship with complex consequences as in an industrial relationship as well.

Olsen (1992, 1994) describes a critical episode process that is triggered by a problem, i.e. the first critical step in the process, the critical episode continues and new critical steps take place. Both negative and positive critical incidents may take place, these are placed outside the zone of tolerance in Figure 16. For literature regarding tolerance zones see for instance Strandvik (1994). How the customer perceives the total critical episode is affecting the customer's view on the outcome of the episode that is if the customer is satisfied or dissatisfied. Olsen (1992, 1994; Arnerup-Cooper & Edvardsson 1998) The outcome of the incident is seen in Figure 18 after the Σ symbol depending on how the relationship develops. The outcome of the critical incident can be positive, neutral, negative or even more negative resulting in an exit from the relationship, i.e. the termination of the relationship. (Olsen 1994) Olsen (1994) also argues that the w-o-m (word of mouth) is of importance after a critical incident has taken place since it affects the image of the company. Negative word of mouth is a consequence of a negative critical incident and may be damaging to potential business (Chung & Hoffman 1998). Chung and Hoffman's (1998) theories stems from consumer relationships but this is also true in business-to-business relationships where the number of potential suppliers worldwide is well known by all actors on the market and negative word of mouth regarding a specific supplier spreads very fast to all interested buyers.

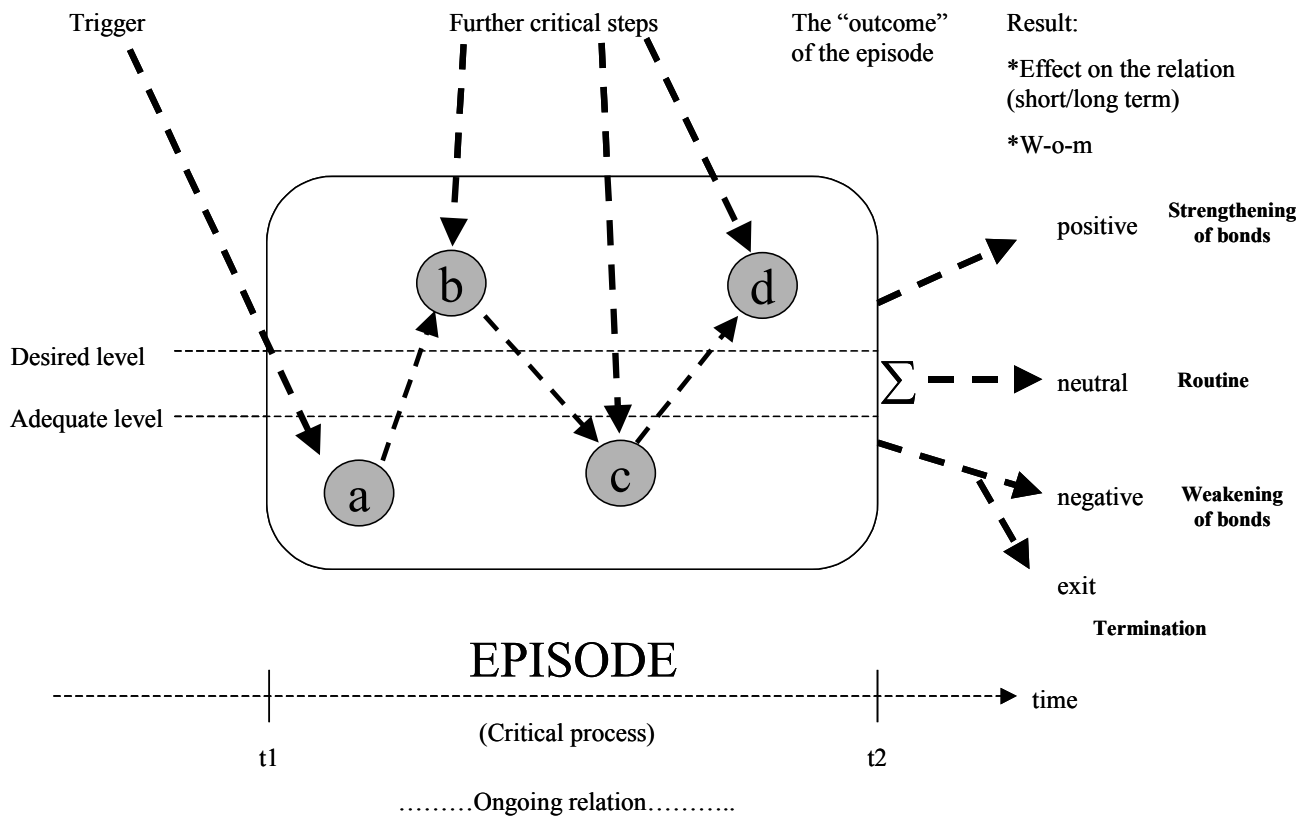


Figure 16. A model for analyzing a critical episode process adapted from (Olsen 1994)

Bejou and Edvardsson (1996) found the same results of critical incidents in their study of airline customers. That is strengthened, unchanged, weakened or broken relationships.

The problems with delivery precision in a critical episode in a business-to-business relationship in the truck producing industry may for instance follow Olsen's (1994) model in Figure 16 and be triggered when the first delivery is delayed. The supplier may then try to step up the production and succeed in delivering some batches on time but the problems continue later. The delivery precision fluctuates around the zone of tolerance for the delivery precision dropping under what is perceived to be an adequate level of delivery precision. The outcome of the episode may be as in Olsen's (1994) Figure and be negative or even lead to a termination of the relationship if the delivery problems continue and weaken the time bonds in the relationship. It can also be neutral if the supplier succeeds to maintain the delivery precision in the zone of tolerance and keep the bonds close to status quo. The outcome of the episode may, however, also be positive if the supplier allocates more production capacity to the affected buyer and focuses on solving the delivery problems. This would strengthen the time bonds.

If the episode would remain inside the zone of tolerance during the whole critical episode then the episode would be perceived as neutral and thus be a routine episode where the outcome of the episode would be that the bonds would remain in status quo. If the perception of the episode is inside the zone of tolerance but is perceived to be in the vicinity of either the desired level or the adequate level then the perception of the

level might accumulate during several episodes and result in an outcome that is a positive routine episode strengthening the bonds or in a negative routine episodes weakening the bonds.

I have divided the episodes into a categorization of three different episodes in business relationships. There are negative critical episodes, positive critical episodes and routine episodes. All these episodes may affect the 10 bonds that were taken into account in chapter 3 of the study. The bonds may weaken due to negative critical episodes, strengthen due to positive critical episodes or weaken, strengthen or remain at status quo due to routine episodes. Figure 17 below shows the model with the 10 bonds divided into concrete and abstract bonds and how it is affected by different episodes.

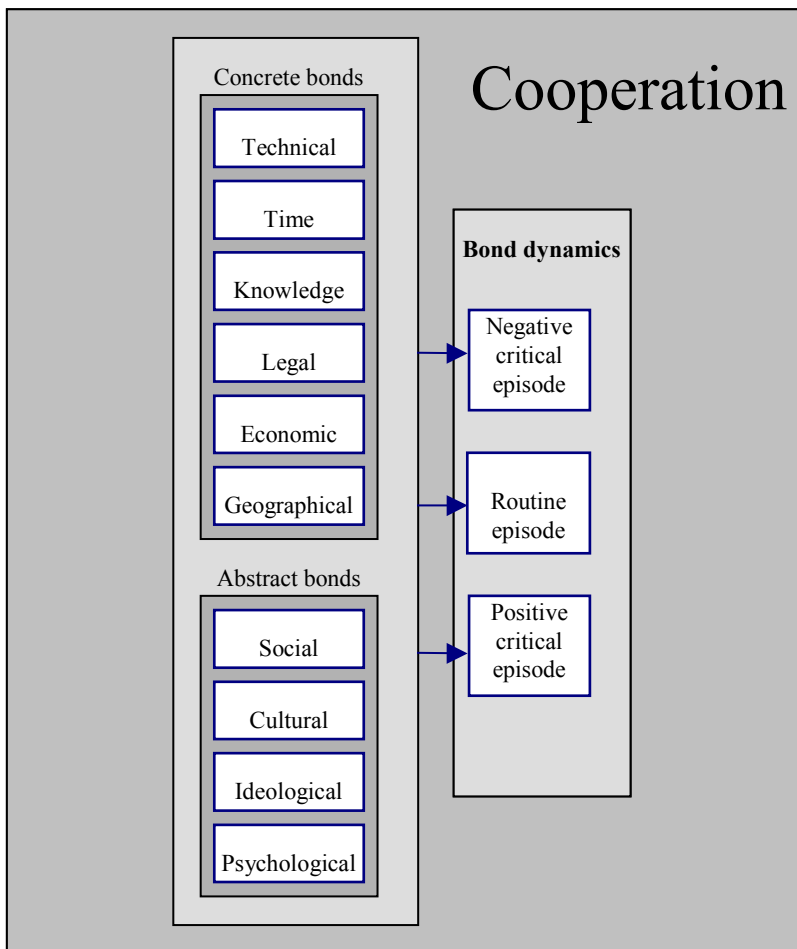


Figure 17. Bonds affected by different episodes

4.2.1 Critical episodes

Episodes are considered to consist of four different types of exchanges between two cooperating counterparts in an industrial market. The types are product or service exchange, exchange of information, financial exchange and social exchange. (Håkansson 1982; Liljander & Strandvik 1995; Tuominen 1999; Järvelin 2001) When either negative or positive critical episodes take place they either strengthen or weaken the bonds between the cooperating counterparts.

Episodes that do not involve any exchange of products or services may also exist. These episodes may have a clear starting point and an ending point and have a serious effect on the relationship. Such are for instance episodes where negotiations are interrupted due to financial problems in the buying company or social exchange problems (fights) between contact persons in the cooperating companies. These are episodes that may be important for the whole relationship between the companies. (Järvelin 2001) These episodes can however also be positive such as when social exchange is improved and therefore strengthens the social bonds between the companies or when negotiations are successful and lead to a strengthening of for instance the legal or economic bonds.

4.2.2 Negative critical episodes

Negative critical episodes are episodes where a negative critical incident takes place and leads to a weakening of bonds. The negative critical episode should be of such a magnitude that it is remembered and it should affect the relationship through the weakening of bonds.

4.2.3 Positive critical episodes

Positive critical episodes are episodes where a positive critical incident takes place and leads to a strengthening of the bonds. The positive critical episode should be of such a magnitude that it is remembered and it should affect the relationship through the strengthening of bonds.

4.2.4 Routine episodes

Some authors argue that everything that happens in an episode is not important for how the relationship is perceived. Some episodes may be critical and some may be routine episodes. Holmlund (1997), Järvelin (2001) and Gidhagen (2001) argue that critical episodes may have more influence on how the relationship is perceived while routine episodes do not affect the relationship.

I would however argue that routine episodes also influence the relationship in a positive or negative sense either strengthening or weakening the bonds. Positive routine episodes strengthen the bonds while negative routine episodes weaken them. Routine episodes can also affect the relationship and the bonds in the relationship. Routine episodes can

for instance take place when there is planned investment in a system improving the flow of information between the two cooperating companies. This would lead to a strengthening of time bonds over time. Routine episodes are small issues that take place in the daily cooperation between the counterparts that will either strengthen or weaken the bonds in the cooperation or not affect the bonds at all. It might be improvements or deterioration that happen slowly just as when water is penetrating a stone. Drop by drop it makes the hole bigger. If we take a business relationship several small mistakes may weaken some bonds be it social, technical as well as several improvements may strengthen them.

Negative routine episodes are an accumulation of negative issues that in the long run lead to a weakening of bonds and a possible weakening or termination of the relationship. Many small routine episodes like small mistakes happening may weaken some bonds be it social, technical or other bonds in the long run.

Positive routine episodes are an accumulation of positive issues that in the long run lead to a strengthening of the bonds and a strengthening of the whole relationship. Several improvements may thus strengthen the bonds between the cooperating companies in the long run.

There may also be routine episodes that have a neutral connotation and they do not affect the bonds or the relationship, the bonds remain in status quo. These routine episodes do not even transform into positive or negative routine episodes over time even if repeated. Their magnitude is so small that they do not affect the bonds. It may for instance be the manner in which routine invoices are programmed and sent on-line in a functioning system for on-line contacts.

4.2.5 Differences between critical episodes and routine episodes

The difference between critical and routine episodes is that for instance a positive routine episode and positive critical episode differ from each other in the manner that the positive routine episodes require accumulation of positive issues to lead to the strengthening of bonds. This means that several positive routine episodes can in the long run lead to a strengthening of the bonds and a strengthening of the whole relationship. Only one positive critical episode can on the other hand strengthen the bonds and affect the relationship.

Negative routine episodes require accumulation of negative issues to lead to the weakening of bonds. This means that several negative routine episodes in the long run can lead to the weakening of bonds and a possible weakening or termination of the relationship. Only one negative critical episode can on the other hand weaken the bonds and affect the relationship even leading to relationship termination or partial termination.

For a division of episodes into positive routine episodes, routine episodes and negative routine episodes as well as positive critical episodes and negative critical episodes and the affect they have on bonds see Figure 18. below.

	Positive	Negative
Routine episodes	Strengthens bonds	Routine Bonds remain at status quo
Critical episodes	Strengthens bonds	Weakens bonds

Figure 18. Routine and critical episodes

4.3 Bond strength in business relationships

Bonds strengthen and weaken or remain at status quo in the cooperation in business relationships. Relationships are dynamic. The episodes that constantly take place in business relationships keep the bonds at a constant state of flux. Three different kinds of episodes exist in business relationships. These are negative critical episodes, positive critical episodes and routine episodes. All these episodes may affect the 10 bonds that were explained in chapter 3 of the study.

Bonds may weaken due to negative critical episodes, strengthen due to positive critical episodes or weaken, strengthen or remain at status quo due to routine episodes. Figure 19 below shows the model with the 10 bonds and how different episodes affect the weakening and strengthening of bonds.

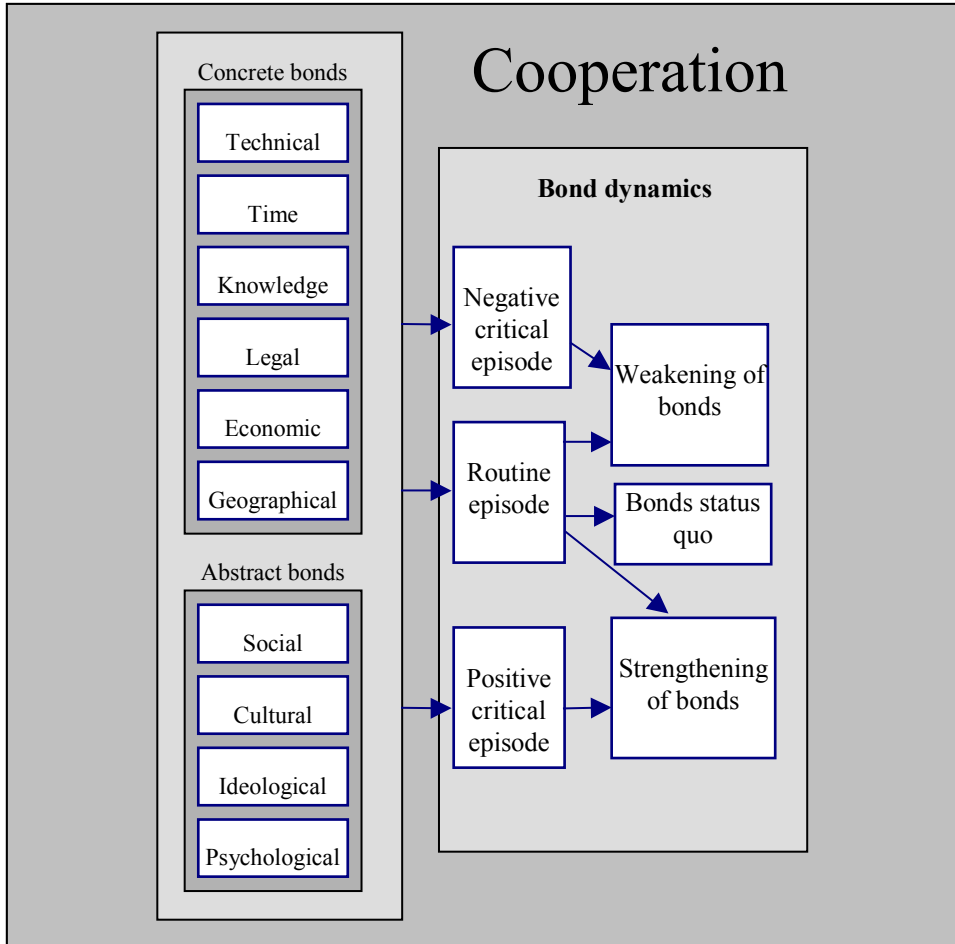


Figure 19. Bond dynamics in the episode model

Bond strength can be defined in several ways. Bond strength can be defined as “the capacity to withstand a disruptive force” (Easton & Araujo 1986, p. 12; Easton & Araujo 1989, p. 101; Easton 1992, p. 10). “Bond strength indicates the level of interdependence and continuity in the relationship” (Järvinen 1996, p. 45). “The strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie” (Granovetter 1973, p. 1361). “The strength of a bond is a difficult parameter to measure” (Easton 1992, p. 10). The existence of strong bonds plays an important role in the network approach (Easton & Araujo 1986, 1989). This is due to the fact that significant structural changes cannot take place without the breakage of strong bonds and the existence of strong bonds makes the network system more stable (Easton 1992). High bond strength is very often taken for granted in studies of industrial relationships (Easton & Araujo 1986, 1989).

It is argued that adaptation increases bond strength. Bond strength is also increased when events that have significance to the relationship in the long run take place, such as computerization. (Järvinen 1997) Bonds can be said to be strong if the buyer and the supplier have made technical adaptations to each other. If they have time bonds such as

interlocked production schedules, if the companies own each other's shares or if the people in the companies know and like each other. This is, however, not bond strength itself but may correlate with or is a surrogate for bond strength. The nature of the bonds is not an independent measure of bond strength even if they may contribute to bond strength. (Easton & Araujo 1986, 1989) Bond strength is dependent on the perceptions that the parties have as well as the influence of all the other bonds in the relationship (Arantola 2002). Strong bonds between companies are due to a frequent interaction between companies. Strong bonds have existed over time and have an extended history. (Eriksson, Lindstrand, Majkgård and Sharma 2000) Frequent interaction can be seen as investment in time and adaptation made to the counterpart in the cooperation. Consequently the meaning of this is that bond strength is seen as something that binds the relationship or network together and the fact is that bonds strengthen over time when more is invested in the relationship.

The relationship will not be easily terminated if the bonds between the companies are strong. Bonds are, however, usually neither weak nor strong but something in between. (Hammarkvist, Håkansson & Mattsson 1982; Halinen 1994; Järvinen 1997) Some bonds may be strong and some bonds may be weak inside the same relationship (Hammarkvist, Håkansson & Mattsson 1982; Halinen 1994; Järvinen 1997). Bonds develop differently and the strength of bonds varies over time even inside the same relationship (Hammarkvist, Håkansson & Mattsson 1982; Halinen 1994; Järvinen 1997). Easton and Araujo (1986, 1989) have the same notion when they argue that bonds vary in strength from minimal strength to very strong bonds and the bond strength is relative. The relative weight of the bonds in the relationship does however differ as some important bonds may be strong and some less important bonds may be weak and vice versa. The company's position may be technically very well defined while the social bonds may however be weak. (Hammarkvist, Håkansson & Mattsson 1982). The total weight of the bonds and the strength of the bonds in the relationship determine if the relationship is strong or not. The strength of bonds that are seen as important for the relationship is more important than the strength of bonds that are not considered as important for the relationship.

A precondition when economic exchanges take place between a supplier and a customer is that a bond must exist in however weak a form it is. Sometimes the existence of strong bonds may be seen as a self-evident truth. The network approach is said to be valid when bonds are strong but as bonds vary in strength all of the time it is therefore impossible to assume that the network approach could only be valid when bonds are strong. (Easton & Araujo 1986, 1989) When the supplier and buyer stop doing business with each other the bond can be considered severed. When there are infrequent purchases it is not clear when the bond begins to exist and when it dies. (Easton & Araujo 1989) It can be argued that the length of a relationship does not affect bond strength since bonds go through different phases during the relationship (Easton & Araujo 1986, 1989).

The strength or weakness of bonds does not say enough about the state of a relationship. It is the combination of the strong and weak bonds and their relative strength as well as the cooperating counterparts' interest in them that gives a more complete picture of the state of the relationship. The combination of positive, neutral and negative bonds

represents the strength of a relationship. Negative bonds prevent exit and function as exit barriers but at the same time they reduce orientation to the future and cause dissatisfaction. Positive bonds on the other hand are future oriented. Neutral bonds means that there is no feeling of being trapped in a relationship but there is no active orientation towards the future either. Neutral bonds are perceived as weak bonds. (Arantola 2002)

4.3.1 Weak bonds

The focus on strong bonds is a recognition that the most important and key relationships in companies will probably have strong bonds. (Easton & Araujo 1986, 1989) Weakly bonded networks are volatile while strong bonds results in a more stable structure that withstand change easier. (Easton 1992)

Situations with weak bonds should, however, not be ignored. There are two arguments for not doing this; the first argument is that bond strength is relative and that it is important to understand how the phenomena chosen for the study are affected by bond strength. The second argument is that a complete approach to interorganizational markets requires that situations with weak bonds should be accounted for as well. (Easton & Araujo 1986, 1989)

Relationships with weak bonds are considered to be rather volatile. (Easton 1992) There are suggested to be three cases of weak bonding where there are exceptions and even if there are no strong bonds, weak bonds may exist under the surface. Infrequent purchase, small volume purchases and flexibility that comes with competition and therefore a choice not to develop strong bonds. (Easton & Araujo 1986, 1989) Purchases of small volumes of goods usually mean that the bonds are weak, but if the small purchases are important regarding technical features, quality or delivery then there is usually strong bonds present (Easton & Araujo 1986, 1989). When companies chose not to develop strong bonds even though there would be benefits from doing so, they usually chose the flexibility of competition. There are reasons for making this choice; they may prefer flexibility of competition instead of economic benefits. Companies may believe that they get better results from continuous competition than they get from cooperation. Companies may be forced to choose not to develop strong bonds due to legal reasons or for reasons of responsibility. (Easton & Araujo 1986, 1989) Legal reasons may for instance be when there are accusations of oligopoly or otherwise a too strong position on the market by the cooperating counterparts. Conflicts and changes in the strategies or goals of one of the counterparts may also weaken the bonds in the relationship. Bonds are also weakened by incidents that are experienced as negative (Järvinen 1997).

Where there are infrequent purchases there is usually no regular contact between companies, it is likely that strong bonding does not exist. There may, however, be issues such as key technical decisions like choice of tooling in the process that has been made that may tie the companies together economically and technically for long periods of time. This could be the fact even though there is no other evidence of strong bonding. (Easton & Araujo 1986, 1989)

The usefulness of weak bonds is due to a need for strong bonds. Companies that want to integrate their close relationships apply practices that they see in the environment into their weakly bonded relationships. This can be practice used by their competitors; supplementary suppliers, customers' customers or any other weakly tied relationship. (Eriksson, Lindstrand, Majkgård, and Sharma, 2000)

4.3.1.1 Problems with measuring bond strength

Research regarding the processes that lead to the breaking of bonds is necessary. The network approach has been focusing on a situation where bonds that are implicitly strong continue to exist. An understanding of bond strength is therefore needed in order to understand networks. (Easton & Araujo 1986, 1989) Easton and Araujo (1989) also argue that with a better understanding of bonding it would be possible to predict how much force a certain bond can manage before it breaks. These forces could for instance be a new foreign competitor or new technical features. The dependent variable would hereby be measurable, that is the existence or non-existence of a bond at a certain time. The independent variables are not likely to be as easily measured. (Easton & Araujo 1986, 1989) The dependent variable is the consequence or result of something that has happened while an independent variable is the cause or reason, leading to that something happens (Arbnor & Bjerke 1998). That means that it is easy to find out if there is a bond between the companies, for instance a technical bond at time X but it would be difficult to measure what has caused the bond. How does one measure or calibrate the level of for instance technical bonding? There would also be problems with measuring the force applied to the bonds and whether the forces are applied constantly over a period of time. (Easton & Araujo 1986) (Easton & Araujo 1989) It may well be so that sometimes pressure is applied to the bond and sometimes the pressure is eased.

Easton & Araujo (1986 & 1989) further discuss that when a bond is stretched to a breaking point then the processes and mechanisms by which the bonds work should become clearer. Otherwise one is restricted to only listing the bonds that exist and the characteristics that they have without knowing how big their relative and absolute importance is. Some adaptations may have little power to prevent termination under pressure while other bonds turn out to be important. It is also important to look at relationships that have not been terminated due to pressure on the bonds in order to get a better understanding of the issue. (Easton & Araujo 1986, 1989) I have done this in my empirical study by looking at four supplier-buyer relationships of which three have not been terminated due to pressure on the time bond due to late deliveries.

I have solved the problem with measurement of bond strength by using a method for categorizing bonds. The method used for analyzing bond strength was made by systematically following the definitions on different bonds as described in chapter 3.8.1 in the theoretical framework of the dissertation. The strategy for analysis is presented in Appendix A.

4.3.1.2 Prioritizing

Strong bonds require investments and priorities in favor of certain relationships that are critical for the company's capabilities or for the company's position in the network. It can be argued that strong bonds can only be maintained with a limited number of counterparts in the cooperation. (Håkansson & Snehota 1995)

It may indeed be difficult to keep up strong bonds with all counterparts in the cooperation. It usually demands so much of the contact person's time and the company's resources to keep up the intensive cooperation with the "important" customers or suppliers that some counterparts in the cooperation suffer or are ignored. The company must strategically decide what or which kind of companies it wants to cooperate with and act according to that decision. The decision can be made on for instance profits to be made, is it good for the reputation to cooperate with the company, good brand, and is it good for technical development or logistics development. (Wendelin 1998b)

When the strategic decision has been made, it is time to focus on strengthening the weaker bonds to the companies preferred and keeping the strong bonds strong through investments and adaptations towards the counterpart in the cooperation. It is also necessary to weaken the bonds to the companies that are not included in the company's strategic focus in order to terminate the relationship with them to be able to focus on the strategically important counterparts in the cooperation.

Companies buying from and selling to each other must have a minimal level of cooperation in order to be able to complete even one exchange of goods or services. When strong bonding exists between companies there is a high level of cooperation. Even competing companies can sometimes be indirectly bonded by customers and cooperate in order to develop a new product for these customers and this can be positive for the whole network. (Easton 1992) Companies have to weigh the trade-off between the cooperation with competitors that are necessary to create benefits and competition over control, ownership or share of the resource that has been created in the cooperation. (Easton 1992; Lorange & Roos 1992)

4.3.2 Dynamics of the 10 bonds

How do the dynamics of the 10 bonds presented in chapter 3 differ from each other? There is a gap in the theory regarding this since there is a gap in the theory regarding bond dynamics.

Eriksson, Lindstrand, Majkgård, and Sharma, (2000) argue that a need for strong bonds makes it possible to improve the weak bonds in the cooperation by applying strategies to strengthen bonds that are used in other close relationships. Järvinen (1997) argues that bonds change so that they are weakened by incidents that are perceived as negative. Easton (1992) argues that strong bonds must break before structural changes can take place. It is hence implied that bonds must change in strength or break.

Bonds do not have to remain weak or strong but may be changing in strength so that strong bonds become weak and weak bonds change into strong. Bond strength does vary inside the same relationship so that bonds are, however, usually neither weak nor strong but something in between according to Hammarkvist, Håkansson and Mattsson (1982), Halinen (1994) and Järvinen (1997). Some bonds may be strong and some bonds may be weak inside the same relationship (Hammarkvist, Håkansson & Mattsson 1982; Halinen 1994; Järvinen 1997). Bonds develop differently and the strength of bonds varies over time even inside the same relationship (Hammarkvist, Håkansson & Mattsson 1982; Halinen 1994; Järvinen 1997). Easton and Araujo (1986, 1989) have the same notion when they argue that bonds vary in strength from minimal strength to very strong bonds and the bond strength is relative. Hammarkvist, Håkansson and Mattsson (1982) further argue that the relative weight of the bonds in the relationship does, however, differ as some important bonds may be strong and some less important bonds may be weak and vice versa.

I agree with the views that bonds change in strength during the relationship and argue that bonds change in strength due to episodes that take place weakening or strengthening the bonds. Bonds change in strength from strong to weak and they can also be anything in between. See Figure 20 below for a view of the bonds strength continuum.

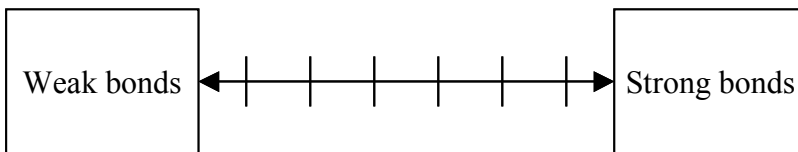


Figure 20. The change of bond strength

One could assume that there are differences in how the different types of bonds be it concrete bonds as technical, time, knowledge, legal, economic or geographical or abstract as for instance social, cultural, ideological or psychological are strengthened or weakened. How dynamic are these bonds? Are they stable or unstable?

One could project that from what has been presented that *technical, time, knowledge, economic and social bonds* may be unstable since their nature is such that they are dynamic and usually affected by negative critical, positive critical or routine episodes. For instance if the supplier makes changes in the technical parameters of the product, it may turn into a technically superior product strengthening the bonds to the buyer. It can also be the opposite that the supplier may not be able to improve the product and the technical bonds are therefore weakened. Economic bonds can also change character rapidly if the prices for instance are renegotiated.

Legal, geographical, cultural, ideological and psychological bonds may be more stable since their nature is not very dynamic. Geographical distance is difficult to affect as well as are cultural issues such as language or culture. These bonds will probably not strengthen and weaken as easily as the *technical, time, knowledge, economic and social bonds*.

The issues with how dynamic the different types of bonds are and how stable they are will be studied in the analysis part of the study and will be presented in the summary of the study.

4.4 Relationship outcomes

Relationship strength; that is the outcome of the relationship after the weakening or strengthening of the bonds is connected to the outcome of bond dynamics. Relationship termination, partial termination of the relationship or continuation of the relationship is part of the relationship outcome. In this subchapter theories regarding this are presented in the box relationship strength in Figure 21 and this is connected to the outcome of the relationship. Theories regarding relationship strength, termination and partial termination will be presented.

Figure 21 below should be seen in a manner that episodes lead to the weakening and strengthening of bonds in the bond dynamics part and the outcome of this is relationship termination, partial termination of the relationship or continuation of the relationship.

Relationship strength is connected to how strong the relationship is after the weakening or strengthening of the bonds. This is connected to the outcome of bond dynamics. Figure 21 below should be seen in such a manner that episodes lead to the weakening and strengthening of bonds or that bonds remain at status quo in the bond dynamics part and the outcome of this is the relationship strength thus relationship termination when bonds are broken, partial termination of the relationship or continuation of the relationship when bonds are strengthened or remain at status quo.

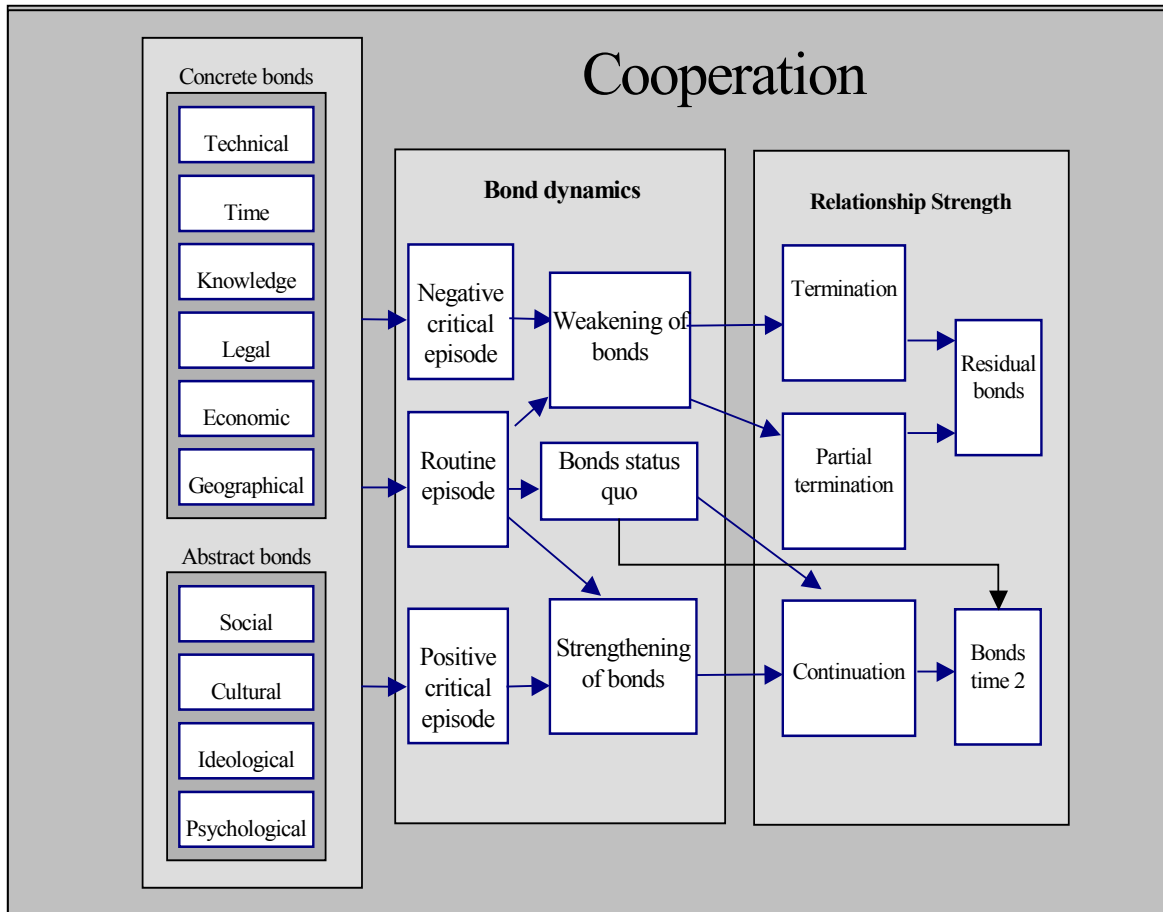


Figure 21. Relationship outcome of bond dynamics

4.4.1 Relationship strength in the cooperation between a supplier and a buyer

Relationships can be defined as having four elements these are “mutual orientation; the dependence that each has, or believe it has, for the other counterpart in the cooperation; bonds of various kinds and strengths, and the investments each has made in the relationship”. These elements are strongly interrelated with each other and can be further decomposed and explained. (Easton 1992, p. 8) Investments in time or money are for instance affecting bonds and making them stronger or a lack of investment in time or money is making bonds weaker or preserving them at status quo. Dependence may be due to technical, time, knowledge, economic, legal or geographical bonds and the perceived dependence may be due to ideological or psychological bonds.

The stronger the relationships are, the more the relationships will determine how the companies in the cooperation behave towards each other. However, weak relationships are still a different matter than if there is no relationship (Easton 1992).

The strength in the relationship is affected by the satisfaction in the relationship, the strength of the bonds between the companies in the relationship, the commitment that the companies have for the relationship and if there are any other companies with whom to cooperate. Companies with a strong commitment for each other may forget to look at other possible suppliers or buyers and that makes the relationship continue. The way that critical incidents have been handled also affects the strength in the relationship between the companies. (Storbacka, Strandvik and Grönroos 1994; Holmlund 1996) Relationship strength is also affected by how many alternative partners the companies in the relationship have (Holmlund 1996). The more alternative partners for cooperation that the counterparts in the relationship have the weaker the relationship between the companies and vice versa.

If the customer is satisfied with the relationship, the customer will be positive to the relationship and positive bonds to the supplier will be established. If the customer is dissatisfied with the cooperation with the supplier, the customer may stop buying his components from the supplier and the relationship will be terminated. This is, however, not always true; the customers may have a certain tolerance for how much can go wrong before the relationship is terminated. (Storbacka, Strandvik & Grönroos 1994; Strandvik 1994) There may be some minor problems in the cooperation between the buyer and the supplier. Small problems between counterparts in the relationship can, however, be ignored if the buyer and the supplier are satisfied with the cooperation as a whole (Storbacka, Strandvik & Grönroos 1994).

Commitment between the customer and the supplier also affects relationship strength. I agree with Dwyer, Schurr and Oh's (1987, p.19) definition of commitment that was "an implicit or explicit pledge of relational continuity between exchange partners". The more commitment to the other counterpart in the cooperation and the more positive one are to the relationship and the more effort spent on the relationship to succeed, the stronger the relationship becomes. One should however point out that even a customer that is not engaged in cooperating with the supplier or even not willing to cooperate with a supplier may continue to cooperate with a supplier due to the bonds the company has to the supplier. (Storbacka, Strandvik & Grönroos 1994) Even though companies may be dissatisfied with the relationship as a whole, the bonds keep them in the relationship (Storbacka, Strandvik & Grönroos 1994). For instance the psychological bonds between the companies may be strong. Psychological bonds between companies can be very effective because the customer is certain that the supplier's products are of superior quality (Liljander & Strandvik 1995). The supplier's products may be seen as having higher quality than the products of competing suppliers according to the buyer. Strengthening the weaker bonds could strengthen the strength in the relationship between the companies. In for instance order to strengthen the time bonds between the companies the companies could begin with a more intensive computer based cooperation. (Wendelin 1998a, 1998b) This is in the interest of both parties.

The positive effect for the buyer and the supplier with having a strong relationship is that this affects the length of the relationship in a positive way. The stronger the relationship the longer the cooperation will last in general. This affects the efficiency of the cooperation and the profit that is to be made out of the cooperation. The cooperating companies will also invest more in the cooperation if they are certain that the

cooperation between the companies will continue for a long time. It is possible to write off the investments over several years instead of what would be the case if the relationship would only last one year. The cooperation will probably be even better if investments are made in the relationship. The positive effect for the supplier of having a long relationship with the buyer is that the supplier will not have to seek for new customers actively and develop new products according to these customer's needs as long as the cooperation with the buyer continues. If the companies invest more in the relationship and for instance try to make the on-line computer contacts between the companies work then the cooperation between the companies will most probably improve. By cooperating for a longer time there are no costs that a switch of supplier would cause for the buyer or costs that would evolve for the buyer when searching for a new customer.

The strength in the relationship between the buyer and the supplier can be increased by increasing the satisfaction that the companies get from the relationship and by increasing the commitment that the companies have for the relationship. If the relationship is strong even if customer satisfaction is low then bonds weigh up the lack of customer satisfaction and if the relationship is weak even if the customer satisfaction is high then the relation is not perceived as important. The relation between customer satisfaction and relationship strength is shown in Figure 22.

		Relationship strength	
		Weak	Strong
Customer satisfaction	Low	Expected results	Bonds weigh up lack of satisfaction
	High	The relation is not perceived as important	Expected results

Figure 22. The relation between customer satisfaction and relationship strength
Source: Storbacka, Strandvik & Grönroos 1994

Relationship strength and the handling of critical incidents also affect the length of the relationship. Relationship strength is improved through critical incidents handled in a proper manner (Edvardsson 1988; Storbacka, Strandvik & Grönroos 1994). Since lots of

time and money usually has been invested in the relationship in order to get the cooperation to work the cooperating counterparts strive to get the cooperation to work as long time as possible. This affects the efficiency of the cooperation as well as the revenues that are made from the cooperation. If a relationship is terminated it takes both a long time and demands new investments before one succeeds to get the cooperation to work as well as in the old relationship. This could for instance be the case when the cooperation between a supplier of springs and a producing company ends. The supplier has to find a new customer for their springs, give offers, develop a product that suits the needs of that specific customer, make a test delivery, improve the product and invest in bonds such as social bonds. It takes a long time before the relationship will work as well as the terminated relationship (Storbacka, Strandvik & Grönroos 1994).

Relationship strength is connected to the relationship termination and partial termination part of the outcome box in the manner that when weakening of bonds has taken place and thus weakening of the relationship this might lead to termination or partial termination of the business relationship.

4.4.2 Relationship termination

Relationship termination, partial termination of the relationship or relationship continuation is relevant relationship outcomes. The relationship outcome depends on the strengthening or weakening of bonds or preservation of bonds as status quo. In this subchapter theories regarding relationship **termination** and **partial relationship termination** that are connected to the weakening of bonds will be presented.

Figure 23 below should be seen in such a manner that episodes lead to the weakening and strengthening or preservation of status quo of bonds in the bond dynamics part and the outcome of this is relationship termination, partial termination of the relationship or continuation of the relationship.

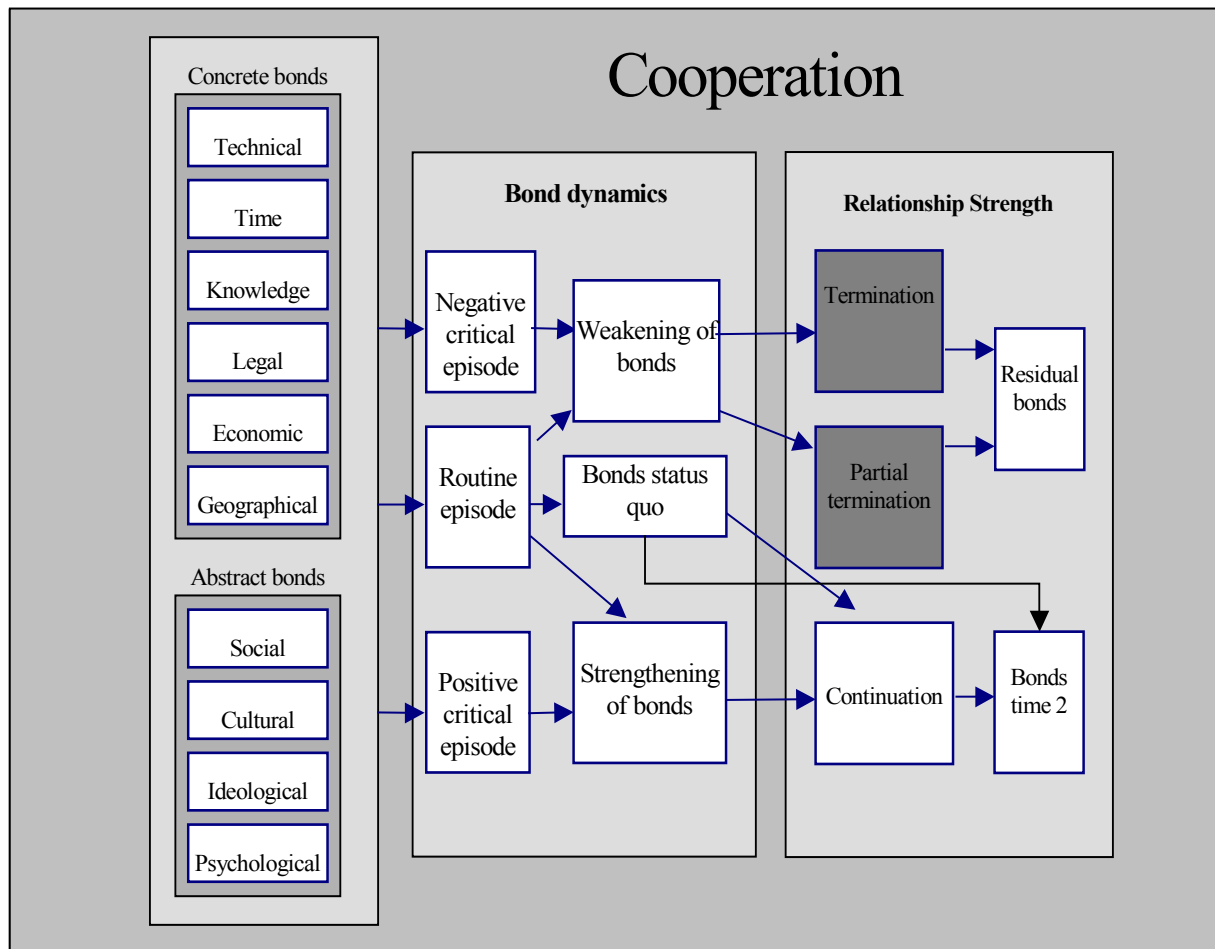


Figure 23. Relationship termination and partial termination as an outcome of bond dynamics

Some definitions on relationship termination are presented below.

Relationship termination can be defined as “the permanent dismemberment of an existing relationship”. (Duck 1982, p. 2)

Relationships have also been defined as terminated when “all activity links are broken and no resource ties or actor bonds exist between the companies” (Tähtinen & Halinen-Kaila 1997, p. 560)

Another definition of relationship termination by (Tähtinen & Halinen-Kaila 1997, p. 561) is “If at a certain point in time, a relationship can be considered to have ended and the parties have no mutual expectation of its future reactivation, the relationship is dissolved”.

I do not agree fully with the above definitions on relationship termination. Ducks’ (1982) definition concerns relationships in a marriage and the breaking of that marriage, i.e. a divorce. Companies do, however, not function as marriages even though there

might be some resemblance that Halinen-Kaila and Tähtinen (1997) have noticed. One might assume that there is bigger possibility of companies doing business together again for two companies than for two divorcees getting together again. There may also still exist **residual** bonds between companies even if the cooperation has ended; bonds such as knowledge and social bonds may still exist and may be reactivated if cooperation starts again at a later time. The later definition by Halinen-Kaila & Tähtinen (1997) is better and I agree with this definition and use it.

Dwyer, Schurr & Oh's study (1987) is the most referred study when it comes to the ending of exchange relationships. Their study is based on social psychology. (Halinen & Tähtinen 2000; Tähtinen & Halinen-Kaila 2000) It can be concluded that all studies discussing dissolution have their theoretical background in social psychology or sociology. They have merely been adapted to a business perspective.

Becker & Useem (1942, p. 16) argue that "All dyads eventually become broken dyads". Disengaging is usually not a dyadic or an individual process. The disengaging counterparts must pay attention to the social context, the network and the surrounding culture (La Gaipa 1982). The surrounding culture as in for instance this case the culture in the truck producing industry provides guidelines for how disengagement should be done. The network then reacts to the effects of the dissolution. (La Gaipa 1982) This could for instance occur when alternate suppliers prepare for giving offers on the products supplied by the terminated supplier.

One threat to the relationship is personal change (McCall 1982). This is connected to social bonds. It could for instance be when personnel are changed in the cooperating companies. Network change is another threat to the relationship (McCall 1982). This could for instance be the fact when a new promising business partner and a rival to the current supplier enter the network or when a competing supplier comes up with a new product that has technical features that makes the current suppliers product obsolete in the long run (McCall 1982). Personal and network change is some of what is called burdens to the relationship by Håkansson and Snehota (1995b). These network and personal changes affect the strength and number of bonds between the cooperating counterparts (McCall 1982). Commitment as part of the social bonds is the most important interpersonal bond, when this bond fails all other interpersonal bonds encounter rapid dissolution (McCall 1982).

Social pressure can, however, be used by individuals or groups in the organization that wants the relationship to continue. This could be due to personal interests to maintain the relationship. (Johnson 1982; La Gaipa 1982; Turnbull, Ford & Cunningham 1996)

Termination procedures are used at the end of the relationship. Bonds may make it difficult to end a relationship. (Turnbull, Ford & Cunningham 1996) This coincides with the notions of Storbacka, Strandvik and Grönroos (1994) that argue that bonds may make it difficult to end a relationship. If there for instance are legal bonds in the form of a contract with large penalty clauses present then it might be costly to end the relationship. But it may also be easy to end the relationship; if it is easy to supply an equivalent product by an alternative supplier, the costs of switching supplier might be low. (Turnbull, Ford & Cunningham 1996)

The termination process has two basic outcomes, either termination of the relationship or continuation of the relationship due to bonds or a successful recovery process. (Liljander & Strandvik 1995; Roos & Strandvik 1996) Partial termination of the relationship is also a possible outcome.

The interest to terminate the relationship has to do with the perceived attractiveness of and number of available alternatives to the current supplier. The counterpart in the cooperation who is perceived to have more alternatives can be said to have more power over the other. (Turnbull, Ford & Cunningham 1996) A lack of alternative partners may keep one of the counterparts in the cooperation even though he may want to terminate the cooperation (Hocutt 1998; Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000). This coincides with the notions of Storbacka, Strandvik and Grönroos (1994) and Holmlund (1996) that argue that relationship strength is also affected by the number of alternative partners the counterparts in the cooperation have.

There can be several reasons for relationship termination between a supplier and a customer. One reason could be that the competitors offer a superior alternative to the product supplied by the current supplier. Another reason could be that the supplier does not keep up in the technical development. That could be the case in the truck producing industry if a supplier of springs becomes technically obsolete due to the increased usage of air-suspension that would make springs obsolete (Wendelin 1998b, 2000b, 2002a). A third reason for relationship termination could be that the environment on the market could change due to for instance some directive from the EU regarding manufacture of products that would affect the supplier's competitive power negatively. It could also have to do with environmental aspects as for instance ISO 14001 audits. (Wendelin 2000b, 2002a) Changes in the environment are factors that cannot be affected by the companies themselves. Alajoutsijärvi & Tähtinen (1997) call these external reasons for termination. These are affected by changes in legislation, changes in currency rates, trade barriers, directives, etc. These changes may also lead to relationship termination.

An understanding of critical incidents is important since they depending on how they are handled sometimes result in a weakened or terminated relationship and sometimes in a strengthened relationship (Edvardsson 1988). By for instance checking critical incidents between companies that no longer cooperate it could be possible to find out how strong the bonds between the companies have been and how much they have endured before they have been broken (Wendelin 2000b, 2002a).

If bonds cause exit costs or exit barriers, which are attenuating factors, i.e. reduces the will to terminate, it is moderate that the buyer may start to look for another supplier. But if the importance of the exit barriers, i.e. attenuating factors are high then the managers of the unsatisfied company are likely to continue the relationship rather than terminate it. (Halinen & Tähtinen 1999, 2000; Tähtinen & Halinen-Kaila 2000) Young and Denize (1997) have found out that strong social bonds and a customers need for stability in the relationship function as exit barriers, i.e. attenuating factors.

4.4.2.1 Partial termination

There may also be partial termination of a relationship (Wendelin 2000b, 2002a). There may be partial withdrawal from relationships with buyers that have been seen as less profitable (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000). Partial termination can also be made in order to be able to phase out a product line that a competing supplier for instance can manufacture cheaper or with better technical features.

The buyer or supplier may terminate only a part of the total business relationship. Some products as for instance springs may be terminated from the buyer's list of supplies supplied by a certain supplier while the buyer still might continue to buy stabilizers from the same supplier. It may, however, mean much for the supplier, who may lose a buyer for 20% of its production for instance. The personnel selling springs does not have any contact with the buyers of springs any more, there are no economic bonds for springs any more, the knowledge bonds regarding springs starts to deteriorate since the supplier does not develop springs together with the buyer anymore. (Wendelin 2000b, 2002a) At the same time the relationship regarding stabilizers is, however, continuing as usual. There is development of stabilizers taking place increasing the technical and knowledge bonds regarding stabilizers etc. (Wendelin 2000b, 2002a)

4.4.2.2 Managing the termination of relationships

The managing of relationships regards managing of both growing and declining relationships. A growing relationship is not good in itself, as vice versa a declining relationship might not be a bad one in itself. The termination of a close business relationship can even be sound business practice for one or both of the cooperating counterparts. A company should choose with which customers it has a relationship, which relationships should be developed and which relationships should be terminated. A company has a limited amount of resources and should therefore choose which suppliers or customers it cooperates with. The customers chosen for cooperation should perhaps face growing relationships whereas there would be phasing out or partial withdrawal from the relationships with other customers that has been seen as less profitable. (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000)

By learning about the strategies for managing termination it can be possible to manage relationship termination without negative consequences affected by the termination for both counterparts and for the network. By learning to see the warning signals of relationship termination a company can try to save important relationships when they are troubled. Even when there is termination the correct management of termination will lower the costs that are caused by the termination and inhibit scars by bad management. Even the relationships between individuals in the cooperation may be left intact if the termination of a business relationship is managed properly. That is avoiding fights and hard feelings. (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000) There might also be an aim with the termination to do what is called a "beautiful exit" (Roos & Strandvik 1996, p. 6; Alajoutsijärvi & Tähtinen 1997, p.1). With a beautiful exit the goal is to have such a strategy that avoids hurting the disengager, the other part

in the cooperation as well as the whole network surrounding the cooperation. (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000)

Even when a relationship is terminated it does not mean that it will not be reactivated in the future. It is therefore important to avoid hurting the business partner. By managing the process of termination well there is a bigger possibility of reactivating the business relationship in the future. A termination of one business relationship may also affect the development of other relationships in a negative way and this also calls for good management of relationship termination. (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000) By avoiding hurting the business partner it is possible to maintain social bonds to the partner.

Bonds in the relationship should be taken into consideration when the relationship is terminated. Bonds affect the termination strategy in the way that the more and stronger bonds there are the more restricted is the choice of strategy for termination. The more there is to lose for the terminating counterpart the more important it is that the strategy should focus on a soft termination vis-à-vis the other counterpart. (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000)

Alajoutsijärvi & Tähtinen (1997) use Baxter's (1985) theories regarding disengagement. These theories of Baxter (1985) are used for understanding strategies for divorce or breaking up on a personal level but Alajoutsijärvi & Tähtinen (1997) have adapted them well for business-to-business purposes.

4.4.2.3 Sleeping relationships

A "sleeping relationship" (Alajoutsijärvi & Tähtinen 1997, p. 4; Tähtinen & Halinen-Kaila 1997, p. 561) is not the same thing as a terminated relationship. A sleeping relationship is a relationship kept alive by the cooperating counterparts. There are still some bonds left and one or both of the cooperating counterparts think that the relationship will continue and take steps to keep it alive. (Alajoutsijärvi & Tähtinen 1997; Tähtinen & Halinen-Kaila 1997; Alajoutsijärvi, Möller & Tähtinen 2000) A terminated relationship on the other hand may be reactivated in the future due to changes in the focal network, counterparts or in the macro environment. (Alajoutsijärvi & Tähtinen 1997; Alajoutsijärvi, Möller & Tähtinen 2000)

I will now broaden the perspective on the issue of nature and change of bond in an industrial business relationship with an empirical case.

5 Analysis

The empirical findings of the study are presented in this chapter. For the strategy for analysis please refer to Appendix A.

5.1 Case 1: *negative critical episode causing termination*

The 1st case involving TeraTruck is a case where a **negative critical episode** caused the **termination** of the relationship and left residual bonds.

The TeraTruck case is the only case where a total termination of the relationship has taken place and was needed in order to find out how the bonds changed in cases where there are total termination of the relationship and to find out if residual bonds still remained.

There is an example where the supplier Suspension-Supply miscalculated its production capacity so much that the backlog of orders were around 100 % bigger than its production capacity. The company had got bigger deals on deliveries to some of its buyers and everything went well at start-up but when the required amount of material was supposed to be delivered after the initiation period the problems such as delayed deliveries started to show. Practically all of Suspension-Supply's big buyers such as TeraTruck, GigaTruck and BigTruck experienced line stops when they had to withdraw trucks from their lines because of missing product numbers. The buyer TeraTruck that terminated the cooperation tried to airfreight the suspension components but the volume was still too small so they had to draw their own conclusions vis-à-vis the business relationship thus ending it. The ending was however made in consensus with Suspension-Supply since they acknowledged that they lacked the capacity to supply TeraTruck. After approximately four months of negotiations with the supplier Suspension-Supply it was agreed upon to terminate the relationship. The supplier Suspension-Supply also preferred this since the supplied product was a stabilizer with two bending points where the stabilizer bends while all the other stabilizers had only one bending point. This meant that the specific stabilizer was also more difficult and costly to produce compared to the stabilizers supplied to other buyers.

5.1.1 Relationship history

The relationship between the supplier Suspension-Supply and the buyer TeraTruck was almost ten years old when it ended in year 2000. The relationship began in 1990 but the first deliveries of tubular stabilizers to TeraTruck took place in 1996. The amount of tubular stabilizers delivered to TeraTruck was about 15 % of the total amount of stabilizers delivered by Suspension-Supply, meaning that it was a fairly important buyer regarding stabilizers. An average of about 600 leaf springs per month, i.e. a low amount about 2 –3 % of the total production, was also delivered to TeraTruck.

There was never any cooperation regarding the development of springs between TeraTruck and Suspension-Supply. Cooperation regarding the development of products was regarding a tubular stabilizer and that was also the product that paved the way for cooperation between TeraTruck and Suspension-Supply. Without this patented product Suspension-Supply would never have gotten into cooperation with TeraTruck.

The termination of the business relationship between Suspension-Supply and TeraTruck was partly due to critical incidents affecting supplier performance vis-à-vis delivery and partly due to strategic issues.

5.1.2 Critical episodes

The critical episodes were due to the delays that occurred in the relationship between the Suspension-Supply and TeraTruck. The delays were due to the fact that Suspension-Supply had capacity problems in the production process due to a large number of orders. Suspension-Supply had booked orders for more than 100 % more than they had production capacity for.

“We can say that we have screwed up a lot. We have overbooked our production with over 100 % more than we have production capacity for. This has caused a hell of a lot of problems for our customers and a damn bunch of costs that we have been fighting about until this date. So we have been on thin ice, alright”. “We recognized that we would have problems four months before the problems started so this is totally home cooked”. Logistics at Suspension-Supply

The critical episodes regarding delivery precision between TeraTruck and Suspension-Supply were due to a single sourcing agreement between Suspension-Supply's and its largest customer GigaTruck. The volumes delivered to GigaTruck increased fast and Suspension-Supply had a capacity shortage combined with start up problems regarding GigaTruck's new product. Suspension-Supply's single source agreement and the problem with the deliveries to GigaTruck affected the delivery precision in Suspension-Supply's all other relationships because of the lack of production capacity at Suspension-Supply.

Four months before the problems with late deliveries started informants from Suspension-Supply's production noticed that there would be problems with the delivery precision but no measures were taken in order to solve the problems. The delivery problems took place from August 2000 onwards but it was obvious that there would be problems already in April 2000. In the autumn of 2000 the deliveries from Suspension-Supply to TeraTruck were constantly late. Air freighting the products to TeraTruck solved most of the problems but the production was constantly one week late. Airfreights from Suspension-Supply to TeraTruck were taking place constantly and since the products are heavy suspension components the price for the airfreight was high.

5.1.3 Residual bonds

The buyer TeraTruck had however a very strong technical bond to supplier Suspension-Supply which is shown by the fact that even though supplier Suspension-Supply does not supply the buyer TeraTruck any more, is TeraTruck's current supplier SusTec working under license from supplier Suspension-Supply. This can be seen as a very strong residual technical bond between Suspension-Supply and TeraTruck. There are also adaptations in the form of tooling and drawings left from the cooperation between

TeraTruck and Suspension-Supply. The cause of the ended relationship between TeraTruck and Suspension-Supply was a critical episode causing a critical weakening of the time bonds where the buyer TeraTruck had experienced line stops and thereby problems with the assembly. The supplier Suspension-Supply was regarded as being too small to supply TeraTruck. The technical quality and innovation with patented tubular stabilizer resulted in a license agreement with the current supplier SusTec that has the capacity needed to supply such vast quantities of material as is required by TeraTruck.

The supplier Suspension-Supply also sees the relationship as continuing since it is only the daily business that is run down at present time but not the relationship per se. There are still residual social bonds between the companies as can be seen from a quote by the managing director for Suspension-Supply.

“It is important to keep the concepts separated. We have not taken a decision to end the relationship but to end the daily business for time being. Nobody is in any way interested in running down a relationship, you are meant to keep all your relationships alive. The more relationships the better, but at certain point’s in time some relationships result in more business and some in less. You could say that some relationships are in a dormant state like in kind of a mothproof bag over the winter. It is quite easy to realize that with so few actors on the market one is interested to preserve all relationships.” The Managing director for Suspension-Supply

5.1.4 Conclusion regarding bonds and the change of bonds

When looking at the changes of bonds and splitting up the categories of bonds into ten different archetypes of bonds it should be noted that many of these bonds are connected in that sense that some of the bonds affect each other. For instance in order to have strong social bonds the personnel in the cooperating companies must also have cultural bonds to each other, i.e. speak the same language or have the same cultural background. Problems resulting from a poor knowledge of the company culture as for instance how the different levels in the company works and whom to contact may also affect the time and knowledge bond negatively and vice versa. The knowledge and cultural bonds may on the other hand affect the time bond negatively since information flows slower due to a lack of knowledge regarding whom to contact. The ideological bond may affect the economic bond since there may for instance be regulations in a “green” audit such as the ISO 14001 that stipulates the amount of vaporized organic chemical waste that is allowed in surface treatment etc. this may make it costlier to use that specific treatment.

5.1.5 Concrete bonds

Concrete bonds are tangible bonds that are developed when companies cooperate and hence adapt to each other and invest in the cooperation.

5.1.5.1 Technical

There was never any cooperation regarding development of springs between TeraTruck and Suspension-Supply. Small amounts of springs were delivered but they were made according to TeraTruck’s blueprints. The springs delivered were custom made springs that were used in special vehicles and they were usually supplied without any

prognostication, it could be that TeraTruck wanted 20 springs delivered in a hurry. The custom made springs were difficult to manufacture and they never really fitted into Suspension-Supply's process due to the small amounts delivered. The cooperation regarding the development of products concerned a tubular stabilizer and the same stabilizer paved the way for business between TeraTruck and Suspension-Supply. The same product was delivered to TeraTruck throughout the relationship and there was not any new development of stabilizers during the relationship. The tubular stabilizer was however a totally unique product that was about 20 kg lighter than a normal full stabilizer, Suspension-Supply had patented the stabilizer. Thanks to this innovative tubular stabilizer, Suspension-Supply had the possibility to start supplying to TeraTruck in the beginning of the relationship in 1996.

“It is clear that if you present a completely revolutionizing new product on the market, something totally new that nobody else can manufacture or even are allowed to manufacture. Such a product can be a possibility as in the case with the stabilizer that was an exceptional product when we started producing it”
Technical development at Suspension-Supply

Suspension-Supply had adapted its production process and product to TeraTruck in the case of the tubular stabilizer. The stabilizer supplied to TeraTruck had two bends in the bending points where all stabilizers to other manufacturers had one bending point. In order to supply TeraTruck Suspension-Supply invested in a saw that was needed in order to adapt to the needs of TeraTruck's.

In the beginning of the relationship between TeraTruck and Suspension-Supply, Suspension-Supply had to learn to make the tubular stabilizer for TeraTruck since it was more complicated to manufacture and did not fit into the production process as well as the stabilizers of Suspension-Supply's other buyers. The technical bond in the relationship grew stronger as Suspension-Supply learned how to manufacture the product according to TeraTruck's specifications and invested in tooling for the process. See Figure 24 below for the strengthening of the technical bonds. Time 1 stands for the time before Suspension-Supply had learned to adapt their product to their production process and time 2 was the time when Suspension-Supply had learned to adapt the tubular stabilizer to Suspension-Supply's production process as well as invested in tooling for the process.

The technical bonds that could be seen as exit barriers in a negative sense in the relationship with buyer TeraTruck were for instance an investment in a saw that was an adaptation of the production process made especially for TeraTruck. The stabilizer had welding points and had to be cut at exactly the right point and TeraTruck was the only buyer of stabilizers that had a stabilizer that needed to be sawed in the process. This resulted in an investment in a saw in the production line at Suspension-Supply the estimated cost of the saw was around 33638 Euro so it was considered as a small investment.

There were also welding fixtures, specific for TeraTruck but it could be easily rebuilt to fit other buyers of stabilizers so that did not have to become scrap.

“The specific stabilizer was not easy to manufacture because it had a total of four bends instead of two bends for a normal stabilizer. The extra bend made it less manufacture friendly, but we had learned to

manufacture it reasonably well and even invested in equipment in order to make the process flow better so it was a pity that the relationship ended. A product that you have adapted to your process and learned how to manufacture is always an advantage for you". Technical development at Suspension-Supply

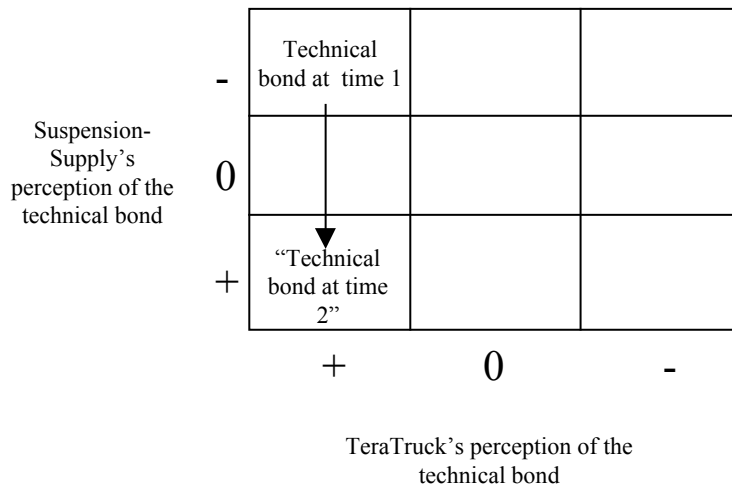


Figure 24. Changes in the perception of the technical bond in the relationship between TeraTruck and Suspension-Supply

Technically the tubular stabilizer supplied to TeraTruck required more time in the production process compared to any of the stabilizers of other buyers of Suspension-Supply. It was regarded as a bottleneck in the production. The technical bond would have been stronger if Suspension-Supply would have been allowed to take part in the development of products at an even earlier stage than they were allowed. Suspension-Supply had already taken part at the stage when TeraTruck needed products for prototypes but if they would have been allowed to take part in the development even earlier they could have affected the products to fit the product supplied to TeraTruck into the production process of Suspension-Supply even better.

The technical bond between TeraTruck and Suspension-Supply was strong. This was due to the fact that the tubular stabilizer supplied to TeraTruck was a unique patented product. Other evidence that support the conclusion regarding a strong technical bond is that even after the relationship between TeraTruck and Suspension-Supply was terminated the technical quality and innovation with the patented tubular stabilizer resulted in a license agreement between TeraTruck's current supplier of tubular stabilizers SusTec and Suspension-Supply. TeraTruck wanted to use the technical innovation created by Suspension-Supply but used a licensed supplier with bigger production capacity in order to assure delivery precision. The conclusion regarding the **strong technical bond** was formed based on the elements affecting technical bond strength, see table 1 below.

The machine for bending the stabilizer was the same for all of Suspension-Supply's buyers so that was not an exit barrier since it could be used with all of the buyers.

Time 1 stands for the time before Suspension-Supply had learned to adapt their product to their production process and time 2 was the time when Suspension-Supply had learned to adapt the tubular stabilizer to Suspension-Supply's production process as well as invested in tooling for the process.

Table 2. Elements affecting technical bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect technical bond strength	Time 1	Time 2
Technical adaptation to the counterpart in the cooperation		
Process adaptation	-	+
Product adaptation	+	+
Cooperation regarding technical development		
Development activity	-	-
Investments		
Investments in equipment	-	+
Technical lead as patented product or process		
Patented product	+	+

5.1.5.2 Time

The weak time bond between TeraTruck and Suspension-Supply was the main reason that the relationship between TeraTruck and Suspension-Supply was terminated.

The poor delivery precision with late deliveries, line stops and costs for airfreight were the main reason for the termination of the relationship between TeraTruck and Suspension-Supply according to informants at Suspension-Supply. Suspension-Supply has sold over 100 % more than they had the capacity to produce and that caused problems in the deliveries to all customers. The main source of the problems and also the reason for the termination of the relationship between TeraTruck and Suspension-Supply was the buyer GigaTruck to which Suspension-Supply supplied as a single source supplier. The volumes delivered to GigaTruck rose and that caused delivery problems to all of the buyers.

Suspension-Supply's main product to TeraTruck was a tubular stabilizer. The product was a bottleneck in the production process. The time bond between Suspension-Supply and TeraTruck was therefore not as strong as between Suspension-Supply and its other buyers. The time bond between the two companies grew however stronger during the cooperation due to investment in tooling and due to the stabilizer being produced in large batches so that the personnel learned how to manufacture it more efficiently than in the beginning.

Suspension-Supply's lead-time in the production had decreased from 22 days when Suspension-Supply started focusing on decreasing the lead-time to 5 days at the best point in time. Suspension-Supply had an average lead-time of 7-8 days for a long time. In March 2001 Suspension-supply's average lead-time was 12 to 13 days. That is however still better than many of Suspension-Supply's competitors that have a lead-

time at around 21 days. Decreased lead times in the production affect the time bond positively.

Four months before the problems with late deliveries started informants from Suspension-Supply's production foresaw that there would be problems with the delivery precision but no measures were taken in order to solve the problems. The delivery problems took place from August 2000 onwards but it was obvious that there would be problems already in April 2000 due to the production forecasts. In the autumn of 2000 the deliveries from Suspension-Supply to TeraTruck were constantly late. Air freighting the products to TeraTruck solved most of the problems but the production was constantly one week late. Airfreights from Suspension-Supply to TeraTruck were taking place constantly and since the products are heavy suspension components the price for the airfreight was high. Airfreights did not help but TeraTruck experienced line stops in its production lines.

"They changed the work shifts so that we should have more shifts. But since the number of workers was the same that did not make any sense, it did not increase production". "We did not have any satisfied customers". Logistics at Suspension-Supply

TeraTruck's alternative suppliers were big suppliers since TeraTruck is a very big buyer and they succeeded in supplying TeraTruck during the problematic times.

There was never any Just-in-Time agreement with the customer TeraTruck since Suspension-Supply does not have any JIT agreements with their buyers in that specific country in Europe. TeraTruck has warehouses in the same country as their factories and Suspension-Supply delivered EXW (Ex works) against TeraTruck's warehouses. Suspension-Supply and TeraTruck made the decision with warehouses since the transport distance was so long to central Europe and Asia. Practically this meant that TeraTruck had a warehouse at the factory for Suspension-Supply's products. The cooperation was also only regarding new products and it did not involve spare parts that are usually a problem with small batches being delivered and that would disturb the deliveries.

There were no EDI systems in use regarding development of products. The EDI system in use between TeraTruck and Suspension-Supply regarding delivery information was the ODETTE system. ODETTE is a standard regarding delivery information in the truck producing industry, and Suspension-Supply received delivery information on a daily basis, i.e. every night. TeraTruck was also using the similar German VDA standard for delivery information but since Suspension-Supply lacked the software for being compatible to that system so TeraTruck's alternative ODETTE system was used and that suited Suspension-Supply well. Regarding systems for the transfer of information the time bond between TeraTruck and Suspension-Supply was strong.

Other modes of getting hold of TeraTruck's personnel were by E-mail, telefax or by telephone. It was always easy to get hold of the personnel of TeraTruck if needed.

The orders were all arriving in time from TeraTruck to the supplier Suspension-Supply according to both management and logistics personnel at Suspension-Supply.

The perception of the strength of the time bond in the relationship increased after the period when the tubular stabilizer with its two bending points was adapted for Suspension-Supply's production process and investments in tooling were made. The flow in the production process became smoother. The perception of the time bond however deteriorated after the problems regarding delivery precision started in August 2000. The increases in deliveries to Suspension-Supply's biggest buyer GigaTruck caused problems with the delivery precision to TeraTruck. The time bond weakened and after four months it was time to re-evaluate the relationship and a decision of terminating the relationship was made in consensus. See Figure 25 below. For a notion of the timeframes see table 3.

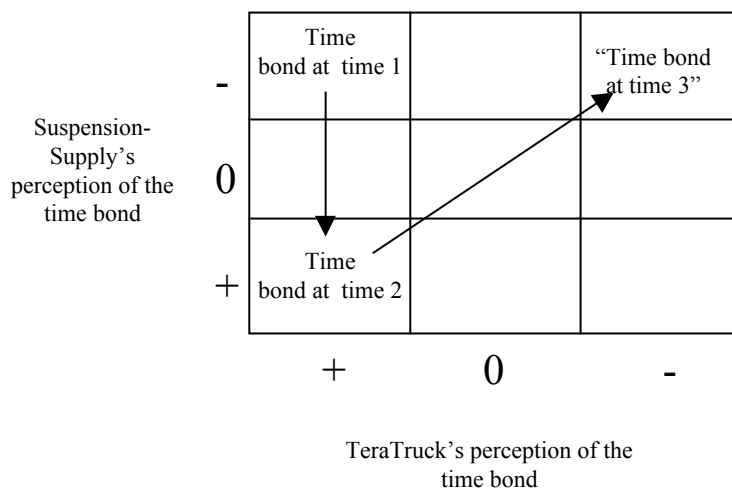


Figure 25. Changes in the perception of the time bond in the relationship between TeraTruck and Suspension-Supply

The systems used for exchanging information regarding deliveries between TeraTruck and Suspension-Supply was the ODETTE system that is an industry standard that is used in the cooperation with several suppliers and buyers so it does not constitute an exit barrier. The exchange of technical drawings was also done on-line with CAD programs but the same was used with all the buyers of Suspension-Supply and in some cases there are translation programs of the CAD information but it is nothing costly that would constitute an exit barrier.

The conclusion regarding the **weak time bond** was formed based on the elements affecting time bond strength, see Table 3 below.

Time 1 stands for the time before Suspension-Supply started focusing on decreasing the lead-time in the production, investments in a saw was not made yet so TeraTruck's stabilizer was a bottleneck product and the production series was not yet large. Time 2 stands for the time when TeraTruck's product was adapted to the production process, the lead-times had decreased and the production series had grown making production more fluent and time efficient. Time 3 stands for the time in the autumn of 2000 when delivery precision was poor, lead-times were high, the tubular stabilizer required more

machine time than those of the competing buyers and was therefore considered to be a bottleneck product and line stops occurred.

Table 3. Elements affecting time bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect time bond strength	Time 1	Time 2	Time 3
Adaptation of logistic functions			
Size of production series	-	+	+
Warehouses	+	+	+
Delivery precision and issues connected to that			
Delivery precision	+	+	-
Lead times	-	+	-
Line stops			-
Flexibility of production (bottleneck product)	-	+	-
Deliveries to alternative buyer			-
Flexibility of flow of information			
EDI system for transfer of daily delivery information	+	+	+
Exchange of CAD drawings	+	+	+

5.1.5.3 Knowledge

The knowledge bond between TeraTruck and Suspension-Supply has been of medium strength. The companies TeraTruck and Suspension-Supply have known each other's strengths and weaknesses well.

By learning more and more about the counterpart the cooperation can develop positively and the knowledge bond strengthens. In the case with a supplier to the truck producing industry the Suspension-Supply had for instance developed a tubular stabilizer that suits TeraTruck's needs taken in consideration endurance and weight specifications, and how the leafspring should be constructed in order to suit the truck. TeraTruck have got useful information about how far Suspension-Supply can go in their development process and what Suspension-Supply can achieve.

Knowledge bonds also exist when the cooperating organizations learn common rules regarding each other's organizations. Mutual knowledge regarding contracting, a common language regarding technical issues, standardization of processes, routines and products.

Suspension-Supply would have liked to be involved at an earlier stage in the development process. At present they were involved in the stages when prototypes of trucks were produced but they would have liked to be earlier in order to influence the technical aspects of the product more in order to get it to fit into Suspension-Supply's process better.

Most of the parts in trucks that are manufactured today are quite standardized. There are no big technical differences between the different brands of trucks, whether it for

instance is a TeraTruck, GigaTruck or KiloTruck. The solutions regarding suspension components are more or less the same. There are the same demands for how tense for instance a spring should be, or the spring may have the same stiffness as the others. There may still be differences in the measurements of the products but the springs or stabilizers still have to fit into almost the same size places in all different brands of trucks and the trucks have almost the same length and width so the differences are minimal. This standardization strengthened the knowledge bond between the companies TeraTruck and Suspension-Supply. It would have strengthened the bond even more if the buyers would standardize some products such as springs for the front wheels of the truck since these are very similar. This would probably decrease the costs for all buyers and would also affect the economic bonds positively.

I have used a positive perspective when looking at knowledge bonds meaning that the knowledge of the counterpart in the cooperation increases the more standardization is done. Seen from a negative perspective of bonds as exit barriers an increase in standardization could be seen as a decrease in exit barrier since standardization could make it possible for more suppliers to enter the market and that could in turn weaken the knowledge bonds. The buyer would not be tied by a specific solution but would rather have the possibility to choose among other standardized solutions.

The cooperating counterpart's knowledge about how the other organization handles organizational problems also constitutes knowledge bonds.

There were also some problems as for instance getting hold of the right persons in a routine episode in 1997 where TeraTruck made a complaint to Suspension-Supply regarding three springs that were sent back to Suspension-Supply. The quality assurance personnel at Suspension-Supply noticed that the defect products were not made by Suspension-Supply. Suspension-Supply then denied paying for the three springs on the grounds that it was not their products. It took one year to handle the critical episode since it took a couple of months to get hold of anyone responsible for the complaint at TeraTruck and then there were misunderstandings regarding the problem. There were also language problems causing delays since when TeraTruck was called there were people that did not speak English and could therefore not handle the problem. Already sent telexes had to be translated from English to German, etc.

The channels for communication with several different interfaces for different issues at the buyer TeraTruck was the root of the problem. Everybody was handling what he or she was supposed to handle and nobody made a decision. TeraTruck's problem with the interfaces was common for all the big buyers but in TeraTruck's case the interfaces were even more diffuse than in other big buyers companies.

With the problematic interfaces there was a fear that there would have been bigger problems in the cooperation but there were no other technical problems that had to be solved. Suspension-Supply had problems regarding the routines and which channels to use when responding to technical complaints at TeraTruck and that affected the knowledge bond negatively.

The conclusion regarding the **knowledge bond of medium strength** was formed based on the elements affecting knowledge bond strength, see Table 4 below.

Table 4. Elements affecting knowledge bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect knowledge bond strength	
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation	
Familiarity of strengths and weaknesses	+
Cooperation regarding development of products	
Cooperation regarding development of products	+
Stage where involvement begins	-
Mutual knowledge regarding rules and routines	
Mutual knowledge regarding rules and routines	+/-
Language	-
Number of interfaces (large)	-

5.1.5.4 Legal

The only contracts between TeraTruck and Suspension-Supply were the purchasing terms that TeraTruck had sent to Suspension-Supply and the counteroffer that Suspension-Supply had sent to TeraTruck. Regarding legal contracts it was an open situation but it did not affect either the relationship or the termination of the relationship. In the termination of the relationship the contract or draft to a contract was never read to the letter. The cooperating counterparts had more of a gentlemen's agreement than a contract stipulating everything in the cooperation.

There were also no contracts regarding the development of products between TeraTruck and Suspension-Supply. It has not been Suspension-Supply's custom to draft rigorous contracts with customers.

"We are not used to work with contracts regarding the development of products, this can be seen both in a negative and a positive sense. But if really big efforts are made for a single customer then you have to have a contract. But if you can count on that the efforts you put into development of products are reasonable and that there is a reasonable chance that they will lead to business with the customer then you do not need a contract". Managing director for Suspension-Supply

The question is perceived in such a way by Suspension-Supply that if the development project that has been under way with a buyer does not lead to business then additional knowledge has however been acquired. This additional knowledge is used in order to develop the product features or the productivity when producing the product or the quality aspects of the product, and this in turn can lead to business with other buyers.

Certifications can also be considered as a legal bond. TeraTruck demanded that their suppliers should be certified. QS9000¹ was required as well as the environmental audit

¹ QS 9000 is a standard developed by the big three, GM, Chrysler and Ford QS9000 is the shorthand name for "Quality System Requirements QS-9000." It is the common supplier quality standard for DaimlerChrysler Corporation, Ford Motor Company, and General Motors Corporation. QS-9000 is based on the 1994 edition of ISO 9001, but it contains additional requirements that are particular to the

ISO 14001². Suspension-Supply became QS 9000 certified in 1998. The people from the quality assurance at TeraTruck had never visited Suspension-Supply and also never made an audit at Suspension-Supply's factory. The in-house audit at TeraTruck is the VDA 6.1³ that is a very stringent audit and the auditor is considered as being a very feared auditor in the industry. VDA 6.1 is almost equivalent to QS 9000 and TeraTruck was satisfied with Suspension-Supply's certificates and their list of references.

The legal bonds between TeraTruck and Suspension-Supply were weak.

The conclusion regarding the **legal bonds of weak strength** was formed based on the elements affecting legal bond strength. See Table 5 below.

Table 5. Elements affecting the strength of legal bonds in the relationship between TeraTruck and Suspension-Supply

automotive industry. These additions are considered automotive "interpretations" by the ISO community of accreditation bodies and registrars. QS-9000 applies to suppliers of production materials, production and service parts, heat treating, painting and plating and other finishing services. It does not, therefore, apply to all suppliers of the Big Three. (www.asq.org/qs-9000/)

Chrysler, Ford, General Motors, the Truck Manufacturer's and other companies which subscribe to the standard require their suppliers to establish, document and implement effective quality systems based on QS-9000, according to the timing requirements of their customers. All requirements of QS-9000 are to be incorporated in the supplier's quality system and further described in their quality manual. Third party registration to QS- 9000 will be accepted and even insisted upon by some customers. The third party registration scope must include all products and services provided to one or more of the companies adhering to this document. Verification of conformance to ISO9001 is a prerequisite for registration to QS-9000. (www.aqsr-us.com/standards/qs_9000/qs_9000_standard.html)

² The ISO 14000 series is a family of environmental management standards developed by the International Organization for Standardization (ISO), one of the world's principal voluntary standards development bodies. The ISO 14000 standards are designed to provide an internationally recognized framework for environmental management, measurement, evaluation and auditing. They do not prescribe environmental performance targets, but provide organizations with the tools to assess and control the impact of their activities, products or services on the environment. The standards are designed to be flexible enough to be used by any organization of any size and in any field. They address the following subjects: environmental management systems; environmental auditing; environmental labels and declarations; environmental performance evaluation; and life cycle assessment. (www.aqsr-us.com/standards/iso_14000/iso_14000_standard.html)

³ VDA 6.1 is the German Quality Management System for the automotive industry. Verband der Automobilindustrie e. V. (VDA) issued the 4th edition in December 1998 and it became mandatory for all German car manufacturers on April 1, 1999. Based on ISO 9001: 1994, it includes all elements of QS-9000, with an additional four requirements specific to VDA 6.1 as follows: Element 06.3 Recognition of product risk - These are the risks of the product fulfilling its own function and its effect on the whole assembly. Element Z1.5 Employee satisfaction - The perception of the employees of the company, as well as the needs and expectations of the employees that will be met through the company's quality approach. Element 07.3 Quotation structure - A customer or market is offered products for purchase or made available to own or to use. Element 12.4 Quality history - The system describes the quality history of customer supplied product and gives an overview of the situation during a particular period. The VDA standard is broken into two parts, with the first classed as management and the second focusing on Products and Processes. Any company who goes through an audit must achieve at least 90 percent correct on all questions to obtain registration. (www.123iso.org/VDA%206.1.htm)

Elements that affect legal bond strength	
Written contracts	
Written contracts	-
Quality certificates like QS 9000	
Quality certificate QS 9000	+
Environmental certificate like ISO 14001	
Environmental certificate ISO 14001	+

5.1.5.5 Economic

The margin on the tubular stabilizer that Suspension-Supply delivered to TeraTruck was low. The specific stabilizer was more difficult and costly to produce compared to the stabilizers supplied to other buyers. Of all the tubular stabilizers produced by Suspension-Supply, TeraTruck's tubular stabilizer was the one with the lowest margin and the one that required most machine time in the production.

It took a while before the stabilizer delivered to TeraTruck's was showing profit since it had to be adapted to Suspension-Supply's production process at first. After a while when Suspension-Supply had learned how to make the stabilizer and adapted the production process for it as well as invested in tooling then the profit margin on the product grew and the economic bond was affected in a positive sense.

15 % of the tubular stabilizers produced by Suspension-Supply were delivered to TeraTruck so it was a fairly small buyer of tubular stabilizers and the dependence due to volume constituted a weak economic bond. One reason for keeping the buyer was that it could have created a possibility to deliver volumes of springs to TeraTruck as well but the cooperation regarding springs never took off.

Another reason for keeping the buyer TeraTruck was that it was affecting the image of Suspension-Supply to deliver products to such a well known brand and could therefore create more business opportunities and indirectly strengthened economic bond between Suspension-Supply and TeraTruck in that way. The effect on the image affected the psychological bond and increased its strength as well.

During the turbulence of the autumn of 2000 the deliveries from Suspension-Supply to TeraTruck were constantly late. Airfreights from Suspension-Supply to TeraTruck were taking place constantly and since the products are heavy suspension components the price for the airfreight was high. This was also affecting the economic bond negatively.

The turbulence connected to the rapid growth in deliveries during the autumn of 2000 led to that the relative price on the tubular stabilizer delivered to TeraTruck decreased compared to the tubular stabilizers of other buyers. This was due to the fact that the more technically complicated product of TeraTruck required more capacity and was therefore a bottleneck in the production process compared to the products of other customers. Tubular stabilizers were delivered to TeraTruck at a lower margin and required a production time that could be used manufacturing for buyers where the margin was higher. It became more and more difficult to defend the production of the product strategically even if the price on the product in itself did not decrease. This

affected the economic bond negatively. See Figure 26 below. For a notion of the timeframe see table 6.

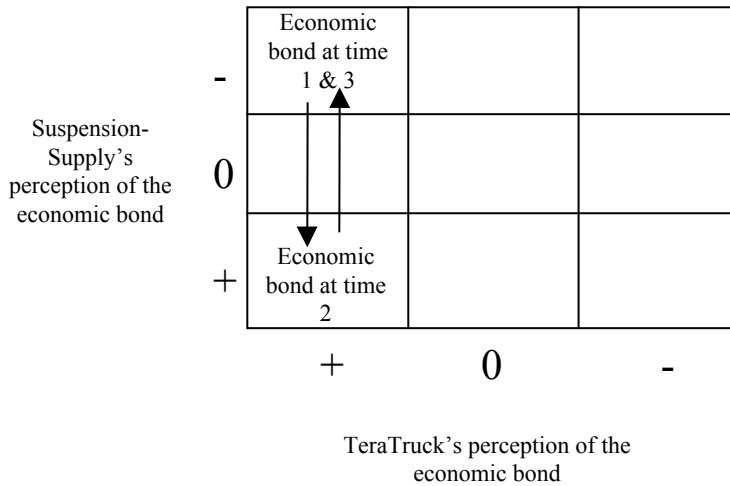


Figure 26. Changes in the perception of the economic bond in the relationship between TeraTruck and Suspension-Supply

Some economic bonds still persist in from the cooperation between TeraTruck and Suspension-Supply since Suspension-Supply still gets license fees from TeraTruck's current supplier SusTec for the delivered tubular stabilizers.

The investments in the saw and in the tooling were however considered as small and written off when the relationship between TeraTruck and Suspension-Supply was terminated so that did not constitute an exit barrier in the relationship between TeraTruck and Suspension-Supply. All investments in tests and calculations that were made when the relationship started that required capital had been written of in full since the product was made for several years and in large series.

The conclusion regarding the economic bond of weak strength was formed based on the elements affecting economic bond strength at different times in the relationship, see table 5 below.

Time 1 stands for the time before investments were made and Suspension-Supply's process was adapted to manufacturing TeraTruck's tubular stabilizer and time 2 was the situation when adaptations to the process were made and the product was not a bottleneck product causing costs any more. Time 3 was when the problems in the autumn of 2000 had started causing TeraTruck's product to become a bottleneck product again since it was still less efficient than those products of the competing buyers to manufacture. In a situation with a high demand this product was costlier to produce than the products of competing suppliers and thus a bottleneck product.

Table 6. Elements affecting the strength of economic bonds in the relationship between TeraTruck and Suspension-Supply

Elements that affect economic bond strength	Time 1	Time 2	Time 3
Price			
Opportunity costs (high)	-	-	-
Profit margin			
Profit margin (low)	-	-	-
Share of supplied or bought products			
Share of products (small)	-	-	-
Production efficiency	-	+	-
Bottleneck product	-	+	-
Additional costs or revenues that stem from the cooperation			
Airfreights (negative costs) (times with poor delivery precision)			-
License fees	+	+	+

5.1.5.6 Geographical

The geographical bonds between Suspension-Supply and TeraTruck were weakened towards the end of the cooperation due to critical episodes with poor delivery precision in the autumn of 2000.

A short lead or throughput-time in the production can affect the geographical bonds positively. If a supplier is situated at a greater distance from the customer than the competing supplier but has a shorter lead-time in the production then the geographical distance has lost its importance. A supplier situated at a greater distance from the customer can actually deliver goods faster to the customer than the competing supplier situated closer to the customer can due to the shorter lead-time. (Wendelin 2000a) Suspension-Supply's lead time in the production had decreased from 18 days when they started focusing on decreasing the lead time to 5 days at best and a long time they had an average of a 7-8 days lead time and in march 2001 the average was 12 to 13 days. That is however still better than many of Suspension-Supply's competitors that have a lead-time at around 21 days according to informants at sales at Suspension-Supply's and GigaTruck's logistics departments.

Suspension-Supply supplied both to TeraTruck's factories in Germany and Turkey from Scandinavia so the geographical distance for the transport of products was long. The suspension components were also more or less handled as heavy bulk components. Positive for Suspension-Supply was that TeraTruck bought their supplies EXW (Ex works) so TeraTruck was paying for the transport. TeraTruck has warehouses in the same country as their factories and Suspension-Supply have delivered EXW (Ex works) to TeraTruck's warehouses. Suspension-Supply and TeraTruck made the decision with warehouses since the transport distance was so long to central Europe and Asia. This changed when the critical episodes with delivery delays took place in the autumn of 2000, then Suspension-Supply paid for the airfreights to TeraTruck. The geographical bond was weakened when the time bond was weakened. If Suspension-Supply had had a factory close to all of TeraTruck's factories then there would not have been any need for airfreights of products and both money and time would have been saved. The geographical bonds weakened towards the end of the relationship see Figure 27 below.

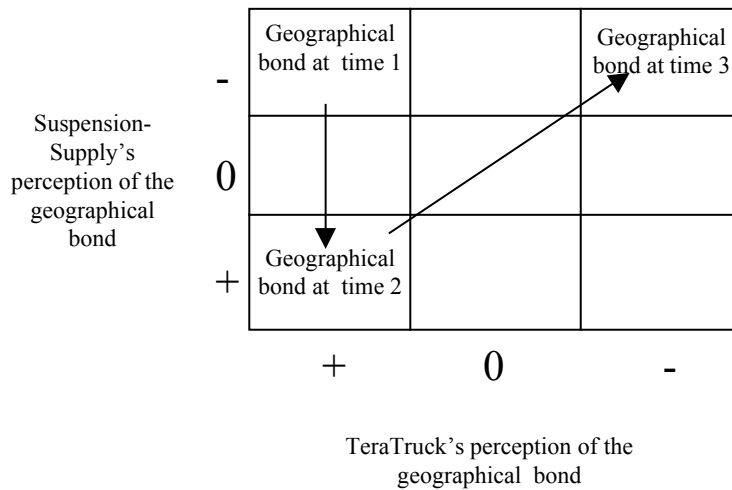


Figure 27. Changes in the perception of the geographical bond in the relationship between TeraTruck and Suspension-Supply

From the point of view of technical cooperation the informants at Suspension-Supply technical development found that the distance to TeraTruck did not constitute a problem. The distance and therefore time for travel is similar by plane as long as the buyer such as TeraTruck is situated in Europe.

Residual geographical bond

TeraTruck has asked Suspension-Supply to give offers on conventional springs that are very heavy equipment after the termination of the relationship between TeraTruck and Suspension-Supply. This is due to a change in the market where many of the competing suppliers bigger than Suspension-Supply has started focusing on producing parabolic springs instead of conventional springs in countries with low costs. That means that Suspension-Supply's competitive power has grown strong regarding conventional springs since competition has decreased. Conventional springs are a much heavier product than parabolic springs. The geographical bond has been strengthened due to changes in the world market on springs. Even producers in the South of Europe have made inquiries to Suspension-Supply, producers where Suspension-Supply has not had competitive strength earlier due to the geographical distance.

It can therefore be said that the residual geographical bond that has been left after the termination seems to have increased in strength due to the changes in strategy by Suspension-Supply's competitors. This may create an opportunity for Suspension-Supply's to deliver large volumes of conventional springs to TeraTruck in the future if Suspension-Supply's production capacity is increased.

The conclusion regarding the **strong geographical bond that weakened towards the end of the cooperation** was formed based on the elements affecting geographical bond strength, see table 7 below.

Time 1 stands for the time before Suspension-Supply started focusing on decreasing the lead-time in the production. Time 2 stands for the time when the lead-times had decreased and the production series had grown making production more fluent and time efficient. Time 3 stands for the time in the autumn of 2000 when delivery precision was poor, lead-times were high and Suspension-Supply had to airfreight the products to TeraTruck several times in order to manage to deliver the products at all.

Table 7. Elements affecting the strength of geographical bonds in the relationship between TeraTruck and Suspension-Supply

Elements that affect geographical bond strength	Time 1	Time 2	Time 3
Geographical distance to buyer/supplier			
Geographical distance	-	-	-
Delivery precision	+	+	-
Lead-times	-	+	-
Airfreights (in times of poor delivery precision)			-
Warehouses	+	+	+
Technical cooperation			
Technical cooperation	+	+	+

5.1.6 Abstract bonds

Abstract bonds are bonds that build up in the minds of people when companies cooperate or when people are using a company's products or services.

5.1.6.1 Social

There was social bonding of medium strength between Suspension-Supply and TeraTruck.

The personnel at the purchasing office at TeraTruck was changed on a regular basis as is the case with most truck-producing buyers. This is a strategic move in order to avoid the building of social bonds between sales personnel and purchase personnel. Buyers avoid having purchasing personnel that would see the supplier's personnel as their friends and take the supplier's side in a potential conflict. According to informants at Suspension-Supply TeraTruck's purchase personnel changed every second year. Personal relationships between contact persons were seen as important. There were however no unofficial contacts between the personnel in Suspension-Supply and TeraTruck.

"Cooperation is more dependent on personal relationships than on customer relationships. The relationship our contact person has to the customers contact person when the same issue is discussed is not without importance". Support systems and quality assurance at Suspension-Supply

The communication between Suspension-Supply's sales personnel and TeraTruck's purchase personnel was frequent and open. This was of particular importance when the problems between the companies with late deliveries started. The cooperation when the delivery problems started was intensive with telephone conferences approximately every second day in order to solve problems. Telex and E-mail were also used in order

to communicate frequently. The most important mode of communication was however the telephone due to the personality of the media, i.e. direct contact with a human voice on the other side as can be seen from this statement made by Suspension-Supply's managing director.

“One of our principles and a wisdom that we have learnt is also that E-mail is a convenient instrument in many occasions but it should not be used in order to flee the field. That means that it is very easy to say, “ok I have sent an E-mail” were one by all means should dear to use the telephone. There is a difference. This is aimed at the IT industry that seems to think that all is fixable by E-mail. The old reliable telephone is in some cases much, much better!” Managing director for Suspension-Supply

The buyer TeraTruck became aware of the problems with deliveries fast and a process started fairly quickly to terminate the business relationship. TeraTruck started the process in order to secure its deliveries. The relationship was terminated only four months after the major delivery problems started and there were no problems with dissolving the relationship an agreement on dissolving the business relationship was found easily. There were no hard feelings between the contact personnel. The social bond would have been strengthened if the purchase personnel had gotten information regarding the upcoming delivery problems before they even started.

“There is a certain pitfall, we could call it a danger to act to emotionally sometimes when faced with question like this, (termination) but the wisdom is to keep your head cold and act businesslike as far as possible”. Support systems and quality assurance at Suspension-Supply

The solution with the termination of the business relationship between Suspension-Supply and TeraTruck was taken in unity between the companies with the aim that they could start cooperating again without any hard feelings in some year's time.

“It is important to keep the concepts separated. We have not taken a decision to end the relationship but to end the daily business for time being. Nobody is in any way interested in running down a relationship, you are supposed to keep all your relationships alive. The more relationships the better, but at certain point's in time some relationships result in more business and some in less. You could say that some relationships are in a dormant state, like in kind of a mothproof bag over the winter. It is quite easy to realize that with so few actors on the market one is interested to preserve all relationships.” The Managing director for Suspension-Supply

The logistics personnel as well as the technical development and quality assurance personnel that were keeping up contacts with each other remained the same during the whole relationship between TeraTruck and Suspension-Supply.

The commitment to the relationship between Suspension-Supply and TeraTruck was high but decreased towards the end of the relationship. The level of commitment was shown by for instance investing in the relationship by adaptation with a saw.

The level of trust was also on a satisfying level with gentlemen's agreements completing the purchasing agreements. The level of trust deteriorated at the end of the relationship since TeraTruck did not trust Suspension-Supply to be able to deliver their products in time.

The conclusion regarding the **social bond of medium strength** was formed based on the elements affecting social bond strength at different times in the relationship, see Table 8 below.

Time 1 should be seen as the time before the autumn of 2000 when there was still commitment to maintain the relationship between Suspension-Supply and TeraTruck and time 2 stands for the time when the commitment had ended as well as the trust and the relationship was terminated.

Table 8. Elements affecting social bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect social bond strength	Time 1	Time 2
Turnover of personnel		
Frequent change of purchasing personnel	-	-
Low turnover of personnel on the logistics department	+	+
Low turnover of personnel on the technical department	+	+
Low turnover of personnel on the quality department	+	+
Contacts between personnel		
Frequent communication and meetings between sales and purchasing personnel	+	+
Management cooperation	+	+
Personal relationships		
Personal relationships	+	+
Unofficial contacts between personnel	-	-
Commitment and trust		
Commitment	+	-
Trust	+	-

5.1.6.2 Cultural

The cultural bonds between Suspension-Supply and TeraTruck were of medium strength and stable throughout the relationship.

TeraTruck's and Suspension-Supply's delivery plans were running on similar systems, ODETTE, and the delivery plans were sent online every night. This was culturally similar to what Suspension-Supply was used to in their company culture. Some suppliers' company culture was different in that they sent their delivery plans by mail.

The sales personnel at Suspension-Supply did not perceive that there were any problems regarding the company culture in the cooperation with TeraTruck. This was due to the fact that TeraTruck as a company was a big international company as well as the other customers so there were no big differences between TeraTruck and Suspension-Supply's other customers. Culturally the companies in the truck producing industry have changed and become more and more identical. A cultural standardization has taken place.

“You get a feeling that the companies (the buyers) become more and more international not to use the inflated word global. A certain (cultural) standardization is taking place and that is not negative”.
Managing director for Suspension-Supply

There are cultural differences between German companies and other global companies in that the contact persons at the German companies are always easy to get hold of since they are more stationary. According to informants at Suspension-Supply TeraTruck’s personnel seems to be stationed close to their computer most of the time. This means that it is easy for Suspension-Supply to get hold of the contact persons at TeraTruck when needed.

The technical department at Suspension-Supply found it easy to work with the technical department at TeraTruck since it was in their culture to make decisions fast and an answer always came fast. There was no need for small talk and it was easy for people to make decisions and people dared to make decisions, which is not always the case in all cultures. There were no cultural differences causing problems regarding handling of technical issues and technical development between Suspension-Supply and TeraTruck.

Some cultural differences that may affect the cultural bonds negatively are that Suspension-Supply as a smaller company has to have an organization where the borders are more open and floating and where people can work at several different levels and desks at the same time. TeraTruck on the other hand has a more rigid structure where every employee has his own area of expertise with his own desk and work and where the borders are sharp. There is no flexibility.

There were cultural differences affecting how quality issues were handled in Suspension-Supply in comparison to TeraTruck. People from quality assurance at TeraTruck had never visited Suspension-Supply and also never made an audit at Suspension-Supply’s factory. TeraTruck was satisfied with Suspension-Supply’s QS 9000 audit and Suspension-Supply’s references so a German VDA 6.1 audit was never executed. The in-house audit at TeraTruck is the VDA 6.1 is almost equivalent to the QS 9000 and is a very stringent audit and the auditor is an expert mathematician with a doctorate degree and considered as being very categorical and is a very feared auditor in the industry. If there had been a VDA 6.1 audit there would have been problems that would have weakened the cultural bonds. The differences between the cultures in Scandinavia compared to the culture in Germany are according to informants at Suspension-Supply different when it comes to for instance quality audits. The culture in Germany is perceived as more bureaucratic and exact where as in Scandinavia there can be a dialogue regarding issues in the audit.

“This man (doctor X) would run things in three days in the manner that he would go through the standards bit by bit (very categorically) so it is borderline ludicrously. With some experience in the industry one knows that that is not the correct way to make quality systems work and achieve good quality, it is very, very German. Another peculiarity would be that the auditor must be accredited in German countries and there is no such person available in Scandinavia so a German auditor would have to come here and audit the standard and it is costly and it really does not give any advantages.” Support systems and quality assurance at Suspension-Supply

There were also some problems in for instance getting hold of the right persons in a routine episode in 1997 were TeraTruck made a complaint to Suspension-Supply regarding springs returned to Suspension-Supply. The problems were due to differences in company culture resulting in problems of not knowing whom to contact. There were also language problems causing delays since when TeraTruck was called there were people that did not speak English and could therefore not handle the problem. Already sent telexes had to be translated from English to German. The channels for communication with several different interfaces for different issues at the buyer TeraTruck was the root of the problem.

The lack of knowledge of English at TeraTruck resulted in problems for the employees at Suspension-supply that did not speak German. The official language at TeraTruck is English but there are still big problems regarding the language and in practice the language spoken is German and that affected the cultural bond between Suspension-Supply and TeraTruck negatively since language problems occurred in the cooperation.

The conclusion regarding the **weak cultural bond** was formed based on the elements affecting cultural bond strength, see Table 9 below.

Table 9. Elements affecting cultural bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect cultural bond strength	
Company culture	
Company culture	+
Decision making (no small talk)	+
TeraTruck's firm borders concerning responsibility (many interfaces) (problem in case of critical incidents)	-
Borders concerning responsibility	-
Channels for communication	-
Handling of technical issues	+
Manner of handling quality audits (Differences vis-à-vis quality audits)	-
Transfer of delivery plans	+
Language	
Language problems	-

5.1.6.3 Ideological

The ideological bonds between Suspension-Supply and TeraTruck were of medium strength and stable throughout the relationship. Green certification as in the case between Suspension-Supply and TeraTruck with the environmental audit ISO 14001 is a requirement for doing business. Without an environmental audit there is no business. The aim with the green audit is that environmental issues should be taken into consideration during the whole production process.

TeraTruck has however had to be reminded by Suspension-Supply regarding requirements of chemicals in the production. The buyer's technical specifications may sometimes be contradictory to what is stipulated in the environmental audit.

Suspension-Supply has had to inform TeraTruck about costs and waste management regarding for instance surface treatments with zinc colors.

The most important “green” issue in the cooperation between Suspension-Supply and TeraTruck is the surface treatment and the waste management concerning paint and the possibility to recycle products. Suspension-Supply’s products are up to 99 % recyclable due to the fact that they are made of steel.

The ideological bond may affect the economic bond since there may for instance be regulations in a “green” audit such as the ISO 14001 that stipulates the amount of vaporized organic chemical waste that is allowed in surface treatment. This may make it costlier to use that specific treatment.

The conclusion regarding the ideological bond of medium strength was formed based on the elements affecting ideological bond strength, see Table 10 below.

Table 10. Elements affecting the strength of ideological bonds in the relationship between TeraTruck and Suspension-Supply

Elements that affect ideological bond strength	
Environmental awareness	
Possibility to recycle product (recyclable products)	+
Waste management	+
Actual importance of environmental friendliness	-
Green product or process e.g. ISO 14001 certified process	
Environmental audit ISO 14001	+

5.1.6.4 Psychological

The psychological bonds between Suspension-Supply and TeraTruck were strong. Suspension-Supply saw TeraTruck as a good reference due to its well-known brand name that is standing for quality. TeraTruck is also among the largest producer of trucks on the world market. Suspension-Supply saw TeraTruck as important for their image on the world market. TeraTruck is known to have high demands on quality in their products and to be a producer of high quality products and that reflected the fact that Suspension-Supply was a producer of high quality products.

“Customer TeraTruck is very important to us since they have a very strong name, a very strong name and only to have such a strong reference is important for us. Even if we have noticed that the fact is that the brand is stronger than the product itself. (laughter)” Support systems and quality assurance at Suspension-Supply

The tubular stabilizer was seen as being more strategic than practical to produce. Every time there were discussions regarding capacity problems then the tubular stabilizer delivered to TeraTruck was discussed. Strategically Suspension-Supply saw it as

important to be able to say that they were quality approved by and delivered products to TeraTruck.

“It was important in regard to our long-term planning, we thought that only having the reference was very important for us, and being able to brag that we deliver to and are quality approved by this customer. We were ready to accept this (capacity problems) even though the business was not so important”. Managing director at Suspension-Supply

Technically Suspension-Supply had the image of being the innovator of the tubular stabilizer and having the patent for it and that affected the psychological bond positively.

Technically Suspension-Supply’s informants perceive the trucks of different producers to be similar to each other. It is no difference if it is a TeraTruck, GigaTruck or a KiloTruck the parts are more or less the same regardless of the parts and when it comes to electrical systems then the parts are identical.

The conclusion regarding the **strong psychological bond** was formed based on the elements affecting psychological bond strength, see Table 11 below.

Table 11. Elements affecting psychological bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect psychological bond strength	
Perceived superiority, equality or inferiority of product, process or service	
Patented product	+
Innovation (tubular stabilizer)	+
Brand name	
TeraTruck as a reference (brand name)	+
Image	
TeraTruck as a reference (image)	+
Reputation of the counterpart in the cooperation	
TeraTruck’s good reputation	+

5.1.6.5 Strategic

Strategic bonds are a finding of the analysis that is mentioned due to the method of systematic combining used to analyze the empirical material. Strategic bonds are on a different level than the other bonds mentioned and can contain all the other types of bonds.

Strategic bonds are bonds that emerge when the companies have it in their strategy to have cooperation. The strategy may be when for instance a supplier such as Suspension-Supply to keep a customer such as TeraTruck even if there are problems with the manufacture of that customers’ products, due to the effect having a customer such as TeraTruck in the list of references will have on further business. It could also be when a buyer such as TeraTruck wants to keep the supplier Suspension-Supply on the supplier list due to the strategic importance of that supplier’s product to the end product of the

buyer. For instance a tubular stabilizer weighing approximately 20 kilos less and increasing the payload or amount of fuel the truck can carry.

The strategic bond between Suspension-Supply and TeraTruck weakened towards the end of the cooperation. Suspension-Supply had thought strategically that they would start to deliver tubular stabilizers to TeraTruck and then use the stabilizers as an entry product in order to start delivering springs. Suspension-Supply did not however start delivering large volumes of springs to TeraTruck. The strategic focus changed when the market situation changed positively in the way that Suspension-Supply did not have possibilities to focus on potentially new customers in certain product groups due to a shortage of production capacity. But Suspension-Supply choose rather to put the relationship with TeraTruck on ice or to cool it down in order to be able to supply GigaTruck with which Suspension-Supply had a single source agreement.

Informants at Suspension-Supply found that the volumes Suspension-Supply had the capacity to produce were too small for TeraTruck's needs. The volumes were sufficient regarding the stabilizer but the aim should also have been to supply Suspension-Supply with volume springs and Suspension-Supply was too small a company to supply TeraTruck with the enormous volumes that would have been needed in a scenario of supplying volume springs to TeraTruck.

Strategically informants at Suspension-Supply see the possibilities to supply TeraTruck as small due to the size of the company. Special products delivered in small numbers would be costly to manufacture for Suspension-Supply and expensive for TeraTruck due to the complexity of the manufacturing process. Suspension-Supply on the other hand lacked capability to supply volume products to TeraTruck.

In order to strengthen the strategic bond the Suspension-Supply could have gone towards bigger production units since this is also what has happened on the buyer side. There are several small suppliers on the supply side regarding suspension components even if there are in some cases several suppliers that have tried to work together in strategic alliances. Suspension-Supply was according to sources at Suspension-Supply a too small producer for TeraTruck's needs.

"One drawback is that their (TeraTruck's) volumes are so big that we are perhaps a bit too small for them, we don't have the possibility to take a large part of for instance a spring. If that would be the case we should only make one type of spring and that is a sort of supplier that they would not like to have. You are supposed to have more than one product in your palette of products and then the volumes would be so large that we would have problems connected to that if we think about springs. This might be a drawback that may have been a braking effect that has resulted in that the cooperation and the development has not gone the way we thought five or six years ago". Technical development at Suspension-Supply

What started the cooperation between Suspension-Supply and TeraTruck was the technical innovation with the tubular stabilizer that TeraTruck did not have any alternative suppliers for due to the patented solution. One of the reasons that there was not more development and cooperation between Suspension-Supply and TeraTruck regarding springs was that Suspension-Supply was focusing their development activities on the competing buyer KiloTruck. KiloTruck had a totally new model of truck entering the market that required almost 100 % of the development activities at Suspension-

Supply regarding springs and that was part of the reason that the cooperation between Suspension-Supply and TeraTruck never developed regarding springs.

Suspension-Supply had to take a strategic decision to terminate a relationship in order to be able to supply GigaTruck with their products. The choice was TeraTruck due to the difficulty in manufacturing the product, a tubular stabilizer with two bends in the bending point where all other stabilizers had one bend. TeraTruck also saw no other possibility than to terminate the relationship due to the constant delivery delays that affected their production lines. See Figure 28 below for the weakening of the strategic bond. Time 1 stands for the time before the problems in the autumn of 2000 before the strategic decision to terminate the relationship had been taken and time 2 was four months later when the decision was made to terminate the relationship.

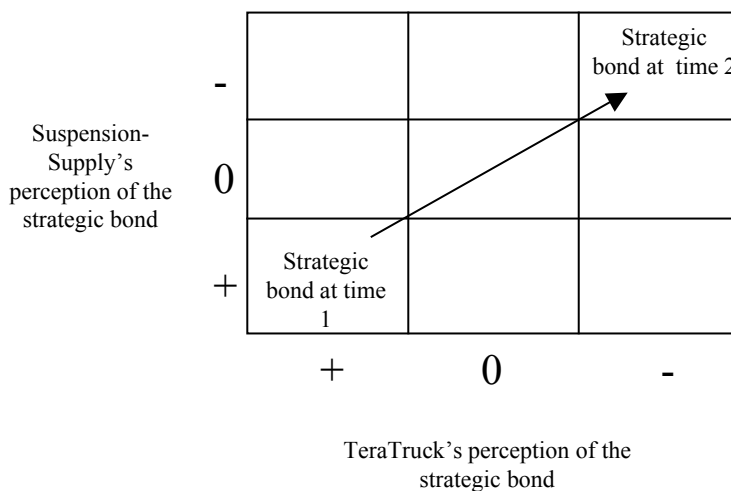


Figure 28. Changes in the perception of the strategic bond in the relationship between TeraTruck and Suspension-Supply

“The situation was that that we had to make a clear decision, if we where to take in GigaTruck in the production we had to get rid of some other. But it could of course have been done softer without waiting to make the strategic decision until they (the customers) have a shortage of products and the lines have stopped”. Logistics at Suspension-Supply

“Something had to go when GigaTruck should start and TeraTruck was a good candidate since their product had two bends in the bending point where all the others had one bend, but it could have been done with style instead of waiting”. Technical development at Suspension-Supply

The problems regarding delivery precision were due to a single sourcing agreement with their biggest customer GigaTruck that affected the delivery precision in all their other relationships. From TeraTruck's point of view Suspension-Supply was causing troubles in the production causing line stops and was seen as a too small supplier to cooperate with. The technical innovation created a strong technical bond but Suspension-Supply lacked the capacity of supplying such a big buyer as TeraTruck especially when the production capacity was tied up with other big buyers.

The strategic bonds were later when the decision was made dissolved in an orderly fashion. The termination of the relationship was planned and executed in close cooperation between Suspension-Supply and TeraTruck with the goal of leaving possibilities for starting cooperation in the future.

The conclusion regarding the **strategic bond that weakened and was then terminated towards the end of the relationship** was formed based on the elements affecting strategic bond strength, see Table 12 below.

Time 1 stands for the time before the problems in the autumn of 2000 before the strategic decision to terminate the relationship had been taken and time 2 was four months later when the decision was made to terminate the relationship.

Table 12. Elements affecting strategic bond strength in the relationship between TeraTruck and Suspension-Supply

Elements that affect strategic bond strength	Time 1	Time 2
Strategic decision to cooperate or terminate the cooperation		
Strategic decision to terminate		-
Strategic importance of buyer or supplier (economic and/or technical view)		
Share of products delivered/bought	-	-
Size of production series	-	-
Competing suppliers or buyers		-
Allocated production capacity	+	-
Geographical distance to supplier/buyer	-	-
Development activities		
Development activities with focus on other buyer		-
Strategic importance of product		
Strategic importance of product for end product	+	+
Entry product for supplier	+	-

5.1.7 Summary of the Strength of Bonds in the Cooperation between TeraTruck and Suspension-Supply

Connection to relationship strength

According to Holmlund (1996) and Storbacka, Strandvik and Grönroos (1994) the strength of the relationship is affected by the strength of the bonds between the companies in the relationship, available alternatives in the cooperation, the satisfaction in the relationship, the engagement that the companies have for the relationship. The way that critical incidents have been handled also affects the strength in the relationship between companies.

The relationship between TeraTruck and Suspension-Supply was terminated. This was due to the fact that several bonds were weak; the satisfaction with the relationship was poor due to delivery delays and to high alternative costs. The critical incidents that took place were solved but were solved with the aim of satisfying other of Suspension-Supply's buyers. That means that the engagement for the relationship was low and that was due to the fact that it was not a relationship that created as much revenue as Suspension-Supply's other relationships. There were not many available alternatives for the tubular stabilizer but one alternative was found in SusTec that was licensed by Suspension-Supply and had a higher production capacity.

Bond strength in the relationship between GigaTruck and Suspension-Supply

Table 13 below presents a summary of the strength of the different bonds in the relationship between TeraTruck and Suspension-Supply. This should be seen as the overall strength of the bonds at the latest stage of the relationship.

Table 13. Bond strength at the latest stage pre-termination of the relationship between TeraTruck and Suspension-Supply

Technical	Strong
Time	Weak
Knowledge	Medium strength
Legal	Weak
Economic	Weak
Geographical	Weak
Social	Medium strength
Cultural	Weak
Ideological	Medium strength
Psychological	Strong
Strategic	Weak

Several bonds between TeraTruck and Suspension-Supply were weak in the end of the business relationship and that was the reason for relationship termination. The relationship was not sound with the continuing delivery delays due to the poor delivery precision. TeraTruck and Suspension-Supply were losing money due to the constant delivery delays that stopped the lines at TeraTruck and also due to airfreights of the heavy components. The technical bonds were strong due to the patented solution and residual technical bonds still remains due to the fact that tubular stabilizers TeraTruck is now supplied to TeraTruck by SusTec that is licensed by Suspension-Supply.

5.2 Case 2: negative critical episode causing partial termination

The 2nd case involving GigaTruck is a case where a **negative critical episode** caused the **partial termination** of the relationship and left residual bonds to Suspension-Supply. GigaTruck terminated the relationship regarding parabolic springs that amounted for 20 % of Suspension-Supply's total production when the choice of single source suppliers was made. At the same time GigaTruck chose Suspension-Supply as single source supplier for tubular stabilizers and conventional springs. GigaTruck's new single source supplier SPRING had problems in delivering the amount of parabolic springs that GigaTruck needed so Suspension-Supply had to start acting as a sub-supplier to SPRING for the amount of products, 20 % of the production, that were terminated by GigaTruck.

The GigaTruck case is the only big case where a partial termination of the relationship has taken place and was needed in order to find out how the bonds changed in cases where there are partial termination of the relationship and to find out if residual bonds still remained.

There may also be partial termination of a relationship. The buyer GigaTruck did terminate only a part of the relationship. Some products as for instance springs was terminated from the buyer's list of supplies supplied by a certain supplier due for instance to a single sourcing agreement regarding springs concentrating the purchases of springs to supplier SPRING. The buyer GigaTruck might still continue to buy stabilizers from the same supplier Suspension-Supply. It may however mean much for the supplier, which may lose a buyer for 20% of its production for instance, as was the case for Suspension-Supply. The personnel selling that specific model of spring does not have any contact with the buyers of that specific model of spring any more, there is no economic bonds for that specific model of spring any more. The knowledge bonds regarding that specific model of spring starts deteriorating since the supplier does not develop that specific model of spring together with the buyer any more. The economic bond between GigaTruck and Suspension-Supply also weakened since Suspension-Supply lost 20 % of their deliveries to GigaTruck and was at the same time forced to lower their prices with 8-10 % on the products where Suspension-Supply became global single source supplier.

5.2.1 Relationship history

The cooperation between GigaTruck and Suspension-Supply has continued since the 1970's. It is characteristic for the business that the relationships are lasting a long time. It has been considered difficult to cooperate for a shorter period of time than 10 years that has been the traditional life span of a series of trucks. The life span has however shortened and was in 1998 approximately six years and current development shows a trend where the life span would be four or five years.

Suspension-Supply delivers suspension products to GigaTruck's production plant in three different countries. 40 % of Suspension-Supply's products were delivered to GigaTruck before the partial termination. The partial termination regarded parabolic

springs where the competitor of Suspension-Supply SPRING was chosen as single source supplier for delivering parabolic springs to GigaTruck. The supplier SPRING however experienced problems in delivering the large volumes required by GigaTruck and was forced to make an agreement with Suspension-Supply to become a sub-supplier for SPRING.

Today the number of delivered products is 20 % directly and 20 % indirectly via GigaTruck's single source supplier SPRING. GigaTruck bought 20 % of their suspension components from Suspension-Supply before the partial termination. 50 % of the parabolic springs produced by Suspension-Supply are delivered to GigaTruck. Suspension-Supply has also a single source agreement regarding conventional springs to GigaTruck as well as a single source agreement concerning tubular stabilizers and the amount of tubular stabilizers delivered is increasing so GigaTruck is a very important customer for Suspension-Supply. GigaTruck is Suspension-Supply's largest customer.

5.2.2 Partial termination

The reasons for the partial termination of the business relationship between GigaTruck and Suspension-Supply was purely strategic and in line with GigaTruck's strategy to focus on single source suppliers.

GigaTruck was focusing hard on being a global company. One idea with being global was being able to cut costs by focusing on single source supplying. The costs in the truck producing industry are in the purchases, since it is an assembling industry.

GigaTruck's decision on starting with global single source suppliers was taken in the end of 1997 and started to take effect in the beginning of 1998. GigaTruck made the global single source decision in a time when the market was growing and the demand for trucks soared. The choice of the suppliers becoming single source suppliers was not always well planned. Some of the suppliers that were chosen did not have the capacity to supply GigaTruck as a global single source supplier, and at the same time the demand on the market for trucks was increasing which made capacity problems even more obvious. The increase in demand caused capacity problems for Suspension-Supply's main competitor named SPRING. SPRING had been chosen as a global single source supplier for deliveries of the parabolic springs to GigaTruck, the same parabolic springs that earlier were partly supplied by Suspension-Supply. SPRING had to contact Suspension-Supply when they noticed that they did not have enough capacity to supply GigaTruck as a single source supplier. SPRING asked Suspension-Supply to supply SPRING with parabolic springs, which SPRING in turn supplied to GigaTruck due to the global single source agreement. Suspension-Supply was fortunate to be asked by their main competitor SPRING to supply them with the same parabolic springs for which they had just lost the business to GigaTruck. SPRING in their turn delivered them to GigaTruck as GigaTruck's single source supplier.

"Our competitor came before us and kneeled and begged us to become their supplier in order to manage to cope with their obligations in the contract that they had signed. (to GigaTruck) We were of course grateful, it was an enormously magnificent situation for us partly to be able to price our products but also to be able to start to deliver the same segment that we just had lost". Sales at suspension-Supply

Suspension-Supply started delivering parabolic springs to their main competitor SPRING. The parabolic springs delivered to GigaTruck earlier were older types of springs but the parabolic springs that they now started to deliver to SPRING for delivery to GigaTruck were parabolic springs from GigaTruck's latest range of trucks. The product mix was great with few article numbers and big volumes. Suspension-Supply was able to make long-term contracts with SPRING since they had such huge capacity problems. Another reason for the long-term contracts was also due to the fact that the delivered share of 20 % of Suspension-Supply's production capacity was so large that Suspension-Supply was not able to terminate the delivered capacity quickly.

The personnel at Suspension-Supply selling parabolic springs do not have any contact with the purchasers of parabolic springs at GigaTruck any more. There are no economic bonds for parabolic springs directly to GigaTruck any more.

GigaTruck has however after the problems connected to its global single sourcing process and what they learned from the problems re-profiled their purchase strategy and taken the focus off global single sourcing. But at the same time by using the global single source strategy GigaTruck succeeded in dumping the prices they pay their suppliers and keep the prices at the same level.

5.2.3 Critical incidents

The critical incidents took place in the episode where the single source agreements were discussed. GigaTruck had the most aggressive line of all Suspension-Supply's buyer's when it came to the buying strategy. In 1997 there were signals coming from GigaTruck that GigaTruck will focus on global single source suppliers, and GigaTruck did not have any interest in how their suppliers would manage the increased production capacity needed in order to become global single source suppliers. GigaTruck spoke of lucrative volumes for the suppliers who were chosen but the prices on the products would be on another scale, but since the economies of scale would be substantial it would be an interesting deal for the suppliers. The suppliers were however supposed to be able to take care of the deliveries globally. GigaTruck made their decision vis-à-vis global single source suppliers and that resulted in that Suspension-Supply lost their business regarding deliveries of parabolic springs to GigaTruck. GigaTruck chose another global single source supplier with the name SPRING for deliveries of parabolic springs.

"We got signals that it was demands on us since the customer said that they would start focusing on global single source suppliers and they said that they did not give a damn, how their suppliers would fix that. They were focusing very strong and hard on this issue and made their decisions and terminated the relationships with suppliers, and we were actually terminated when it came to parabolic springs". Support systems and quality assurance at Suspension-Supply

Suspension-Supply was chosen as a global single source supplier to GigaTruck for conventional springs and tubular stabilizers but lost the parabolic spring business that accounted for 20 % of the business to GigaTruck. At the time Suspension-Supply lost the parabolic spring business the prices on the other items were reduced due to the single sourcing agreement and Suspension-Supply had just begun to work with the

tubular stabilizers for GigaTruck. Suspension-Supply was forced to reduce the price on the conventional springs that Suspension-Supply supplied in great quantities to GigaTruck. The prices were decreased by 8-10 % and that affected Suspension-Supply very negatively.

“We lowered or were forced to reduce our prices by 8-10 %, which is a very steep reduction. This was a hard blow and at the same time we lost an important group of products that we delivered to this customer. Since then we have had a more or less totally different situation with this customer regarding our relationship. Our relationship has been damaged. We went from having a very trusting and long-term relationship to a situation where we were hurt by the fact that there was no glue keeping us together, but only a totally cold relationship run by the market forces. This has shown in and affected everything we ever worked with since that day. Our relationship has deteriorated very much since then, if seen from an economic perspective as well as all other aspects of cooperation”. Support systems and quality assurance at Suspension-Supply

The critical incident lead to a deterioration of the relationship since it showed that the relationship was driven by market powers instead of a feeling of mutual trust and commitment.

Another issue connected to the critical episode of GigaTruck’s process regarding choosing global single source suppliers was that there were remarkable changes in GigaTruck’s purchase organization. The personnel at GigaTruck responsible for choosing the global single source suppliers left the organization and new personnel came to GigaTruck’s purchase organization and that did not make things easier. The cooperation had to start more or less over again. There were new personnel both in the quality assurance and purchase department at GigaTruck.

“Directly after their decision was made in 1998, the purchasing organization (of GigaTruck) was changed so that the people making the decisions and choosing the suppliers disappeared, and totally new purchasers started which did not exactly make it easier”. Support systems and quality assurance at Suspension-Supply

GigaTruck’s process of choosing global single source suppliers also lead to the ending of a big project regarding technical development that was underway between GigaTruck and Suspension-Supply. GigaTruck and Suspension-Supply was working on a very large project concerning surface treatment for suspension components delivered from Suspension-Supply to GigaTruck. This surface project took another turn when Suspension-Supply lost a whole group of products with the termination of the parabolic springs delivered to GigaTruck. Suspension-Supply had no incentive in investing in the higher demands on surface treatment specified by GigaTruck when they lost 20 % of their sales to GigaTruck. It would have been economically unsound for Suspension-Supply since no other of Suspension-Supply’s customers was focusing as much on surface treatment as GigaTruck.

According to sources at Suspension-Supply it will take time before it is possible to do business as usual with GigaTruck because of the chaotic situation with changes in personnel, etc.

5.2.4 Residual bonds

There are residual technical and economic bonds left between GigaTruck and Suspension-Supply. Residual technical are due to the fact that Suspension-Supply is still supplying GigaTruck with parabolic springs as a sub-supplier to GigaTruck's global single source supplier SPRING. Residual economic bonds are due to the same fact. Suspension-Supply still delivers parabolic springs directly to GigaTruck even after the termination of the business relationship regarding parabolic springs. 20 % of Suspension-Supply's total production is delivered to GigaTruck's single source supplier SPRING in the form of parabolic springs.

5.2.5 Conclusion regarding bonds and the change of bonds

The conclusions regarding bonds and the change of bonds are presented below.

5.2.6 Concrete bonds

Concrete bonds are presented below.

5.2.6.1 Technical

GigaTruck and Suspension-Supply cooperate in the development of new springs and tubular stabilizers for GigaTruck's trucks. The development work is characterized by integration between the developing departments of GigaTruck and Suspension-Supply especially between Suspension-Supply and GigaTruck in Central Europe. The process regarding development of for instance a spring starts in the manner that GigaTruck in Central Europe makes an inquiry regarding a spring where demands such as the dimension of the spring, the axle load that the spring is supposed to endure, etc. Suspension-Supply then gives one or more offers on how the spring could be designed and GigaTruck in Central Europe reviews the offer. Representatives from both companies then meet and discuss the offers and the process continues until a product that fulfills the demands set by GigaTruck. The product is tested and when it is approved then production may start.

“A supplier comes into the development process early, that means at least 6 months before the production of a first prototype of spring is produced. By first prototype it means that it takes place 4-5 years before you start to produce the spring in series”. Constructor at GigaTruck

By cooperating in the development of new products it is possible to develop products that are easier for Suspension-Supply to manufacture. This effects the production of the products in a positive way and makes the products cheaper to manufacture. The products are in turn developed according to GigaTruck's needs and fulfill GigaTruck's demands. The technical bonds between Suspension-Supply and GigaTruck regarding conventional springs and tubular stabilizers are strong. This is due to that the products are adapted in order to suit both GigaTruck's demands and Suspension-Supply's production line.

The technical bonds regarding the development of parabolic springs were broken when the partial termination regarding parabolic springs supplied to GigaTruck by Suspension-Supply took place. A project regarding surface treatment of springs that was taking place between GigaTruck and Suspension-Supply was also stopped. Suspension-Supply had no incentive in investing in the higher demands on surface treatment specified by GigaTruck when they lost 20 % of their sales to GigaTruck. It would have been economically unsound for Suspension-Supply since no other of Suspension-Supply's customers was focusing as much on surface treatment as GigaTruck.

Lately there has been a big technical development project under way regarding applications for tubular stabilizers for trucks with air suspension. In this project a new solution for fastening the stabilizer has been developed and all the technical difficulties has been solved in close cooperation between GigaTruck and Suspension-Supply.

Residual technical bonds regarding parabolic springs

There are still residual technical bonds regarding parabolic springs between Suspension-Supply and GigaTruck. This is due to the fact that Suspension-Supply is still after the termination of the business relationship regarding parabolic springs delivering 20 % of its total production in the form of parabolic springs indirectly as a sub-supplier to GigaTruck's via GigaTruck's single source supplier SPRING. There are therefore still residual technical bonds in place between GigaTruck and Suspension-Supply. The parabolic springs are still adapted to the needs of GigaTruck and Suspension-Supply has adapted them to their production process.

The conclusion regarding the **strong technical bond** was formed based on the elements affecting technical bond strength, see Table 14 below.

Time 1 should be seen as the time before GigaTruck took the decision for single source suppliers at the end of 1997. Time 2 should be seen as when investment in development by Suspension-Supply regarding surface treatment stopped and the technical development of parabolic springs stopped. This was due to a loss of 20 % of Suspension-Supply's total production sold to GigaTruck in 1998. The deliveries of parabolic springs stopped totally.

Table 14. Elements affecting technical bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect technical bond strength	Time 1	Time 2
Technical adaptation to the counterpart in the cooperation		
Process adaptation	+	+
Product adaptation	+	+
Cooperation regarding technical development		
Development activity (conventional springs and tubular stabilizer)	+	+
Development activity (parabolic springs)	+	-
Investments		
Investments in equipment	+	-
Technical lead as patented product or process		
Patented product (stabilizers)	+	+

5.2.6.2 Time

Time bonds occur when the companies in the relationship adapt their logistic functions to each other. The companies may use EDI (electronic data interchange) connections between each other in order to know how many products that are required by the customer for the customer's production process and when the customer needs the products. The logistic cooperation between Suspension-Supply and GigaTruck is intense and the time bonds between the companies are strong. The bonds weakened at a time due to Suspension-Supply's capacity problems but have strengthened again.

GigaTruck's headquarters has a coaching project with their suppliers. That means that GigaTruck's logistic department at the headquarters cooperates with Suspension-Supply and the companies are striving to reduce the throughput time in the production. Issues that are perceived as problems are discussed and GigaTruck gives its views on Suspension-Supply and vice versa.

GigaTruck demanded a three-day throughput time in the production in 1997 but has changed their views since then, at GigaTruck in Central Europe the informants perceive it as impossible that a steel plant producing suspension components could cut their production time to three days. Compared to other suppliers of suspension components with a throughput time on up to 21 days Suspension-Supply's lead-time is perceived as short by GigaTruck. Suspension-Supply has focused a lot on decreasing their throughput time. Since Suspension-Supply's started focusing on decreasing the lead-time in the production Suspension-Supply's lead-times decreased from 22 days to 5 days at the best point in time and they had an average of a 7-8 days lead-time for a long time. In March 2001 Suspension-supply's average lead-time was 12 to 13 days. According to informants at Suspension-Supply an optimal lead-time would be 10 days. If the lead-times were much shorter than that the buyer would have to pay too much for the decrease in lead-time. Suspension-Supply felt that they had to prioritize capacity and volume at the cost of flexibility and lead-time. Decreased lead times in the production affects the time bond positively. By reducing the time it takes to manufacture the

springs it is possible to reduce the time that the products are in stock and reduce the capital hold up in the manufacturing process.

The reduction of the throughput times has affected Suspension-Supply in a positive way. The company has become more flexible and there are fewer products on the floor in the production plant at the same time. In order to make the processes more flexible Suspension-Supply has cut their organization from five to three levels and that has on the other hand put some pressure on the middle management.

There are different computer connections in use for speeding up the routines in exchanging information regarding deliveries, invoices and technical development between Suspension-Supply and GigaTruck and these are also affecting the time bonds positively.

Suspension-Supply and GigaTruck are using the EDI standard ODETTE for data exchange on-line. ODETTE is a commonly used standard by the European car industry. Suspension-Supply receives a SYNCRO message every night regarding which type of springs or stabilizers that are required and for which chassis they are needed for the truck assembly at GigaTruck's plants. SYNCRO is a more developed type of software for delivery instructions that specifies the type of product and the amount as well as in what order the products should be put on the pallet. There is a chassis number attached to each product so that the personnel receiving the product know exactly to which chassis the product should be assembled at the production line at GigaTruck's plant.

The delivery instructions DELINS that show GigaTruck's need for the forthcoming 52 weeks are sent on-line to Suspension-Supply twice a week. The forecasting capability is however not always accurate according to informants from Suspension-Supply. The electronic advising message AVIEXP (avi for export) is sent from Suspension-Supply when the products are shipped.

The invoices are sent automatically on-line with INVOIC between GigaTruck and Suspension-Supply when the products are shipped. The cooperation between the development departments has also developed so that way that CAD drawings are exchanged between the companies. There is not much paper drawings used any more. Even before regular E-mails were exchanged between GigaTruck and Suspension-Supply the MEMO e-mail system that is used between the companies. The global MEMO system improved the contacts between the personnel in the companies, and Suspension-Supply was the only supplier of suspension products that was connected to the system. MEMO and nowadays E-mail made it easy to contact persons on Suspension-Supply or GigaTruck. Communication is also taking place by phone or by telefax.

At the same time that GigaTruck terminated the business relationship with Suspension-Supply regarding parabolic springs Suspension-Supply was chosen as a single source supplier for tubular stabilizers and conventional springs. There was a big technical development project under way regarding applications for tubular stabilizers for trucks with air suspension for GigaTruck. When the deliveries and serial production of these tubular stabilizers was supposed to start in the autumn of 2000 then Suspension-Supply

experienced problems connected to the starting up of the product and getting it to run smoothly in their production. Suspension-Supply was not able to produce the quantities required by GigaTruck. The volume's rose quicker than Suspension-Supply had counted with and this led to big delivery problems for Suspension-Supply both to GigaTruck and to all its other buyers. The rise in the volumes delivered was connected to an error in the forecasting and planning of the volumes at GigaTruck. The tubular stabilizers were applied in many more modules of trucks than what GigaTruck had forecasted.

“The problems were due to an error in planning the volume of products from our customers side. It was due to the fact that it was such a new thing and it (the tubular stabilizer) belonged to a module in a modularized product-group that is used in many applications. They (GigaTruck) had succeeded in applying it to many more applications than what the forecasts had shown. This (took place) in a trend where the market was soaring, the market was really hot. Our volumes rose by 200 % when we were already pushing our capacity hard so “all hell broke loose”, and when you are single source then you are single source and that did not exactly help us”. Logistics at Suspension-Supply

“It is meaningless to fill out forms with logistics self-assessment when it is the customer that should look at their own systems regarding logistic assessments. This time it was not our, I mean there is no f####ing supplier that would in a month manage a sudden increase of 200 % in such a large product group. You don't get people, you don't have machine time and nothing”. Support systems and quality assurance at Suspension-Supply

Suspension-Supply tried to airfreight the products to GigaTruck at a high cost for both Suspension-Supply and GigaTruck in order to solve the delivery problems but GigaTruck still experienced line stops. The weakening of the time bond due to the delivery problems and the soaring of Suspension-Supply's production volumes by 200 % affected all other relationships and all time bonds to other buyers of Suspension-Supply's tubular stabilizers negatively. Suspension-Supply had to make priorities and made the strategic decision to keep the problematic but large and important buyer GigaTruck and that caused problems in other relationships to other buyers.

There were however no delivery problems between Suspension-Supply and GigaTruck concerning conventional springs.

The time bond weakened in time 2 from being strong in time 1. This was due to capacity problems on behalf of Suspension-Supply in the autumn of 2000 decreasing delivery precision, the deliveries to the alternative buyer TeraTruck was also causing the time bond to weaken and line stops took place. The critical episodes with delivery delays were solved in that manner that the business relationship between the competing buyer TeraTruck and Suspension-Supply was terminated. Suspension-Supply could therefore allocate more capacity to GigaTruck and the time bond was strengthened again in time 3. Another issue that affected the time bond positively was that the new tubular stabilizer delivered to GigaTruck was running more smoothly in the production after the first small startup problems. See Figure 29 below.

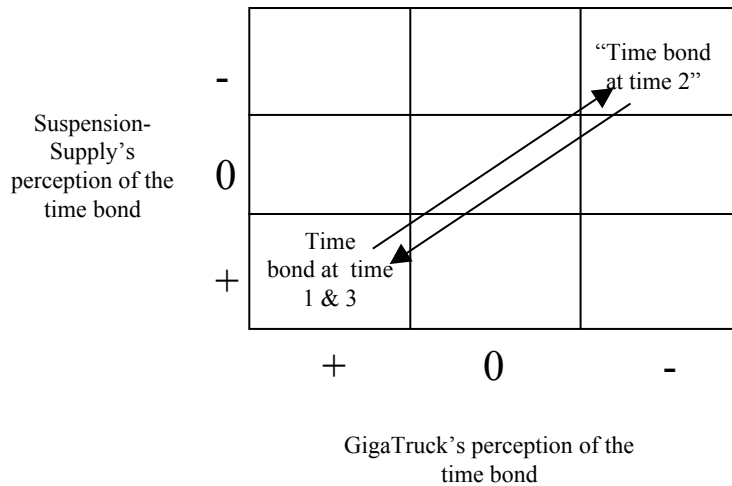


Figure 29. Changes in the perception of the time bond in the relationship between GigaTruck and Suspension-Supply

All systems for exchanging information and data between Suspension-Supply and GigaTruck are still in use since it was only a partial termination of the business relationship and the relationship directly to GigaTruck continues to buy 20 % of Suspension-Supply's production of suspension components.

The conclusion regarding the **strong time bond** was formed based on the elements affecting time bond strength, see Table 15 below. The times in the table equals to the times described for Figure 41.

Table 15. Elements affecting time bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect time bond strength	Time 1	Time 2	Time 3
Adaptation of logistic functions			
Size of production series	+	+	+
Warehouses			
Delivery precision and issues connected to that			
Delivery precision	+	-	+
Lead times	+	-	+
Line stops		-	
Deliveries to alternative buyer		-	
Flexibility of flow of information			
EDI system for transfer of daily delivery information (SYNCRO) and (DELINS)	+	+	+
Electronic shipping message (AVIEXP)	+	+	+
On-line invoicing (INVOIC)	+	+	+
Exchange of CAD drawings	+	+	+
Communications systems, E-mail etc. (MEMO)	+	+	+

5.2.6.3 Knowledge

GigaTruck develops springs in cooperation with Suspension-Supply. Representatives from GigaTruck and Suspension-Supply decide which parts of the development that should be handled by each company during the development work. The companies also cooperate during the testing of springs and tubular stabilizers.

By cooperating during the development of products the companies can use each other competence and in that way develop springs that are better and more production efficient. There are advantages when Suspension-Supply and GigaTruck cooperate in the development of products. GigaTruck gets knowledge of how a product should look in order to suit Suspension-Supply production as well as possible. Suspension-Supply on the other hand gets to know how which demands GigaTruck has on a product and on which areas the company could make improvements for GigaTruck. Representatives from both companies then meet and discuss the offers made by Suspension-Supply and the process continues until a prototype that fulfills the demands set by GigaTruck is ready. The product is tested and when it is approved then production may start. This increases the knowledge that GigaTruck and Suspension-Supply have about each other over time.

Suspension-Supply is allowed to enter the development process at an early stage at GigaTruck. According to informants from GigaTruck a supplier comes into GigaTruck's development process early, that means at least 6 months before the production of a first prototype of a product is produced. A first prototype means that it is developed 4-5 years before the product is produced in series. For Suspension-Supply this is advantageous since the earlier Suspension-Supply is allowed to start the cooperation regarding development the bigger a chance they have to affect how the products are developed. That on the other hand affects how efficiently the products fit into the production line at Suspension-Supply's factory.

If for instance Suspension-Supply would come in on a late stage of the development at GigaTruck then there would be a risk that all the other components connected to the spring or stabilizer would already be designed. That would affect the possibilities to adapt and design an optimal product that would fit Suspension-Supply's production line.

GigaTruck has according to informants at GigaTruck noticed that the quality of the truck is improved the earlier the different suppliers are allowed to take part in the planning and development of a new truck. This is a relatively new line of thought in the truck producing industry. Earlier the big producers of trucks did their own construction work and then only ordered them according to ready-made blueprints from the suppliers. This scenario is still the case with some big producers on the market. GigaTruck has however noticed that all specialist competence does not have to exist in the own company. GigaTruck see it as more advantageous to let the suppliers that are experts regarding all small components to construct the components on GigaTruck's behalf and are therefore outsourcing part of their development.

The problem solving capacity and fast response of Suspension-Supply is seen as good according to informants at GigaTruck. There are no language problems between Suspension-Supply and GigaTruck. The languages used in the cooperation are languages that are either mother tongues of the informants or English that everyone knows well and the language is not leading to any problems in the development work and is not hindering the routines either.

After the critical episode when GigaTruck terminated the business relationship regarding parabolic springs to Suspension-Supply, and at the same time chose Suspension-Supply as single source supplier regarding tubular stabilizers and conventional springs. There was then a weakening of the knowledge bond in the relationship between Suspension-Supply and GigaTruck. Knowledge bonds are partly based on personal experience and a lot of the personnel from the purchasing department at GigaTruck that was taking the decisions vis-à-vis single source suppliers in 1998 were then changing positions or leaving GigaTruck. Personnel also changed at GigaTruck's quality assurance. The background knowledge and the experience that the old personnel at GigaTruck had concerning common rules and routines in the cooperation with Suspension-Supply as well as Suspension-Supply's strengths and weaknesses were lost. The new personnel had to start learning the routines etc. from the beginning and that was affecting the knowledge bond negatively.

Since GigaTruck started its single sourcing project the number of interfaces at GigaTruck has increased. At the same time GigaTruck's focus has become blurred. Suspension-Supply works with a very shattered GigaTruck, with different people with different demands at different departments. According to informants at Suspension-Supply the situation has changed to a total lack of internal coordination at GigaTruck.

"We work in a very shattered way with them, with different people at different departments, with different demands and a total lack of internal coordination. One focus after the other and everybody is working very hard on their focus and this leads to that we work with all issues and not focused on anything and that demands much resources". Quality assurance at Suspension-Supply

GigaTruck's focus on a single source strategy lead to turbulence both for GigaTruck and for its suppliers. GigaTruck's focus became blurred and different departments have different demands that do not always coincide and can sometimes even be controversial. The organization has gone from working very focused with issues to becoming very unfocused. The knowledge bond has moved from positive towards negative due to this issue.

"At this moment I should actually not sit here but be filling in a logistic self assessment evaluation, where I should rate us in a 10 cm staple with questions and give points and come up with action plans and timetables and row back and forth. This at a time when we have absolutely no problems regarding logistics but we should work with totally different issues. But the right hand does not know what the left hand is doing in that organization at present time". Quality assurance at Suspension-Supply

GigaTruck having problem with its focus leads to that the focus of Suspension-Supply is also blurred since with GigaTruck's many focuses it is difficult for Suspension-Supply to know exactly what focus that are important and what not. A huge organization such as GigaTruck has many persons working on just one issue while

several issues are culminated to one person at a smaller supplier such as Suspension-Supply. This leads to the fact that GigaTruck see Suspension-Supply as more difficult to work with since they do not have the resources and cannot focus hard on every issue.

The knowledge bonds between GigaTruck and Suspension-Supply are still strong but have weakened recently after the decision regarding single source suppliers was made. See Figure 30 below. Knowledge bonds are formed with time as the cooperating companies learn more about each other's strength and weaknesses, opportunities and problems. This happens when the companies for instance develop products together.

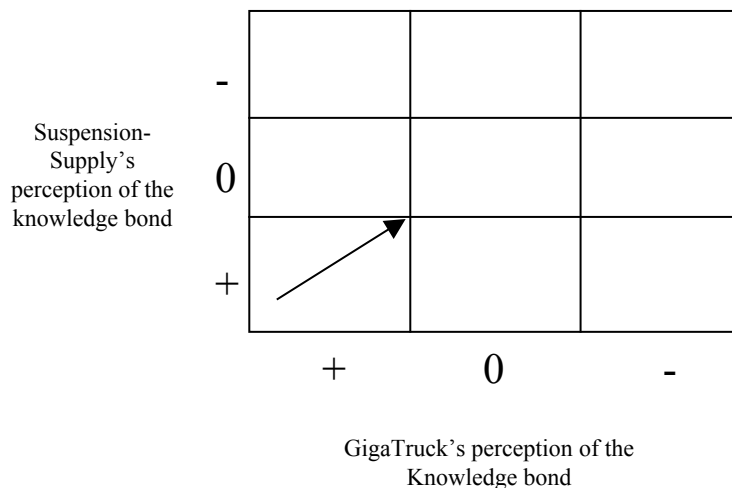


Figure 30. Changes in the perception of the knowledge bond in the relationship between GigaTruck and Suspension-Supply

The conclusion regarding the **strong knowledge bond** was formed based on the elements affecting knowledge bond strength, see Table 16 below.

Time 1 should be seen as the time before the decision regarding single source suppliers in the end of 1997 and time 2 should be seen as the time after the decision had come into effect in 1998. The change of the personnel at GigaTruck's purchase department weakened the knowledge bond. As well as the fact that the increased number of interfaces after the single source decision was made has also weakened the knowledge bond.

Table 16. Elements affecting knowledge bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect knowledge bond strength	Time 1	Time 2
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation		
Familiarity	+	+/-
Cooperation regarding development of products		
Cooperation regarding development of products	+	+
Stage where involvement begins	+	+
Use of 3-D models (CAD drawings)	+	+
Mutual knowledge regarding rules and routines		
Mutual knowledge regarding rules and routines	+	+/-
Language	+	+
Number of interfaces	+	-
Turnover of personnel (after single source decision)		-

5.2.6.4 Legal

The most important contract that exists between Suspension-Supply and GigaTruck is the purchase agreement but that contract does not tie the companies so close together because the agreement makes it possible for GigaTruck to end the cooperation within six months. It is more difficult to end the cooperation because of the delivery instructions that is part of the purchase agreement. GigaTruck would possibly have problems in finding a supplier that could compensate Suspension-Supply's products and that make it difficult to end the cooperation. The written contracts between GigaTruck and Suspension-Supply function as general agreement or a framework and all smaller details in the contracts are based on gentlemen's agreements.

"The written contracts do not limit the possibility to terminate. It is in principle possible to end the cooperation within six months so a written agreement is one of the weaker bonds between companies. It is much more difficult to start up new cooperation with alternative suppliers than it is to end the cooperation with an existing one." Purchase manager at GigaTruck

"It is very difficult to terminate a relationship. It is easy to terminate the relationship from a legal point of view but it takes time from an ethical point of view. We feel our responsibility and do not want to brutally say that "now it is over". The industry (regarding suspension components) is fairly small and we do not have any interest in causing trouble for anyone but we try to give them a fair amount of time before it is terminated." Sales manager at Suspension-Supply

The written quality agreements that exist between Suspension-Supply and GigaTruck make it difficult to end the cooperation. GigaTruck demands that Suspension-Supply has an ISO 9000 certificate and that leads to that it might be difficult to end the cooperation since GigaTruck might have problems in finding a new ISO certified supplier. Environmental audits such as ISO 14001 are also considered to be a legal bond between Suspension-Supply and GigaTruck since GigaTruck see ISO 14001 as compulsory or that a strive for ISO 14001 is compulsory for a supplier.

The agreements concerning development of products between Suspension-Supply and GigaTruck are only gentlemen's agreements and are not put in writing.

The legal bonds between Suspension-Supply and GigaTruck are of medium strength. Writing contracts that would cover a longer time span than six months could strengthen the legal bonds.

The conclusion regarding the **legal bond of medium strength** was formed based on the elements affecting legal bond strength, see Table 17 below.

Table 17. Elements affecting legal bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect legal bond strength	
Written contracts	
Purchase agreement	+/-
Quality certificates like QS 9000	
Quality certificate ISO 9001	+
Environmental certificate like ISO 14001	
Environmental certificate ISO 14001	+

5.2.6.5 Economic

Economic bonds can be bonds that exist when the companies that cooperate give credits or prolong the time for payment. In industrial situations the time for payment may for instance be from 30 days net to 120 days net. Economic bonds can also be that the supplier gives discounts because of a relationship with the customer. Suspension-Supply does not give any discount to GigaTruck. The terms of payment are 30 day's net that is a common term of payment in many sectors of the industry. If Suspension-Supply would give a discount depending on how long in advance GigaTruck orders their products it might give an incentive to GigaTruck to plan which products they need in their production process at an earlier stage. That would also improve the flow in Suspension-Supply production.

The amount of products delivered to GigaTruck stands for 20 % of Suspension-Supply's total production and that makes it an important buyer for Suspension-Supply. In 1997 Suspension-Supply was also delivering 20 % of GigaTruck's springs and the amount for Suspension-Supply was that approximately 40 % of their total production was delivered to GigaTruck. Since then Suspension-Supply lost the parabolic spring business to its competitor SPRING that was chosen as a single source supplier for GigaTruck. At the same time GigaTruck choose Suspension-Supply as a single source supplier for conventional springs and tubular stabilizers and that has affected the economic bond positively. The prices for the products have on the other hand decreased by 8-10 % and that has affected Suspension-Supply's perception of the economic bond negatively while it has affected GigaTruck's perception positively. Becoming single source supplier has however made it possible for Suspension-Supply to have totally different economics of scale, that is the volumes of fewer product numbers have increased. See Figure 43 below.

Time 1 should be seen as the status of the bonds the time before GigaTruck chose single source suppliers. Time 2 should be seen as the time after the deduction of the price with 8-10 % that Suspension-Supply can charge for the products forced upon Suspension-

Supply when Suspension-Supply became single source supplier regarding tubular stabilizers and conventional springs. In time 2 a decrease of the price strengthens the economic bond perceived as perceived by GigaTruck but weakens it as perceived by Suspension-Supply. A decrease by 20 % of the total portion of Suspension-Supply's production delivered directly to GigaTruck has taken place thus weakening the economic bond.

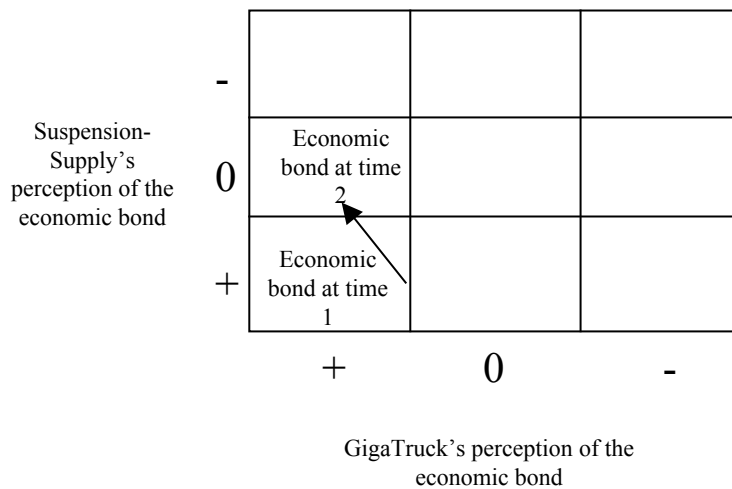


Figure 43. Changes in the perception of the economic bond in the relationship between GigaTruck and Suspension-Supply

The informants at Suspension-Supply have perceived the relationship to be more market driven than before. The prices have been dumped to a level that is putting pressure on the suppliers. Western suppliers have to compete with suppliers in Eastern Europe, such as in Romania and Hungary, and suppliers in North Africa from for instance Tunis as well as Southern Europe for instance Portugal and Spain where the cost structure is different. Since the revenue made on the business relationship has decreased this has affected the economic bond negatively on Suspension-Supply's part and the opposite has happened for GigaTruck.

The critical episode when GigaTruck chose single source suppliers lead to problems with the delivery precision at Suspension-Supply. Suspension-Supply had problems regarding getting a smooth flow in the startup of the production of tubular stabilizers and that caused late deliveries and line stops for GigaTruck and costs for Suspension-Supply in the form of express freights and compensation for late deliveries. Suspension-Supply tried to solve the problems by air freighting the products to GigaTruck at a high cost and that affected the economic bond negatively. Later GigaTruck promised to pay parts of the costs for the airfreights. This was because GigaTruck had underestimated the need for tubular stabilizers in the production drastically which was also part of the reason for the delivery problems.

Residual bonds regarding parabolic springs

There are still residual economic bonds regarding parabolic springs between Suspension-Supply and GigaTruck since Suspension-Supply is still after the termination of the business relationship regarding parabolic springs directly to GigaTruck delivering 20 % of its total production in the form of parabolic springs to GigaTruck's single source supplier SPRING. SPRING experienced capacity problems and Suspension-Supply stepped in as a helping hand and got a share of the segment that they had just lost to SPRING. There are therefore indirect economic bonds still in place between GigaTruck and Suspension-Supply. The business that Suspension-Supply has as a sub-supplier to GigaTruck still stands for a big share of Suspension-Supply's revenue.

The conclusion regarding the **economic bond of being in the area of between medium and strong** in strength was formed based on the elements affecting economic bond strength at different times in the relationship, see Table 18 below. The times in the table equals to the times described for Figure 43.

Table 18. Elements affecting economic bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect economic bond strength	Time 1	Time 2
Credit arrangements such as discounts		
No discounts	-	-
Price		
Price (decrease by 8-10%)		+/-
Opportunity costs	+	+/-
Profit margin		
Profit margin (low)		-
Share of supplied or bought products		
Share of products (large)	+	-
Size of series produced		+
Single source conventional springs		+
Single source tubular stabilizers		+
Products that are smooth to produce	-	+
Additional costs or revenues that stem from the cooperation		
Airfreights (negative costs) (times with poor delivery precision)	+	+/-

5.2.6.6 Geographical

The geographical bonds between Suspension-Supply and GigaTruck are of medium strength. Suspension-Supply is the one of GigaTruck's suppliers that has the least suitable location in Europe. Deliveries of products by truck means that Suspension-Supply's products must cross waterways by ferry and that add to the distance in time. The geographical distance between Suspension-Supply and GigaTruck in Northern Europe and Central Europe is large. Geographical bonds make it more difficult for the

customer to buy products from suppliers that are situated far away because of the distance between the supplier and the customer.

“They (Suspension-Supply) are without any doubt one of the worst situated suppliers in Europe. Then we try to see it objectively and count logistics costs etc. between different suppliers in the evaluation that is made before an order is placed. Regarding costs for transport Suspension-Supply is in the worst situation, or it is possible that Portugal is a little bit worse. This is only concerning Europe of course we also have suppliers in Brazil and USA. Seen from a European perspective the distance (to Suspension-Supply) is long but seen from a global perspective its short. But as previously said we try to look at the situation objectively and with a good delivery precision it is possible to bridge many of the problems that a waste geographical distance is leading to. Then the only remaining issue is the cost and that is included when we compare the prices and sometimes Suspension-Supply is considered and sometimes not”. Vice president of purchasing at GigaTruck’s headquarters

“Well there are no problems connected to distance, if we look at the issues concerning lead-time etc. then the transport itself is a minor issue”. Vice president of logistics at GigaTruck’s headquarters

“It is the very worst situation there, (regarding distance) from all my spring suppliers, I have 4-5 days transport time and that is unacceptable. You are losing everything that you are winning with your flexibility in transport. It is however not the same situation in our unit in Northern Europe because it is closer but for us in Central Europe it is the worst. In this case with Suspension-Supply if we have a shortage in our warehouse, if there is a difference in let's say the balance base. Then each time we have to let them fly and that is very expensive”. Vice president logistics at GigaTruck’s unit in Central Europe

GigaTruck does however try to see the problem that the distance between Suspension-Supply and GigaTruck in Northern Europe and Central Europe creates from a global perspective. Northern Europe is close to Central Europe seen from a global perspective. It is easy to solve many of the problems that a long distance between supplier and customer creates if a supplier manages to have a short throughput time in the production and a high delivery precision. Suspension-Supply’s products can reach GigaTruck faster than the products from a supplier close to GigaTruck’s plant if Suspension-Supply has a much shorter throughput time than the supplier located close to GigaTruck’s plant.

Decreased lead times in the production affect the time bond positively. A short lead or throughput-time in the production can affect the geographical bonds positively. If a supplier is situated at a greater distance from the customer than the competing supplier but has a shorter lead-time in the production then the geographical distance has lost its importance. A supplier situated at a greater distance from the customer can actually deliver goods faster to the customer than the competing supplier situated closer to the customer can due to the shorter lead-time. (Wendelin 2000a) Suspension-Supply’s lead time in the production had decreased from 18 days when they started focusing on decreasing the lead time to 5 days at best and a long time they had an average of a 7-8 days lead time and in march 2001 the average was 12 to 13 days. That is however still better than many of Suspension-Supply’s competitors that have a lead-time at around 21 days according to informants at GigaTruck’s logistics department.

The geographical distance does not affect the cooperation regarding design of springs. The cooperation works well even though the distance between Suspension-Supply and GigaTruck is large. The time differences when a designer flies within Europe are small. If seen from a time perspective only a couple of hours.

The transport costs between Suspension-Supply and GigaTruck are the highest transport costs that GigaTruck has in Europe. It is therefore important that Suspension-Supply is so efficient that they can cover the difference in costs that GigaTruck has when transporting goods from Suspension-Supply in comparison with transporting goods from Suspension-Supply's competitors.

The suspension components are also handled as heavy bulk components. Positive for Suspension-Supply was that GigaTruck bought their supplies EXW (Ex works) so GigaTruck was paying for the transport and Suspension-Supply's responsibility for the transport of the products end when the products have left the factory. This changed when the critical episodes with delivery delays took place in the autumn of 2000, then Suspension-Supply paid for the airfreights to GigaTruck. The geographical bond was weakened when the time bond was weakened. If Suspension-Supply had had a factory close to all of GigaTruck's factories then there would not have been any need for airfreights of products and both money and time would have been saved. The geographical bonds weakened.

The geographical bond weakened due to capacity problems affecting the time bonds between GigaTruck and Suspension-Supply on behalf of Suspension-Supply. The negative critical episode started when GigaTruck chose single source suppliers and terminated a business relationship regarding parabolic springs with Suspension-Supply. The parabolic springs were something that Suspension-Supply was used to produce so the production of these was smooth. Suspension-Supply was chosen as a single source supplier for GigaTruck regarding conventional springs and tubular stabilizers. There were capacity problems and delays in the autumn of 2000 regarding the tubular stabilizers before these were flowing smoothly through the production in the winter of 2000/2001. The critical episode was solved in that manner that the business relationship between the competing buyer TeraTruck and Suspension-Supply was terminated in the end of 2000 and Suspension-Supply could therefore allocate more capacity to GigaTruck and the time bonds was strengthened again and so was the geographical bond. Another issue that affected the time bond positively and thus the geographical bond positively was that the new tubular stabilizer delivered to GigaTruck was running more smoothly in the production after the first small startup problems. See Figure 31 below.

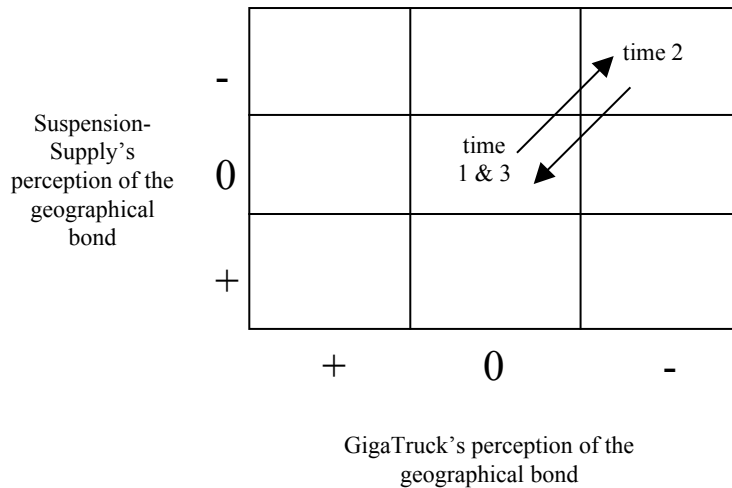


Figure 31. Changes in the perception of the geographical bond in the relationship between GigaTruck and Suspension-Supply

The conclusion regarding the **geographical bond of medium strength that weakened and re-strengthened** was formed based on the elements affecting geographical bond strength, see Table 19 below.

The geographical bond weakened in time 2 from being of medium strength in time 1. This was due to capacity problems on behalf of Suspension-Supply in the autumn of 2000 decreasing delivery precision, the deliveries to the alternative buyer TeraTruck was also causing the geographical bond to weaken and line stops took place. The critical episodes with delivery delays were solved in that manner that the business relationship between the competing buyer TeraTruck and Suspension-Supply was terminated. Suspension-Supply could therefore allocate more capacity to GigaTruck and the geographical bond was strengthened again in time 3.

Table 19. Elements affecting geographical bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect geographical bond strength	Time 1	Time 2	Time 3
Geographical distance to buyer/supplier			
Geographical distance	-	-	-
Delivery precision	+	-	+
Lead-times	+	-	+
Line stops		-	
Airfreights (in times of poor delivery precision)		-	
Deliveries to alternative buyer		-	
Technical cooperation			
Technical cooperation	+	+	+

5.2.7 Abstract bonds

The abstract bonds are presented below.

5.2.7.1 Social

The social bonds between GigaTruck and Suspension-Supply's personnel have weakened from being very strong to of medium strength. Social bonds develop between personnel from the companies that cooperate when representatives from the companies learn to know each other and start to trust each other. By developing trust in each other it is even possible to solve difficult issues over the phone and the cooperation between the companies becomes smoother. If there for instance is a possibility that a batch could be delayed then it is possible to call the customer and inform them that there is a risk that the shipment could be delayed. Then the problem could be solved together instead of having to start processes with much red tape in order to solve the problem. The supplier Suspension-Supply thinks it is important to solve something that has been agreed on orally with the other company because it is important that one can keep the promise one has made in gentlemen's agreement. The levels of trust are high informants from both companies regard the counterpart as trustworthy and to be doing what they are promising. There is commitment to the relationship.

The cooperation between Suspension-Supply and GigaTruck's personnel has been very good. The coworkers are still open-minded and trust each other. It is even easy to discuss difficult matters according to representatives for GigaTruck and Suspension-Supply. The logistic coaching responsibility that GigaTruck in Northern Europe has for Suspension-Supply make the cooperation intense in order to find improvements regarding the flow of materials between the companies. The logistics-coaching project also gives ideas for improvements.

A team spirit existed in 1997 between GigaTruck and Suspension-Supply according to representatives from the companies. Representatives from GigaTruck feel that Suspension-Supply considers it as important for Suspension-Supply's success that GigaTruck is successful and that is why the cooperation functions well.

"The more the supplier is dependent on GigaTruck the bigger the team spirit and vice versa. Suspension-Supply delivers a quite large proportion of its turnover to GigaTruck and GigaTruck buy's approximately 20 % in comparison to its turnover (suspension components) from Suspension-Supply. I would say that it's a large enough share". Vice president purchasing at GigaTruck's headquarters

The personnel at the departments where technical development takes place at GigaTruck and Suspension-Supply found that there is a team spirit especially between these departments and that improves the cooperation and strengthens the social bonds.

The team spirit between GigaTruck in Northern Europe and Suspension-Supply seems to be stronger than the team spirit between GigaTruck in Central Europe and Suspension-Supply. The same goes for the social bonds. This is due to more frequent contacts between the personnel of GigaTruck in Northern Europe and Suspension-Supply and also due to the same native tongue spoken in communication between the

personnel that makes communication easier. Representatives from Suspension-Supply and GigaTruck in Northern Europe meet at an average of five times a year while representatives from for instance the logistic department in Central Europe have never seen a Suspension-Supply representative.

Most of the contacts between GigaTruck and Suspension-Supply are official contacts and some informants state that they want to keep the contacts on a strict business level, but there are also some personal contacts between GigaTruck in Northern Europe and Suspension-Supply. It regards personnel that have worked together for a long time and know each other well. It is however pointed out that the times of wining and dining are gone and the personal relationships are maintained over telephone and by sending Christmas cards and doing small personal favors for each other. The advantage with having strong social bonds to the other company is that it is difficult to break the bonds between the companies. The cooperation between Suspension-Supply and GigaTruck has been very smooth since the employees know each other well. It takes a long time to create new social bonds and the social bonds in place between Suspension-Supply and GigaTruck affects the cooperation positively. It is difficult for companies to create new social bonds to new suppliers and customers since it would last long before the cooperation is as smooth as to the company one had strong social bonds.

GigaTruck's process of selecting global single source suppliers was a critical episode. This resulted in remarkable changes in GigaTruck's purchasing organization. The personnel at GigaTruck responsible for choosing the global single source suppliers left the organization and new personnel came to GigaTruck's purchase organization and that weakened the social bonds. The cooperation had more or less to start over again. There were new personnel both in the quality assurance and purchase department at GigaTruck. This resulted in a weakening in the previously very strong bonds between Suspension-Supply and GigaTruck.

"Directly after their decision was made in 1998, the purchasing organization (of GigaTruck) was changed so that the people making the decisions and choosing the suppliers disappeared, and totally new purchasers started which did not exactly make it easier". Support systems and quality assurance at Suspension-Supply

The relationship was hurt when the personnel at Suspension-Supply noticed that the pure market forces was affecting the relationship vis-à-vis prices and choice of suppliers and Suspension-Supply was forced to reduce their prices by 8-10 % due to the single source agreement. The prices was forced down, by GigaTruck giving an ultimatum and stating that the prices must decrease and they do not care how it is done as long as it is done. The handling of the price reductions and the aggressive attitudes in the negotiations weakened the social bonds.

After the choice of single source suppliers there was turbulence in GigaTruck's organization. The turbulence also had to do with restructuring of the organization due to organizational changes. There are more interfaces and the way of work has become unfocused according to informants at Suspension-Supply. There are several different focuses and the personnel at GigaTruck works very focused on every small detail and that leads to the fact that there are also controversial focuses. Different departments and

even different personnel at GigaTruck does not have a common goal and does not know what other departments demand and that is problematic for a small supplier such as Suspension-Supply. This way of work put pressure on the contact persons and that affects their relationships negatively and weakens the social bonds.

Suspension-Supply had to decrease their flexibility in order not to be harmed by the internal problems at GigaTruck and that has changed the perception of Suspension-Supply so they are not perceived as easy to work with as earlier. It is not possible for Suspension-Supply to respond to all requests regarding all the different focuses made by GigaTruck since Suspension-Supply lack capacity for working with all the different focuses of the huge corporation GigaTruck, and that has weakened the social bond.

The restructuring of the organization at GigaTruck has lead to an internal competition since layoffs are expected and layoffs are waiting to happen in the purchasing organization. This has lead to a fear that has resulted in unprofessional reactions such as issues are more often handled on an emotional than professional basis and that has affected the social bonds negatively.

The personnel that cooperated regarding the parabolic springs ceased to have cooperation since the business relationship regarding deliveries of parabolic springs from Suspension-Supply to GigaTruck was terminated. That means that the direct development work stopped and the sales and purchasing personnel stopped having contact. This weakened the social bonds. On the other hand there was increased contacts regarding conventional springs where Suspension-Supply was chosen as a single source supplier. Suspension-Supply was also chosen as a supplier regarding tubular stabilizers that was a product that had not been delivered to GigaTruck before. This lead to the strengthening of the social bond regarding for instance development of products when engineers that never had any cooperation started to cooperate.

See Figure 32 below for a weakening of the very strong social bonds between GigaTruck and Suspension-Supply to bonds that are in the vicinity of medium strength and strong. Time 1 is before and time 2 is after GigaTruck makes the decision regarding single source suppliers.

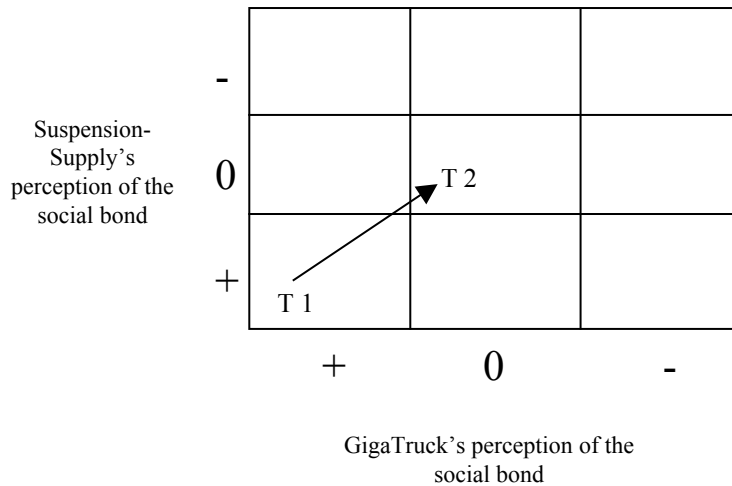


Figure 32. Changes in the perception of the social bond in the relationship between GigaTruck and Suspension-Supply

The conclusion regarding the **social bond of medium strength** was formed based on the elements affecting social bond strength at different times in the relationship, see Table 20 below. Time 1 should be seen as before and time 2 as after the decision regarding single source suppliers is made by GigaTruck.

Table 20. Elements affecting social bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect social bond strength	Time 1	Time 2
Turnover of personnel		
Low turnover of personnel on the logistics department	+	+
Low turnover of personnel on the technical department	+	+
Change of purchasing personnel		-
Change of personnel on the quality department		-
Contacts between personnel		
Frequent communication and meetings between sales and purchasing personnel	+	+
Management cooperation	+	+
Team spirit (Northern Europe)	+	+
Team spirit (Central Europe)	+ -	+ -
Personal relationships		
Personal relationships	+	-
Unofficial contacts between personnel	+	+
Commitment and trust		
Commitment	+	+
Trust	+	+

5.2.7.2 Cultural

The cultural bonds between GigaTruck and Suspension-Supply are strong. Cultural bonds develop between suppliers and customers with a similar cultural background. The

language spoken or which country the company comes from might result in that the customer identifies himself stronger with some companies.

The language used in the contacts between GigaTruck in Northern Europe and Suspension-Supply is Swedish. Due to the common language the contacts between the companies are easy and the understanding is good. It is easier to discuss different topics in ones own mother tongue than in a foreign language. The cultures are seen as very similar. Both companies operate in Scandinavia and the Scandinavian culture is quite homogeneous. There are differences on a lower level between the cultures. It is for instance necessary for the personnel at Suspension-Supply to ask questions with deeper intentions in order to get a straight answer when talking to the buyers at GigaTruck who have a culture that seldom want to give a straight answer, especially if that answer is negative. As long as the differences in culture between the countries where Suspension-Supply and GigaTruck operate are known the cooperation between the companies' works well.

The culture in the country where Suspension-Supply is located is similar to the culture in the Central European country where GigaTruck is situated according to the representatives at GigaTruck in Central Europe. There are more cultural differences between GigaTruck in Central Europe and GigaTruck in Northern Europe than between GigaTruck in Central Europe and Suspension-Supply. The culture of the Central European country and the culture of the country where Suspension-Supply is situated is such that the way to do business is more direct and faster. GigaTruck in Northern Europe has such a culture in the Northern European country that decisions takes longer time to make according to representatives from GigaTruck in Central Europe. GigaTruck in Central Europe always receive fast and direct answers in the cooperation with Suspension-Supply.

“My contact person at Suspension-Supply always knows what he is talking about, he is always reacting in a direct way. When you talk to people at GigaTruck in Northern Europe and you ask them something they have to think it over twice or three times. Everybody has that feeling. I think we are more direct, it goes with the mentality in the country in Central Europe where GigaTruck is located and the country in Northern Europe where Suspension-Supply is situated”. Manager at Material Supply GigaTruck in Central Europe

The language used in the cooperation between GigaTruck in Central Europe and Suspension-Supply is English and that has worked well. It could however create problems if the two contact persons at Suspension-Supply that the quality department in Central Europe usually contacts would be absent at the same time. This is since it would then be difficult to get hold of somebody that speaks fluent English according to the quality department of GigaTruck in Central Europe. This was however an isolated incident and it is only seen to have a minor effect on the cultural bonds.

The differences in company culture between GigaTruck and Suspension-Supply are small but have increased. Both companies are Scandinavian and that affects the company culture according to the informants. It is according to GigaTruck's representatives an advantage that Suspension-Supply is a smaller organization were it is easy to communicate with representatives on all levels in the company. This is due to

the fact that Suspension-Supply does not have any difficult paths or hierarchical models that has to be overcome and that affects the cultural bond positively.

Informants at Suspension-Supply said the opposite. Communication has become more difficult after changes in GigaTruck's organization. After the choice of single source suppliers had been made there was turbulence in GigaTruck's organization. The turbulence also had to do with restructuring of the organization due to organizational changes. There are more interfaces and the way of work has become unfocused according to informants at Suspension-Supply. It has become more difficult to communicate or get hold of the correct persons at the different company levels at GigaTruck. There are several different focuses and the personnel at GigaTruck works very focused on every small detail and that leads to the fact that there are also controversial focuses. Different departments and even different personnel at GigaTruck does not have a common goal and does not know what other departments demand and that is problematic for a small supplier such as Suspension-Supply.

GigaTruck and Suspension-Supply's delivery plans are running on similar systems, Suspension-Supply and GigaTruck are using the EDI standard ODETTE for data exchange on-line. ODETTE is a commonly used standard by the European car industry. Suspension-Supply receives a SYNCRO message every night regarding which type of springs or stabilizers that are required and for which chassis they are needed for the truck assembly at GigaTruck's plants. It was the same case with delivery instructions and the electronic advising message AVIEXP (avi for export) is sent from Suspension-Supply when the products are shipped. The invoices are sent automatically on-line with INVOIC when the products are shipped. The cooperation between the development departments has also developed so that way that CAD drawings are exchanged between the companies. There is not much paper drawings used any more. E-mail makes it easy to contact persons on Suspension-Supply or GigaTruck. Communication is also taking place by phone or by telefax. This was culturally similar to what Suspension-Supply was used to in their company culture.

The conclusion regarding the **strong cultural bonds** was formed based on the elements affecting cultural bond strength, see Table 21 below.

Time 2 should be seen as the situation after GigaTruck's decision regarding choice of single source supplier and time 1 should be seen as the situation before that.

Table 21. Elements affecting cultural bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect cultural bond strength	Time 1	Time 2
Cultural background		
Similar cultural background	+	+
Company culture		
Company culture	+	+/-
Decision making (Central Europe, fast)	+	+
Decision making (Northern Europe, slower)	+/-	+/-
GigaTruck's firm borders concerning responsibility (many interfaces)		-
Channels for communication		-
Computerization	+	+
Transfer of delivery plans (Transfer of delivery plans, drawings and invoices etc. electronically)	+	+
Language		
Language (similar)	+	+

5.2.7.3 Ideological

The ideological bonds between GigaTruck and Suspension-Supply are of between medium strength and strong and have remained stable during the critical episode where GigaTruck has chosen its single source suppliers. Ideological bonds are such bonds that make a customer choose suppliers that for instance manufacture environmentally friendly products. Environmental awareness has historically not been important when GigaTruck has chosen supplier has become increasingly important. There are three pillars in the policy of GigaTruck; these are security, quality and environment. GigaTruck demand that their suppliers should work according to ISO 14001, Suspension-Supply is ISO 14001 certified. ISO 14001 is an environmental audit in the same way that ISO 9000 is a quality standard. The environmental awareness of the supplier is an important part of GigaTruck's audit of existing and potential suppliers. At GigaTruck in Central Europe it is stated that the factory of GigaTruck was the first business to be EMAS certified in that specific country. EMAS is the environmental equivalent of ISO 9000. In GigaTruck's supplier evaluation model where existing and potential suppliers are rated the questionnaire takes account of issues regarding financial ownership, quality, logistic, design possibilities, etc. one of the parts of the questionnaire regards the environment. The environmental part is regarded to be important according to informants at GigaTruck; the environmental activities have to be planned for the future.

Environmental issues are important for Suspension-Supply in that the products that Suspension-Supply manufactures are recyclable. More than 99 per cent of the weight of the products can be recycled. That means that 99-kilogram out of 100 kilogram of for instance springs can be recycled.

The reason the ideological bond is only of between medium strength and strong is the fact that the "real" importance of green values has not been accepted in the truck producing industry yet. There are a lot of PR activities regarding the environmental

friendliness of the industry and how important it is considered but the fact is that the truck producers processes are still far from environmentally “friendly”. Technical specifications may sometimes be contradictory to what is stipulated in the environmental audit etc. Suspension-Supply has had to remind GigaTruck about the stipulations in the environmental audit.

The conclusion regarding the ideological bond of **between medium strength and strong** was formed based on the elements affecting ideological bond strength, see Table 22 below.

Table 22. Elements affecting ideological bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect ideological bond strength	
Environmental awareness	
Possibility to recycle product (recyclable products)	+
Actual importance of environmental friendliness	-
Green product or process e.g. ISO 14001 certified process	
Compulsory ISO 14001 environmental audit	+

5.2.7.4 Psychological

The psychological bonds between GigaTruck and Suspension-Supply are of medium strength. Psychological bonds develop when for instance the customer is convinced that the products manufactured by the supplier are of superior quality. Representatives at GigaTruck do not see any difference between the springs manufactured by Suspension-Supply and springs manufactured by other suppliers. The painting of Suspension-Supply springs is even of inferior quality when compared with the painting of competitors’ springs according to some of the representatives from GigaTruck. Suspension-Supply manufacturing process regarding springs is however considered good. Suspension-Supply should improve their surface treatment of the springs in order to increase the strength of the psychological bonds between the companies.

The opposite is the fact with the tubular stabilizer where informants at GigaTruck find both the product itself and the manufacturing process to be superior to competing suppliers and that affects the psychological bond positively.

Suspension-Supply has become single source supplier to GigaTruck regarding conventional springs and tubular stabilizers.

It is according to Suspension-Supply important to have well-known customers with a strong reputation and a good image as GigaTruck since they are good references when cooperation with other companies is started. GigaTruck’s brand name is considered to be strong. Referring to tests according to which Suspension-Supply’ products are

fulfilling the demands put on them are not enough, the company must be able to refer to customers that manufactures high quality products such as GigaTruck. Suspension-Supply' psychological bonds to GigaTruck are therefore of higher strength than GigaTruck's psychological bond to Suspension-Supply.

The conclusion regarding the **psychological bond of medium strength** was formed based on the elements affecting psychological bond strength, see Table 23 below.

Table 23. Elements affecting psychological bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect psychological bond strength	
Perceived superiority, equality or inferiority of product, process or service	
Patented product (stabilizer) (superior to that of competitors)	+
No perceived difference between products produced by Suspension-Supply and those produced by other manufacturers (springs)	-
Springs (surface treatment)	-
Perceived superiority of process (springs)	+
Perceived superiority of process (tubular stabilizer)	+
Innovation (tubular stabilizer)	+
Brand name	
GigaTruck as a reference (brand name)	+
Image	
GigaTruck as a reference (image)	+
Reputation of the counterpart in the cooperation	
Reputation of GigaTruck	+

5.2.7.5 Strategic

Strategic bonds are a finding of the analysis that is mentioned due to the method of systematic combining used to analyze the empirical material. Strategic bonds are on a different level than the other bonds mentioned and can contain all the other types of bonds.

Strategic bonds are bonds that emerge when the companies have it in their strategy to have cooperation. The strategy that strengthens the strategic bonds may be the importance for Suspension-Supply of having a customer such as GigaTruck in the list of references for the effect it will have on further business. It could also be when a buyer such as GigaTruck wants to keep the supplier Suspension-Supply on the supplier list due to the strategic importance of that supplier's product to the end product of the buyer. For instance in GigaTruck's case a tubular stabilizer weighing approximately 20 kilos less and increasing the payload or amount of fuel the truck can carry.

The strategic focus of GigaTruck has since 1997 been on globalization and hence the focus on global single source suppliers. The critical episode was GigaTruck's process of choosing single source suppliers. The decisions of who became single source suppliers

were made in a market situation that was souring and in many cases suppliers that did not have enough production capacity was chosen. GigaTruck took a strategic decision to terminate the business relationship to Suspension-Supply regarding parabolic springs and chose a competitor to Suspension-Supply named SPRING as a single source supplier for parabolic springs. This led to the fact that Suspension-Supply lost 50 % of the amount they had delivered to GigaTruck, 20 % of the total production. In the same process Suspension-Supply was chosen as single source supplier regarding conventional springs and tubular stabilizers.

The contradiction here is that while Suspension-Supply was chosen as a single source supplier for conventional springs and tubular stabilizers, the strategic bonds increased in strength for these product groups. The strategic bonds were at the same time weakening and dissolving regarding parabolic springs for which the business relationship was terminated.

Not all bonds between Suspension-Supply and GigaTruck were terminated regarding parabolic springs since the competing supplier SPRING that was chosen by GigaTruck as a single source supplier did not have the production capacity to handle the single source agreement to GigaTruck. SPRING had to bring in Suspension-Supply as a sub-supplier for the whole amount they just had lost. That meant 20 % of Suspension-Supply's total production. This of course kept technical and economic bonds regarding parabolic springs alive between Suspension-Supply and GigaTruck.

Suspension-Supply had to take a strategic decision to terminate a relationship in order to be able to supply GigaTruck with their products, especially regarding tubular stabilizers. The choice was the competing buyer TeraTruck due to the technically more difficult process in manufacturing of TeraTruck's tubular stabilizer. The tubular stabilizer produced for TeraTruck required more machine capacity and took longer time to produce than the tubular stabilizer delivered to GigaTruck. The product hence rendered less revenue for Suspension-Supply so it was an obvious choice that the relationship to TeraTruck had to be terminated. This was due to the fact that Suspension-Supply wanted to focus on the big buyer GigaTruck that was important for Suspension-Supply.

"This case (GigaTruck) was reflecting on our other customer relationships in that specific product group in that we were forced to prioritize between customers. We wanted to keep this problematic but large and strong and important customer and that causes some problems vis-à-vis other relationships". Support systems and quality assurance at Suspension-Supply

"We had to make a clear decision that if we were to take GigaTruck in, (in full scale production) we had to get rid of someone and TeraTruck was a good candidate since they had a product that was more difficult to produce". Logistics manager at Suspension-Supply

The strategic focus on supplying GigaTruck well also resulted in delivery delays for other of Suspension-Supply's buyers regarding the tubular stabilizer segment.

See Figure 33 below for the strengthening of the strategic bonds regarding conventional springs and tubular stabilizers following the decision made by GigaTruck of having Suspension-Supply as a single source supplier for these products. Time 1 is the time

before Suspension-Supply was chosen as a single source supplier for conventional springs and tubular stabilizers by GigaTruck and time 2 after.

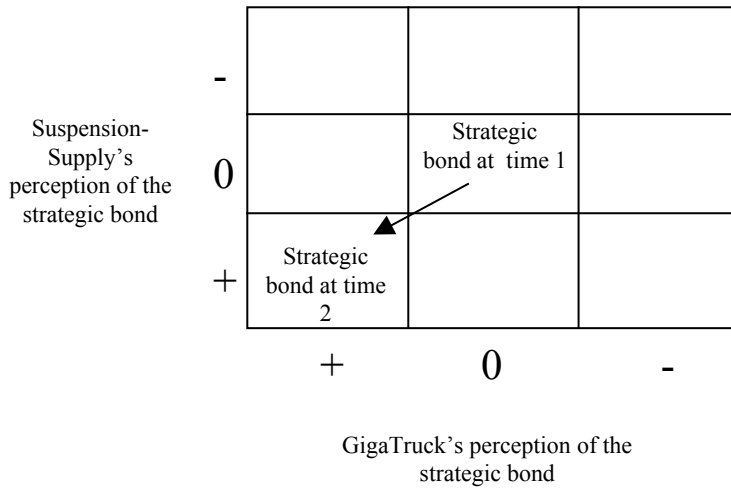


Figure 33. Changes in the perception of the strategic bond in the relationship regarding conventional springs and tubular stabilizers between GigaTruck and Suspension-Supply

See Figure 34 below for the termination of the strategic bonds regarding parabolic springs following the decision made by GigaTruck of removing Suspension-Supply from its list of suppliers and choosing a competitor as single source supplier for parabolic springs. Time 2 is the situation after the decision to terminate the relationship regarding parabolic springs by GigaTruck.

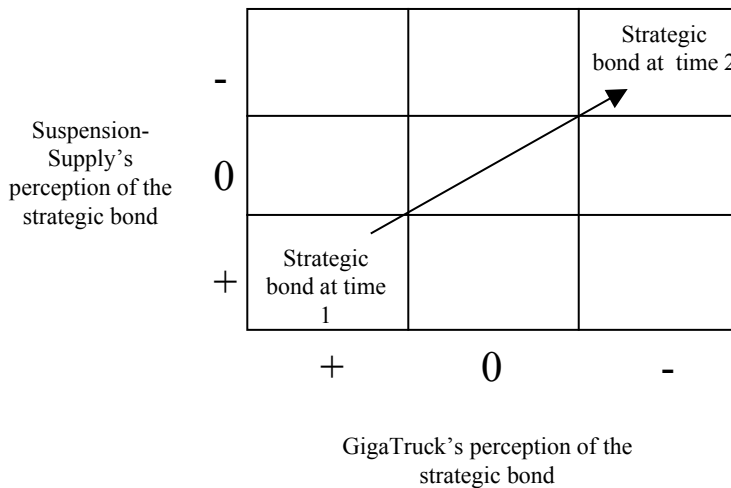


Figure 34. Changes in the perception of the strategic bond regarding parabolic springs in the relationship between GigaTruck and Suspension-Supply

GigaTruck is a very important customer for Suspension-Supply. It is the most important customer from a strategic perspective due to its size as a customer and due to the big shares of Suspension-Supply's production that is delivered to the customer both directly and indirectly.

"GigaTruck is very important for us strategically. It is our largest customer and if we can't handle that customer then we can't make it in this business at all. It is such a very strategically important customer for us". Support systems and quality assurance at Suspension-Supply

The conclusion regarding the **strategic bond that weakened and was between medium strength and strong** towards the end of the relationship was formed based on the elements affecting strategic bond strength, see Table 24 below.

Time 2 should be seen, as the time after Suspension-Supply was made single source supplier for tubular stabilizers and conventional springs by GigaTruck and at the same time terminated as a supplier for parabolic springs.

Table 24. Elements affecting strategic bond strength in the relationship between GigaTruck and Suspension-Supply

Elements that affect strategic bond strength	Time 1	Time 2
Strategic decision to cooperate or terminate the cooperation		
Strategic decision for single source (conventional springs)		+
Strategic decision for single source (tubular stabilizers)		+
Strategic decision to terminate (parabolic springs)		-
Strategic importance of buyer or supplier (economic and/or technical view)		
Strategic importance of buyer	+	+
Share of products delivered/bought (parabolic springs)		-
Share of products delivered/bought (Conventional springs)		+
Share of products delivered/bought (tubular stabilizer)		+
Size of production series		
Termination of relationship with competing buyer (stabilizer)		+
Allocated production capacity (stabilizer)	-	+
Geographical distance to supplier/buyer	-	-
Strategic importance of product		
Strategic importance of product for end product (tubular stabilizer)		+

5.2.8 Relationship strength in the Cooperation between GigaTruck and Suspension-Supply

Bond strength in the relationship between GigaTruck and Suspension-Supply

Table 25 below presents a summary of the strength of the different bonds in the relationship between GigaTruck and Suspension-Supply. This should be seen as the overall strength of the bonds at the latest stage of the relationship. The table is followed by a short summary presenting the evaluation of the strength of the individual bonds.

Table 25. Bond strength at the latest stage of the relationship between GigaTruck and Suspension-Supply

Technical	Strong
Time	Strong
Knowledge	Strong
Legal	Medium strength
Economic	Between medium strength and strong
Geographical	Medium strength
Social	Medium strength
Cultural	Strong
Ideological	Between medium strength and strong
Psychological	Medium strength
Strategic	Between medium strength and strong

Most of the bonds between GigaTruck and Suspension-Supply are strong and that affects the relationship strength in a positive way strengthening the relationship.

The **relationship** between GigaTruck and Suspension-Supply is **strong**. This is due to the fact that most of the bonds in the cooperation between GigaTruck and Suspension-Supply are strong.

Relationship strength is according to Holmlund (1996) also depending on how many alternative partners the counterpart in the relationship has. The more alternative partners for cooperation the counterparts have the weaker the relationship and vice versa. There are plenty of available suppliers for full stabilizers and springs on the global market. There are however not many alternative suppliers of tubular stabilizers and Suspension-Supply hold the patent for the manufacture of tubular stabilizers. The actors on the market that have a good reputation as suppliers to assemblers of new trucks are not as many as the actors delivering bulk products for after sales service. Suspension-Supply has been chosen as a global single source supplier on tubular stabilizers and conventional springs to GigaTruck. This shows that GigaTruck has a strategic focus to cooperate with Suspension-Supply. GigaTruck is Suspension-Supply's largest customer, GigaTruck is hence strategically very important for Suspension-Supply. GigaTruck bought 40 percent of Suspension-Supply's total production before the partial termination took place. Suspension-Supply lost deliveries to GigaTruck in amount of 20 % of Suspension-Supply's total production after GigaTruck's partial termination when the

relationship regarding parabolic springs was terminated. At present Suspension-Supply delivers 20 % of its total production directly to GigaTruck and 20 % indirectly as a sub-supplier to GigaTruck's single source supplier SPRING.

The perceived satisfaction with the relationship is high even though the exchange of personnel at GigaTruck's purchase and quality departments and the increase in interfaces has been perceived by some informants as harming the cooperation between GigaTruck and Suspension-Supply. It is perceived as taking time before the relationship works as well as before the changing of personnel at GigaTruck. GigaTruck and Suspension-Supply are however still satisfied with how the cooperation between the companies works. Both companies are engaged in the relationship. Suspension-Supply concentrates on fulfilling the demands put forward by GigaTruck regarding Suspension-Supply products in order to make the cooperation more effective. It is perceived as easy to cooperate with Suspension-Supply and Suspension-Supply works hard in order to find the best solutions for GigaTruck according to GigaTruck's developing departments. GigaTruck and Suspension-Supply are both satisfied with the relationship. The companies have worked in order to make the cooperation to work smoothly by investing in similar computer systems and so on. It is easy to exchange information between the companies.

A critical incident took place after GigaTruck made the choice of single source suppliers. Suspension-Supply had problems in supplying GigaTruck with the amount of products needed. The delivery precision organization and there were line stops at GigaTruck's plants. Suspension-Supply solved the problems by terminating the relationship to a competing supplier that had a product that was more difficult to produce than GigaTruck's. More production capacity was allocated in order to produce products for GigaTruck. Suspension-Supply succeeded in solving the critical incident and delivery precision improved. The promises made by Suspension-Supply towards GigaTruck could thereby be kept. The relationship between companies is strengthened by critical incidents that have been handled in a correct fashion according to Storbacka, Strandvik and Grönroos (1994) as well as Edvardsson (1988). By solving the critical incidents that have developed Suspension-Supply has been able to show that they can solve the buyer's problems.

The positive implications for GigaTruck and Suspension-Supply with a strong relationship are that a strong relationship affects the length of the relationship in a positive way according to Holmlund (1996). If there is a certain level of certainty that the relationship will continue the companies will be able to invest more in the relationship since they know that the investments will be written off under a longer period of time. If the companies invest more in the relationship this will affect the bonds positively and the cooperation between the companies will improve. Suspension-Supply could for instance concentrate on further developing its delivery precision and GigaTruck could focus more on developing more accurate delivery instructions in order to help Suspension-Supply avoid delivery problems. By cooperating for a longer time there are no costs that a switch of supplier would cause for GigaTruck or costs that would evolve for Suspension-Supply when searching for a new buyer.

5.3 Case 3: negative routine episode and continuation of the business relationship

The 3rd case involving BigTruck is a case where **negative routine episodes** have take place and the relationship to Suspension-Supply has continued.

A case with routine episodes between BigTruck and Suspension-Supply following the structure of Figure 1 named outcomes of bond episodes will follow below. Figure 1 is the conceptual framework for understanding the change of bonds in the study. The BigTruck case is a case were negative routine episode has lead to change in bond strength. The BigTruck case was needed in order to find out how the bonds changed in cases where negative routine episodes take place in the relationship.

The routine bond episodes can also affect the relationship and the bonds in the relationship. Routine bond episodes can for instance take place when there is planned investment in a system improving the flow of information between the two cooperating companies. This would lead to a strengthening of time bonds over time. Routine bond episodes are small issues in the cooperation that will either strengthen or weaken the bonds in the cooperation or not affect the bonds at all. It might be improvements or deterioration that happen slowly just as when water is penetrating a stone. Drop by drop it makes the hole bigger. If we take a business relationship several small mistakes may weaken some bonds be it social, technical etc. as well as several improvements may strengthen them.

5.3.1 Relationship history

BigTruck and Suspension-Supply have a relationship dating back several decades. At present less than 3 % of Suspension-Supply's production is delivered to BigTruck. BigTruck buys springs and tubular stabilizers from Suspension-Supply. Suspension-Supply is BigTruck's only supplier of springs and tubular stabilizers and is therefore delivering 100 % of BigTruck's needs.

5.3.2 Critical incidents

Critical incidents have taken place in the cooperation between BigTruck and Suspension-Supply. Most of the critical incidents have been of minor importance and can be characterized as routine incidents. According to informants at BigTruck's purchase department the biggest problem is regarded to be the exchange of information between the two companies. Sometimes BigTruck has made changes in its delivery plans and the information has not reached Suspension-Supply and that has resulted in that the wrong type of products has been delivered. The only problem that is remembered at BigTruck's development department is the long delivery times from Suspension-Supply. According to informants at the logistics department at BigTruck the deliveries from Suspension-Supply is constantly a little bit late but that is the only problem that the companies have. The informants at BigTruck's logistics department would appreciate if Suspension-Supply would send a message to BigTruck's logistics

department when the deliveries are late. At the moment no such message is given according to BigTruck's informant.

According to BigTruck's quality assurance one problem in the cooperation with Suspension-Supply that took a long time to solve was a problem with a spring where the only solution was for GigaTruck to change their drawing of the component. Suspension-Supply had problems with keeping the dimensions of a technical feature on one type of spring. The problem resulted in a discussion with the responsible people at BigTruck's development department that made a change in the drawings after a request from Suspension-Supply and then the change was sent to Suspension-Supply. It took a long time for Suspension-Supply to admit that they could not produce or had problems in producing the spring when it was designed the way it was according to informants from BigTruck. The problem was that the material was too thick. The material was made thinner and then it worked, as it should. The problems that have aroused during the years have been easy to solve according to the informants at BigTruck. If there ever was a problem then Suspension-Supply's representatives have been invited to BigTruck and the problems has been discussed and solved.

The quality assurance at BigTruck also remembers a problem that was dealt with in 1992. It regarded the place of the central bolt on a spring. The distance where the central bolt should be placed varied a bit and that led to problem for BigTruck. Suspension-Supply withheld that they had the correct measures of the length but the placing of the central bolt was leading to that the axle on the truck was oblique. When the measures regarding the lengths are wrong then the axles will become assembled so that they are oblique on the truck. BigTruck did not consider the problems to stem from their part since they make all their length measures using laser. The problem took a long time to solve. According to representatives from BigTruck Suspension-Supply has not had an easy time to admit that they might have been wrong but have instead implied that the problem might have stemmed from BigTruck's part.

There have been problems in the cooperation with BigTruck according to a representative from the sales department at Suspension-Supply. This is due to the fact that BigTruck buys so small quantities of products from Suspension-Supply, at the same time as they have an enormous variation on the products. BigTruck has a low priority at Suspension-Supply due to the fact that they buy so small amounts of products and that leads to the fact that Suspension-Supply cannot always keep the promised delivery times to BigTruck. If there is a crisis with the deliveries at Suspension-Supply it is always the small buyers that will suffer according to the representative from Suspension-Supply. Suspension-Supply tries to solve these problems by working overtime. BigTruck has bigger warehouses than the other buyers and has not put forward any demands regarding delivery precision or lead times to Suspension-Supply.

Another problem perceived by the sales department at Suspension-Supply is that BigTruck has had a large personal turnover during the last two years. 50 % of BigTruck's personnel have been laid off and personnel have also been moved to other positions in the organization. During the contact between Suspension-Supply's contact person and Suspension-Supply the contacts have changed several times and that is perceived as hard and disturbing. Just when the persons have learned to know each

other and built up a personal relationship the contact person has changed at BigTruck. There are therefore no personal relationships between the sales personnel at Suspension-supply and the purchase department at BigTruck.

Other critical incidents that have occurred according to informants from Suspension-Supply has regarded the prices on the products supplied by Suspension-Supply. BigTruck has had a project where they focused on lowering the production costs and they then focused on lowering the prices on all products supplied by BigTruck's suppliers. It regarded direct price negotiations and the critical incident was solved when Suspension-Supply lowered all prices on parts delivered to BigTruck.

A critical incident that has been handled correctly often results in a stronger relationship between the companies (Edvardsson 1988). Critical incidents that have been handled poorly may lead to a decrease in relationship quality. It is therefore important to handle the critical incidents that arise between the companies as well as possible.

5.3.3 Conclusion regarding bonds and the change of bonds

The conclusions regarding bonds and the change of bonds are presented below.

5.3.4 Concrete bonds

Concrete bonds are tangible bonds that are developed when companies cooperate and hence adapt to each other and invest in the cooperation.

5.3.4.1 Technical

According to the informants at BigTruck the products that Suspension-supply delivers to BigTruck are generally well adapted for BigTruck's needs. Suspension-Supply is manufacturing the products in accordance with BigTruck's drawings and specifications and BigTruck gets exactly the products that they need according to the informants at the technical development department at BigTruck.

“Yes, they are doing what we require. That means according to our drawings and according to our wishes. It is the same with all producers, if the supplied amounts are to their satisfaction, then they will do what you ask them to.” Designer at BigTruck

Suspension-Supply is allowed to take part in the development of products at a very early stage at BigTruck according to informants at Suspension-Supply. That means that Suspension-Supply has very good possibilities to affect how the products are designed and the products can be designed so that they suit Suspension-Supply's production process. The design and testing of the products delivered to BigTruck is to a large extent done at Suspension-Supply's factory. Cooperation is considered very to be very intense and easy when it regards design and development activities between Suspension-Supply and BigTruck.

“We can say that we are involved from the very beginning with BigTruck when it comes to design, already in the stage when the suspension is planned. We can affect the product much better than with other suppliers. It functions darn well”. Technical development at Suspension-Supply

“We develop new springs in close cooperation with BigTruck. We draw and design the springs as well as test them at our factory. The Patented® spring for instance is replacing a spring that had three leafs before but has only two leafs now (thus making it lighter) so we have a good cooperation regarding design”. Sales at Suspension-Supply

“We are allowed to make most of the design work ourselves at BigTruck. I think that they only appreciate that. For instance the business with the Patented® spring that we have going on with BigTruck. In that case we just contacted them and asked them: “how would it be if we would change this spring against this spring? You will save money and weight”. They accepted it well; they were actually the first supplier to accept it. It is undergoing field tests at BigTruck now. We start making the Patented® as soon as we have possibilities for production of it. We can then avoid making a whole leaf and will get a relatively speaking better price for our work. The spring will be cheaper, less material and less work a spring with two leafs instead of three.” Sales at Suspension-Supply

There have been critical episodes taking part between the cooperation companies regarding technical issues but these have been solved to a satisfying level in close collaboration.

For instance a problem with a spring where the only solution was for BigTruck to change they're drawing of the component. Suspension-Supply had problems with keeping the dimensions of a technical feature on one type of spring. The problem resulted in a discussion with the responsible people at BigTruck's development department that made a change in the drawings after a request from Suspension-Supply and then the change was sent to Suspension-Supply. It took a long time for Suspension-Supply to admit that they could not produce or had problems in producing the spring when it was designed the way it was according to informants from BigTruck. The problem was that the material was too thick. The material was made thinner and then it worked, as it should. The technical bond was strengthened by the adaptation that was made, that is when the material was made thinner it fitted Suspension-Supply's production process better.

The problems that have aroused during the years have been easy to solve according to the informants at BigTruck. If there ever was a problem then Suspension-Supply's representatives have been invited to BigTruck and the problems have been discussed and solved.

Another critical episode that the quality assurance at BigTruck remembers was a problem that was dealt with in 1992. It regarded the placing of the central bolt on a spring. The distance where the central bolt should be placed varied a bit and that led to problem for BigTruck. Suspension-Supply withheld that they had the correct measures of the length but the placing of the central bolt was leading to that the axle on the truck was oblique. BigTruck did not consider the problems to stem from their part since they make all their length measures using laser. The problem took a long time to solve. Again representatives from Suspension-Supply had not an easy time to admit that they might have been wrong but have instead implied that the problem might have stemmed

from BigTruck's part. The problem was however solved in collaboration even if it took time to solve.

"BigTruck has drawings and the drawings are not always easy to interpret. They are old drawings drawn by hand that are messy. We are at this time (1997) involved in a case where the organi point of a spring and the interpretation of its tolerances are vague, we cannot understand this and it is clearly un-systemized. Everything is rather customized and there is a bit farmer's touch over the solutions (hobo) at BigTruck. Even the end product is of that kind that they are making more customized vehicles and then there is not a need for standardization. They say that they are working with special design." Support systems at Suspension-Supply

Technical bonds develop between companies that adapt their technical processes and products to each other. The technical bonds between Suspension-Supply and BigTruck are strong. The products purchased by BigTruck from Suspension-Supply are developed in close cooperation between both companies in order to get as optimal products as possible both from an end user perspective and a production perspective. The only problem from a production perspective is that the series that BigTruck requires are so small so Suspension-Supply must produce bigger series that are stored in warehouses.

The conclusion regarding the **strong technical bond** was formed based on the elements affecting technical bond strength, see Table 26 below.

The time span between time 1 and time 2 as seen below is one hand the time required for solving the critical episode regarding the spring that was solved using a thinner material and seen as a process adaptation. The other critical episode with the solving of the problem with the central bolt on a spring was a case of product adaptation. Thus time 1 and time 2 in Table 48 below.

Table 26. Elements affecting technical bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect technical bond strength	Time 1	Time 2
Technical adaptation to the counterpart in the cooperation		
Process adaptation (one incident)	-	+
Product adaptation (one incident)	-	+
General product adaptation	+	+
General process adaptation	+/-	+/-
Cooperation regarding technical development		
Development activity	+	+

5.3.4.2 Time

Time bonds exist for instance when the cooperating companies adapt their logistic functions to each other. It can for instance be when EDI contacts are used in order to know when the buyer need products for its manufacturing process and what time they need them. The time bonds between Suspension-Supply and BigTruck are weak.

Planning of the need for products on BigTruck's account is often poor and Suspension-Supply has a poor delivery precision towards BigTruck. BigTruck has large warehouses

and they are not always managed properly but there may be surprises when a product has run out without BigTruck noticing it. There are no EDI systems for transfer of delivery information between the companies.

“We are working very manually with BigTruck’s orders. The whole logistics part is working, should we say primitively and they lag 10 years behind in their logistics systems. I would not at all be offended if they would choose to go over to electronic data interchange and focus much more on modernizing the whole invoicing part. We are handling BigTruck differently than we are handling other buyers and a homogenization of all buyer systems would not be harmful. Our internal policy is that that every buyer should be treated equally. Our managing of the production shall not take into account for which buyer it is produced but it should be produced according to the backlog of orders. It would help us politically if we got BigTruck incorporated in the same bunch as the other buyers. I think their status internally at Suspension-Supply would be increased.” Support systems at Suspension-Supply

The channels for communication with BigTruck are short with few interfaces and that affects the time bond positively. It is not difficult to get hold of the personnel of the other counterpart in the cooperation and discuss different issues.

BigTruck does not have any demands regarding how short the supplier’s lead-times in the production should be. According to representatives at BigTruck, BigTruck is striving to have suppliers whose lead-time in the production is between two and four weeks. BigTruck is suffering when it comes to Suspension-Supply’s lead-times in the production. Suspension-Supply’s lead-times are short enough, but since BigTruck is such a small buyer the larger buyers have a higher priority when it comes to deliveries and this results in that BigTruck have to wait an unreasonably long time according to representatives at BigTruck’s purchase department.

“The products made for us are made at certain intervals and then it is made ready at once and then the products await delivery. Their production program hinders our products to be taken into the production process except for at with certain intervals. Sometimes it feels like a long time, too long.” Buyer at BigTruck

Products delivered to BigTruck are made in large series in regular intervals and then they await delivery at Suspension-Supply’s plant.

The logistics personnel at BigTruck would like a shorter lead-time in the production from Suspension-Supply’s. At present it can be up to three months depending on Suspension-Supply’s supply of steel. An ideal lead-time in the production at Suspension-Supply would for BigTruck be two weeks. BigTruck has a program where they strive to get the trucks through their production in five weeks time. If Suspension-Supply would have a lead-time of two weeks BigTruck would be able to avoid having warehouses and have the possibility to order products for one week at the time. At present BigTruck has an intermediate warehouse outside the factory where springs and stabilizers are stored awaiting assembly.

It is however virtually impossible for Suspension-Supply to strengthen the time bonds in that manner that they would have a two week lead-time in the production for BigTruck. BigTruck has so many variations of springs and stabilizers and the series are so extremely small that it would be impossible to interrupt production of the large series delivered to competing buyers every time when BigTruck needs ten springs delivered.

“We are such a small producer of trucks that the big producers have a higher ranking at our suppliers. That can at times lead to suffering on our behalf if we get a big order on trucks with products that we do not have in stock then we may suffer from being a small producer.” Quality assurance at BigTruck

According to the sales department at Suspension-Supply the small amounts of products ordered by BigTruck every two weeks forces Suspension-Supply to make large series and keep warehouses where the products are stored. Orders made by BigTruck can be series of for instance 10 springs and the smallest series that Suspension-Supply can manufacture is 50 springs. This results in the fact that Suspension-Supply always manufactures springs or stabilizers for several deliveries at a time for BigTruck. The spare products are then kept in a warehouse and delivered the next time an order of the same kind of products are made.

BigTruck’s orders are made in the fashion that a fax is sent to Suspension-Supply, this fax contains both an order and a forecast for coming needs. The forecast shows BigTruck’s needs for the coming 10 weeks.

BigTruck has a very poor planning of how many products they are going to need in the production according to informants at Suspension-Supply. BigTruck’s warehouse may suddenly be empty and they may need more springs for instance. Other times BigTruck’s warehouses may be filled to the brink and that may also cause problem for Suspension-Supply. Suspension-Supply needs correct information in order for the cooperation to run smoothly. Better planning of the incoming needs and a more frequent sending of the delivery plans is something that BigTruck could do in order to strengthen the time bonds to Suspension-Supply.

“BigTruck has a very poor planning according to my view. They might suddenly run out of springs, and at other times their warehouses may be loaded, this is poor planning. BigTruck should improve their planning, we always need the best possible information it makes it easier to work.” Sales at Suspension-Supply

It would be an advantage if BigTruck would improve their systems for planning and delivery instructions according to the quality assurance at Suspension-Supply. At present BigTruck sometimes forget to send their delivery plans and suddenly they may notice when the products should arrive at the factory that the products has not been ordered yet and that creates problems for Suspension-Supply.

“While some buyers have much disturbances in their planning systems it is quite the opposite with BigTruck. BigTruck sends us their delivery plan very seldom. They should send it more often. BigTruck sends their delivery plans via fax.” Logistics at Suspension-Supply

“We have such a system with BigTruck that they send us a table (with a forecast) over orders and products that should be delivered. The idea with the table was that it should be sent once a month but it has been sent irregularly. Sometimes it has been three months without that any table has been sent. There has been insecurity “what is going on at the other end?” It has been sent on a very irregular basis. It is important to get the forecast even if there is no orders.” Sales at Suspension-Supply

The contacts between Suspension-Supply and BigTruck are handled using telephone and fax. There are no EDI contacts between the companies and even the delivery plans are sent by fax.

Regarding development of products BigTruck and Suspension-Supply use the same kind of CAD system named VERTEX that makes it easy to exchange information. The CAD drawings have been exchanged by sending diskettes via mail since there are no on-line connection between Suspension-Supply and BigTruck. The bulk of the drawings are still however handled by the organizations as paper copies by fax. The fact that there is no on-line link between the companies is due to the fact that the distance between the companies is only 3 kilometers and it is perceived to be so close that no on-line connection is needed. This is a view shared by both informants at GigaTruck as well as at Suspension-Supply. It is possible for personnel to travel back and forth between the companies twice in a day if need be.

“It is good that you asked since we actually have the same systems as BigTruck regarding product development. They are compatible 1:1, and that certainly makes things easier since we have started to use them more often.” Support systems and quality assurance at Suspension-Supply

It would be difficult to strengthen the weak time bonds between Suspension-Supply and BigTruck. The series delivered are so small that the importance of BigTruck at Suspension-Supply is also small from an economic point of view. No other supplier would like to have BigTruck on its list of buyers and deliver the small series of many different product varieties delivered to BigTruck. BigTruck could in order to improve the time bonds improve its planning system and make it more systematic so that delivery plans would be sent even if there would be no order at the time the plan is sent.

The conclusion regarding the **weak time bond** was formed based on the elements affecting time bond strength, see Table 27 below.

Table 27. Elements affecting time bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect time bond strength	Time 1
Adaptation of logistic functions	
Size of production series	-
Warehouses	+
Delivery precision and issues connected to that	
Delivery precision	-
Lead times	-
Flexibility of production (bottleneck product due to small series)	-
Deliveries to alternative buyer	-
Flexibility of flow of information	
Time of notice when orders are placed	-
EDI system for transfer of daily delivery information (lacking)	-
Number of interfaces (small)	+

5.3.4.3 Knowledge

Knowledge bonds develop when companies cooperate and learn more about each other's strengths and weaknesses, opportunities and problems. This can for instance happen when the cooperating companies develop products together. The knowledge bonds between Suspension-Supply and BigTruck are strong.

The development of products between BigTruck and Suspension-Supply is intense. There is cooperation regarding the development of products at an early stage. Many of Suspension-Supply's newest designs are tested in BigTruck's prototype trucks. BigTruck and Suspension-Supply knows each other's strengths and weaknesses and know how the companies can complete each other.

The cooperation regarding development of products is intense between BigTruck and Suspension-Supply. The stabilizers and the springs are developed extensively by Suspension-Supply in close cooperation with BigTruck and the cooperation starts at a very early stage of the development process. Many of Suspension-Supply's newest designs are tested in BigTruck's truck prototypes and BigTruck has many times been the first truck producer to buy certain new products featuring new ideas from Suspension-Supply.

"If we take this present Patented® project that we have with BigTruck (1997). BigTruck has been chosen from our side as a pilot since it is so easy to cooperate with them in questions regarding design and development, and they are located very near to us as well. It is definitively easier and it is very interesting and the competence regarding development and design of springs in the neighborhood is something that we do not use enough. We should more or less have a common department regarding development of products. We would have nothing to loose on that, quite the opposite in fact. It would be very fruitful for us to combine our minds. We would get to know more about trucks they would get to know more about springs and then we would create new concepts. The Patented® is a step on the way but I mean even wilder thoughts." Support systems and quality assurance at Suspension-Supply

Suspension-Supply is contacted approximately three months before BigTruck needs the first prototypes of new springs or stabilizers according to informants from the product development at BigTruck. The products are tested for approximately one year and then the serial production of the truck starts. There are no written agreements regarding development of products, the development is totally dependent on the need for new products as for instance the need for springs.

Suspension-Supply has always been contacted from the very beginning when BigTruck has developed new products according to representatives at BigTruck. That has made it possible to avoid problems related to the manufacture of the product and that has made the product more adapted to the production process and hence more efficient to produce. One of the strengths of the cooperation between Suspension-Supply and BigTruck has been the geographic closeness between the companies. It has always been easy to visit each other's companies to discuss different issues. BigTruck's cooperation with Suspension-Supply has been longer than with any other supplier since Suspension-Supply is BigTruck's oldest supplier. The use of the same language and having the same culture is also seen as affecting the knowledge bond positively.

Cooperation regarding development of products works well according to the purchase representative at BigTruck. BigTruck has contacted Suspension-Supply at a very early stage when development of products has been concerned. This is due to the fact that BigTruck has employed personnel at their development department that has earlier been working for Suspension-Supply. BigTruck's head of production has for instance previously been an employee at Suspension-Supply. Cooperation has been very intense and good, ideas regarding possibilities are exchanged as well as ideas for organization.

According to informants from Suspension-Supply's development, sales and quality assurance Suspension-Supply has been able to take part in the development of products at a very early stage at BigTruck. Suspension-Supply is taking part in the development already at the stage when planning of the suspension is begun. All suspension products have been developed for years by Suspension-Supply.

Suspension-Supply is taken into the development when the buyer BigTruck has a need for new products as for instance a new spring. Suspension-Supply draws and tests the spring and then a prototype is delivered to BigTruck. For instance in the development of the Patented® spring Suspension-Supply contacted BigTruck and asked BigTruck if they were interested in changing a certain spring against the Patented® spring and informed BigTruck that they would save both weight and money if doing so. BigTruck found the suggestion interesting and was the first producer of trucks that made field tests of the Patented® spring in their test trucks. By removing a leaf from the spring construction and make a two leaf spring instead of a three leaf spring the spring becomes lighter and cheaper to produce due to less material being used. This makes the spring cheaper for the buyer as well as have positive effects for the end customer who can have more payload on the truck or carry more fuel and will be willing to pay more for the truck due to that. Suspension-Supply on the other hand can increase their prices a little bit at the same time that they require less material for producing the spring.

Problems have been easy to discuss in the cooperation between Suspension-Supply and BigTruck. For instance if there have been problems regarding drawings Suspension-Supply has had no problem in discussing them with BigTruck and solving the problems together and change the drawings. It is easy to make changes when working with BigTruck's organizations since Suspension-Supply is the sole supplier of suspension components to BigTruck. There is also less red tape and bureaucracy in BigTruck's organization compared to a large truck producer with several suppliers and that makes cooperation and problem solving easier. One of the reasons that decrease the red tape between the companies is the fact that the number of interfaces in the cooperation is small. It is easy to exchange information between persons; it is easy to know whom to get hold on in order to solve a problem.

The main reason that BigTruck is kept on the buyer list by Suspension-Supply even though the series delivered are small and complex with many different serial numbers and disturbs the flow of the production process at Suspension-Supply is that BigTruck is a perfect testing partner. The knowledge bonds between Suspension-Supply and BigTruck are very strong due to the intense cooperation regarding development of products.

The conclusion regarding the **strong knowledge bond** was formed based on the elements affecting knowledge bond strength, see Table 28 below.

Table 28. Elements affecting knowledge bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect knowledge bond strength	
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation	
Familiarity	+
Cooperation regarding development of products	
Cooperation regarding development of products	+
Testing of novel product design	+
Stage where involvement begins	+
Mutual knowledge regarding rules and routines	
Mutual knowledge regarding rules and routines	+
Language	+
Number of interfaces (small)	+

5.3.4.4 Legal

Legal bonds are the written agreements that exist between the supplier and the buyer. Contracts with a lifespan over several years may make it difficult to end the cooperation between companies. The legal bonds between BigTruck and Suspension-Supply are of medium strength.

Written agreements exist between BigTruck and Suspension-Supply but the agreements does not restrict the possibilities to end the cooperation between the companies, but practical circumstances that makes ending the cooperation more difficult. Suspension-Supply would for instance have problems in finding as good a partner for cooperation regarding development of products and testing of prototypes as BigTruck. BigTruck on the other hand would have difficulties in finding a supplier that would deliver the small volumes ordered by BigTruck.

The written agreements that exist between BigTruck and Suspension-Supply is the price agreement that cover one year and is made up on a yearly basis. The price is based on a forecast predicting the amount of products that will be sold during the incoming year. During the last round of negotiations an agreement of 1,5 years was however made. Both parties saw this as something positive since the frequent price negotiations are seen as a burden.

There are also some written agreements regarding quality in the form of warranties according to Suspension-Supply's sales department. Suspension-Supply normally have a warranty time on 12 months regarding its products but when BigTruck released a new model of truck then an extended warranty of 24 months was awarded to some springs used on that particular truck. According to the quality assurance at Suspension-Supply there are no written agreements concerning quality with BigTruck, all agreements are oral or gentlemen's agreements regarding quality as well as written guidelines without

signatures. BigTruck's guidelines and policies regarding quality are very vague according to informants from quality assurance at Suspension-Supply.

"Signed agreements are a sign on bad confidence. We should go deeper than agreements in the relationships to our customers. It should be based on long-term deep trust on a personal basis that covers much of the organization. Not only some persons but as many persons in the organization as possible. It has also worked in that manner. There is a certain risk to written contract and that is that the written contracts become too clinical and it only distances the counterparts from each other. You more or less put forward on the table "we don't trust you, we want it in writing". So there is also that dimension in it. Commercial contracts are different since they give security and security gives you courage. We dare to make investments and dare to focus on development. I however don't believe much in contract when it comes to quality." Support systems and quality assurance at Suspension-Supply

There are no written agreements regarding technical development between BigTruck and Suspension-Supply but the cooperation is working well based on gentlemen's agreements according to informants from the technical development at both companies. A need for agreements regarding development is not perceived as being necessary.

It is difficult to end the cooperation with BigTruck according to Suspension-Supply's representatives since the cooperation has been going on for such a long time. A certain responsibility is felt for BigTruck as a customer. BigTruck would have problems in finding another supplier that would deliver the small amounts of products required. Suspension-Supply is the sole supplier of suspension components to BigTruck so it is perceived that BigTruck would have problems if Suspension-Supply would terminate the cooperation with BigTruck. It would not be difficult to end the cooperation with BigTruck from a legal point of view but it would be difficult from a practical point of view. It would not be difficult to end the cooperation with BigTruck due to the volumes sold according to representatives from Suspension-Supply, since Suspension-Supply delivers small volumes of products to BigTruck. The problem for BigTruck is that it is such a small company that a supplier must deliver all or no products to them. It would not be possible to share BigTruck's volumes between different suppliers. If there would be several suppliers then Suspension-Supply's interest to be a supplier for BigTruck would decrease. Finding a test partner of BigTruck's caliber would however be difficult according to informants from the technical development at Suspension-Supply. BigTruck is close from a geographical point of view and it is perceived as easy to involve BigTruck in cooperation regarding testing.

"In BigTruck's case the case is almost that, that who wants to sell them springs in the first place. They are so darn small and it is the case of all or nothing with them. If you supply them with something then you must supply all products (suspension components). It would not make sense to split it up, no one would like to share BigTruck's assortment. Delivering the whole variety of products at low volumes is not interesting to anyone at all". Sales at Suspension-Supply

Ending the cooperation would be difficult according to informants at BigTruck's purchase department since the cooperation has continued for such a long time. The alternative suppliers are also distanced far from BigTruck so it is perceived that there would be significant problems if the cooperation with the supplier would end and the termination process would take at least six months.

BigTruck has no demands regarding quality systems of type ISO 9001 but it is seen as an advantage. Suspension-Supply is ISO 9001 certified by Lloyd's. There are no demands for environmental audits as ISO 14001.

The conclusion regarding the **legal bond of medium strength** was formed based on the elements affecting legal bond strength, see Table 29 below.

Table 29. Elements affecting legal bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect legal bond strength	
Written contracts	
Contracts regarding price	+
Contract regarding technical development (lacking)	-
Quality agreement	+
Extended warranty	+
Quality certificates like QS 9000	
Quality certificate ISO 9001	+/-
Environmental certificate like ISO 14001	
Environmental certificate ISO 14001	-

5.3.4.5 Economic

Economic bonds are bonds that exist for instance when the cooperating companies gives credits, prolongs the time of payment to each other or when a large part of the production is sold to the buyer or bought from the supplier so that it affects the economic situation of the companies. Economic bonds are also discounts that can be given due to a relationship with the buyer.

The economic bonds between Suspension-Supply and BigTruck are weak. BigTruck's time of payment is the normal 30 days net. The terms of payment are 14 days -2 %. There are no other discounts than the -2 % cash discount given to BigTruck. The prices are net prices agreed upon after bids for offers by BigTruck. There is however a possibility for BigTruck to negotiate for a more favorable price with Suspension-Supply if the volumes bought increases.

The amount of products delivered to BigTruck stands for less than 3 % of Suspension-Supply's total production and that makes it less an important buyer for Suspension-Supply. In 1997 Suspension-Supply was also delivering 100 % of BigTruck's need for springs and stabilizers which makes Suspension-Supply an important supplier for BigTruck.

The economic bond is weak from Suspension-Supply's view since only a fraction of the total production is delivered to BigTruck. The products delivered to BigTruck are delivered in small quantities and the orders from BigTruck are smaller than what is possible to produce without friction at Suspension-Supply. Suspension-Supply is therefore producing larger series than BigTruck orders and the products are then stored in warehouses. The products manufactured for BigTruck are bottleneck products since they cause friction in Suspension-Supply's production process when production of

products for which the production is smooth has to be stopped and small batches with products for BigTruck has to be produced. The products delivered to BigTruck are of many different kinds and the smallness of the series does mean that the profit made on the sales of the products is low. The opportunity cost for delivering products to BigTruck are high and that affects the economic bonds negatively.

The economic bond is stronger from BigTruck’s point of view since 100 % of the stabilizers and springs to BigTruck’s trucks are bought from Suspension-Supply. The need to stockpile the products in the warehouse is considered to be a cost for BigTruck and affect the economic bonds negatively. It would be seen as advantageous to be able to order the parts more frequently and get them delivered in smaller series but it would be impossible for Suspension-Supply to manufacture smaller series than present.

One issue that was considered as a critical episode was according to informants from Suspension-Supply regarding the prices on the products supplied by Suspension-Supply. BigTruck has had a project where they focused on lowering the production costs and they then focused on lowering the prices on all products supplied by BigTruck’s suppliers. It regarded direct price negotiations and the critical incident was solved when Suspension-Supply lowered all prices on parts delivered to BigTruck. This lowered the profit margin further for Suspension-Supply while increasing the profit margin for BigTruck moving the perception of the economic bond from negative to neutral as can be seen in Figure 35 below. Time 1 should be seen as the time before the price negotiations took place and time 2 the situation after the price negotiations.

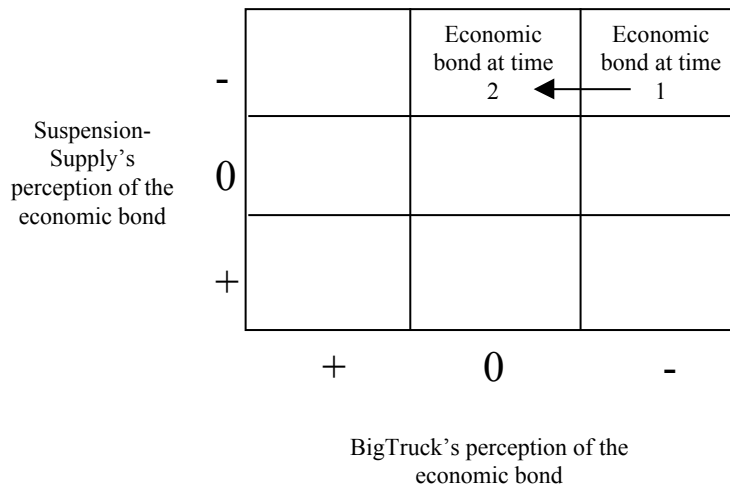


Figure 35. Perceptions of the economic bond in the relationship between BigTruck and Suspension-Supply

The conclusion regarding the **weak economic bond** was formed based on the elements affecting economic bond strength at different times in the relationship, see Table 30 below. Time 1 should be seen as the time before the price negotiations took place and time 2 the situation after the price negotiations.

Table 30. Elements affecting economic bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect economic bond strength	Time 1	Time 2
Price		
Opportunity costs	-	-
Profit margin		
Profit margin (low) (supplier)	-	-
Profit margin (buyer)	-	+
Share of supplied or bought products		
Share of products (small) (supplier)	-	-
Share of products (large) (buyer) (100%)	+	+
Size of series produced	-	-
Production efficiency	-	-
Bottleneck products	-	-

5.3.4.6 Geographical

Geographical bonds make it more difficult for the buyer to buy products from suppliers far away from the buyer due to the geographical distance between supplier and buyer. The geographical bonds between Suspension-Supply and BigTruck are strong.

The geographical distance between Suspension-Supply and BigTruck is short. Both companies are situated in the same city located only approximately 3 kilometers from each other. The cooperation between the companies works well and the distance between the companies is of no importance, the distance is short, and the time for transport is short as long the supplier is situated in the same country according to representatives at BigTruck. BigTruck is the buyer that is located closest to Suspension-Supply in comparison to Suspension-Supply's bigger buyers.

"If there is a small problem then I sometimes jump in the car and visit them (BigTruck) to look at some spring if there is a problem or something. It is not necessary to return the part to us when I can just as easy visit them and look at the part. BigTruck is located incredibly good, one cannot say otherwise." Sales at Suspension-Supply

"It is good (located), I perceive that all should be equally good." Quality assurance at BigTruck

"It is situated rather optimally (Suspension-Supply's plant). If it would be located closer then we could perhaps hear them make our products but when it is situated, as it is we still can't hear it. (laughter) So the distance is optimal." Purchase at BigTruck

Suspension-Supply is situated optimally vis-à-vis BigTruck's factory according to representatives at BigTruck. Suspension-Supply is the supplier situated closest to BigTruck's factory and is even situated in the same city.

BigTruck is positioned very well from a transportation point of view according to representatives from Suspension-Supply. According to the representatives at the sales department at Suspension-Supply it makes no bigger difference if the distance to the buyer is 3 or 150 kilometers. All buyers situated in the same country are situated very well and it is possible to reach them fast. The short distance does not make the

frequency of visits higher but it is rather the need for a visit that decides how often personnel from BigTruck and Suspension-Supply visit each other. When Suspension-Supply is situated in the same town it is possible that BigTruck's personnel finds it easier to drive to Suspension-Supply for instance in order to show a defect part instead of sending the part to Suspension-Supply. It is possible to solve the problems in close cooperation face to face. It is possible to solve the problems at the place of origin. BigTruck is the closest situated buyer of Suspension-Supply and it is seen as positive.

Regarding technical cooperation it is easy to get into the car and travel the 3 kilometers needed to discuss new projects or problems face to face.

The conclusion regarding the **strong geographical bond** was formed based on the elements affecting geographical bond strength, see Table 31 below.

Table 31. Elements affecting geographical bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect geographical bond strength	Time 1
Geographical distance to buyer/supplier	
Geographical distance	+
Warehouses	+
Technical cooperation	
Technical cooperation	+

5.3.5 Abstract bonds

Abstract bonds are bonds that build up in the minds of people when companies cooperate or when people are using a company's products or services.

5.3.5.1 Social

Social bonds are bonds that develop between people in the cooperating companies when people from the companies learn to know each other and start to trust each other. Due to the fact that the personnel start to trust each other it is also possible to solve difficult questions over the phone and the cooperation between the companies becomes more flexible. The supplier may find it important to be able to do something that has been orally agreed upon with the other company since it is important to keep a promise made to a friend. The social bonds between BigTruck and Suspension-Supply are strong.

Social bonds exist between BigTruck and Suspension-Supply. Three out of four interviewees at BigTruck would go so far as to say there is a kind of team spirit between the companies. At BigTruck's purchase department there is a notion that the team spirit is connected to the short distance between the companies. At BigTruck's development department it is perceived that Suspension-Supply's personnel tries to help BigTruck's personnel always when there has been a need for it. BigTruck has on the other hand not bought springs or stabilizers from any other suppliers. Both counterparts have tried to improve each other's business.

“They always try to assist us when we have needed it. And we on the other hand have tried to support them. That means that we haven’t bought springs or stabilizers from any other source. Both sides have tried to support each others business.” Development at BigTruck

According to three out of five representatives from Suspension-Supply no team spirit exists between the companies, the relationship is described as good but ascetic. According to one representative from Suspension-Supply’s sales department there was some kind of neighbor difficulties in the relationship to BigTruck. BigTruck is such a small company that they might not always get the service that they should get from Suspension-Supply. According to the informant from Suspension-Supply it might not be due to the neighbor aspect but might be due to the fact that Suspension-Supply’s other buyers are so much larger.

Two out of five representatives at Suspension-Supply does find a team spirit between Suspension-Supply and BigTruck. The companies can trust each other and does not have to put everything in print as well as that both counterparts keep their promises according to one of the representatives from the sales department at Suspension-Supply. It is seen, as a good a team spirit as is possible between buyer and supplier.

There is a strong team spirit between the companies according to an informant from Suspension-Supply’s development department. BigTruck and Suspension-Supply are small companies situated close to each other in the same country and that is seen as having a positive effect on the team spirit.

The meetings with personnel from Suspension-Supply take place quite seldom, in average only five times per year according to personnel from BigTruck’s purchase department. It depends on the issues at hand in the cooperation with Suspension-Supply. When it for instance is time to renegotiate the agreements then the personnel from the purchase department at BigTruck and the sales department at Suspension-Supply meet more frequently. Other times there can be a long time between the personal contacts between the purchase and sales department.

Problems have taken place as perceived by the sales department at Suspension-Supply and that is that BigTruck has had a large personal turnover during the last two years. 50 % of BigTruck’s personnel have been laid off and personnel have also been moved to other positions in the organization. During the time Suspension-Supply’s sales representative has had contact with BigTruck Suspension-Supply’s contact person at BigTruck has changed several times and that is perceived as hard and disturbing. Just when the persons have learned to know each other and built up a personal relationship the contact person has changed at BigTruck. There are therefore no personal relationships between the sales personnel at Suspension-supply and the purchase department at BigTruck.

Representatives from Suspension-Supply’s development meet approximately once a month according to the representative at BigTruck’s development department. It depends on the projects that are taking place between BigTruck and Suspension-Supply. Sometimes it is more frequent.

According to the representative from BigTruck's quality assurance he only meets representatives from Suspension-Supply when there is complaints made and that is not often. The person that handles complaints in a company is according to BigTruck's representative the least remembered person when it comes to keeping up contacts so it is not only happening in the contacts with Suspension-Supply.

There are meetings with BigTruck's personnel as often as there is a need for it according to Suspension-Supply's personnel. It is taking place quite irregularly but it is estimated to be in average, three times a year.

Around 20 meetings and discussions regarding development of products has however already taken place between the development departments at Suspension-Supply and BigTruck during the last 6 months. There have been many meetings taking place irregularly between BigTruck and Suspension-Supply but that has to do with a spring that has been tested during the last months at BigTruck. A normal average of meetings between the development departments at BigTruck and Suspension-Supply would be 10 meetings per year.

There are unofficial contacts between BigTruck and Suspension-Supply. There are personal relationships between some of the personnel also in the spare time.

This is according to representatives due to the fact that both companies are situated in the same small city where people know each other. People meet out on the town etc. and people with the same interests as for instance sports meet each other in the spare time. There are even stronger personal relationships between the companies since the father to the sales representative at Suspension-Supply is the son of the head of production at BigTruck. The father has also previously worked at Suspension-Supply.

"X who is the salesperson responsible for BigTruck at Suspension-Supply, his father is the head of production at BigTruck. This is quite interesting since it is not only an unofficial bond but also a genetic bond. The father X has also previously worked at the spring factory. He was head of the technical department here." Support systems and quality assurance at Suspension-Supply

"Personal contacts to BigTruck exist since you know part of their workforce personally since we live in the same town. You meet them on the spare time etc. There are several people that have the same interests such as sports etc." Development at Suspension-Supply

The personnel at the cooperating companies know each other well and it is easy to discuss different questions openly and solve problems. Frequent meetings are taking place between BigTruck and Suspension-Supply. There is a level of trust between the personnel in the companies that make it unnecessary to put everything in writing, since both companies are perceived to keep their promises to each other. The level of commitment is high.

The conclusion regarding the **strong social bond** was formed based on the elements affecting social bond strength at different times in the relationship, see Table 32 below.

Table 32. Elements affecting social bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect social bond strength	Time 1
Turnover of personnel	
High turnover of personnel at the purchase department at BigTruck	-
Low turnover of personnel at the logistics department	+
Low turnover of personnel at the technical department	+
Low turnover of personnel at the quality department	+
Contacts between personnel	
Infrequent communication and meetings between sales and purchasing personnel	-
Management cooperation	+
Team spirit	+
Personal relationships	
Personal relationships	+
Unofficial contacts between personnel	+
Commitment and trust	
Commitment	+
Trust	+

5.3.5.2 Cultural

Cultural bonds develop between suppliers and buyers with a similar cultural background. The language spoken or the company's country of origin may result in that the buyer may identify itself stronger with the company. The cultural bonds between BigTruck and Suspension-Supply are strong.

The native languages of the country where the companies are situated are used in the communication between the companies and no bigger differences are perceived between the cultures between the companies. The personnel in the companies work in a similar manner and the personnel have a straight approach and do not avoid difficult issues if there is something as for instance a problem that needs to be discussed. The company cultures are very similar. Both companies are fairly small companies with few interfaces and that affects the cultural bonds positively.

“With BigTruck you always cut straight to the chase to what the issue is. Your work is based on facts. It is not a game. (political)” Support systems and Quality assurance at Suspension-Supply

There are no differences in the culture between BigTruck and Suspension-Supply according to representatives at BigTruck. Nor are there differences in the company culture as such or in any other culture-related aspects. There are no problems in the cooperation between BigTruck and Suspension-Supply that would be related to cultural differences.

According to a representative from BigTruck's sales organization there are similarities between the companies since both companies are companies that has its own niche

business. Suspension-Supply is specialized in making specialized and expensive suspension components. Both companies make highly specialized products. Both companies have a company culture common for their country of origin.

“If we think from a business culture point of view then both companies are similar. Both companies are companies in a niche business. Suspension-Supply is focused on specific heavy and expensive solutions for the suspension. They probably won’t manufacture any springs for vans at 3000 MK apiece; they manufacture special products as well as BigTruck is doing. Only the clientele is different, that is the end customer and the assembly plant.” Sales at BigTruck

The informants at Suspension-Supply have not noticed any cultural differences worth mentioning in the cooperation between Suspension-Supply and BigTruck. The cooperation with BigTruck is seen as cooperation based on facts it is not a political game as it can easily be with some of the foreign buyers. The minor cultural differences that exist do not create any problems in the cooperation.

Some cultural differences do however exist on a company culture level, as there are no EDI systems for transfer of delivery information between the companies. All delivery plans are sent by fax.

The conclusion regarding the **strong cultural bond** was formed based on the elements affecting cultural bond strength, see Table 33 below.

Table 33. Elements affecting cultural bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect cultural bond strength	
Cultural background	
Cultural background	+
Company culture	
Similar company culture	+
Decision making based on facts (no political game) (no small talk)	+
Borders concerning responsibility (few interfaces)	+
Channels for communication, few interfaces)	+
Production philosophies (manufacturing of specialized products)	+
Transfer of delivery plans	-
Language	
Common language (native)	+

5.3.5.3 Ideological

Ideological bonds are bonds that make a buyer prefer suppliers that for instance are domestic or environmentally friendly. The ideological bonds between BigTruck and Suspension-Supply are strong.

The ideological bonds are strong since BigTruck strives to have domestic suppliers to such a large extent as possible. This strengthens the ideological bonds since Suspension-Supply is the only domestic supplier of the kind of stabilizers and springs that BigTruck

require. The environmental awareness is not important for BigTruck but is forecasted to be more important in the future. If taking into account the environmental awareness affects the price on the product purchased by BigTruck then BigTruck must consider alternative suppliers according to representatives from BigTruck. Suspension-Supply's products are up to 99 % recyclable.

Environmental awareness are taken into account by BigTruck in the sense that if out of two suppliers one of the suppliers have taken environmental awareness into account and made something concretely in order to be environmentally friendly. If the other of the two suppliers on the other hand has ignored environmental awareness then the more environmentally friendly supplier is chosen according to representatives for Suspension-Supply. The prices on the products should however not differ so much, if the prices are different then it becomes more difficult to choose supplier. But if the prices are similar and one of the suppliers are more environmentally aware than the other then environmental awareness plays a role and the more environmentally aware supplier is chosen.

The importance of environmental awareness is not believed to be of any bigger importance and is not perceived as sure if it will have a big importance in the future either according to the development department at BigTruck. The present environmental regulations regarding has to be fulfilled but that is enough. A supplier has never been chosen due to that it has been more environmentally friendly than another supplier and environmental awareness is not seen to play an important role according to representatives from quality assurance at BigTruck.

It affects the supplier's image in a positive manner if they can state that the production of the products is environmentally friendly according to a representative for BigTruck's sales organization. This has become especially important in the car industry where more and more effort has been spent on environmental awareness. What is regarded as important in the business is how toxic waste is handled, how emissions such as the emissions from trucks. The possibility to recycle products is also considered as important.

The fact that the product is domestic is considered important by many of the informants from BigTruck. BigTruck strives to buy domestic products and Suspension-Supply is a domestic company.

The conclusion regarding the **strong ideological bond** was formed based on the elements affecting ideological bond strength, see Table 34 below.

Table 34. Elements affecting ideological bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect ideological bond strength	
Environmental awareness	
Possibility to recycle product (recyclable products)	+
Actual importance of environmental friendliness	-
Domestic content of product	
Domestic product	+

5.3.5.4 Psychological

Psychological bonds develop when the buyer is convinced that the products produced by the supplier are superior to equivalent products. The psychological bonds between BigTruck and Suspension-Supply are weak.

There are no bigger difference between springs and stabilizers produced by Suspension-Supply and by springs and stabilizers produced by other producers according to informants from BigTruck. The products are made according to certain specifications and a certain drawing so the differences are considered to be minimal.

Suspension-Supply products are also considered to be more expensive than those of their competitors but Suspension-Supply gives a two-year warranty on certain products, which is considered as positive.

It is considered as positive to have BigTruck as a reference even if BigTruck is not well known on a global or European level according to representatives from Suspension-Supply. BigTruck is a question of image for Suspension-Supply on the domestic market. It would seem strange to observers if Suspension-Supply would not supply BigTruck since BigTruck is located so close to Suspension-Supply from a geographical point of view. It is also considered as important to be able to give reference to having developed and designed the suspension on BigTruck's trucks. BigTruck has a very good reputation in heavy trucks as regarding transports of heavy cargo and also in combination with heavy payloads as for instance regarding transports of timber. BigTruck is manufacturing special vehicles for heavy-duty transports. The axles and all that is connected to the suspension are dimensioned to handle difficult circumstances and it is positive for Suspension-Supply to be able to refer to that. The psychological bonds that Suspension-Supply has to BigTruck are therefore stronger than BigTruck's psychological bonds to Suspension-Supply see Figure 36 below.

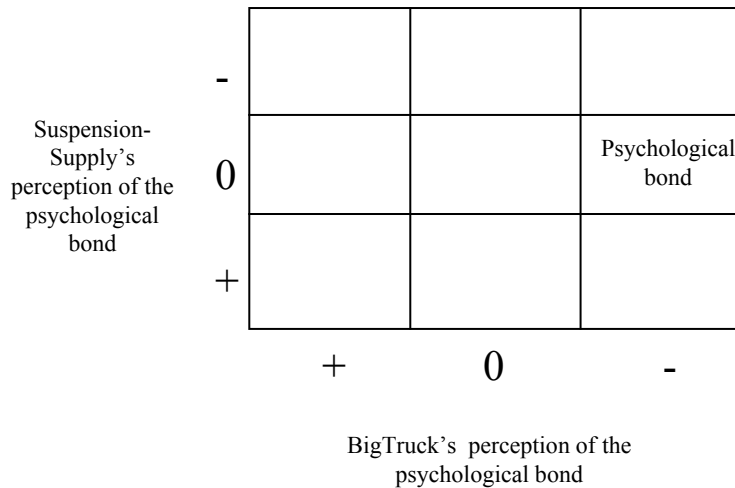


Figure 36. Perception of the psychological bond in the relationship between BigTruck and Suspension-Supply

“BigTruck is a question of image for us domestically. What kind of company we are domestically. It is important. Image and quality is important today. It is incredibly important that we can refer to a certain truck and be able to say “that truck has our springs and we have designed and developed the suspension” or something like that.” Sales at Suspension-Supply

The conclusion regarding the **weak psychological bond** was formed based on the elements affecting psychological bond strength, see Table 35 below.

Table 35. Elements affecting psychological bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect psychological bond strength	
Perceived superiority, equality or inferiority of product, process or service	
No perceived difference between products produced by Suspension-Supply and those produced by other manufacturers	-
Perceived expense of products	-
Brand name	
BigTruck as a reference (brand name, domestic market)	+
BigTruck as a reference (brand name, European market)	-
Image	
BigTruck as a reference (image, domestic market)	+
BigTruck as a reference (image, European market)	-
Reputation of the counterpart in the cooperation	
Reputation heavy trucks	+

5.3.5.5 Strategic

Strategic bonds are a finding of the analysis that is mentioned due to the method of systematic combining used to analyze the empirical material. Strategic bonds are on a

different level than the other bonds mentioned and can contain all the other types of bonds.

Strategic bonds are bonds that emerge when the companies have it in their strategy to have cooperation. The fact that strengthens the strategic bonds may be the importance for Suspension-Supply of having a customer such as BigTruck in the list of suppliers due to the good cooperation that exists between the companies regarding technical development of products. It could also be when a buyer such as BigTruck wants to keep the supplier Suspension-Supply on the supplier list due to the strategic importance of that supplier's product to the end product of the buyer. For instance in BigTruck's case a tubular stabilizer weighing approximately 20 kilos less and increasing the payload or amount of fuel the truck can carry.

BigTruck is not a very important customer for Suspension-Supply from an economic point of view, the quantities purchased by BigTruck does not mean a lot of revenue for Suspension-Supply. The amount of products delivered to BigTruck in 1997 stands for less than 3 % of Suspension-Supply's total production and that makes it less an important buyer for Suspension-Supply. The products delivered to BigTruck are delivered in small quantities and the orders from BigTruck are smaller than what is possible to produce without friction at Suspension-Supply. Suspension-Supply is therefore producing larger series than BigTruck orders and the products are then stored in warehouses. The products manufactured for BigTruck are bottleneck products since they cause friction in Suspension-Supply's production process when production of products for which the production is smooth has to be stopped and small batches with products for BigTruck has to be produced. The products delivered to BigTruck are of many different kinds and the smallness of the series does mean that the profit made on the sales of the products is low. The opportunity cost for delivering products to BigTruck is high.

In 1997 Suspension-Supply was also delivering 100 % of BigTruck's need for springs and stabilizers which makes Suspension-Supply a strategically important supplier for BigTruck.

BigTruck is however an important customer for Suspension-Supply from a development point of view and that is what keeps the cooperation going. The cooperation regarding development of products is intense between BigTruck and Suspension-Supply. The stabilizers and the springs are developed extensively by Suspension-Supply in close cooperation with BigTruck and the cooperation starts at a very early stage of the development process. Many of Suspension-Supply's newest designs are tested in BigTruck's truck prototypes and BigTruck has many times been the first truck producer to buy certain new products featuring new ideas from Suspension-Supply. BigTruck and Suspension-Supply knows each other's strengths and weaknesses and know how the companies can complete each other.

The main reason that BigTruck is kept on the buyer list by Suspension-Supply even though the series delivered are small and complex with many different serial numbers and disturbs the flow of the production at Suspension-Supply is that BigTruck is a perfect testing partner.

The conclusion regarding the **strong strategic bond** was formed based on the elements affecting strategic bond strength, see Table 36 below.

Table 36. Elements affecting strategic bond strength in the relationship between BigTruck and Suspension-Supply

Elements that affect strategic bond strength	
Strategic decision to cooperate or terminate the cooperation	
Strategic importance of buyer or supplier (economic and/or technical view)	
Strategic importance of buyer (technical view)	+
Strategic importance of buyer (economic view)	-
Strategic importance of supplier	+
Share of products delivered	-
Share of products bought	+
Size of production series	-
Number of product numbers	-
Competing suppliers or buyers	-
Allocated production capacity	-
Geographical distance to supplier/buyer	+
Development activities	
Focus on development activities	+
Strategic importance of product	
Strategic importance of product for end product	+

5.3.6 Relationship strength in the Cooperation between BigTruck and Suspension-Supply

Bond strength in the relationship between BigTruck and Suspension-Supply

Table 37 below presents a summary of the strength of the different bonds in the relationship between BigTruck and Suspension-Supply. This should be seen as the overall strength of the bonds at the latest stage of the relationship.

Table 37. Bond strength at the latest stage of the relationship between BigTruck and Suspension-Supply

Technical	Strong
Time	Weak
Knowledge	Strong
Legal	Medium strength
Economic	Weak
Geographical	Strong
Social	Strong
Cultural	Strong
Ideological	Strong
Psychological	Weak
Strategic	Strong

Seven out of the 11 bonds between BigTruck and Suspension-Supply are strong and one is of medium strength, while three are weak, this affects the relationship strength in a positive way thus strengthening the relationship.

The **relationship** between BigTruck and Suspension-Supply is **strong**. This is due to the fact that seven of the bonds in the relationship are strong and one is of medium strength while three bonds are weak. The negative economic considerations with the low margins and high opportunity costs for Suspension-Supply is outweighed by the fact that Suspension-Supply uses BigTruck as a partner when developing new products. Suspension-supply's products are tested in the earliest versions of prototype trucks tested by BigTruck. The cooperation regarding technical development of products is regarded as very important. BigTruck on the other hand has few alternatives since not many producers of springs or stabilizers have the possibility to deliver the small and fragmented series of products that they require. BigTruck also considers the domestic content of the trucks to be important. Both counterparts in the cooperation wishes that the cooperation would continue.

Relationship strength is according to Holmlund (1996) also affected by how many alternative partners the companies in the relationship have. The more alternative partners for cooperation that the counterparts in the relationship have the weaker the relationship between the companies and vice versa. BigTruck has only one supplier of springs and stabilizers and that is Suspension-Supply. Suspension-Supply delivers 100 % of BigTruck's demand for springs and stabilizers. The amount of products delivered to BigTruck stands for less than 3 % of Suspension-Supply's total production and that makes it less an important buyer for Suspension-Supply. The importance of BigTruck to Suspension-Supply stems from the intensive cooperation regarding development of products.

There is a quite high level of satisfaction in the cooperation between BigTruck and Suspension-Supply. There would however be room for improvements. Both companies are satisfied with how the cooperation is going and hope that the cooperation will continue as before or even improve in the future. Representatives from BigTruck would however like a better delivery precision in the future. The same goes for the representatives from Suspension-Supply who would like BigTruck to manage their need

for orders better and call of their orders more regularly by using on-line connections. There is engagement in the relationship between BigTruck and Suspension-Supply.

The companies have succeeded in solving the critical incidents that have occurred between BigTruck and Suspension-Supply and that have affected the relationship strength in a positive way. Critical incidents that have been handled in a correct fashion are strengthening the relationship between companies according to Storbacka, Strandvik & Grönroos (1994) as well as Edvardsson (1988). Suspension-Supply have been able to show what they are able to do and shown that they can solve the customer's problem when they have experienced trouble with technical matters connected to springs etc.

The positive effect for BigTruck and Suspension-Supply with having a strong relationship is that this affects the length of the relationship in a positive way. The stronger the relationship the longer the cooperation will last in general. This affects the efficiency of the cooperation and the profit that is to be made out of the cooperation. The cooperating companies will also invest more in the cooperation if they are certain that the cooperation between the companies will continue for a long time. It is possible to write off investments over several years instead of what would be the case if the relationship would only last one year. The positive effect for Suspension-Supply of having a long relationship with BigTruck is that Suspension-Supply will not have to seek for new customers actively and develop new products for these customers as long as the cooperation with BigTruck continues.

5.4 Case 4: positive critical episodes

The 4th case involving KiloTruck is a case where **positive critical episodes** have led to a continuation of the relationship and to **strengthening** of the bonds between KiloTruck and Suspension-Supply.

A case with positive critical episodes between KiloTruck and Suspension-Supply following the structure of Figure 1 named outcomes of bond episodes will follow below. Figure 1 is the conceptual framework for understanding the change of bonds in the study. The KiloTruck case is a case where a positive episode has led to change in bond strength, strengthening the bonds between the cooperating companies. The KiloTruck case was needed in order to find out how the bonds changed in cases where positive critical episodes took place in the relationship and the relationship continued.

Positive critical bond episodes may take place when for instance some new products are being developed. Developing a tubular stabilizer that saves 20 kg per stabilizer on a truck is a technical innovation that strengthens the technical bond. These 20 less kilos per product can then for instance be used for extra payload, bigger fuel tanks for trucks making long hauls etc. Since this is something the end users value highly the end user is willing to pay more per truck and the truck producing company is willing to pay the supplier more per stabilizer delivered. Both the technical and the economic bonds are strengthened and the competitive and the financial strength of both buyer and supplier increase. This is what has happened in the case with the cooperation between KiloTruck and Suspension-Supply.

There may also be positive critical bond episodes where there is no strengthening of bonds perhaps because the bonds are already very strong. In that case the cooperation between the companies continues as before.

5.4.1 Relationship history

KiloTruck and Suspension-Supply have a relationship dating back to 1993. At present (in 2001) 20% of Suspension-Supply's production is delivered to KiloTruck. Suspension-Supply delivered approximately 7900 springs and 1000 tubular stabilizers to KiloTruck in 1996 and that stood for 11.5% of the total production of Suspension-Supply. KiloTruck buys 100% of its tubular stabilizers and between 8-10% of its springs from Suspension-Supply.

The cooperation between KiloTruck and Suspension-Supply has continued for between 3-4 years regarding tubular stabilizers and for 3 years regarding springs (in 1996). The production started in 1993-1994. The cooperation between KiloTruck and Suspension-Supply started as a result of Suspension-Supply's attractive concept for tubular stabilizer and that paved the way for other products.

The period from 1996 to 2001 showed many positive episodes between KiloTruck and Suspension-Supply.

5.4.2 Conclusion regarding bonds and the change of bonds

5.4.3 Concrete bonds

Concrete bonds are tangible bonds that are developed when companies cooperate and hence adapt to each other and invest in the cooperation.

5.4.3.1 Technical

Technical bonds exist for instance when companies adapt their technical processes and products to each other. The technical bonds between Suspension-Supply and KiloTruck are strong. KiloTruck and Suspension-Supply cooperate in the design of tubular stabilizers and springs. Suspension-Supply products are adapted to suit KiloTruck's specific needs. By allowing Suspension-Supply to take part in the development at an early stage of the development of the products it is also possible to develop products that are more suitable for Suspension-Supply to manufacture. It is possible to adapt the products produced so that they fit Suspension-Supply's production process better. It can therefore be possible to manufacture the products at a lower cost. KiloTruck outsources parts of its production to Suspension-Supply according to informants at KiloTruck.

Suspension-Supply is allowed to take part in the development of products at KiloTruck at a very early stage. Suspension-Supply is contacted already in the conceptual phase where suppliers that are supposed to take part in the development of a product are contacted.

"We have some projects going on with KiloTruck for instance where we are already involved at this stage and they have more or less just started. So we are well already involved in the beginning especially in the case with KiloTruck". Development at Suspension-Supply

Suspension-Supply adapts their tubular stabilizers according to KiloTruck's need according to informants at KiloTruck's purchasing department.

"Suspension-Supply is allowed to take part early in the development of products. KiloTruck gives out a booklet with all specifications of what a product as for instance a spring for a 16 ton truck should withstand, (and Suspension-Supply takes care of the rest) this is an example of simultaneous engineering that KiloTruck focuses hard on". Purchase director at KiloTruck

"We have presented Patented® (a type of lightweight spring) as a solution to their problems. But they have told us (in advance) that this is the space where the spring should fit and these would be the primary demands on the performance. "Can you fix anything? (smart in order to solve our problem)". Sales at Suspension-Supply

The product is designed in close cooperation between KiloTruck and Suspension-Supply. The cooperation with Suspension-Supply is seen as a partnership where most of the development is done in close cooperation according to informants from KiloTruck. There were intensive cooperation between KiloTruck and Suspension-Supply when the cooperation regarding tubular stabilizers began in order to fulfill KiloTruck's demands on welding.

“There should be a partnership, this is essential; a partnership is more than a relationship between supplier and customer. It is essential that the partner is informed, for instance that KiloTruck informs Suspension-Supply regarding the needs of KiloTruck. Information regarding for instance what trends KiloTruck will follow in the future regarding new lines of trucks. You got to be informed and have knowledge that can be used in advance as early as when the design is developed, then it becomes the partners’ task to make use of their knowledge and they should know what KiloTruck wants. In that manner it is possible to thrive with the development”. Quality at KiloTruck

Positive episode regarding tubular stabilizer in the beginning of the relationship

The first positive episode took place when the cooperation between Suspension-Supply and KiloTruck started and was due to the fact that the tubular stabilizer first supplied to KiloTruck was approximately 20 kg lighter than a normal full stabilizer and it was also a unique patented product. KiloTruck representatives had thought about possibilities to save weight on trucks but the tubular stabilizer was a positive surprise. Having a stabilizer with a lower weight made it possible for KiloTruck’s end customers to put more payload or fuel on the vehicle. That in turn meant more money both for the end customer as well as for KiloTruck and Suspension-Supply due to the greater value of the technical invention. The fact strengthened the technical bonds between Suspension-Supply and KiloTruck. The technical bonds were strong from the very beginning of the cooperation.

There has been an increase in the cooperation regarding development of products in the period from 1996 to 2001. The development has increased the strength of the technical bonds further. The relationship between Suspension-Supply and KiloTruck has developed in a positive manner regarding development of products.

“The relationships have developed positively the whole time and our contacts to the technical side (at KiloTruck) as well as the development of products has become better and better”. Technical development at Suspension-Supply

The cooperation regarding technical issues and development of products has become even closer. Suspension-Supply has learned that KiloTruck’s organization is very focused on the development of products and technical issues.

Positive episode regarding development of lightweight parabolic spring

Suspension-Supply has been working hard for the last two years (in 2001) with KiloTruck regarding development of a new generation of parabolic springs for KiloTruck’s trucks. KiloTruck has the absolutely most stringent specifications and testing methods for new springs of all of Suspension-Supply’s buyers, according to informants at Suspension-Supply.

In the beginning of the episode of developing the new parabolic spring there were problems with the parabolic spring in the sense that it would not last the test but rather brake down. Suspension-Supply has gotten four last chances to improve the product and since Suspension-Supply has always had good technical explanations to why it has went wrong KiloTruck has always given Suspension-Supply new chances. Another reason for

the new chances is that the specifications regarding the parabolic spring have changed as well as the design has changed.

“In the beginning we were totally lost since we could not get the spring to endure the pressure, not whatever we tried and there were problems, serious problems. But we have had four last chances and that is rather descriptive of the situation. If you have had a professional technical explanation to why it has gone wrong then we have always got another chance”. Support systems and quality assurance at Suspension-Supply

Suspension-Supply has benefited from the cooperation regarding development of the parabolic spring and the tough testing of the springs since it has also shown Suspension-Supply where the competition is and what they are doing in a technical sense. This has helped to position Suspension-Supply technically in comparison to the toughest competition vis-à-vis technical performance and quality.

“We know very well where we are in comparison with our toughest competitors regarding technical performance and quality. Since as I said earlier this is the toughest test that has ever been made concerning springs”. Support systems and quality assurance at Suspension-Supply

“KiloTruck’s representatives talks very openly about our competition and at KiloTruck you may get a drawing made by the competition in front of you. Sometimes they cover the name of the supplier that has made the drawing but you can notice who it is anyway”. Sales at Suspension-Supply

The cooperation episode regarding the development of the parabolic spring with KiloTruck has perhaps been the most fruitful of all projects regarding development of products with all of Suspension-Supply’s customers since the project undertaken with KiloTruck has been so hard and focused on development, according to informants from Suspension-Supply.

The whole relationship between Suspension-Supply and KiloTruck has changed due to the episode with the intimate focus on development of the parabolic spring. Less important issues such as quality audits, filling out forms etc. have become unimportant. Nobody has focused on secondary issues but the main focus has been on what is the most important, that is the product itself. Technical problems have been solved and development has taken place in close cooperation between Suspension-Supply and KiloTruck. The number of meetings regarding product development has increased noticeably and now stands for approximately 90 % of all the meetings with KiloTruck according to representatives at Suspension-Supply.

KiloTruck is interested in having Suspension-Supply as a supplier of the high strength parabolic spring that is lighter than competing parabolic springs. Suspension-Supply has had a good statistic regarding quality problems with KiloTruck with few claims and that affects the technical bond positively.

Positive episode regarding tubular stabilizer

KiloTruck has to some extent allowed Suspension-Supply to design the product independently and then approved the product and taken it into its systems. 3-D computer models have been used when it comes to the design of tubular stabilizers in the cooperation between KiloTruck and Suspension-Supply. 3-D models will also be used in the future regarding springs. It is made possible for KiloTruck to take a 3-D

model and see if it fits into the place where it is supposed to fit in the truck. This is a much more secure way of testing than the use of old 2 dimensional drawings where the space for the product is measured and where it is easy to miss something. The difference with a 3 dimensional drawing is that all the other components are already in place around the void that the product will fill and it is easy to see if the product fits or not. It is a detail in the technical development and a technical aid that is already in use today. This makes it even easier to adapt the products in accordance with the buyer's needs.

CAD (computer aided design) is used when exchanging the 3-D models, and even if the receiving computer system may be different, there are programs that translate the programs to such a format that they can be read in another system. KiloTruck is the buyer that has developed its system best for receiving and for using 3-D drawings.

The effects of the two later episodes have further strengthened the already strong technical bonds between Suspension-Supply and KiloTruck see Figure 37 below.

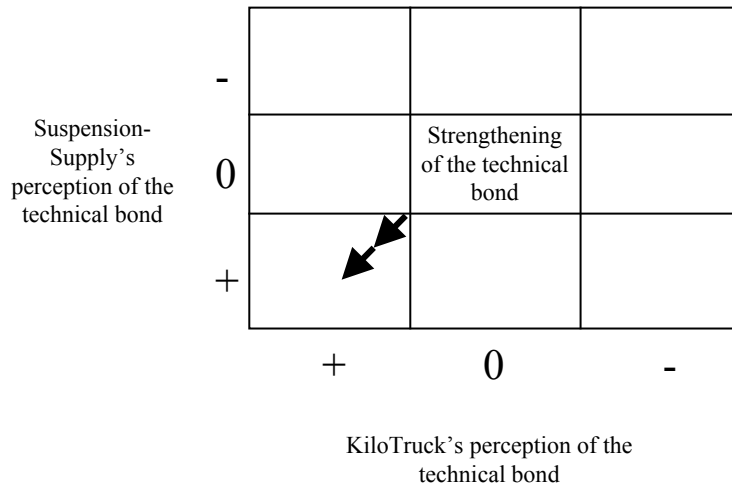


Figure 37. Changes in the perception of the technical bond in the relationship between KiloTruck and Suspension-Supply

The conclusion regarding the **strong technical bond** was formed based on the elements affecting technical bond strength, see Table 38 below.

Time 1 should be seen as the time in the beginning of the relationship. Time 2 should be seen as after the positive episode regarding the parabolic spring. Time 3 should be seen as after the positive episode connected to 3-D models being used in the development of tubular stabilizers thus enhancing the level of adaptation.

Table 38. Elements affecting technical bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect technical bond strength	Time 1	Time 2	Time 3
Technical adaptation to the counterpart in the cooperation			
Process adaptation	+	+	+
Product adaptation	+	+	++
Outsourcing of the production	+	+	+
Cooperation regarding technical development			
Development activity	+	+	+
Noticeable increase in development activity		+	+
Tough testing has driven the development of the parabolic spring		+	+
Cooperation regarding design (close)	+	+	+
Use of 3-D models in development of products			+
Increased adaptability due to use of 3-D drawings			+
Technical lead as patented product or process			
Patented product (tubular stabilizer)	+	+	+
Quality matters			
Product quality and technical quality	+	+	+
Good statistic vis-à-vis claims (few claims)	+	+	+

5.4.3.2 Time

Time bonds occur for instance when the companies in the relationship adapt their logistic functions to each other. The companies may use EDI (electronic data interchange) connections between each other in order to know how many products are required by the customer for the customer's production process and when the customer needs the products. The time bonds between KiloTruck and Suspension-Supply are of medium strength.

KiloTruck does not have any demands on how long Suspension-Supply throughput time in the production should be. KiloTruck orders its products between four and eight weeks in advance so there are no problems with delivering the products on time. Suspension-Supply's lead-time in the production was between 6.4 and 7.5 days in 1996. There may be problems like bottlenecks in Suspension-Supply's production if KiloTruck places a much larger order than the usual amount ordered with short notice according to informants at the logistics department at KiloTruck. But KiloTruck's informants are satisfied with the throughput time of Suspension-Supply on a normal basis.

"Principally it (the throughput time) suits us well but when there are high increases in the ordered amount on a short notice then bottlenecks might occur. But it functions well in times when the production capacity is normal and the orders are normal". Logistics at KiloTruck

KiloTruck has not demanded anything of Suspension-Supply besides the traditional delivery precision from a logistic point of view. Suspension-Supply's way of supplying KiloTruck is different from Suspension-Supply's way of supplying its other buyers since the volumes are quite static according to representatives at Suspension-Supply. Suspension-Supply receives a time scheme that is based on an agreement. KiloTruck

decides the volumes that Suspension-Supply should deliver and when they should be delivered. This arrangement suits Suspension-Supply well since they are used to supply buyers with much larger fluctuations in their need for products.

The logistic cooperation between Suspension-Supply and KiloTruck has developed during the years that the companies have cooperated. Suspension-Supply delivered a large amount of products only once a month in the beginning of the cooperation. KiloTruck and Suspension-Supply, however, noticed that this way of delivering products was quite irregular, as it was either too much or too few of certain product numbers. It was decided that a change had to be made and the number of deliveries rose to an average of three a month in 1996. The cooperation regarding logistics has developed but it has not developed to the level of the cooperation with some of Suspension-Supply's other buyers where the delivery plans are updated every day. KiloTruck updates its delivery plans with even intervals without any more automatic systems or regularity. Representatives at KiloTruck did not perceive any demands from KiloTruck's point of view vis-à-vis deliveries in 1996.

"KiloTruck updates their delivery plans without any more automatic or regularity to it. We get updated plans as to which week we should deliver what and what so there is no direct pressure or demands from KiloTruck's side as the situation is at present". Sales at Suspension-Supply

Representatives from KiloTruck are satisfied with how the exchange of information between KiloTruck and Suspension-Supply works. In order to bridge the gap with the geographical distance between Central Europe where KiloTruck is located and Northern Europe where Suspension-Supply is situated as well as the language gap, Suspension-Supply is using a local agent Agentix that is situated close to KiloTruck's plant. Agentix represents Suspension-Supply and that has been a big advantage for both companies according to representatives from Suspension-Supply and KiloTruck. For instance KiloTruck's development department has contact with Suspension-Supply every fourth week but with Agentix representative every second week in 1996.

The exchange of information between the companies works well and there have not been any problems, there is a good understanding at the partner Suspension-Supply and the information flows well even over the phone, according to the logistics department at KiloTruck.

The contacts to KiloTruck do not take place on a regular basis according to representatives from the logistics department at Suspension-Supply. It has happened that KiloTruck has sent a message via mail if the volumes they require suddenly increases and it takes time before the message has reached Northern Europe via mail. Most of the representatives however regard the exchange of information between KiloTruck and Suspension-Supply to work well if the geographical distance and the difference in language are taken into consideration.

There is no EDI cooperation between the companies when it comes to logistics. KiloTruck's delivery instructions are posted to Suspension-Supply and that means that it can take up to eight days before a message containing information about changes in the delivery instructions reaches Suspension-Supply via mail.

“The problem with KiloTruck is that it (the delivery plans) is sent so seldom and that it is sent via mail, so we have already lost a lot of time when the plans arrive in times when they have a need to make changes in their need for products. There are no problems if there are no changes but if there are changes then problems arise”. Logistics at Suspension-Supply

“We have to put in the information that KiloTruck sends us (via mail) manually into our systems and we don't like it. We don't actually have that kind of organization that can handle such delivery plans (would prefer electronically stored information). But okay, it is good that they are stable (KiloTruck's delivery plans)”. Sales at Suspension-Supply

In order to make the exchange of information more efficient between the developing departments of KiloTruck and Suspension-Supply the companies' exchange diskettes with CAD (computer aided design) drawings by mail. Suspension-Supply's CAD program is VERTEX based while KiloTruck's CAD program is the well-known CATIA that enables KiloTruck to read Suspension-Supply's drawings. There is a translation program enabling the CATIA system to read the VERTEX based drawings. In this manner there is no need for paper drawings in the cooperation between Suspension-Supply and KiloTruck even if it has been done sometimes. Sketches and similar smaller drawings are sent over telefax since this is the easiest way when no complete drawings are needed according to representatives from both companies (in 1996). KiloTruck is the buyer that has developed its system best for receiving and for using 3-D drawings (in 2001). The information exchange between KiloTruck and Suspension-Supply is fluent and Suspension-Supply's agent, Agentix, improves the information exchange between the companies.

The bonds of medium strength between KiloTruck and Suspension-Supply could be strengthened by setting up an EDI connection between the logistics departments of KiloTruck and Suspension-Supply. This would improve the speed with which the companies' exchange information and delivery instructions and it would thereby result in fewer bottlenecks in the production of Suspension-Supply.

Episodes in the relationship between KiloTruck and Suspension-Supply

The lead-time in the cooperation has increased from between 6.4 to 7.5 days in 1996 to between 12 and 13 days in 2001. This has affected the time bond negatively. Not very negatively, however, since the orders from KiloTruck are quite stable and can be predicted to fit the production well in advance. KiloTruck was that of Suspension-Supply's buyers that was the least affected of the turbulence connected to the increase of deliveries to GigaTruck that upset the timetable of deliveries to all other of Suspension-Supply's buyers. KiloTruck had to take less than 10 trucks of the production line due to the turbulence. The problems with late deliveries was solved by air freighting products and focusing the production capacity of Suspension-Supply on some business relationships, while other business relationships were terminated in order to increase the capacity in order to supply the remaining buyers well.

The number of interfaces in the cooperation has, however, decreased and a lot of focus in the cooperation is put on the development of products and this has affected the time bonds in a positive manner.

The amount of the total production of Suspension-Supply has increased, 11.5 % of the total production was delivered to KiloTruck in 1996 and 20% of Suspension-Supply's total production was delivered to KiloTruck in 2001. The series delivered also rose and thereby increased the strength of the time bond.

The conclusion regarding the **time bond of medium strength** was formed based on the elements affecting time bond strength, see Table 39 below.

Time 1 should be seen as the beginning of the relationship. Time 2 is the increase in the production and time 3 is the increase of lead-time and the increase of deliveries to GigaTruck that caused late deliveries to KiloTruck. Time 4 is the decrease in the number of interfaces

Table 39. Elements affecting time bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect time bond strength	Time 1	Time 2	Time 3	Time 4
Adaptation of logistic functions				
Size of production series	+	++	++	++
Warehouses	+	+	+	+
Delivery precision and issues connected to that				
Delivery precision	+	+	+ -	+
Airfreight in order to solve problems with late deliveries			+	
Lead times	+	+	-	-
Line stops			-	
Flexibility of production (bottlenecks in cases with large irregular orders)	-	-	-	-
Termination of competing business relationship in order to be able to supply KiloTruck better			+	+
Flexibility of flow of information				
Time of notice when orders are placed (four to eight weeks in advance)	+	+	+	+
EDI system for transfer of daily delivery information (lacking)	-	-	-	-
Snail mail in order to deliver delivery instructions	-	-	-	-
Exchange of CAD drawings	+	+	+	+
Number of interfaces (few interfaces in the channel for communication)				+
Agents used (increases flow of information)	+	+	+	+

5.4.3.3 Knowledge

Knowledge bonds are developed with time as cooperating companies learn more about each other's strengths and weaknesses, opportunities and problems. This happens when companies for instance develop products together.

KiloTruck has four different phases in the development of a new product. The first phase is that of the development concept where there are proposals for development

plans for the new product etc. The second phase is the project planning where a project manager is chosen and a timetable for when certain phases in the process should be achieved. The third phase is the one when KiloTruck calculates the prices and sees if the product suits the demand on the market. The fourth phase is the phase where a conceptual product is made and that is the phase when the product is to be produced. In that stage the supplier is allowed to take part in the project. All four phases can take up to two years.

The supplier is allowed to take part when KiloTruck is about to start production of the product. Before KiloTruck starts production a circle of suppliers are chosen. The offers from the suppliers are accepted on the basis of specifications and an audit of the suppliers. Points are then given to the potential suppliers according to a scale with points in the supplier evaluation. There might be points for the technical value of the solution, the suppliers' price per product, delivery precision, possibilities for logistics and service, exchange rates, quality in earlier encounters with the supplier etc. There are then price negotiations with all suppliers that fulfil the specifications and the supplier that can deliver to the lowest price is chosen.

KiloTruck demands that a supplier have competence for development of products, product knowledge, good references and a possibility to maintain good quality, in order to accept a supplier as a supplier involved in the development of products. Suspension-Supply is involved in the development of products and that strengthens the knowledge bond.

One example can for instance be in the case with the development of a spring. KiloTruck gives Suspension-Supply specifications on how long and rigid etc. the spring should be. Suspension-Supply should make the documentation and test the spring and produce a test spring that KiloTruck can test internally.

Suspension-Supply is allowed to take part at an early stage in the development of new products, according to the purchase and quality assurance departments at KiloTruck. The supplier is allowed to take part after KiloTruck has presented its concept. Suspension-Supply is then giving its views on the development at hand and share the knowledge it has with KiloTruck and the development is pushed forward in this manner.

Suspension-Supply cooperates with KiloTruck at an early stage in the development of products. Suspension-Supply gives feedback about things that could be improved in the design and that drive the development forward. Suspension-Supply and KiloTruck cooperate with the testing of tubular stabilizers and springs. By allowing Suspension-Supply to participate in the development of the products at an early stage of the development it is possible to affect the product and make it as easy to manufacture as possible. In that way it is possible to manufacture the best possible product for both KiloTruck's and Suspension-Supply needs.

Suspension-Supply is allowed to take part in the cooperation regarding development of products at KiloTruck at an earlier phase than with other of the large buyers.

Suspension-Supply is taking part in some development projects at KiloTruck that have only just begun and that affect the knowledge bond positively.

“It is just like in your analysis that the better we work towards knowing a customer, the better we know the customer and the stronger our bonds to the customer are and the earlier we are allowed to take part in the development process. But if we have a new relationship with a customer then you usually visit purchase as the first thing you do with a new customer and then you get a pack of drawings that very seldom are development drawings”. Sales at Suspension-Supply

Suspension-Supply listens to the signals on the market in order to fulfil the conscious or unconscious needs of the customer when developing new products such as the Patented® tubular stabilizer.

Positive episode regarding tubular stabilizer in the beginning of the relationship

The first positive episode took place when the cooperation between Suspension-Supply and KiloTruck started and was due to the episode with the development of the tubular stabilizer. The tubular stabilizer was adapted for KiloTruck’s needs in close cooperation between the technical departments at the companies. Thoughts and proposals were exchanged between Suspension-Supply and KiloTruck. KiloTruck was setting up parameters regarding for instance the welding that should be met. Representatives from KiloTruck visited Suspension-Supply’s factory and discussed the preferred features of the tubular stabilizer. A close cooperation between Suspension-Supply and KiloTruck was necessary in order to fulfil the demands KiloTruck had on the welding. This increased the knowledge regarding what Suspension-Supply could do for KiloTruck and problems regarding the welding were solved.

“The development of the tubular stabilizer was done in close cooperation with our technical department. The main bulk of the knowledge was of course provided by Suspension-Supply but we also made our input vis-à-vis changes”. Quality at KiloTruck

Positive episode regarding development of lightweight parabolic spring

Suspension-Supply has been working intensively for the last two years (in 2001) with KiloTruck regarding development of a new generation of parabolic springs for KiloTruck’s trucks.

Suspension-Supply has benefited from the cooperation regarding development of the parabolic spring and the tough testing of the springs since it has also shown Suspension-Supply where the competition is and what they are doing in a technical sense. This has helped to position Suspension-Supply technically in comparison with the toughest competition vis-à-vis technical performance and quality.

“KiloTruck’s representatives talk very openly about our competition and at KiloTruck you may get a drawing made by the competition in front of you. Sometimes they cover the name of the supplier that has made the drawing but you can notice who it is anyway”. Sales at Suspension-Supply

The whole relationship between Suspension-Supply and KiloTruck has changed due to the episode with the intimate focus on development of the parabolic spring. Less

important issues, for instance quality audits, filling out forms etc. have become unimportant. Nobody has focused on secondary issues but the main focus has been on what is the most important, that is the product itself. The routines have become less important or bypassed and the focus has been placed on the development of products.

Technical problems have been solved and development has taken place in close cooperation between Suspension-Supply and KiloTruck. The number of meetings regarding product development has increased noticeably and stands now for approximately 90 % of all the meetings with KiloTruck according to representatives at Suspension-Supply.

The cooperation regarding the lightweight parabolic spring has also resulted in the fact that Suspension-Supply has learned things about KiloTruck as a company. Representatives at Suspension-Supply have learned issues like how KiloTruck is run, who makes the decisions and how are the decisions made at KiloTruck. This strengthens Suspension-Supply's sales and marketing possibilities since the representatives know whom to approach and how issues should be marketed to KiloTruck, issues such as new products, larger market shares etc.

“We have learned a lot about the company at the same time, how it is run and who makes the decisions and how the decisions are made. And this gives us a sales and marketing strength in the manner that we know who to approach and how issues should be sold to that company”. Support systems and quality assurance at Suspension-Supply

Positive episode regarding tubular stabilizer

3-D computer models have been used between Suspension-Supply and KiloTruck when it comes to the design of tubular stabilizers. It is made possible for KiloTruck to take a 3-D model and see if it fits into the place where it is supposed to fit in the truck. This is a more secure way of testing than the use 2 dimensional drawings where the space for the product is measured and where it is easy to miss something. The difference with a 3 dimensional drawing is that all the other components are already in place around the void that the product will fill and it is easy to see if the product fits in or not. It is a detail in the technical development and a technical aid that is already in use today. It improves the sharing of knowledge and speeds up the adaptation of the product to fit into the end product. This makes it even easier to adapt the products in accordance to the buyer's needs. This affects the knowledge bond positively.

The effect on the different episodes on the perception of the knowledge bonds can be seen in Figure 38 below.

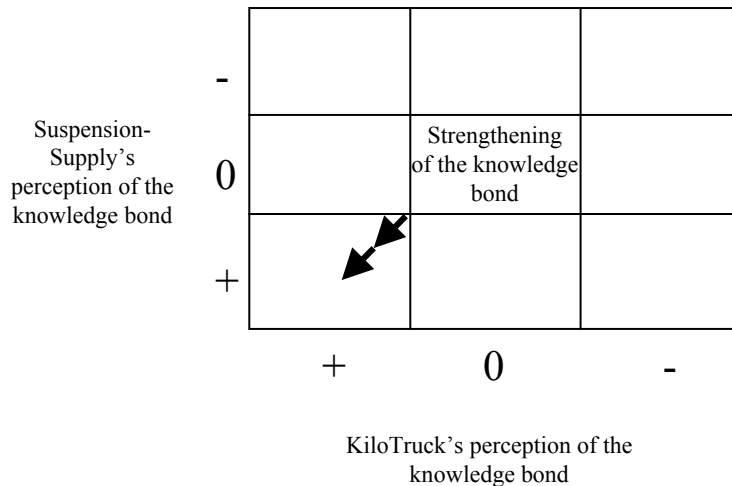


Figure 38. Changes in the perception of the technical bond in the relationship between KiloTruck and Suspension-Supply

KiloTruck and Suspension-Supply are learning more and more about how to complement each other and each other's strengths and weaknesses when they cooperate. Informants from Suspension-Supply have regarded the cooperation to be very clear and consistent and that has affected the knowledge bonds positively. The knowledge bonds between KiloTruck and Suspension-Supply are strong.

The conclusion regarding the **strong knowledge bond** was formed based on the elements affecting knowledge bond strength, see Table 40 below.

Time 1 should be seen as the time in the beginning of the relationship. Time 2 should be seen as after the positive episode regarding the parabolic spring. Time 3 should be seen as after the positive episode connected to 3-D models being used in the development of tubular stabilizers thus enhancing the sharing of knowledge regarding the product.

Table 40. Elements affecting the knowledge bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect knowledge bond strength	Time 1	Time 2	Time 3
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation			
Familiarity	+	+	+
Cooperation regarding development of products			
Cooperation regarding development of products	+	+	+
Clear and consistent cooperation	+	+	+
Knowledge sharing (regarding development of products)	+	+	++
Stage where involvement begins	+	+	+
Use of 3-D models			+
Mutual knowledge regarding rules and routines			
Mutual knowledge regarding rules and routines	+	+	+
Increased knowledge regarding decision making at KiloTruck		+	+
Language	+	+	+
Number of interfaces (decrease)		+	+

5.4.3.4 Legal

Legal bonds are the written contracts that exist between the supplier and the customer. Written contracts that run over several years may make it difficult to end the cooperation between the companies. The legal bonds between KiloTruck and Suspension-Supply are in the vicinity between medium strength and strong.

There are different types of written contracts between KiloTruck and Suspension-Supply. There is a general agreement including prices and other commercial terms as for instance terms of delivery, terms of payment etc. Contracts regarding development of products and deliveries also exist between KiloTruck and Suspension-Supply. All agreements between the companies are in writing since that is a necessity in the country in Central Europe where KiloTruck stems from, according to informants from KiloTruck's purchase department.

“We only have written agreements regarding cooperation in X (the specified country) since you have to be juridical in X”. Purchase director at KiloTruck

It is also possible to make customized orders in the cooperation. These customized orders must have a separate agreement every time an order is made. A customized order is for instance done when there is a need for a sample of a single product or when KiloTruck wants a customized stabilizer etc. The framework of the general agreement covers the cooperation regarding normal products that KiloTruck buys in series from Suspension-Supply. Written agreements regarding quality also exist between Suspension-Supply and KiloTruck according to informants from quality assurance at Suspension-Supply.

It is not difficult to end the cooperation with Suspension-Supply even though there are written contracts between the companies according to informants from KiloTruck. The written contracts that KiloTruck has with Suspension-Supply are for periods of 12 months and the cooperation will cease if KiloTruck does not prolong the contract. The cooperation can also be terminated if Suspension-Supply's products do not fulfil the demands that have been specified in the contract. KiloTruck can terminate the relationship if the demands on quality or delivery precision are not met or if the products no longer suit KiloTruck's needs.

The contract does not bind the companies for a longer time according to informants from Suspension-Supply. If the cooperation with a suppliers is terminated it must, however, take place in a controlled manner since Suspension-Supply has customer specific components and raw material in stock and this has to be used. It also takes time for the buyer to find a replacing supplier and get the deliveries from the replacing supplier to run smoothly.

KiloTruck demands for instance ISO 9001 in the cooperation with Suspension-Supply regarding quality matters. Such a demand can make it more difficult to terminate the cooperation from KiloTruck's behalf since it might be difficult to find a new supplier that has been certified for ISO 9001 (in 1996). The only way the legal bonds between KiloTruck and Suspension-Supply could be strengthened if the companies would sign

contracts that cover a longer time, for instance two or three years. Most contracts in an industrial setting do, however, have clauses that make it possible to terminate the business relationship if problems occur.

Episode regarding development of lightweight parabolic spring

Suspension-Supply has been working intensively for the last two years (in 2001) with KiloTruck regarding development of a new generation of parabolic springs for KiloTruck's trucks.

The whole relationship between Suspension-Supply and KiloTruck has changed due to the episode with the intimate focus on development of the parabolic spring. Less important issues as for instance quality audits, demands for quality certifications, etc. have become unimportant. Nobody has focused on secondary issues but the main focus has been on what is the most important, that is the product itself. The routines have become less important or bypassed and the focus has been placed on the development of products. This has weakened the legal bond marginally when it comes to quality audits.

The conclusion regarding **the legal bond being in the vicinity between medium strength and strong** was formed based on the elements affecting legal bond strength, see Table 41 below.

Time 1 should be seen as the time before the episode with the development of the lightweight parabolic spring in 1996 and Time 2 should be seen as the time after two years of intense work on the parabolic spring in 2001.

Table 41. Elements affecting legal bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect legal bond strength	Time 1	Time 2
Written contracts		
General agreement	+	+
Contract regarding development of products	+	+
Contracts regarding deliveries	+	+
Contracts regarding customized orders	+	+
Quality agreements	+	+
Duration of contracts (short 12 months)	-	-
Rigid ness of contract (easy to terminate regardless of contracts)	-	-
Culture demanding written contracts		
Culture (at KiloTruck)	+	+
Quality certificates like QS 9000		
Quality certificate ISO 9001	+	+/-

5.4.3.5 Economic

Economic bonds are for instance bonds that exist when the companies that cooperate give credits or prolong the time for payment, e.g. from 30 days net to 120 days net. Economic bonds can also be when the supplier gives discounts because of a relationship with the customer. The economic bonds between Suspension-Supply and KiloTruck are of medium strength. KiloTruck always pays on the 25-day of the month that follows

delivery of the products. The terms of payment are therefore between 25 and 55 days. No discounts exist in the cooperation between Suspension-Supply and KiloTruck but if the buyer wishes to order a larger volume than before it is possible to recalculate the price and get a new lower price per product.

Representatives from KiloTruck's purchase department regard the prices on Suspension-Supply's products as high.

What strengthens the economic bond is the fact that the share of products delivered to KiloTruck by Suspension-Supply is high as well as the proportion of products bought by KiloTruck from Suspension-Supply is fairly high. At present 20 % of Suspension-Supply's total production is delivered to KiloTruck and that makes it an important buyer for Suspension-Supply.

The economic bonds have been strengthened from Suspension-Supply's point of view in the period between 1996 and 2001. Suspension-Supply delivered approximately 7900 springs and 1000 tubular stabilizers to KiloTruck in 1996 and that stood for 11.5 % of the total production of Suspension-Supply and in 2001 the amount of products delivered had risen to approximately 20 % of Suspension-Supply's total production. KiloTruck buys 100 % of its tubular stabilizers and between 8-10 % of its springs from Suspension-Supply. The series delivered also rose and thereby increased the strength of the economic bond.

KiloTruck allows Suspension-Supply to take part in the development at an early stage of the development of the products and it is therefore possible to adapt the products produced so that they fit Suspension-Supply's production process better. It is therefore possible to manufacture the products at a lower cost and this affects the economic bonds positively. The effect of the perception of the economic bond can be seen in Figure 39 below.

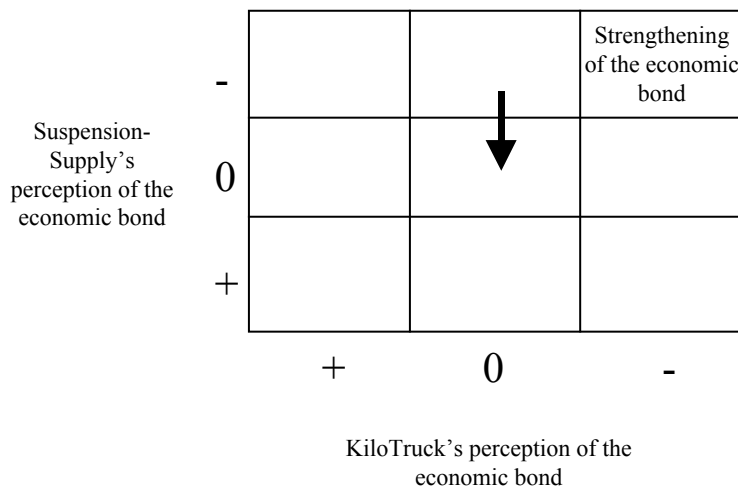


Figure 39. Changes in the perception of the economic bond in the relationship between KiloTruck and Suspension-Supply

An incident due to an increase of deliveries to GigaTruck upset the timetable of deliveries to all other of Suspension-Supply's buyers. KiloTruck was the least affected of this incident. KiloTruck had to take less than 10 trucks of the production line due to the turbulence. Air freighting products solved the problem with late deliveries. Airfreight of products to Central Europe was quite costly and thereby affected the economic bond negatively.

The conclusion regarding **the economic bond of medium strength** was formed based on the elements affecting economic bond strength at different times in the relationship, see Figure 42 below.

Time 1 should be seen as the status of the relationship in 1996, time 2 the episode in which the upset of the timetable due to an increase of deliveries to GigaTruck in the autumn of 2000 and time 3 the status of the relationship in 2001.

Table 42. Elements affecting economic bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect economic bond strength	Time 1	Time 2	Time 3
Credit arrangements such as discounts			
No discounts	-	-	-
Price			
Price (high price according to KiloTruck)	-	-	-
Opportunity costs (low)	+	+	+
Share of supplied or bought products			
Share of products (out of Suspension-Supply's total production) (bigger in 2001)	-	+	+
Single supplier for tubular stabilizers	+	+	+
Supply's 8-10 % of KiloTruck's demand for springs	+-	+-	+-
Size of series produced		+	+
Production efficiency	-	+	+
Product smooth to produce	+	+	+
Additional costs or revenues that stem from the cooperation			
Airfreights (negative costs) (periods with poor delivery precision)		-	

5.4.3.6 Geographical

Geographical bonds make it more difficult for the customer to buy products from suppliers that are situated far away because of the distance between the supplier and the customer according to Liljander and Strandvik (1995) and Wendelin (2000a; 2002). The geographical bonds between Suspension-Supply and KiloTruck are strong even if the distance between the companies is long.

The distance between Central Europe and Northern Europe is not so long if seen from a global sourcing perspective according to informants from KiloTruck. The distance between companies does not play as great a role nowadays as it did 20 or 30 years ago.

According to representatives at KiloTruck's quality assurance the distance between KiloTruck and Suspension-Supply is of no importance as long as Suspension-Supply has the competence that is needed for the cooperation. The cooperation between the companies works well even though the distance between the companies is long. Problems emerge if the supplier has quality problems or problems with communication since these problems have to be solved and that could mean travelling approximately 2000 kilometers in order to solve the problems. It is according to KiloTruck representatives positive and necessary that Suspension-Supply has an agent, Agentix situated close to KiloTruck's factory that handles many matters that would be difficult for Suspension-Supply to have the time to handle.

"Yes if you look at it from the perspective the closer the better (then the supplier would be situated too far away) but no if you think from a global sourcing perspective the distance is of no importance". Purchase director at KiloTruck

"There are no problems due to the distance between the companies as long as everything works. The distance is okay". Logistics at KiloTruck

The competitiveness of Suspension-Supply is weakening due to the time for transport and transport costs that result from the long distance between Suspension-Supply and KiloTruck according to informants from Suspension-Supply. Suspension-Supply can minimize the costs for transport by maximizing the cargo on the trucks that is seeing to that the trucks that transport the products to KiloTruck always are full. When it comes to the transport time it is up to Suspension-Supply to have a short throughput time in their production. By having a short throughput time in the production it is possible for Suspension-Supply to gain the time that the company has lost by comparison to the competitors by having a longer transport time. The days that Suspension-Supply loses on the transport time from Northern Europe to Central Europe it shall instead gain by having a shorter throughput time. When the products reach KiloTruck Suspension-Supply should be in the same time frame or faster than the competitors. Suspension-Supply is also trying to use the weekends for transportation. That means that the products leave Suspension-Supply's plant on Friday and reaches KiloTruck's plant on Monday. KiloTruck does not have any production on Saturday or Sunday so there are no changes in the schedules or production plans during weekends. Suspension-Supply uses airfreight if there is a risk for delivery delays but this is very expensive since the products produced are heavy. Suspension-Supply delivers to KiloTruck's warehouses.

Representatives from KiloTruck are satisfied with how the exchange of information between KiloTruck and Suspension-Supply works. In order to bridge the gap with the geographical distance between Central Europe where KiloTruck is located and Northern Europe where Suspension-Supply is situated as well as the language gap, Suspension-Supply is using a local agent Agentix that is situated close to KiloTruck's plant.

The geographical distance does not affect the cooperation regarding design of springs. The cooperation works well even though the distance between Suspension-Supply and KiloTruck is large. The time differences when a designer flies within Europe are minimal.

Episodes in the relationship between KiloTruck and Suspension-Supply

The lead-time in the cooperation has increased from between 6.4 to 7.5 days in 1996 to between 12 and 13 days in 2001. That lead-time is however still better than many of Suspension-Supply's competitors that have a lead-time at around 21 days. The increase has however affected the time bond negatively and the geographical bond was weakened when the time bond was weakened. Not very negatively, however, since the orders from KiloTruck are quite stable and can be predicted to fit the production well in advance.

A negative critical episode with delivery delays took place in the autumn of 2000. The geographical bond was weakened when the time bond was weakened. If Suspension-Supply had had a factory close to KiloTruck's plant then there would not have been any need for airfreights of products and both money and time would have been saved. The episode was due to the fact that a competing buyer to KiloTruck, GigaTruck was increasing its orders from Suspension-Supply and thereby causing capacity problems for Suspension-Supply upsetting the timetable of deliveries to all other of Suspension-Supply's buyers. KiloTruck was that of Suspension-Supply's buyer that was the least affected of the turbulence connected to the increase of deliveries to GigaTruck. KiloTruck had to take less than 10 trucks of the production line due to the turbulence. The problems with late deliveries was solved by air freighting products and focusing the production capacity of Suspension-Supply on some business relationships, while other business relationships were terminated in order to increase the capacity in order to supply the remaining buyers well.

The critical episode was solved in that manner that the business relationship between another competing buyer TeraTruck and Suspension-Supply was terminated and Suspension-Supply could therefore allocate more capacity to KiloTruck and the time bonds were strengthened again and so was the geographical bond. See Figure 40 below. Time 1 should be seen as the relationship in 1996. Time 2 is the situation with the delivery delays in the autumn of 2000. Time 3 is the situation in 2001 after the focusing of the production capacity on relationships considered important as the relationship with KiloTruck.

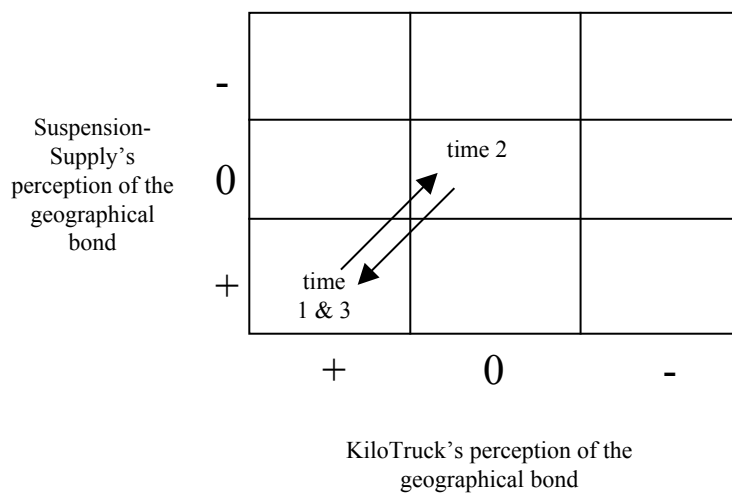


Figure 40. Changes in the perception of the geographical bond in the relationship between KiloTruck and Suspension-Supply

The conclusion regarding the **strong geographical bond** that weakened and re-strengthened was formed based on the elements affecting geographical bond strength, see Table 43 below.

Time 1 should be seen as the relationship in 1996. Time 2 is the situation with the delivery delays in the autumn of 2000. Time 3 is the situation in 2001 after the focusing of the production capacity on relationships considered as important as the relationship with KiloTruck.

Table 43. Elements affecting geographical bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect geographical bond strength	Time 1	Time 2	Time 3
Geographical distance to buyer/supplier			
Geographical distance	-	-	-
Geographical distance (Global sourcing perspective used by KiloTruck)	+	+	+
Delivery precision	+	-	+
Lead-times	++	+	+
Line stops		-	
Airfreights (in times of poor delivery precision)		-	
Warehouses	+	+	+
Technical cooperation			
Technical cooperation	+	+	+
Agent Agentix bridges the gap that a long distance creates	+	+	+

5.4.4 Abstract bonds

Abstract bonds are bonds that build up in the minds of people when companies cooperate or when people are using a company's products or services.

5.4.4.1 Social

Social bonds develop between personnel from the companies that cooperate when representatives from the companies learn to know each other and start to trust each other. By developing trust in each other it is even possible solve difficult issues over the phone and the cooperation between the companies becomes smoother. The supplier thinks it is important to live up to promises that have been agreed on orally with the other company because it is important that one can keep the promise one has made to a friend.

The cooperation between KiloTruck and Suspension-Supply's personnel runs smoothly. A majority of KiloTruck and Suspension-Supply's informants perceive that a team spirit exists between the companies. The team spirit between KiloTruck and Suspension-Supply will surely develop further when the personnel from the companies get to know

each other even better. The cooperation between the companies was still quite new in 1996.

Representatives from Suspension-Supply and KiloTruck meet on a frequent basis. Different representatives for instance from management level, business development, product development, and springs etc. from Suspension-Supply meet with representatives from KiloTruck. When representatives from Suspension-Supply visit KiloTruck they try to meet as many persons from KiloTruck as possible. They try to be inside the gates at KiloTruck before 8 A.M and have two meetings booked with personnel from KiloTruck. The time before, between and after the meetings is usually used in that manner that the representatives from Suspension-Supply make short visits and stop by key persons at KiloTruck, maybe only to greet them as they go by and talk with them. This means that representatives from Suspension-Supply may meet 7-10 representatives from KiloTruck in a day. There are meetings with representatives from Suspension-Supply once a month in average according to representatives from KiloTruck's development, logistics and purchase departments in 1996. If there are problems in the cooperation people from the companies meet more frequently than once a month in order to solve the problems. The discussion between the companies is open-minded.

So far there have been few unofficial contacts between KiloTruck and Suspension-Supply. The customer supplier relationship between KiloTruck and Suspension-Supply is quite new and it takes time before unofficial relationships are formed between the companies. Informants at KiloTruck's purchase department hope that no unofficial contacts shall develop between KiloTruck and Suspension-Supply. This is said with reference to the case where Jose Ignacio Lopez changed job from General Motors Opel to Volkswagen and took business secrets with him. There is a great risk for security breaches in cases where unofficial contacts exist between the companies according to informants at KiloTruck's purchasing department. In 1996 a witch-hunt for anything believed to be corruption was taking place in the Central European country where KiloTruck is located and there was an aim to avoid unofficial contacts between personnel in different companies as much as possible. Even a dinner with a business associate could sometimes be seen as corruption and cause problems for both parts.

The personal relationships are, however, important according to representatives from KiloTruck's quality department since one has to know the counterpart in the business in order to have good cooperation. The unofficial contacts that are taking place are, however, always work-related in one or another form even if they do not take place at the office. Unofficial contacts are, according to the same source, important in order to build up a sound partnership relationship between Suspension-Supply and KiloTruck. Unofficial contacts are also perceived as important since if unofficial contacts exist, more focus is put on helping the other counterpart and this is only positive for both parts in the cooperation.

Suspension-Supply's agent Mr. X from the company Agentix located close to KiloTruck's factory in Central Europe has unofficial contacts to personnel at both suspension-Supply and KiloTruck and functions thereby as a connecting factor for the social bonds between Suspension-Supply and KiloTruck. Mr. X visits KiloTruck

approximately once every two weeks in order to discuss some matters connected to Suspension-Supply or just visits KiloTruck in order to be present and listen to KiloTruck's view on what is happening at the moment. Mr. X helps to improve the cooperation between Suspension-Supply and KiloTruck since Suspension-Supply's personnel trust Mr. X and can ask him to take up different issues in the discussions with KiloTruck and vice versa. The information flows both ways.

The level of commitment to the business relationship is high with counterparts in both Suspension-Supply and KiloTruck wanting to develop the business relationship. Suspension-Supply has even started language courses in order for its personnel to learn the language spoken in KiloTruck's country of origin better. There is also a high level of trust that the other counterpart in the cooperation will fulfil its obligations and act in the best interest of the relationship. Both counterparts also have attraction to each other since both companies are perceived as attractive having attractive products.

The conclusion of the above is that the social bonds between Suspension-Supply and KiloTruck are strong.

The conclusion regarding **the strong social bond** was formed based on the elements affecting social bond strength at different times in the relationship, see Table 44 below.

Table 44. Elements affecting social bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect social bond strength	
Turnover of personnel	
No frequent change of purchasing personnel	+
Contacts between personnel	
Frequent communication and meetings between sales and purchasing personnel	+
Frequent meetings with personnel at technical development	+
Management cooperation	+
Team spirit	+
Agent Agentix functioning as a connecting factor	+
Avoidance of contacts. Will to avoid unofficial contacts at the purchase department (due to fear of corruption allegations)	-
Personal relationships	
Lack of personal relationships	-
Unofficial contacts between personnel	+
Commitment and trust	
Commitment	+
Trust	+
Attraction	+

5.4.4.2 Cultural

Cultural bonds develop between suppliers and customers with a similar cultural background. The language spoken or which country the company comes from might result in that the customer identifies himself stronger with some companies. The cultural bonds between Suspension-Supply and KiloTruck are strong.

No cultural differences are perceived to exist between Suspension-Supply's and KiloTruck's countries of origin according to representatives at KiloTruck, the way business is conducted is similar. The cultures in Suspension-Supply's and KiloTruck's countries of origin are similar according to informants at KiloTruck. KiloTruck's and Suspension-Supply's countries of origin belong to the same group of cultures and the differences in culture are therefore small. The languages spoken in both countries, in the case of Suspension-Supply a language spoken by the minority, belong to the same family of languages if seen from a historical point of view. The social components in both KiloTruck's and Suspension-Supply's countries of origin are similar and the religion in both countries is the same, that is Christianity. It would be a different situation if Suspension-Supply personnel would be Moslems according to informants from KiloTruck. Even if there against all odds would be any problems in the cooperation, there is the agent Agentix that could function as a cultural interpreter and solve the problem. It is seen as positive to have Agentix as a cultural interpreter since there may be small differences in how things are said, the cultural interpreter should know the differences and solve them.

“The social components are the same, we have the same religion that is Christianity it would be a totally different case if Suspension-Supply would be Moslems or equivalent”. Purchase director at KiloTruck

The cultures in KiloTruck's and Suspension-Supply's countries of origin are similar especially when technical issues are considered according to informants from Suspension-Supply. Generally there can be said to be differences between KiloTruck's and Suspension-Supply's countries of origin is that when norms, guidelines and rules have been drawn up for something in KiloTruck's country of origin they are followed to the letter. At KiloTruck things are done in the way agreed upon earlier while in the culture of Suspension-Supply's country of origin there may be a tendency to improvise during the way in order to find solutions. This can sometimes cause problems in the cooperation between KiloTruck and Suspension-Supply since Suspension-Supply may not always follow the path chosen in advance according to representatives at Suspension-Supply's technical department.

Suspension-Supply contact persons speak the language spoken in KiloTruck's country of origin well and it is therefore very easy to communicate with them and that makes the cooperation work well according to KiloTruck representatives. The language spoken in the interaction does not constitute a problem since all of Suspension-Supply key persons speak the language spoken in KiloTruck's country of origin. Suspension-Supply has also concentrated on the education of the personnel in the language spoken in KiloTruck's country of origin. Language courses for the language spoken in KiloTruck's country of origin are held continuously and they have been made available for all interested persons in Suspension-Supply. Many of the persons that have a direct

customer contact to KiloTruck have attended the language courses held at Suspension-Supply. There are two levels in the language course, one for beginners and one for communication where the language is used actively. Suspension-Supply is actively trying to bridge the language gap.

“I believe that it is important to at least try to speak the language spoken in KiloTruck’s country of origin when you work with people in KiloTruck’s country of origin since they appreciate it and you get closer to them immediately compared to if you only speak English”. Development at Suspension-Supply

The representative from Agentix speaks excellent English and can therefore also function as an interpreter for those of Suspension-Supply personnel that do not know how to speak the language spoken in KiloTruck’s country of origin.

There was a fear in 1996 that Suspension-Supply will computerize itself too much in proportion to KiloTruck in the future according to support systems at Suspension-Supply. Scandinavia has been very fast in adopting computers in the daily work while the adoption of computers in the daily work has happened very slowly in KiloTruck’s country of origin. There is a risk that Suspension-Supply’s way of working becomes so automated that the gap between KiloTruck’s and Suspension-Supply’s way of working becomes bigger and bigger. This can lead to the fact that Suspension-Supply will have to uphold two totally different systems. Suspension-Supply may be forced to uphold a manual system based on paper copies and regular mail since they have not had the possibility to automate their systems towards KiloTruck since KiloTruck is not ready for such cooperation. Suspension-Supply has had to automate their systems towards their Scandinavian buyers since they have demanded it and the Scandinavian buyers’ systems are already computerized. This may in the long run lead to Suspension-Supply having to run two systems, which in turn demands more resources and the benefit with having automated systems is thereby undermined. Suspension-Supply does, however, see potential when it comes to computerization between Suspension-Supply and KiloTruck. Starting more intensive computer cooperation with KiloTruck could develop that issue.

The quality of Suspension-Supply products is according to all informants from KiloTruck high. Informants from KiloTruck’s quality department based their knowledge on many years experience of working with suppliers from Suspension-Supply’s country of origin when they state that they perceive products from Suspension-Supply’s country of origin in general to be of high quality, higher than in the other Scandinavian countries. If seen from a European perspective the quality is perceived as being higher in Northern Europe than in South and Eastern Europe.

There are no perceived differences in company culture between Suspension-Supply and KiloTruck. There are of course differences in the sizes of the companies with Suspension-Supply having 130 employees and KiloTruck having thousands of employees. This leads to the fact that while only one person is concentrated on a single task at KiloTruck an equivalent person may be focused on two to three different tasks at Suspension-Supply. The channels for communication with KiloTruck are however short with few interfaces. It is easy to communicate and get hold of the correct persons at the different company levels at KiloTruck.

Some small cultural differences do however exist on a company culture level, as there are no EDI systems for transfer of delivery information between the companies. All delivery plans are sent by regular mail. The delivery plans are sent once a month.

“Everything that KiloTruck does is done slower, delivery plans etc. They are sending their delivery plans fairly seldom; they don’t worry about the size of their warehouses. They order for one month in the beginning of the month and then they order more the next month. They have not started to worry about their warehouse sizes there yet. They are a little bit old-fashioned.... It is expensive to keep lots of products in warehouses”. Logistics at Suspension-Supply

Positive episode regarding tubular stabilizer

3-D computer models have in 2001 been used between Suspension-Supply and KiloTruck when it comes to the design of tubular stabilizers. This has shown that the fear that existed at Suspension-Supply in 1996 regarding that Suspension-Supply would computerize itself too much in proportion to KiloTruck did not come true. KiloTruck is also that of Suspension-Supply’s buyers that has advanced the furthest in taking using 3-D systems in design of products. This means that they have overtaken the Scandinavians when it comes to design matters being computerized. It is now possible for KiloTruck to take a 3-D model and see if it fits into the place where it is supposed to fit in the truck. It improves the sharing of knowledge and speeds up the adaptation of the product to fit into the end product. This makes it even easier to adapt the products in accordance to the buyer’s needs. This adoption of new technology affected the cultural bond positively.

The conclusion regarding **the strong cultural bond** was formed based on the elements affecting cultural bond strength, see Table 45 below. Time 1 should be seen as the situation in 1996 and time 2 should be seen as the situation in 2001 after the use of the 3-D models.

Table 45. Elements affecting cultural bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect cultural bond strength	Time 1	Time 2
Cultural background		
Similar culture	+	+
Agent Agentix functions as a cultural interpreter	+	+

Company culture		
Similar company culture	+	+
Similar way of conducting business	+	+
Decision making (no small talk)	+	+
Borders concerning responsibility (few interfaces)	+	+
Channels for communication (short with few interfaces)	+	+
Handling of technical issues (Similar)	+	+
Difference in strict obedience to norms, guidelines and rules	-	-
Agent as a cultural interpreter	+	+
Computerization (Fear for over computerization towards KiloTruck)	-	
3-D computer models improving technical cooperation		+
Transfer of delivery plans (by mail)	-	-
Religion		
Same religion (Christianity)	+	+
Language		
No language problems (same language group)	+	+
Agent functions as an interpreter	+	+
Language courses in order to bridge gap	+	+

5.4.4.3 Ideological

Ideological bonds are such bonds that make a customer choose suppliers that for instance manufacture green products or domestic products. The ideological bonds between Suspension-Supply and KiloTruck are strong.

Environmental awareness is a very important issue for KiloTruck. KiloTruck was awarded the environmental audit ÖKO audit as one of few companies in its country of origin in 1996. KiloTruck has a management system for environmental issues. When choosing supplier it is a very important criterion for KiloTruck that the supplier's products are recyclable. The products that Suspension-Supply manufactures are recyclable. More than 99 per cent of the weight of the products can be recycled. That means that 99 out of 100 kilogram of springs can be recycled.

The conclusion regarding **the strong ideological bond** was formed based on the elements affecting ideological bond strength, see Table 46 below.

Table 46. Elements affecting ideological bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect ideological bond strength	
Environmental awareness	
Possibility to recycle product (recyclable products)	+

5.4.4.4 Psychological

Psychological bonds develop when for instance the customer is convinced that the products manufactured by the supplier are of superior quality. The psychological bonds between Suspension-Supply and KiloTruck are strong.

Informants from KiloTruck recognize differences between Suspension-Supply and Suspension-Supply competitor's products since the products that Suspension-Supply manufactures are seen as of a higher quality than those of the competitors. Suspension-Supply has succeeded in developing products of higher strengths and has at the same time lowered the weight of their products. The steel that Suspension-Supply uses in the manufacture of the products is of a higher quality than that of Suspension-Supply competitors according to KiloTruck's quality department. The steel is perceived to be cleaner. It is considered as a positive thing that Suspension-Supply has a steel factory of their own in the group that Suspension-Supply belongs to. Some of KiloTruck's other suppliers of springs and stabilizers buy the steel from the steel factory from the group that Suspension-Supply belongs to since the steel manufactured by the steel factory is of such high quality according to the informants at KiloTruck.

Suspension-Supply has a big lead when it comes to tubular stabilizers compared with the competitors according to informants from KiloTruck. Suspension-Supply has good technical knowledge and is using a good patented production process when the tubular stabilizers are manufactured according to KiloTruck.

There are no big differences between springs manufactured by Suspension-Supply and those manufactured by other suppliers according to informants from KiloTruck's quality assurance or purchase departments.

It is very important to have good references such as KiloTruck according to informants from Suspension-Supply. Suspension-Supply's strategy is to work with the best producers of trucks in the world; this is perceived as important for Suspension-Supply's image. Good references make it easier to have discussions with new potential customers. If it is possible to put forward proof that the company supplies to a well-known high quality manufacturer of trucks such as KiloTruck it is easier to start delivering to potential customers. It may be very hard to be accepted as a supplier by a new customer if the company is not able to refer to a well-known customer. This is still the case even if the supplier is able to show test results etc. showing the new potential customer that the product quality is good. It is seen as important to have buyers that manufacture products of high quality since the world is small and all buyers know everything about the competition.

Positive episode regarding development of lightweight parabolic spring

Suspension-Supply has been working hard for the last two years (in 2001) with KiloTruck regarding development of a new generation of parabolic springs for KiloTruck's trucks.

In the beginning of the episode of the developing of the new parabolic spring there were problems with the parabolic spring in the sense that it would not last the test but rather

broke down. Suspension-Supply has gotten four last chances to improve the product and since it has always had good technical explanations to why it has went wrong KiloTruck has always given Suspension-Supply new chances. Another reason for the new chances is that the specifications regarding the parabolic spring have changed as well as the design has changed.

“In the beginning we were totally lost since we could not get the spring to endure the pressure, not whatever we tried and there were problems, serious problems. But we have had four last chances and that is rather descriptive of the situation. If you have had a professional technical explanation to why it has gone wrong then we have always gotten another chance”. Support systems and quality at Suspension-Supply

The cooperation episode regarding the development of the parabolic spring with KiloTruck has shown Suspension-Supply that they have a very good reputation at KiloTruck almost on the border to being mystical.

“This cooperation has shown that we have a very good reputation there (at KiloTruck) on the verge to that we are being perceived as surrounded by mystique around us here up in the cold north, in the deep forests of Suspension-Supply’s country of origin. We have actually perceived that a certain sense of superstition exist in the background, even though it is a company run by engineers, this is sometimes used when no physiological explanation is found. That is connected to the Nordic dimension of where we are located”. Support systems and quality assurance at Suspension-Supply

“We have had very few quality claims and our statistic record is very clean and that keeps our image at a high level at their end.... This is a very important time with this customer since this image we have regarding technical issues and quality can be very contradictory. On one hand we are good but on the other hand we are not good. A very technically oriented organization tends to think black and white and act fast and draw black and white conclusions of the whole situation. So this is a very important time we live in with that customer”. Support systems and quality assurance at Suspension-Supply

The conclusion regarding the **strong psychological bond** was formed based on the elements affecting psychological bond strength, see Table 47 below.

Table 47. Elements affecting psychological bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect psychological bond strength	
Perceived superiority, equality or inferiority of product, process or service	
Product superior to that of competitors (tubular stabilizers)	+
No perceived difference regarding springs	-
Patented product	+
Patented process	+
Perceived superiority, equality or inferiority of raw material (Steel perceived to be of higher quality)	+
Level of innovation connected to the product, process or service (innovation tubular stabilizer)	+
Brand name	
KiloTruck as a reference (brand name)	+
Image	
KiloTruck as a reference (image)	+
Reputation of the counterpart in the cooperation	
Mystical (positive) reputation of Suspension-Supply	+

5.4.4.4 Strategic

Strategic bonds are a finding of the analysis that is mentioned due to the method of systematic combining used to analyze the empirical material. Strategic bonds are on a different level than the other bonds mentioned and can contain all the other types of bonds.

Strategic bonds are bonds that emerge when the companies have it in their strategy to have cooperation. The fact that strengthens the strategic bonds may be the importance for Suspension-Supply of having a customer like KiloTruck in the list of suppliers due to the revenue it creates for Suspension-Supply and as well due to the good cooperation that exists between the companies regarding technical development of products. It could also be when a buyer like KiloTruck wants to keep the supplier Suspension-Supply on the supplier list due to the strategic importance of that supplier's product to the end product of the buyer. For instance in KiloTruck's case this would be a tubular stabilizer weighing approximately 20 kilos less and increasing the payload or amount of fuel the truck can carry.

KiloTruck is a quite important customer for Suspension-Supply from an economic point as well as from a strategic point of view; the amount of products delivered to KiloTruck in 2001 stands for approximately 20 % of Suspension-Supply's total production and that makes it an important buyer for Suspension-Supply. In 1996 Suspension-Supply was also delivering 100 % of KiloTruck's need for tubular stabilizers, which makes Suspension-Supply a strategically important supplier for KiloTruck. The products delivered to KiloTruck are delivered in large quantities and the products are adapted to

fit Suspension-Supply's production process. The opportunity cost for delivering products to KiloTruck are low.

Episodes in the relationship between KiloTruck and Suspension-Supply

A negative critical episode with delivery delays took place in the autumn of 2000. The episode was due to the fact that a competing buyer to KiloTruck, GigaTruck was increasing its orders from Suspension-Supply and thereby causing capacity problems for Suspension-Supply upsetting the timetable of deliveries to all other of Suspension-Supply's buyers.

Suspension-Supply had to take a strategic decision to terminate a relationship in order to be able to supply KiloTruck with their products, especially regarding tubular stabilizers. The choice was the competing buyer TeraTruck due to the technically more difficult process in manufacturing of TeraTruck's tubular stabilizer. The tubular stabilizer produced for TeraTruck required more machine capacity and took longer to produce than the tubular stabilizer delivered to KiloTruck. The product hence rendered less revenue for Suspension-Supply so it was an obvious choice that the relationship to TeraTruck had to be terminated. This was due to the fact that Suspension-Supply on buyers as KiloTruck was of a greater importance for Suspension-Supply both economically in terms of share of the total sales as well as from a technical point of view.

KiloTruck is also an important customer for Suspension-Supply from a development point of view. The cooperation regarding development of products is intense between KiloTruck and Suspension-Supply

The conclusion regarding the **strong strategic bond** was formed based on the elements affecting strategic bond strength, see Table 48 below. Time 1 should be seen as the situation in 1996 and time 2 should be seen as the situation in 2001 after the solving of the critical episode.

Table 48. Elements affecting strategic bond strength in the relationship between KiloTruck and Suspension-Supply

Elements that affect strategic bond strength	Time 1	Time 2
Strategic decision to cooperate or terminate the cooperation		
Termination of relationship with competing buyer (stabilizer)		+
Strategic importance of buyer or supplier (economic and/or technical view)		
Strategic importance of buyer (technical view)	+	+
Strategic importance of buyer (economic view)	+	+
Share of products delivered	+	+
Share of products bought	+	+
Size of production series	+	+
Number of product numbers	+	+
Competing suppliers or buyers	-	+
Allocated production capacity	+	+
Production capacity (stabilizer)	-	+
Development activities		
Focus on development activities	+	+
Strategic importance of product		
Strategic importance of product for end product	+	+

5.4.5 Relationship strength in the Cooperation between KiloTruck and Suspension-Supply

Bond strength in the relationship between KiloTruck and Suspension-Supply

Table 49 below presents a summary of the strength of the different bonds in the relationship between KiloTruck and Suspension-Supply. This should be seen as the overall strength of the bonds at the latest stage of the relationship. The table is followed by a short summary presenting the evaluation of the strength of the individual bonds.

Table 49. Bond strength at the latest stage of the relationship between KiloTruck and Suspension-Supply

Technical	Strong
Time	Medium strength
Knowledge	Strong
Legal	Between medium strength and strong
Economic	Medium strength
Geographical	Strong
Social	Strong
Cultural	Strong
Ideological	Strong
Psychological	Strong
Strategic	Strong

Eight of the 11 bonds between KiloTruck and Suspension-Supply are strong, one bond is between medium strength and strong and two are of medium strength; this affects the relationship strength in a positive way thus strengthening the relationship.

The **relationship** between KiloTruck and Suspension-Supply is **strong**. Eight of the 11 bonds between KiloTruck and Suspension-Supply are strong, one bond is between medium strength and strong and two are of medium strength, this affects the relationship strength in a positive way.

KiloTruck is an important customer for Suspension-Supply from an economic point of view since the amount of products delivered to KiloTruck in 2001 stood for approximately 20 % of Suspension-Supply's total production. In 1996 Suspension-Supply was also delivering 100 % of KiloTruck's need for tubular stabilizers, which makes Suspension-Supply an important supplier for KiloTruck. The products delivered to KiloTruck are delivered in large quantities and the products are adapted to fit Suspension-Supply's production process. The opportunity costs for delivering products to KiloTruck are low. Besides the economic importance of the relationship the cooperation between KiloTruck and Suspension-Supply is also important from a technical standpoint. Close cooperation regarding development of for instance a new type of parabolic spring takes place between the companies.

There is a high level of satisfaction between KiloTruck and Suspension-Supply and that affects the relationship strength in a positive way. The companies are satisfied with the cooperation. The companies engage themselves in the cooperation. Both companies want to have more computer-based cooperation in the future in order to make the cooperation more efficient, such as EDI cooperation regarding logistic cooperation between the companies. Representatives from both companies want the cooperation to continue in the future and strive towards that goal. The problems that arise in the cooperation between KiloTruck and Suspension-Supply are solved in cooperation between representatives from both companies. In the development of new products the companies try to adapt the products with the aim that both parties should get an optimal product; a product that fills KiloTruck's demands and a product that suits Suspension-Supply production line.

According to Storbacka, Strandvik & Grönroos (1994) the companies can ignore some minor problems in the relationships if they are satisfied with the relationship as a whole. KiloTruck's dissatisfaction with the prices of tubular stabilizers could according to this theory be of minor importance as long as KiloTruck is satisfied with the technical abilities of the tubular stabilizer bars, the quality of the products and the relationship with Suspension-Supply as a whole.

The critical incidents that have arisen between Suspension-Supply and KiloTruck have been dealt with in a proper manner. Suspension-Supply has solved the problems that they had in the cooperation with KiloTruck through redefinition of their strategies. Suspension-Supply has for instance terminated a competing relationship with the buyer TeraTruck in order to be able to allocate more production capacity to supplying KiloTruck well. This shows that Suspension-Supply has a high level of engagement towards KiloTruck. This has led to improved strength in the relationship between KiloTruck and Suspension-Supply. According to Edvardsson (1988) and Storbacka, Strandvik & Grönroos (1994) relationship strength is improved through critical incidents handled in a proper manner.

According to Holmlund (1996) the number of potential suppliers that the customer has affects the relationship strength. The supply is larger than the demand when it comes to springs on the market. KiloTruck has four suppliers of springs and there is a vast amount of potential suppliers. The situation is reversed regarding tubular stabilizers. There are few potential suppliers of tubular stabilizers since Suspension-Supply has a patented product. According to KiloTruck representatives Suspension-Supply has a big advantage compared to its competitors regarding the tubular stabilizer bars. The strength in the relationship is affected in a positive way because KiloTruck has few potential suppliers for the tubular stabilizer bars. Regarding springs there are more alternative suppliers but the possibility is big that the cooperation will continue because KiloTruck thinks that the quality of Suspension-Supply products is high. KiloTruck and Suspension-Supply is also cooperating intensively on a new type of weight saving parabolic spring and that strengthens the relationship.

KiloTruck and Suspension-Supply are satisfied with the relationship. The cooperation between KiloTruck and Suspension-Supply is characterized by partnership. Suspension-Supply's agent Agentix that functions as a cultural interpreter and an organizer strengthens the cooperation between KiloTruck and Suspension-Supply. The relationship between Suspension-Supply and KiloTruck is strong. There is goodwill between the companies and both parties wish that the cooperation would be even more intense in the future.

The positive implications for KiloTruck and Suspension-Supply with a strong relationship are that a strong relationship affects the length of the relationship in a positive way, compare Holmlund (1996). If there is a certain level of certainty that the relationship will continue, the companies will be able to invest more in the relationship since they know that the investments will be written off under a longer period of time. If the companies invest more in the relationship and for instance try to make the on-line computer contacts between the companies work then the cooperation between the companies will most probably improve. By cooperating for a longer time there are no

costs that a switch of supplier would cause for KiloTruck or costs that would evolve for Suspension-Supply when searching for a new customer.

5.5 Case 5: reaffirmation of the findings of the first four cases by a single validating case

One short last case is used in order to reaffirm the findings from the first five cases involving Suspension-Supply and to test if the conceptual framework created can be accepted. The case involved in this example is a large producer of trucks that is named GreatTruck. The findings are based on interviews with informants from purchase, quality and logistics at GreatTruck regarding reasons for termination or partial termination with suppliers to GreatTruck. Short examples are presented that are either reaffirming or contradicting the findings of the first five cases.

The most common reasons for termination will be mentioned as well as short examples of negative critical episodes, routine episodes and positive critical episodes leading to weakening or strengthening of bonds.

5.5.1 Reasons for termination

Common reasons for termination can be economic, technical and logistic reasons. All informants at GreatTruck state this. The most common reasons are reasons due to quality and price leaving logistic reasons like delivery precision behind.

“It has been when there have been problems regarding the economic, quality or the logistic aspects of a relationship for a long period of time. Then we have checked if GreatTruck has some benefits from this (the relationship) Yes/No. If we have benefits connected to the relationship then we try to build further on the relationship and see if we can repair it. If the answer is no then we try to end the relationship. All relationships are different, it (problems) costs money for me and my company, it is costly for the counterpart in the cooperation and his company and we should not continue (the relationship) if we don't understand each other. Then we make a total termination”. Purchasing manager at GreatTruck

Price and quality issues are connected since poor quality is very costly.

A case that may lead to termination might be that a product is changed and the former supplier does not have the technical knowledge or even possibilities to manufacture the product.

There may also be strategic reasons for terminating a relationship. Focus on new markets may lead a supplier to change its strategy to avoid working with the car industry. In that case it is the supplier's wish to terminate. GreatTruck may not fit into the supplier's philosophy or business; this has become more common during the last years according to informants from GreatTruck's logistics department.

“In the structural changes that take place in Europe today it may be that the suppliers chose new areas. This means that we may have to find new ways. It really happens today! That they say that they should not work with the car industry”. Purchasing manager at GreatTruck.

Some suppliers may have more of an economic advantage compared to other suppliers but the total relationship may be poor. There may be problems regarding product development and product quality or delivery precision according to informants from

quality at GreatTruck. These have been cases where the economic bonds may have been strong but the technical and time bonds have been weak and caused termination.

Logistic reasons for termination may be logistic reasons due to poor delivery precision or to poor capacity. Poor delivery precision is seen as poor planning of the processes, there is no shortage of capacity. A lack of capacity means that the supplier does not have technical capacity to supply GreatTruck and is connected to a shortage of process capacity or raw material. The time bonds are weak.

Strategic reasons for termination from GreatTruck's point of view would be GreatTruck's productions will to decrease the number of suppliers since it is perceived as difficult to uphold good relationships with so many suppliers. This would be done in order to improve the relationships to the remaining suppliers. By increasing the demands on the suppliers the number of suppliers would drop according to informants from the logistics department at GreatTruck.

The most common way of handling problems is however not termination but to try and find solutions to the problems. In these cases social relationships are seen as being of utmost importance; the social competence, the skill to handle issues, a willingness to ignore small unessential problems and to willingness to leave prestige behind.

GreatTruck uses a list with qualified suppliers that are split up on different areas as for instance plastic, rubber, electronics and forged products. Every one of the areas is then in turn split up into different segments. This list is used for the buyers to know which GreatTruck's qualified suppliers are. If these suppliers perform poorly in some way then a discussion is made regarding whether the suppliers should continue to be qualified suppliers to GreatTruck.

Global purchase meetings are then supposed to be held in order to see which suppliers are to be maintained and developed and which suppliers should be phased out and to which new suppliers a relationship should be started. Since GreatTruck is a large company there are many views regarding keeping a supplier or not.

For instance small departments in the company as the bus department, industrial engines etc. may want to keep a supplier that may be very good at delivering small series and producing small volumes. The same supplier may not suit the truck producing parts at GreatTruck at all since the series that the supplier has capacity to produce is too small. There are differences between different departments at GreatTruck regarding what aspects of a supplier are important.

For instance regarding turbochargers for trucks, the development department might have some demands on performance and want to develop engines with a certain effect etc. Many of the alternative suppliers that can supply GreatTruck may not fulfil the technical demands on the products. Technical demands may decrease the number of possible suppliers already in the beginning. The supplier may have supplied the earlier generation of trucks but their products do not suit the next generation of trucks since they do not have products that fulfil the demands put on them. The technical bonds are weak.

Social reasons for termination may be due to the fact that GreatTruck or its supplier has the wrong type of persons as contact persons at the companies according to representatives from GreatTruck's purchasing department. Regardless of how good the companies are people in different positions may be more or less successful in their role as contact persons. Poor performance of the contact person weakens the social bonds and may lead to termination. The contact person should have knowledge regarding the rules and moral of the industry and follow them and have good social manners. Contact persons should be good diplomats and be able to handle conflicts well and when GreatTruck notices that there are problems then the contact person may be changed.

"Once again we should remember that it's people and not companies that do business". Purchase manager at GreatTruck

The issues leading to termination depend a lot on the available alternatives. If there are several good alternative suppliers to the present supplier then it is perceived to be quite easy to change the supplier compared to if GreatTruck is very closely bound to the supplier and exit barriers exist. Terminating existing relationships is perceived to put a very heavy burden on the organization and it is a step avoided as far as possible according to informants at GreatTruck.

"I am amazed that it is as easy as it is (to terminate). Often when I get information that we should change (supplier) and that we should terminate I usually feel ouououch!!!! This will be hard, how should this succeed? But usually everything goes well". Logistics at GreatTruck

There are different ways of breaking a relationship. In some cases a decision has been made that the relationship should be terminated. GreatTruck decides that the deliveries should stop and there should be no more orders from a specific supplier. Information is sent to all levels at GreatTruck that no business should be done with a specific supplier. No relationships shall be kept to that supplier.

5.5.2 Speed of termination

It is perceived to take a very long time to phase out the relationship with a supplier according to informants from quality at GreatTruck. Even if there are alternative suppliers it is perceived to take time.

It is accentuated that if the business relationship has been good with good personal relationships between the personnel, the supplier is given notice regarding the oncoming termination of the relationship in very good time before the relationship ends. This is done in order to give the supplier a possibility to phase out the production of the product in a pace that suits the supplier. Phasing out of the production can take several years and the supplier gets information regarding the upcoming termination several years in advance. This is done in order to achieve a beautiful exit where there are still residual bonds left to the supplier with the thought to probably start using the supplier again in three to five years time.

If there have been difficult structural problems then GreatTruck has historically had very fast termination of relationships in order to avoid taking costs for GreatTruck according to informants from GreatTruck's purchasing department. Fast termination is done in a timeframe of six months. That is the time mentioned by all informants when it comes to quick termination.

If there have been problems between the companies and the relationship is really inflamed due to for instance cultural problems and poor personal relationships, that is weak cultural and social bonds, the termination may then be speedy and take only six months given that an alternative supplier is found.

Fast termination can also happen without any drama being involved according to informants from GreatTruck's logistics department. A decision to terminate is made and GreatTruck buys the supplier's remaining stock or buys the stock and sells it to the new supplier and decides a timetable when the old supplier should stop delivering and the new should continue.

"If we have had a good relationship then we tell them at a very early stage that there will be a termination in order to give them a possibility to phase out their production. Again returning to the issue of personal relationships, yes? If there have been hard structural issues then we have given notice late and avoided taking costs. Then the terminations were harsh. That is usually not happening today but the treatment has been very hard historically. The atmosphere between buyer and seller is better at present". Purchase manager at GreatTruck

Suppliers that are involved in development of products usually notice several years before they stop delivering to the production that their relationship with GreatTruck is about to end.

5.5.3 Partial termination

GreatTruck decreases their business very often in their relationships to their suppliers and that can lead to the facts that the suppliers feel mistreated due to the fact that GreatTruck has decreased their business with a certain supplier steeply even though they still have business left. This partial termination can have a big effect on a small supplier that may lose a large part of its total production supplied to GreatTruck due to partial termination.

5.5.4 Routine episodes

A big problem that is seldom spoken of according to informants from the quality assurance at GreatTruck is the small negative routine incidents that take place. There are small problems with the suppliers but they do not cause any large stops of the production or similar but they are constantly causing small problems; wrong article numbers on the pallet and other small problems. These problems are most likely costing GreatTruck a lot of money since they are never focused on according to informants at GreatTruck. Personnel have to solve the problems and try to find out the causes of the problems and send quality claims and have dialogues with the supplier's etc. This is costly for GreatTruck and weakens the **economic bonds**. Stops of the assembly lines or

delivery stops is very expensive for GreatTruck but this usually only happens once with the same supplier. Small problems that go on undetected or are solved directly by GreatTruck's personnel by improvising can cause reoccurring small costs that accumulate over time. The economic bonds are weakened due to reoccurring negative routine episodes.

5.5.5 Negative critical episodes

In times of recession and in times when the economy is booming there may be pressure on the supplier. In times when the economy is booming it may cause bottlenecks in the supplier's production process when the supplier produces at their full capacity and this causes weakening of the **time bonds**. The **time bonds** are then re-strengthened when the economy goes back to normal from the time when the economy has been booming and the strain on the supplier's production process eases up. When the level of the production decreases at GreatTruck the supplier may be a good supplier again.

Negative critical episodes may however also lead to the situation where the relationship may continue as before because suppliers may have power vis-à-vis the buyer. The buyers in the truck producing industry regardless of their size might also have suppliers that are big and have a product that they have monopoly on. Or the supplier may have a product that is patented worldwide.

5.5.5.1 Case 1

A case with a supplier BigSupply with monopoly on their product was involved in a negative critical episode with GreatTruck. GreatTruck's warehouses are not very large and it is therefore possible to stop the assembly lines at GreatTruck fairly fast. BigSupply manufactured a product for GreatTruck and was not able to get the production up and running fast enough. BigSupply's product was a new type of engine part that was introduced on the market by the BigSupply and this engine part was an essential part of the engine. BigSupply already encountered problems in the start up phase when two engines a day with the new part were manufactured at GreatTruck and when the amount rose to 100 engines a day then the BigSupply's delays lead to the GreatTruck's assembly line bring stopped for several days. The **time bonds** were weakened. The delays occurred even though the plans for starting to produce the new engine were long-term plans and it was delayed so that every supplier should manage to comply with the timeframe. It did not even help that GreatTruck's CEO visited BigSupply personally in order to speed up the deliveries trying to use **social bonds** created between the companies. The relationship with BigSupply was however not terminated since BigSupply is a very large supplier that had monopoly on the product on the market. BigSupply supplied some of the other producers of trucks with the same product and the other producers of trucks also experienced delays in their productions.

There were no alternative suppliers for BigSupply and even if alternative suppliers to GreatTruck had existed GreatTruck would have had to change the whole construction of the engine in order to use another than BigSupply's system. This would have taken years of development work since the cylinder heads would have to be changed etc. in

order to use another system than that supplied by BigSupply. The **technical bond** regarding the product is very strong and functions as an exit barrier and can hence be seen as a bond in a negative sense since it is forcing the buyer to continue the relationship. The bonds are weakened but the relationship is not terminated but continues due to a lack of alternatives. The rest of the engine is developed from the very beginning for a certain kind of system. And the buyer is bound to that system since it would be very expensive and time consuming to change the system. Even if there would be alternative suppliers it would require a team of engineers to redesign the engine and that would take years. The line stops may affect for instance **social bonds** negatively but not lead to any sanctions.

The probable reason for the delays was the product itself; the construction was such that it took much capacity of the supplier's production. This weakened the **technical bonds** since the product was not well adapted to BigSupply's production process.

The conclusion is that if somebody is supplying engine parts or high tech products or products used in difficult modules then the bonds are usually stronger and more stable than if simpler products like wheels, exhaust pipes etc. are supplied.

5.5.5.2 Case 2

Another negative critical episode that took place involving GreatTruck was an incident with a supplier delivering a component for the brakes. The problem was that the product was defect and a delivery stop was issued. That means that all trucks had to remain inside GreatTruck's gates until the parts were replaced and that stopped the deliveries. This incident did not lead to termination of the relationship since the whole truck producing industry buys parts from the same supplier and there is a lack of alternatives. Once again the **technical bond** functions as an exit barrier in a negative sense.

5.5.5.3 Case 3

Reasons for termination given by informants at GreatTruck have for instance been when the product quality has been wrong. There may have been the wrong measures or poor surface treatment of the products. The **technical bonds** have weakened. Audits have been made at the suppliers and improvements have been promised but nothing has happened as promised. Then a termination has taken place since GreatTruck is not able to deliver their trucks without the correct parts. If GreatTruck is not able to deliver the trucks then it is the same situation if they would have no supplier at all. The poor quality reflects poorly on GreatTruck's performance. Poor quality is seen as a lack of management competence at the supplier's factories. The management at GreatTruck's suppliers has in many cases not understood what GreatTruck's business is in cases like this, according to informants from GreatTruck. It has shown that in 50 % of the cases the problems are directly related to the management in the supplying companies. The suppliers both have the tools and the skills to supply GreatTruck but the management

does not understand their own business according to the purchase department at GreatTruck. The **knowledge bonds** are weak.

5.5.5.4 Case 4

Negative critical episodes due to poor delivery precision take place often. Business cycles affect the production and periods when the economy is booming do affect the backlog of orders at the supplier so that bottlenecks may be created and the supplier has problems in supplying GreatTruck on time. The **time bonds** are weakened. Poor delivery plans may cause poor delivery precision and then the reason for that may be GreatTruck's. GreatTruck is competing for the capacity of their suppliers with the other producers of trucks. In a situation on the market where more than 90 % of the production capacity at a supplier's factory is used there is bound to be bottlenecks in the production. In cases like this the supplier gives different priority to different buyers and a good social relationship with strong **social bonds** to the supplier's personnel may improve the priority given to GreatTruck, according to personnel at GreatTruck's purchasing department. These strong **social bonds** do in turn strengthen the **time bonds** since GreatTruck gets a higher priority and more production capacity is allocated to serve them well from a logistic point of view thanks to good personal relationships to the suppliers' personnel.

If GreatTruck would have had hard price negotiations that may have been prosperous and strengthened the economic bonds on GreatTruck's account but left a bad relationship between the personnel; it can backfire in times like this according to informants at GreatTruck.

5.5.5.5 Case 5

A negative critical episode that was due to strategic reasons took place between GreatTruck and its suppliers when GreatTruck changed its strategy for suppliers of cables to trucks and decreased the number of suppliers for cables in Europe from four to one supplier in 1999/2000. The supply of cables is important for GreatTruck since it is a strategic component for GreatTruck that is very important and the bulk is high. The choice of supplier was preceded by a long professionally handled process viewing the offers of the different suppliers and the reason that GreatTruck wanted to terminate the relationship to three of the suppliers was very clear. The **strategic bonds** to three of the suppliers were broken.

The decisions to terminate the relationships were accepted in different manners. One of the old suppliers was very angry and refused any further discussions but handled its operative processes and the relationship was run down. This supplier was not focused on a beautiful exit where it could have left for instance residual **social bonds** to GreatTruck.

For another of the suppliers the decision by GreatTruck to terminate meant that the supplier would have to shut down the plant and lay off all workers. The managing director of that company knew that their performance towards GreatTruck was good and they wanted to show other potential buyers that they had a high expertise and could

even handle a termination of the business relationship. This supplier made a beautiful exit and handled everything very professionally in order to leave **residual bonds** to GreatTruck in the future and to show potential buyers what they could do.

5.5.5.6 Case 6

A negative critical episode that was due to economic reasons and was viewed by representatives at GreatTruck as extremely difficult was due to the fact that a salesperson at the supplier started to have demands on a very steep raise of the prices on products delivered to GreatTruck. The prices on the supplier's products were already high in comparison to the competing suppliers and GreatTruck did not accept the raise in prices but stated that these prices should rather be decreased. The salesperson maintained to demand higher prices and it was perceived as difficult to even have negotiations with the supplier since the salesperson was not interested in negotiations. GreatTruck decided to terminate the relationship since cheaper alternative suppliers existed. The negative critical episode led to a weakening of the **economic bonds** that lead to the termination of the relationship.

The salesperson had not forwarded the decision regarding termination to the management of the company in time but kept the information to himself. It got so far that the time schedule for terminating the relationship had started but the personnel in the suppliers company was still not informed about GreatTruck's decision to terminate. Then problems started for GreatTruck. The operative personnel at the suppliers did not want to terminate the relationship without information from the management. The personal engagement was not good when GreatTruck had to time a change to two alternative suppliers. The **social bonds** deteriorated. Many product numbers were involved and the agreements made in connection with the termination were not kept at all or they were handled poorly. There was a deep sense of unwillingness from the supplier's side to terminate the relationship.

5.5.5.7 Case 7

Negative critical episodes resulting in termination relationships that have been due to geographical distance have happened in the beginning of relationships that is before supplier relationships have become stable. GreatTruck has then noticed that the relationships have not worked properly, the lead times have been long and GreatTruck has terminated the relationships before the relationships have become stable. Cases with Termination due to geographical distance have taken place in both North Africa and the U.S.A. The informant at GreatTruck's logistics department would prefer to call it terminated test production instead of terminated relationships. The **geographical** and **time bonds** have been weak and the relationships have been terminated due to that.

5.5.5.8 Case 8

Negative critical episodes resulting in termination of relationships due to cultural reasons has also taken place when relationships are started. This was the case with a Spanish supplier; the supplier was not used to demands for precision and demands for security regarding deliveries that GreatTruck had in the beginning of the relationship.

The supplier did not understand what types of replies and how fast GreatTruck needed replies regarding certain questions. GreatTruck was totally different from the buyers the specific supplier was used to, it had a totally different way of handling matters and it was perhaps more a question regarding company than national culture. Weak **cultural bonds** resulted in termination of the relationship.

Products that are machined in GreatTruck's process or are in the kernel of the engine or the truck can stop the assembly lines at once if the deliveries are late.

5.5.6 Positive critical episodes

One example of something that may strengthen the bonds between the buyer GreatTruck and a supplier is what is referred to as supply chain development by the quality department at GreatTruck. This is only made in cases where the supplier has big problems in supplying GreatTruck for a long time. This happened after discussions regarding the cause of action that should be taken with the supplier, whether to develop the supplier or phase out the relationship. Personnel skilled in rationalizing a company are then sent out to the supplier in order to increase supplier performance. This is only done with smaller suppliers and not with large suppliers as for instance some of the large players on the market that supply engine parts. The case may for instance be that GreatTruck may not have any alternative suppliers at the moment and must improve the performance of the current supplier. The supply chain development may for instance be undertaken in order to increase product quality, thereby increasing the strength of the **technical bonds** or be undertaken in order to increase delivery precision increasing the strength of the **time bonds**. The supply chain development is undertaken since GreatTruck focuses on having long-term relationships with its suppliers, this strengthens the **social bonds** between GreatTruck and its supplier.

“As I see it the aim is long-term relationships. It is not the purpose to have suppliers that bounce in and out of here. That is not good for anyone”. Quality at GreatTruck

A positive critical episode where GreatTruck has used supply chain development in order to help in improving the supplier's performance towards GreatTruck has thereby strengthened the bonds between supplier and GreatTruck.

5.5.7 Beautiful exits

Beautiful exits are used in order to leave **residual bonds** between the supplier and the buyer if there would be a need to continue business in the future. This is done to avoid burning the bridges to the buyer or supplier.

GreatTruck has an escalation model that is used when there are problems with the suppliers. It is a model that shows the supplier step by step what the suppliers situation is. The higher the number of the step the more problems there are. It has been used regarding logistic problems but not for quality problems. This model gives the supplier a clear picture of the situation the supplier is in when there are problems and gives the supplier possibilities to improve its performance in order to avoid a termination.

However, if termination occurs then the supplier has been aware of the problems for a long time and could take a decision regarding termination into account and therefore make the termination softer by leaving residual bonds in place in order to be able to place new offers at GreatTruck.

The termination of the business relationship is different in the case that GreatTruck needs the supplier or if GreatTruck is a strategic buyer for the supplier according to informants from the purchasing department at GreatTruck. The termination is then more in the form of a pause where solutions to the problems are searched. The deliveries are at a halt but residual bonds exist and new possibilities for cooperation are created in order to continue the cooperation between GreatTruck and the supplier in the future.

Phasing out of the production can take several years and the supplier gets information regarding the upcoming termination several years before it takes place. This is done in order to achieve a beautiful exit where there are residual bonds left to the supplier with the intention to probably start using the supplier again in three to five years.

The suppliers that are terminated from GreatTruck's list of suppliers are usually trying to make a beautiful exit in order to have the chance to come in as suppliers and supply GreatTruck in the future.

5.5.8 Different bonds found in the validating case

Below is a selection of different bonds found in the relationships between GreatTruck and its supplier. These bonds are mentioned in order to strengthen the notion of an existing framework consisting of 10 bonds and one strategic bond that is on a higher level than the other 10.

5.5.8.1 Technical

Weak technical bonds may lead to termination of the relationship, if for instance the development of products is weak or the product quality is low.

In sequential deliveries it is quite difficult to change the suppliers and that is due to the fact that tooling may be in question that has to be moved. Sequential deliveries means for instance that a yellow truck is assembled and all visible article numbers for that truck are yellow, the next truck on the assembly line might be red and all parts to that truck are red etc. The technical bonds are strong and functions as exit barriers in a negative sense since it makes it difficult for the buyer to change supplier. As for instance with electrical cables that are delivered in sequential deliveries ready to assemble with all contacts and other gadgets already connected to the cables. It would be difficult and take time to change suppliers of cables.

5.5.8.2 Time

Weak time bonds may lead to termination of the relationship even if the economic bonds would be strong.

The car producing industry has been a pioneer when it comes to standardization of issues like computerized exchange of information. All logistic information runs on similar systems, the CAD systems are similar etc. If one relationship is terminated, all the systems can be used with other suppliers. The standardized systems function as a strong time bond seen from a positive view on bonds, but as a weak time bond if seen from a negative perspective on bonds since it does not function as an exit barrier for the supplier or buyer wishing to end the relationship.

5.5.8.3 Knowledge

Poor performance from the management at the suppliers factories may also cause problems with quality; the reason for this can be that the management has poor knowledge of the business therefore the knowledge bonds are weak.

There is perceived to be big differences in the knowledge at the management or managing director level at the supplier regarding logistic precision of the supplier. Many companies are perceived to be focusing on technical matters and quality but the management can be completely unaware of how good their delivery precision is.

It is perceived as a problem if the personnel change frequently since a lot of knowledge regarding the product and the company disappears and this knowledge is difficult to replace. There are lots of experiences that the personnel have that cannot be stored on paper. Weak social bonds due to changes in personnel weaken the knowledge bonds.

5.5.8.4 Legal

There are usually written contracts between GreatTruck and its suppliers regarding development of products if trade secrets are exchanged especially with GreatTruck, according to informants from the quality department at GreatTruck. But if of the shelves products like turbochargers are developed there are usually no legal contracts between the companies since turbochargers are developed for so many producers of trucks at the same time and are all similar.

The written contracts can also be commercial and they can cover quality, measures to raise quality, deliveries, development of logistic performance, development of the supplier etc.

Gentlemen's agreements do still exist but the development is more and more towards written contracts, which means the strengthening of the legal bonds. The issues that are agreed upon are written down. These may be issues as terms of delivery and terms of payment. The legal agreement is only used in times when there are problems in the cooperation and when there are changes of the personnel at GreatTruck so that the next manager should be aware of what has been agreed upon with the supplier.

The legal agreements are, however, perceived to be easy to break since there are clauses for everything. And if there are so many problems that the legal aspects must be used then the contract can also be left to end. The contract is used to the end of the specific term and is not renewed.

“When you take legal matters into aspect then there is a fight. It is very costly. The cases where I have been involved regarding conflicts where a lawyer has been involved have been very hard and determined. I have clearly stated that if the conflict cannot be solved then there is no future for the cooperation either”.
Purchase manager at GreatTruck

5.5.8.5 Economic

Economic issues are important but are usually not as important as issues concerning quality, since poor quality leads to additional costs and that weakens the economic bonds.

Economic bonds that can be negative and function as exit barriers usually exist when GreatTruck has placed money into tooling that the supplier uses.

5.5.8.6 Geographical

The geographical aspect when developing products do not constitute a problem is if the suppliers are located in Europe. There have however been problems when for instance a supplier of turbochargers was located in Los Angeles and the time difference caused problems since it was not possible to discuss with the supplier on normal working hours. This weakened the geographical bond.

GreatTruck does not perceive large geographical distance to be a barrier for doing business. GreatTruck has suppliers in Japan, North and South America. The orders are placed on and based on a total estimate on the pros and the cons of the supplier. Europe is perceived to be a big country with different languages from a logistic point of view. The geographical distance is taken into account in the manner that if it is possible to supply the same product with the same quality from a closer distance then the costs are taken into account with the logistic view.

5.5.8.7 Social

Social relationships are seen as being of outmost importance for a business relationship. The social competence, the skill to handle issues, a willingness to ignore small unessential problems and to willingness to leave prestige behind is important in times of trouble.

Social relationships are seen as being important since GreatTruck strives to create long-term relationships to the suppliers they have defined today. Long-term relationships are seen as a foundation for good profitability, quality and delivery precision. An improvement of the atmosphere between buyers and suppliers is perceived to have happened in later years and the value of good relationships has become stressed according to informants from GreatTruck.

The production at GreatTruck would prefer to work with a smaller number of suppliers since it would be easier to maintain good relationships to a smaller number of suppliers.

And hence strengthen the social bonds through terminating some of the relationships while improving others.

Still there is a fear for too strong social bonds between contact persons at GreatTruck and the suppliers, e.g. when GreatTruck's logistics personnel have become too good friends with their suppliers. The problem is regarded to have to do with the fact that the contact person from GreatTruck is having a low position at GreatTruck while he has quite a high position towards the supplier. There is easy a frustration that it is easy to change issues at the supplier but it is difficult to change things at GreatTruck. There have been cases where GreatTruck's contact person has taken the supplier's side against GreatTruck when there have been arguments. The fear about too strong friendship is connected to that. That is why GreatTruck strives to change contact persons continuously.

When the relationships have been terminated it is seen as important by GreatTruck to make a beautiful exit in order to maintain residual social bonds to the supplier. This is done in order to maintain the possibility to start doing business in the future.

“When doing a beautiful exit you should clearly declare that you are very angry etc. etc. etc. but it could be good if we could meet again and drink a glass of beer in order to continue this. And then it is really important to find a way of interaction for the time that the companies are not doing business. How do you meet then?” Purchasing manager at GreatTruck

5.5.8.8 Cultural

Cultural differences are seen as more problematic than geographical differences according to representatives from GreatTruck, e.g. the differences between product development in the U.S.A. and in Northern Europe. The large companies from the U.S.A. might have more money to spend on product development and are therefore not as focused on the development as European companies. GreatTruck tends to focus more directly on the issue and write a report containing exact technical details, numbers, sheets and diagrams etc. The Americans on the other hand tend to be more unfocused when developing and have time to look at issues from a broader perspective and show lots of overheads, which is considered to be disturbing according to representatives from GreatTruck. These kinds of differences affect the cultural bonds in a negative sense.

“In U.S.A. they tend to have more resources and look more broadly on things and I perceive that they talk a lot and do very little. They show very many overheads but are never showing any concrete results that they have found. At the same time we write a report with exact details, technical, numbers here there and everywhere and sheets and diagrams and they (the Americans) show 100 overhead pictures”. Quality at GreatTruck

There have been problems regarding American versus European culture since the European culture is perceived to be very different from the American culture. European culture is perceived to be more based on discussion and trying to find solutions to problems and value personal relationships while the American culture values only economic value and fast action. There has been termination due to the differences in

culture since the Americans do not understand the European history, or geography etc. The cultural bonds have been weak.

“We have seen clear termination regarding American companies since they don’t understand the European culture. They don’t have a clue about what Europe is doing, they don’t understand the history, and they don’t understand the geography. They still think that we are in the middle of Massachusetts and think that they can do what they want and we have good examples of that. And there it is as you say direct termination (shows the finger) it is termination and it takes only six months so it is fast”. Purchase manager at GreatTruck

There are also perceived cultural differences and problems with the South European suppliers, especially those in the Latin countries. GreatTruck is, however, trying to bridge the gap by acting in a more powerful and masculine manner in order to get the deliveries from these countries; there are clear differences between the cultures so the cultural bonds are weak. Personal relationships are perceived to be important in order to bridge the cultural gap, which is building stronger social bonds to the supplier’s personnel.

Differences in organizational culture are also causing problems. GreatTruck has a flat organization, which means that it is easy to delegate responsibility while a French or an American organization can be very strict and hierarchical. Decisions are made very high up in a hierarchical organization while decisions are made at a very low level at GreatTruck. This causes a difference in the way of work and the manner in how much people can act or are allowed to act when problems arise. It can take more time to solve problems when people are not allowed to act on their own behalf but must rather wait for confirmation from a higher level in order to act. These weak cultural bonds are also weakening the time bonds.

Problems have also occurred in Eastern Europe. The old USSR with the exception of Estonia has caused cultural dilemmas. An example of Eastern Germany was given and there were large management problems just after the reunion of West and East Germany. East-German factories with East-German leadership made it impossible to use the factories as suppliers for GreatTruck. The factory management has been changed to West-German management and the mentality has changed so the cultural bonds have changed.

5.5.8.9 Ideological

GreatTruck has a demand that the suppliers supplying GreatTruck should be ISO 14001 certified. Every supplier that is not yet certified should have an action plan in order to be certified. There are also some chemical products that should be avoided both in the products delivered to GreatTruck but also in their own processes. The company has a grey and a black list regarding products that should be avoided. The black list is regarding substances that should not be used under any circumstances and the grey list contains substances that should be phased out.

The buyers of trucks have become more environmentally aware and focus on how much fuel the truck consumes per kilometer, how much it affects the environment, and wear and tear of the tires. Standards for noise pollution have to be taken into account etc. The

buyers of trucks and the environmental movement have forced the truck producing industry to take environmental aspects into account. Products have to be designed in correct environmentally friendly materials and the materials should be recyclable. This affects the suppliers that are also forced to focus on environmental aspects.

5.5.8.10 Psychological

No differences are perceived on products supplied whether they are manufactured in South America, Japan, China or Sweden. The quality is perceived to be similar in today's industrialized world. There may however be differences regarding how developed the industry is but GreatTruck strives to use the same norm for quality regardless of where they buy their products. The psychological bonds between GreatTruck and its suppliers are weak.

5.5.8.11 Strategic

Strategic reasons may lead to that a supplier does not want to supply the truck producing industry any more since their strategic focus has changed away from the truck producing industry. The strategic bonds are weak.

Strategic reasons have also lead to termination of relationships from GreatTruck's point of view when relationships with suppliers seen as uninteresting partners in the long run have been terminated.

6 Comparison of outcome of bonds due to episodes

In the following subchapters I will compare the outcomes of different episodes and discuss how this has affected the bonds. The cases discussed will be the four cases with buyers that cooperated with the supplier Suspension-Supply since these are the cases where tables had been constructed for viewing bond dynamics. By comparing the different cases with outcomes as termination, partial termination, weakening and strengthening of bonds it is possible to grasp the bond dynamics.

6.1.1 Comparison of the dynamics of technical bonds

The technical bond was strong in cases 1, 2, 3 and 4. See Table 50 below.

Technical problems such as quality problems etc. were presented as one of the important possible reasons for termination when termination occurred. Technical matters were however not the reason for termination in the case with termination of the business relationship in case 1 with TeraTruck nor in case 2 where partial termination to GigaTruck took place. The technical bonds in the relationships have been strong.

Similarities

Similarities between the dynamics of technical bonds seem to be that in most of the cases technical bonds strengthen as time passes. As can be seen as more positive markings in the time 2 column than in the time 1 column with the exception of case 2 where partial termination of one product group was made, thereby decreasing the development activity for parabolic springs and investment in that. The cooperating companies adapt their products and processes closer to each other in order to save time and money when designing and manufacturing products. Critical incidents are solved and novel systems like 3-D models and computer systems are utilized in order to make product development and problem solving easier and that strengthened the technical bond.

Differences

The differences between the cases are those that the cooperation regarding technical development activities has been on a low level in case 1 where termination has taken place due to negative critical episodes. That was the case in the first case that is in the cooperation between TeraTruck and Suspension-Supply.

Conclusion

Technical bonds are unstable bonds. Technical bonds may change frequently in strength during the relationship due to for instance quality problems or increases or decreases in technical development. As seen in Table 94 the technical bonds have changed in strength due to for instance investments in equipment, decreases in product development activity or by starting to use of 3-D models in the development of

products. Unstable bonds like technical bonds are the most likely to affect relationship termination if that occurs.

Table 50. Elements affecting technical bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship			
Elements that affect the strong technical bond	Time 1	Time 2	
Technical adaptation to the counterpart in the cooperation			
Process adaptation	-	+	
Product adaptation	+	+	
Cooperation regarding technical development			
Development activity	-	-	
Investments			
Investments in equipment	-	+	
Technical lead as patented product or process			
Patented product	+	+	
Case 2 GigaTruck, negative critical episode, partial termination of relationship			
Elements that affect the strong technical bond	Time 1	Time 2	
Technical adaptation to the counterpart in the cooperation			
Process adaptation	+	+	
Product adaptation	+	+	
Cooperation regarding technical development			
Development activity (conventional springs and tubular stabilizer)	+	+	
Development activity (parabolic springs)	+	-	
Investments			
Investments in equipment	+	-	
Technical lead as patented product or process			
Patented product (stabilizers)	+	+	
Case 3 BigTruck , negative routine episodes, continuation of relationship			
Elements that affect the strong technical bond	Time 1	Time 2	
Technical adaptation to the counterpart in the cooperation			
Process adaptation (one incident)	-	+	
Product adaptation (one incident)	-	+	
General product adaptation	+	+	
General process adaptation	+/-	+/-	
Cooperation regarding technical development			
Development activity	+	+	
Case 4 KiloTruck, positive critical episodes, strengthening bonds			
Elements that affect the strong technical bond	Time 1	Time 2	Time 3
Technical adaptation to the counterpart in the cooperation			
Process adaptation	+	+	+
Product adaptation	+	+	++
Outsourcing of the production	+	+	+
Cooperation regarding technical development			
Development activity	+	+	+
Noticeable increase in development activity		+	+
Tough testing has driven the development of the parabolic spring		+	+
Cooperation regarding design (close)	+	+	+
Use of 3-D models in development of products			+
Increased adaptability due to use of 3-D drawings			+
Technical lead as patented product or process			
Patented product (tubular stabilizer)	+	+	+
Quality matters			
Product quality and technical quality			
Good statistic vis-à-vis claims (few claims)	+	+	+

6.1.2 Comparison of the dynamics of time bonds

The time bonds were weak in cases 1 and 3, strong in case 2, while of medium strength in case 4. See Table 51 below.

Logistical problems such as poor delivery precision etc. were presented as one of the important possible reasons for termination when termination occurred. Poor delivery precision was the reason for termination of the relationship in the case with termination of the business relationship in case 1 with TeraTruck. The time bonds weakened in case 1 where the termination of the relationship took place. The level of delivery precision decreased and line stops occurred.

Similarities

When the delivery precision has decreased or been low the deliveries to alternative buyers have usually affected the time bonds negatively, weakening them. This has been the case in case 1, case 2 and case 3. Line stops have also occurred in case 1, case 2 and case 4 due to the situation regarding the poor delivery precision in the autumn of 2000. Lead-times have increased or been long in times with poor delivery precision in all cases.

Bottlenecks have occurred in cases 1, 3 and 4 due to technical features in case 1, due to technical features and smallness of the series in case 3 and in cases with large irregular orders in case 4.

In cases 1, and 2 common EDI systems for delivery instructions existed. The case companies were companies that sent orders for deliveries on a frequent basis and with short notice and updated their delivery information on a daily basis. The EDI systems were issues that affected the time bonds positively strengthening them. The relative weight of the importance of the EDI systems is however lower than that of the delivery precision that the EDI systems are supposed to support. For instance in case 4 where no EDI systems exist the risk for late deliveries was lower due to the fact that the delivery instructions were sent less frequently making the system more stable.

Differences

Relationships can continue to continue even though the time bonds are weak in most aspects, as is case 3 in the cooperation between BigTruck and Suspension-Supply where the time bonds are weak. Other issues such as other strong aspects of the relationship may help the relationship to continue or even force it to continue, as in case 3 with BigTruck, where strong technical bonds function as a driving force for the continuation of the relationship.

Conclusion

Time bonds are unstable bonds. Time bonds may change frequently in strength during the relationship due to for instance decreases in delivery precision, increased lead times, line stops.

Table 51. Elements affecting time bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship			
Elements that affect the weak time bond	Time 1	Time 2	Time 3
Adaptation of logistic functions			
Size of production series	-	+	+
Warehouses	+	+	+
Delivery precision and issues connected to that			
Delivery precision	+	+	-
Lead times	-	+	-
Line stops			-
Flexibility of production (bottleneck product)	-	+	-
Deliveries to alternative buyer			-
Flexibility of flow of information			
EDI system for transfer of daily delivery information	+	+	+
Exchange of CAD drawings	+	+	+
Case 2 GigaTruck, negative critical episode, partial termination of relationship			
Elements that affect the strong time bond	Time 1	Time 2	Time 3
Adaptation of logistic functions			
Size of production series	+	+	+
Warehouses			
Delivery precision and issues connected to that			
Delivery precision	+	-	+
Lead times	+	-	+
Line stops		-	
Deliveries to alternative buyer		-	
Flexibility of flow of information			
EDI system for transfer of daily delivery information (SYNCRO) and (DELINS)	+	+	+
Electronic shipping message (AVIEXP)	+	+	+
On-line invoicing (INVOIC)	+	+	+
Exchange of CAD drawings	+	+	+
Communications systems, E-mail etc. (MEMO)	+	+	+
Case 3 BigTruck, negative routine episodes, continuation of the relationship			
Elements that affect the weak time bond	Time 1		
Adaptation of logistic functions			
Size of production series	-		
Warehouses	+		
Delivery precision and issues connected to that			
Delivery precision	-		
Lead times	-		
Flexibility of production (bottleneck product due to small series)	-		
Deliveries to alternative buyer	-		

Flexibility of flow of information				
Time of notice when orders are placed	-			
EDI system for transfer of daily delivery information (lacking)	-			
Number of interfaces (small)	+			
Case 4 KiloTruck, positive critical episodes, strengthening bonds				
Elements that affect the time bond of medium strength	Time 1	Time 2	Time 3	Time 4
Adaptation of logistic functions				
Size of production series	+	++	++	++
Warehouses	+	+	+	+
Delivery precision and issues connected to that				
Delivery precision	+	+	+-	+
Airfreight in order to solve problems with late deliveries			+	
Lead times	+	+	-	-
Line stops			-	
Flexibility of production (bottlenecks in cases with large irregular orders)	-	-	-	-
Termination of competing business relationship in order to be able to supply KiloTruck better			+	+
Flexibility of flow of information				
Time of notice when orders are placed (four to eight weeks in advance)	+	+	+	+
EDI system for transfer of daily delivery information (lacking)	-	-	-	-
Snail mail in order to deliver delivery instructions	-	-	-	-
Exchange of CAD drawings	+	+	+	+
Number of interfaces (few interfaces in the channel for communication)				+
Agents used (increases flow of information)	+	+	+	+

6.1.3 Comparison of the dynamics of knowledge bonds

The knowledge bonds were strong in cases 2, 3 and 4 while of medium strength in case 1. See Table 52 below.

Similarities

In case 2 involving GigaTruck the number of interfaces decreased knowledge bond strength after the decision to partially terminate the relationship with Suspension-Supply. Several different interfaces decreased knowledge bond strength in case 1 where relationship termination occurred.

In the cases 2, 3 and 4 where the knowledge bonds were strong the involvement regarding development of products began at an early stage. The familiarity of strengths and weaknesses is affecting the knowledge bonds positively in cases 1, 3 and 4.

Differences

Language problems affected the knowledge bond negatively in case 1 where relationship termination occurred.

Conclusion

Knowledge bonds may change over time when for instance personnel in cooperating companies change or when the number of interfaces in the cooperation increase or decrease. How early the supplier is allowed to take part in the cooperation regarding development of products also affects the knowledge bond. This is a fact since the earlier the supplier is allowed to take part in the cooperation the earlier both counterparts can find out what is possible to do in order to solve problems.

Table 52. Elements affecting knowledge bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship		
Elements that affect the knowledge bond of medium strength		
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation		
Familiarity of strengths and weaknesses		+
Cooperation regarding development of products		
Cooperation regarding development of products		+
Stage where involvement begins		-
Mutual knowledge regarding rules and routines		
Mutual knowledge regarding rules and routines		+/-
Language		-
Number of interfaces (large)		-
Case 2 GigaTruck, negative critical episode, partial termination of relationship		
Elements that affect the strong knowledge bond		
	Time 1	Time 2
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation		
Familiarity	+	+/-
Cooperation regarding development of products		
Cooperation regarding development of products	+	+
Stage where involvement begins	+	+
Use of 3-D models (CAD drawings)	+	+
Mutual knowledge regarding rules and routines		
Mutual knowledge regarding rules and routines	+	+/-
Language	+	+
Number of interfaces	+	-
Turnover of personnel (after single source decision)		-
Case 3 BigTruck, negative routine episodes, continuation of the relationship		
Elements that affect the strong knowledge bond		
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation		

Familiarity	+		
Cooperation regarding development of products			
Cooperation regarding development of products	+		
Testing of novel product design	+		
Stage where involvement begins	+		
Mutual knowledge regarding rules and routines			
Mutual knowledge regarding rules and routines	+		
Language	+		
Number of interfaces (small)	+		
Case 4 KiloTruck, positive critical episodes, strengthening bonds			
Elements that affect the strong knowledge bond	Time 1	Time 2	Time 3
Familiarity of strengths and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation			
Familiarity	+	+	+
Cooperation regarding development of products			
Cooperation regarding development of products	+	+	+
Clear and consistent cooperation	+	+	+
Knowledge sharing (regarding development of products)	+	+	++
Stage where involvement begins	+	+	+
Use of 3-D models			+
Mutual knowledge regarding rules and routines			
Mutual knowledge regarding rules and routines	+	+	+
Increased knowledge regarding decision making at KiloTruck		+	+
Language	+	+	+
Number of interfaces (decrease)		+	+

6.1.4 Comparison of the dynamics of legal bonds

The legal bonds were weak in case 1, of medium strength in case 2 and 3 and between medium strength and strong in case 4. See Table 53 below.

Only in case 4 with KiloTruck the legal bond was valued to be between medium strength and strong. Most issues were specified by contracts in this case. The fact that the contracts had a short duration and were easy to terminate had, however, a negative affect on the legal bond.

A lack of contracts is not weighed up by a demand for quality and environmental certificates as in case 1 where relationship termination occurred.

Similarities

All the cases, where the legal bonds were of medium strength or between medium strength and strong, were bound by some sort of contract stipulating issues in the cooperation. All contracts were however easy to terminate if quality or other problems

occurred in the cooperation. A contract per se was not seen as binding the counterparts in the cooperation together.

Quality and/or environmental certificates affected the legal bonds positively in case 1 and 2 but certifications are no substitutes for proper contracts.

Differences

The difference with case 1 where relationship termination occurred compared to the other cases was that the legal bond was weak and no contracts existed in the cooperation.

Conclusion

A legal bond in the form of a contract is not enough to stop an industrial business relationship from ending if problems for instance regarding quality or delivery precision exist.

Table 53. Elements affecting legal bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship		
Elements that affect the weak legal bond		
Written contracts		
Written contracts		-
Quality certificates like QS 9000		
Quality certificate QS 9000		+
Environmental certificate like ISO 14001		
Environmental certificate ISO 14001		+
Case 2 GigaTruck, negative critical episode, partial termination of relationship		
Elements that affect the legal bond of medium strength		
Written contracts		
Purchase agreement		+/-
Quality certificates like QS 9000		
Quality certificate ISO 9001		+
Environmental certificate like ISO 14001		
Environmental certificate ISO 14001		+
Case 3 BigTruck, negative routine episodes, continuation of the relationship		
Elements that affect legal the bond of medium strength		
Written contracts		
Contracts regarding price		+
Contract regarding technical development (lacking)		-
Quality agreement		+
Extended warranty		+
Quality certificates like QS 9000		
Quality certificate ISO 9001		+/-
Environmental certificate like ISO 14001		
Environmental certificate ISO 14001		-
Case 4 KiloTruck, positive critical episodes, strengthening bonds		
Elements that affect the legal bond of between medium strength and strong		
Written contracts		
General agreement	+	+
Contract regarding development of products	+	+
Contracts regarding deliveries	+	+
Contracts regarding customized orders	+	+
Quality agreements	+	+
Duration of contracts (short 12 months)	-	-
Rigid ness of contract (easy to terminate regardless of contracts)	-	-
Culture demanding written contracts		
Culture (at KiloTruck)	+	+
Quality certificates like QS 9000		
Quality certificate ISO 9001	+	+/-

6.1.5 Comparison of the dynamics of economic bonds

The economic bonds were weak in cases 1 and 3, of medium strength in case 4 and between medium strength and strong in case 2. See Table 54 below.

The economic bonds were weak in case 1 with termination of the relationship and in case 3 where negative routine episodes occurred. This was due to the fact that the opportunity costs for both the supplier and the buyer TeraTruck were high in case 1 and the opportunity costs were high for the supplier in case 3. The profit margins were also low in both cases and the products were products causing bottlenecks and were therefore expensive to produce. The share of products delivered was small both from the suppliers and the buyers view in case 1 and from the suppliers view in case 3. Case 2 where partial termination occurred and case 4 where positive critical episodes have strengthened bonds are cases where economic bonds have been between medium strength and strong in strength.

Similarities

Cases 1 and 3 where the economic bonds were weak the opportunity costs were high and the profit margins were low and the production efficiency was low.

In case 2 where the economic bonds was between medium strength and strong in strength and in case 4 where the economic bonds were of medium strength single source agreements had been made in case 2 and one important product group was supplied as single source in case 4. The sizes of production series are large and the products are smooth to produce, thus the production efficiency is good.

Differences

The cases 2 and 4 require a large share out of Suspension-Supply's production capacity. The size of the production series is large in case 5 and that affects the economic bonds positively.

The opportunity costs were lower in case 2 and 4, where the products were smooth to produce in comparison with the other cases where production was not as smooth to produce. This was due to the fact that the products in cases 1 and 3 were bottleneck products and the production of these was not as efficient as it could be.

Conclusion

Economic issues such as price increases and disagreements regarding price was presented as one of the important possible reasons for termination when termination occurred. Economic bonds are unstable bonds. Economic bonds may change frequently in strength during the relationship due to for instance price negotiations, demands for

lower prices etc. This conclusion was due to statements of fact that were also found in the validating case.

Table 54. Elements affecting economic bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship			
Elements that affect the weak economic bond	Time 1	Time 2	Time 3
Price			
Opportunity costs (high)	-	-	-
Profit margin			
Profit margin (low)	-	-	-
Share of supplied or bought products			
Share of products (small)	-	-	-
Production efficiency	-	+	-
Bottleneck product	-	+	-
Additional costs or revenues that stem from the cooperation			
Airfreights (negative costs) (times with poor delivery precision)			-
License fees	+	+	+
Case 2 GigaTruck, negative critical episode, partial termination of relationship			
Elements that affect the economic bond of between medium strength and strong	Time 1	Time 2	
Credit arrangements such as discounts			
No discounts	-	-	
Price			
Price (decrease by 8-10%)		+-	
Opportunity costs	+	+-	
Profit margin			
Profit margin (low)		-	
Share of supplied or bought products			
Share of products (large)	+	-	
Size of series produced		+	
Single source conventional springs		+	
Single source tubular stabilizers		+	
Products that are smooth to produce	-	+	
Additional costs or revenues that stem from the cooperation			
Airfreights (negative costs) (times with poor delivery precision)	+	+-	
Case 3 BigTruck, negative routine episodes, continuation of the relationship			
Elements that affect the weak economic bond	Time 1	Time 2	
Price			
Opportunity costs	-	-	
Profit margin			
Profit margin (low) (supplier)	-	-	
Profit margin (buyer)	-	+	
Share of supplied or bought products			
Share of products (small) (supplier)	-	-	
Share of products (large) (buyer) (100%)	+	+	
Size of series produced	-	-	

Production efficiency	-	-	
Bottleneck products	-	-	
Case 4 KiloTruck, positive critical episodes, strengthening bonds			
Elements that affect the economic bond of medium strength	Time 1	Time 2	Time 3
Credit arrangements such as discounts			
No discounts	-	-	-
Price			
Price (high price according to KiloTruck)	-	-	-
Opportunity costs (low)	+	+	+
Share of supplied or bought products			
Share of products (out of Suspension-Supply's total production) (bigger in 2001)	-	+	+
Single supplier for tubular stabilizers	+	+	+
Supply's 8-10 % of KiloTruck's demand for springs	+/-	+/-	+/-
Size of series produced		+	+
Production efficiency	-	+	+
Product smooth to produce	+	+	+
Additional costs or revenues that stem from the cooperation			
Airfreights (negative costs) (periods with poor delivery precision)		-	

6.1.6 Comparison of the dynamics of geographical bonds

The geographical bonds were weak in case 1, of medium strength in case 2 and strong in cases 3 and 4. See Table 55 below.

Warehouses are used in case 1, 3 and 4 and that affects the geographical bond positively. The geographical bonds are however only strong in case 3 and 4 while weak in case 1 since use of warehouses cannot bridge poor delivery precision.

Case 1 where the geographical bond was weak was the case where relationship termination occurred. Suspension-Supply delivered products to the buyer, TeraTruck's plant in Asia, and the geographical distance affected the bond negatively.

Similarities

Similarities in all four cases are that the geographical distance does not create problems from a view regarding technical cooperation. There is no big time difference in flying in Europe. In the validating case 6 informants however saw problems due to geographic distance and distance in time barriers when business had to be conducted with a supplier in California to which the actual distance and the time difference was large.

Line stops are mentioned due to the fact that the line stops resulted in airfreights of products that could have been avoided if the supplier's factory should have been located closer to the buyer. Line stops should have occurred regardless of how near the supplier would have been located to the buyer since Suspension-Supply lacked the production capacity to supply all buyers.

Differences

The case that differs from the other cases is case 3 where the counterpart in the cooperation is situated close to each other at a distance of only 3 kilometers. The other 3 cases are cases where a good lead-time and delivery precision can bridge the problems connected to a long geographical distance.

Conclusion

Geographical bonds are connected to how suitably located the supplier is from a customer point of view. The view of how suitably located the supplier is can vary over time in the relationship. Depending on the industry the location of the supplier is of different importance. In the truck producing industry the location of the supplier used to play a more important role than it does at present. If the delivery precision is good then the problems due to geographical distance will decrease.

Table 55. Elements affecting geographical bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship			
Elements that affect the weak geographical bond	Time 1	Time 2	Time 3
Geographical distance to buyer/supplier			
Geographical distance	-	-	-
Delivery precision	+	+	-
Lead-times	-	+	-
Airfreights (in times of poor delivery precision)			-
Warehouses	+	+	+
Technical cooperation			
Technical cooperation	+	+	+
Case 2 GigaTruck, negative critical episode, partial termination of relationship			
Elements that affect the geographical bond of medium strength	Time 1	Time 2	Time 3
Geographical distance to buyer/supplier			
Geographical distance	-	-	-
Delivery precision	+	-	+
Lead-times	+	-	+
Line stops		-	
Airfreights (in times of poor delivery precision)		-	
Deliveries to alternative buyer		-	
Technical cooperation			
Technical cooperation	+	+	+
Case 3 BigTruck, negative routine episodes, continuation of the relationship			
Elements that affect the strong geographical bond	Time 1		
Geographical distance to buyer/supplier			
Geographical distance	+		
Warehouses	+		
Technical cooperation			
Technical cooperation	+		

Case 4 KiloTruck, positive critical episodes, strengthening bonds			
Elements that affect the strong geographical bond	Time 1	Time 2	Time 3
Geographical distance to buyer/supplier			
Geographical distance	-	-	-
Geographical distance (Global sourcing perspective used by KiloTruck)	+	+	+
Delivery precision	+	-	+
Lead-times	++	+	+
Line stops		-	
Airfreights (in times of poor delivery precision)		-	
Warehouses	+	+	+
Technical cooperation			
Technical cooperation	+	+	+
Agent Agentix bridges the gap that a long distance creates	+	+	+

6.1.7 Comparison of the dynamics of social bonds

The social bonds were of medium strength in cases 1 and 2, and strong in cases 3 and 4. See Table 56 below.

Similarities

Similarities in cases 3 and 4 where the social bonds are strong are that these are cases in which the informants perceive a team spirit to be present. The levels of commitment and trust are also high in these cases.

Differences

Case 2 where partial termination of the relationship occurred and the social bond was of medium strength was a case where purchasing personnel and personnel at the quality department had changed and that affected the social bonds negatively weakening them.

Conclusion

Social bonds develop over time when people in the companies start to know each other during the cooperation. Conducting business together and learning to know each other also in the spare time strengthen social bonds. These bonds grow stronger through for instance “winning and dining”. Social bonds are hence developed when people interact both professionally as well as in their spare time.

Social bonds weaken when people with good social contacts move to another company sometimes taking the customer with them which could lead to the ending of both the relationship and all the other bonds with the customer/supplier. A high turnover of personnel in the cooperating companies hence affects the social bonds negatively

weakening social bonds while a low turnover of personnel affects social bonds positively strengthening them.

Table 56. Elements affecting social bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship		
Elements that affect the social bond of medium strength	Time 1	Time 2
Turnover of personnel		
Frequent change of purchasing personnel	-	-
Low turnover of personnel on the logistics department	+	+
Low turnover of personnel on the technical department	+	+
Low turnover of personnel on the quality department	+	+
Contacts between personnel		
Frequent communication and meetings between sales and purchasing personnel	+	+
Management cooperation	+	+
Personal relationships		
Personal relationships	+	+
Unofficial contacts between personnel	-	-
Commitment and trust		
Commitment	+	-
Trust	+	-
Case 2 GigaTruck, negative critical episode, partial termination of relationship		
Elements that affect social bond of medium strength	Time 1	Time 2
Turnover of personnel		
Low turnover of personnel on the logistics department	+	+
Low turnover of personnel on the technical department	+	+
Change of purchasing personnel		-
Change of personnel on the quality department		-
Contacts between personnel		
Frequent communication and meetings between sales and purchasing personnel	+	+
Management cooperation	+	+
Team spirit (Northern Europe)	+	+
Team spirit (Central Europe)	+ -	+ -
Personal relationships		
Personal relationships	+	-
Unofficial contacts between personnel	+	+
Commitment and trust		
Commitment	+	+
Trust	+	+
Case 3 BigTruck, negative routine episodes, continuation of the relationship		
Elements that affect the strong social bond	Time 1	

Turnover of personnel	
High turnover of personnel at the purchase department at BigTruck	-
Low turnover of personnel at the logistics department	+
Low turnover of personnel at the technical department	+
Low turnover of personnel at the quality department	+
Contacts between personnel	
Infrequent communication and meetings between sales and purchasing personnel	-
Management cooperation	+
Team spirit	+
Personal relationships	
Personal relationships	+
Unofficial contacts between personnel	+
Commitment and trust	
Commitment	+
Trust	+
Case 4 KiloTruck, positive critical episodes, strengthening bonds	
Elements that affect the strong social bond	
Turnover of personnel	
No frequent change of purchasing personnel	+
Contacts between personnel	
Frequent communication and meetings between sales and purchasing personnel	+
Frequent meetings with personnel at technical development	+
Management cooperation	+
Team spirit	+
Agent Agentix functioning as a connecting factor	+
Avoidance of contacts. Will to avoid unofficial contacts at the purchase department (due to fear of corruption allegations)	-
Personal relationships	
Lack of personal relationships	-
Unofficial contacts between personnel	+
Commitment and trust	
Commitment	+
Trust	+
Attraction	+

6.1.8 Comparison of the dynamics of cultural bonds

The cultural bonds were of weak strength in case 1 and strong in cases 2, 3 and 4. See Table 57 below.

Having firm borders concerning responsibility with several interfaces could create problems when critical incidents occur. Several interfaces existed in case 1 where relationship termination occurred. Several interfaces also existed in case 2 but the number of interfaces increased in this case first after the partial termination had already taken place.

Similarities

Similarities in cases 2, 3, and 4 were that no language problems occurred in these cases. The language was seen as a connecting factor. Similarities in case 3 and 4 where the cultural bonds were strong were that few interfaces existed and the channels for communication were short. Such an ingredient in a culture makes it easier to solve problems when problems occur.

The company cultures are more or less similar in the respect that the companies have the culture of the industry they are working in and the supplier Suspension-Supply is adapted to that. Similarities also occurred in the manner decisions were made. Most of the companies had a manner of making decisions that was fast and based on facts where no small talk was required. The difference was in case 2 where the decision making for GigaTruck in Central Europe was fast while it was slower in Northern Europe due to cultural differences. These differences in decision-making were not only due to national culture but also due to company and management culture.

Differences

The cultural bonds were of medium strength in case 1 with TeraTruck where relationship termination occurred. One difference in this case compared to the other 3 cases was that language problems occurred in this case.

Conclusion

Cultural bonds are usually stable, but they can however develop during the relationship. The language spoken, the religion or other cultural elements such as which country the supplier is situated in are not easily changed. The level of similarity regarding the cooperating companies' company cultures also affects cultural bonds. Cultural bonds can increase or decrease in strength as the people in the organizations for instance learn to speak other languages and when biases disappear. The same facts take place when the company cultures are developed in the same direction.

Table 57. Elements affecting cultural bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship	
Elements that affect the weak cultural bond	
Company culture	
Company culture	+
Decision making (no small talk)	+
TeraTruck's firm borders concerning responsibility (many interfaces) (problem in case of critical incidents)	-
Borders concerning responsibility	-
Channels for communication	-
Handling of technical issues	+
Manner of handling quality audits (Differences vis-à-vis quality audits)	-
Transfer of delivery plans	+

Language		
Language problems		-
Case 2 GigaTruck, negative critical episode, partial termination of relationship		
Elements that affect the strong cultural bond	Time 1	Time 2
Cultural background		
Similar cultural background	+	+
Company culture		
Company culture	+	+/-
Decision making (Central Europe, fast)	+	+
Decision making (Northern Europe, slower)	+/-	+/-
GigaTruck's firm borders concerning responsibility (many interfaces)		-
Channels for communication		-
Computerization	+	+
Transfer of delivery plans (Transfer of delivery plans, drawings and invoices etc. electronically)	+	+
Language		
Language (similar)	+	+
Case 3 BigTruck, negative routine episodes, continuation of the relationship		
Elements that affect the strong cultural bond		
Cultural background		
Cultural background	+	
Company culture		
Similar company culture	+	
Decision making based on facts (no political game) (no small talk)	+	
Borders concerning responsibility (few interfaces)	+	
Channels for communication (few interfaces)	+	
Production philosophies (manufacturing of specialized products)	+	
Transfer of delivery plans	-	
Language		
Common language (native)	+	
Case 4 KiloTruck, positive critical episodes, strengthening bonds		
Elements that affect the strong cultural bond	Time 1	Time 2
Cultural background		
Similar culture	+	+
Agent Agentix functions as a cultural interpreter	+	+
Company culture		
Similar company culture	+	+
Similar way of conducting business	+	+
Decision making (no small talk)	+	+
Borders concerning responsibility (few interfaces)	+	+
Channels for communication (short with few interfaces)	+	+
Handling of technical issues (Similar)	+	+
Difference in strict obedience to norms, guidelines and rules	-	-
Agent as a cultural interpreter	+	+
Computerization (Fear for over computerization towards KiloTruck)	-	
3-D computer models improving technical cooperation		+
Transfer of delivery plans (by mail)	-	-
Religion		
Same religion (Christianity)	+	+
Language		
No language problems (same language group)	+	+
Agent functions as an interpreter	+	+

Language courses in order to bridge gap	+	+
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6.1.9 Comparison of the dynamics of ideological bonds

The ideological bonds were of medium strength in case 1 between medium strength and strong in case 2 and strong in cases 3 and 4. See Table 58 below.

Similarities

Cases 3 and 4 where the ideological bonds are strong are cases where the demands for environmental awareness are low. In case 4 with KiloTruck the only specified demand connected to environmental awareness was that the products should be recyclable which the products of Suspension-Supply are since they are made out of steel.

The true importance of environmental awareness is however low and that affects the ideological bonds negatively in cases 1, 2 and 3. Suspension-Supply has had to attract these suppliers' attention to forbidden substances in the process etc. This has happened regardless of the fact that GigaTruck in case 2 demands compulsory ISO 14001 certification while cases 1 and 3 would like the suppliers to strive for ISO 14001 certification or see it as an advantage if the suppliers are satisfied. The fact is however that economic reality is still a lot more important than environmental awareness when the two matters are compared when an offer is evaluated.

Differences

The demands put forward by BigTruck in case 3 are that the products should be recyclable and that an ISO 14001 audit is made. The most important issue for BigTruck and what makes the ideological bond between BigTruck and Suspension-Supply strong is, however, that the products have a high domestic content and since Suspension-Supply is a domestic supplier it affects the ideological bond positively.

The fact that GigaTruck has ISO 14001 as a compulsory demand increased the ideological bond strength to between medium strength and strong, compared to medium strength in case 1, where it is seen as positive with an environmental audit but it is not regarded to be a demand.

Conclusion

The ideological bonds were stable in these cases but ideological bonds could increase or decrease in strength for instance if environmental awareness becomes more important or if environmental certificates become important. It would then be possible that the suppliers that are not environmentally certified could be terminated from the buyer's list of suppliers.

Table 58. Elements affecting ideological bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship	
Elements that affect ideological bond of medium strength	
Environmental awareness	
Possibility to recycle product (recyclable products)	+
Waste management	+
Actual importance of environmental friendliness	-
Green product or process e.g. ISO 14001 certified process	
Environmental audit ISO 14001	+
Case 2 GigaTruck, negative critical episode, partial termination of relationship	
Elements that affect ideological bond of between medium strength and strong	
Environmental awareness	
Possibility to recycle product (recyclable products)	+
Actual importance of environmental friendliness	-
Green product or process e.g. ISO 14001 certified process	
Compulsory ISO 14001 environmental audit	+
Case 3 BigTruck, negative routine episodes, continuation of the relationship	
Elements that affect the strong ideological bond	
Environmental awareness	
Possibility to recycle product (recyclable products)	+
Actual importance of environmental friendliness	-
Domestic content of product	
Domestic product	+
Case 4 KiloTruck, positive critical episodes, strengthening bonds	
Elements that affect the strong ideological bond	
Environmental awareness	
Possibility to recycle product (recyclable products)	+

6.1.10 Comparison of the dynamics of psychological bonds

The psychological bonds were weak in case 3, of medium strength in case 2 and strong in cases 1 and case 4. See Table 59 below.

In case 3 where the psychological bonds were of weak strength no differences were perceived between products supplied by Suspension-Supply and between products supplied by other suppliers.

In case 1 with TeraTruck where the psychological bonds were strong they were strong due to the fact of the innovation with the tubular stabilizer that was a patented product. This fact was supported by the fact that after the termination of the business relationship with Suspension-Supply TeraTruck continued to buy the stabilizer from a supplier licensed by Suspension-Supply.

In case 4 with KiloTruck the psychological bonds were strong due to for instance the innovation of the tubular stabilizer and the patented product.

Similarities

In all four cases the brand name and image of the buyer is seen as important by Suspension-Supply and this affects the psychological bonds positively.

Differences

In case 4 with KiloTruck the psychological bonds were strong due to the fact that the steel used in the products was perceived to be of a higher quality than that of the competition. A mystical positive reputation of Suspension-Supply as a company “from the deep forests of the North” and their excellent ability to develop products affected the psychological bond positively strengthening it.

Conclusion

Psychological bonds usually stay the same during the whole relationship. Perceived superiority or inferiority of products, processes, systems or services can affect the perceived strength of the psychological bonds.

Table 59. Elements affecting psychological bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship	
Elements that affect the strong psychological bond	
Perceived superiority, equality or inferiority of product, process or service	
Patented product	+
Innovation (tubular stabilizer)	+
Brand name	
TeraTruck as a reference (brand name)	+
Image	
TeraTruck as a reference (image)	+
Reputation of the counterpart in the cooperation	
TeraTruck’s good reputation	+
Case 2 GigaTruck, negative critical episode, partial termination of relationship	
Elements that affect psychological bond of medium strength	
Perceived superiority, equality or inferiority of product, process or service	
Patented product (stabilizer) (superior to that of competitors)	+
No perceived difference between products produced by Suspension-Supply and those produced by other manufacturers (springs)	-
Springs (surface treatment)	-
Perceived superiority of process (springs)	+
Perceived superiority of process (tubular stabilizer)	+
Innovation (tubular stabilizer)	+
Brand name	
GigaTruck as a reference (brand name)	+
Image	
GigaTruck as a reference (image)	+
Reputation of the counterpart in the cooperation	
Reputation of GigaTruck	+

Case 3 BigTruck, negative routine episodes, continuation of the relationship	
Elements that affect the weak psychological bond	
Perceived superiority, equality or inferiority of product, process or service	
No perceived difference between products produced by Suspension-Supply and those produced by other manufacturers	-
Perceived expense of products	-
Brand name	
BigTruck as a reference (brand name, domestic market)	+
BigTruck as a reference (brand name, European market)	-
Image	
BigTruck as a reference (image, domestic market)	+
BigTruck as a reference (image, European market)	-
Reputation of the counterpart in the cooperation	
Reputation heavy trucks	+
Case 4 KiloTruck, positive critical episodes, strengthening bonds	
Elements that affect the strong psychological bond	
Perceived superiority, equality or inferiority of product, process or service	
Product superior to that of competitors (tubular stabilizers)	+
No perceived difference regarding springs	-
Patented product	+
Patented process	+
Perceived superiority, equality or inferiority of raw material (Steel perceived to be of higher quality)	+
Level of innovation connected to the product, process or service (innovation tubular stabilizer)	+
Brand name	
KiloTruck as a reference (brand name)	+
Image	
KiloTruck as a reference (image)	+
Reputation of the counterpart in the cooperation	
Mystical (positive) reputation of Suspension-Supply	+

6.1.11 Comparison of the dynamics of strategic bonds

The strategic bonds were weak in case 1, between medium strength and strong in case 2 and strong in cases 3 and 4. See Table 60 below.

The strategic decision to terminate the relationship between TeraTruck in case 1 and Suspension-Supply was made in agreement between TeraTruck and Suspension-Supply. Suspension-Supply needed more capacity to serve its other buyers well and since TeraTruck's product was a bottleneck that was only delivered in relatively small volumes, it was given that Suspension-Supply had to take the strategic decision to allocate more production capacity to its other buyers. More production capacity regarding the tubular stabilizer could be allocated to case 2 and case 4 when the relationship in case 1 was terminated. TeraTruck on the other hand had been facing line stops and re-occurring delivery problems and had to draw its conclusions and make the strategic decision to use a supplier with larger production capacity. The supplier SusTec that is licensed by Suspension-Supply now delivers the tubular stabilizer to TeraTruck.

The amounts delivered to Suspension-Supply's buyer BigTruck in case 4 were low but the possibilities for cooperation regarding technical development of products were superb and that is the main driving force behind the relationship.

Similarities

Similarities between case 2 where the strategic bond is between medium strength and strong and the other cases 3 and 5 where the strategic bonds are strong is that the buyer is important in these cases. The buyer may be important from an economic or technical point of view or both. Large shares of the production at Suspension-Supply are delivered to cases 2 and 4.

Similarities between case 3 and 4 where the strategic bonds are strong are that the close collaboration regarding development activities affects the strategic bond positively.

Differences

Case 1 with TeraTruck was a case where the strategic bonds weakened and were weak at the end of the cooperation when relationship termination occurred. The development activities never developed between the counterparts in the cooperation, Suspension-Supply's production capacity was not large enough to supply a large buyer like TeraTruck and following continuing delivery delays the strategic decision to terminate the relationship was made. The product was however still of strategic importance for the end product and that was the reason that TeraTruck continued to buy the tubular stabilizer from a supplier that was licensed by Suspension-Supply.

Conclusion

Strategic bonds are bonds that emerge when the companies have it in their strategy to have cooperation. The strategic importance of the supplier or the buyer might be important due to for instance economic, technical, geographical, and psychological or reasons connected to production capacity. Strategic bonds are unstable bonds. Strategic bonds may change frequently in strength during the relationship due to strategic reasons.

Table 60. Elements affecting strategic bond strength in the case companies

Case 1 TeraTruck, negative critical episode termination of relationship		
Elements that affect the weak strategic bond	Time 1	Time 2
Strategic decision to cooperate or terminate the cooperation		
Strategic decision to terminate		-
Strategic importance of buyer or supplier (economic and/or technical view)		
Share of products delivered/bought	-	-
Size of production series	-	-
Competing suppliers or buyers		-
Allocated production capacity	+	-
Geographical distance to supplier/buyer	-	-
Development activities		
Development activities with focus on other buyer		-
Strategic importance of product		
Strategic importance of product for end product	+	+
Entry product for supplier	+	-
Case 2 GigaTruck, negative critical episode, partial termination of relationship		
Elements that affect the strategic bond of between medium strength and strong	Time 1	Time 2
Strategic decision to cooperate or terminate the cooperation		
Strategic decision for single source (conventional springs)		+
Strategic decision for single source (tubular stabilizers)		+
Strategic decision to terminate (parabolic springs)		-
Strategic importance of buyer or supplier (economic and/or technical view)		
Strategic importance of buyer	+	+
Share of products delivered/bought (parabolic springs)		-
Share of products delivered/bought (Conventional springs)		+
Share of products delivered/bought (tubular stabilizer)		+
Size of production series		
Termination of relationship with competing buyer (stabilizer)		+
Allocated production capacity Production capacity (stabilizer)	-	+
Geographical distance to supplier/buyer	-	-
Strategic importance of product		
Strategic importance of product for end product (tubular stabilizer)		+
Case 3 BigTruck, negative routine episodes, continuation of the relationship		
Elements that affect the strong strategic bond		
Strategic decision to cooperate or terminate the cooperation		
Strategic importance of buyer or supplier (economic and/or technical view)		
Strategic importance of buyer (technical view)	+	
Strategic importance of buyer (economic view)	-	
Strategic importance of supplier	+	
Share of products delivered	-	
Share of products bought	+	
Size of production series	-	

Number of product numbers	-	
Competing suppliers or buyers	-	
Allocated production capacity	-	
Geographical distance to supplier/buyer	+	
Development activities		
Focus on development activities	+	
Strategic importance of product		
Strategic importance of product for end product	+	
Case 4 KiloTruck, positive critical episodes, strengthening bonds		
Elements that affect the strong strategic bond	Time 1	Time 2
Strategic decision to cooperate or terminate the cooperation		
Termination of relationship with competing buyer (stabilizer)		+
Strategic importance of buyer or supplier (economic and/or technical view)		
Strategic importance of buyer (technical view)	+	+
Strategic importance of buyer (economic view)	+	+
Share of products delivered	+	+
Share of products bought	+	+
Size of production series	+	+
Number of product numbers	+	+
Competing suppliers or buyers	-	+
Allocated production capacity	+	+
Production capacity (stabilizer)	-	+
Development activities		
Focus on development activities	+	+
Strategic importance of product		
Strategic importance of product for end product	+	+

Summary of the comparison of outcome of bonds due to episodes

Overall it can be said that some of the bonds are more critical for the relationship in their nature than other bonds. Technical, time, economic and strategic bonds are dynamic in their nature and do have a critical effect on the relationship when they change. These core bonds can result in relationship termination single-handedly if they are weakened radically. This is a conclusion that was made based on statements in most of the interviews both in the four cases as well as in the validity case.

Time and strategic bonds have been the main drivers of the termination of the relationship in case 1 with TeraTruck; strategic bonds in the form of the choice of a single source supplier was the reason for the partial termination of the relationship in case 2 involving GigaTruck, while technical and strategic bonds were the main drivers of the strengthening of the relationship in case 4 involving KiloTruck.

The stability of the bonds as presented in the tables is presented in subchapter 7.2.3 and the idea behind the more important core bonds, that is the technical, time, economic and strategic bonds and supporting support bonds, that is the knowledge, legal, geographical, social, cultural, ideological and psychological bonds is presented in subchapter 7.2.4. In the next chapter 7 stories regarding how bonds change during the cooperation are presented.

7 Summary and Implications

Subchapter 7.1 presents the theoretical contribution of this study. A new industrial business relationship view of bonds where five additional bonds have been added to the six that have been found by the IMP group, which is technical, time, knowledge, economic, legal, and social bonds. The additional bonds geographical, cultural, ideological, psychological and strategic bonds have been found to be of importance for an industrial view on relationships as well. This chapter also describes the change of the individual bonds.

In this study it was also found that bonds can be viewed both from a static and a dynamic perspective. When viewed from a static perspective the bond is viewed, as it would be temporary frozen in time. When viewed from a dynamic perspective the dynamics of bonds in the relationship are viewed, that is when the bonds in a relationship develop and change over time.

The importance of the bonds and the stability of the bonds are presented in the chapters regarding bond stability and core and support bonds. This is followed by a definition of bonds on a lower level of abstraction, thus incorporating findings from the analysis and broadening the definitions regarding the elements in every single bond. This is followed by a new general definition on bonds. The framework for capturing the nature and change of bonds is presented last in the part of the theoretical contribution.

Managerial implications are bond management that can be used in order to manage bond strength in order to strengthen or weaken bonds and thus affect the strength of an industrial business relationship. Bond audit is the instrument that is used in order to grasp the bonds, making it possible to manage them. The possibility to manage bonds also changes with their nature since some bonds are easier to manage than other. It is for instance more difficult to manage psychological bonds than to manage technical bonds.

Furthermore I discuss avenues for further research such as more vivid descriptions on the effect that bonds have on each other. Partial termination of relationships as well as testing the created framework in other industrial settings is also discussed.

7.1 Theoretical contribution

In this subchapter the theoretical contribution of the study will be presented. This contribution is aimed at the IMP paradigm. The contribution can be used in any industrial or business-to-business relationships.

7.1.1 A New Industrial View of Bonds

The IMP group has found six different kinds of bonds in the cooperation between companies. These bonds are technical, time, knowledge, economic, legal, and social bonds. These six bonds do however not give a picture that would cover industrial relationships completely. Five additional bonds have been found to be important in this

study. Geographical, cultural, ideological, psychological and strategic bonds have been found to be of importance in an industrial view on relationships as well.

In this study it was additionally found that bonds can be viewed both from a static and dynamic perspective. When viewed from a static perspective the bond is viewed, as it would be temporary frozen in time. When viewed from a dynamic perspective the dynamics of bonds in the relationship are viewed, that is when bonds in a relationship develop and change over time.

7.1.2 A Dynamic perspective of bonds

In the next section characteristics of change concerning different bonds will be discussed. Thus the dynamic perspective of bonds is presented below.

Technical bonds

Technical bonds start to develop in the early levels of cooperation even before a relationship has developed. Already before a supplier is chosen, the customer sends out drawings of how the part should be manufactured to the suppliers and asks for their opinion on the issue. The supplier then comes back with suggestions on how the part could be improved in order to be a better product and in order to fit better into the supplier's production process. (Wendelin 1998a) At this stage the technical bond has already started to develop. If the supplier then gets chosen then the supplier strive to fit the product into its own production process as good as possible so that it should be as efficient to manufacture the product as possible. Technical bonds are unstable bonds. Technical bonds may change frequently in strength during the relationship due to for instance quality problems or increases or decreases in technical development.

The cooperating companies adapt their products and processes to each other in order to save time and money when manufacturing products. Critical incidents are solved and novel systems such as 3-D models and computer systems are utilized in order to make product development and problem solving easier and that strengthens the technical bond.

For instance when the relationship between supplier and customer is developed the supplier may try to improve the product continuously thereby keeping up the fierce competition with all the other potential suppliers that could come to replace it. By having a technically superior product compared to the competition as for instance a tubular stabilizer vis-à-vis a regular full stabilizer that weighs approximately 20 kg more would affect the strength of the bond in a positive manner. In industries with high levels of standardization such as the truck producing industry this is one of the more fragile bonds. This is the fact since there are lots of suppliers manufacturing almost similar products and if the technical bond becomes weak or breaks then the risk is big that the whole relationship will end.

Time bonds

Time bonds are usually almost nonexistent in the beginning of the cooperation. EDI cooperation does not exist between the two companies but is usually set up quickly in order to cope with the daily business. Some problems may develop with the compatibility of different EDI systems that for instance are used for delivery information. The problem is that there are many different standards. In the ODETTE standard is used while the EDIFACT standard is used in Great Britain and VDA in Germany. Usually the supplier must invest in different systems so that he can be compatible with all of the customers. Over time the time bonds grow stronger when the supplier and customer start to exchange information daily and run information on the same systems. Sheth and Sharma (1997) finds that linkages such as for instance EDI will reduce both the suppliers and buyers costs and dramatically shorten cycle times. The reduction of suppliers and buyers costs will also affect the economic bonds in a positive manner.

Bottlenecks decrease the bond strength since it disrupts the flow of production or information process and therefore causes problems with deliveries. By decreasing the lead-time of the products the supplier can deliver products to the customer on shorter notification and that strengthens the time bond between the companies. The use of warehouses strengthens the time bonds between companies since delivering to warehouses makes it easier for the supplier to keep a buffer for unexpected deliveries and it is easier to forecast the forthcoming demand from the buyer. The delivery of products is not the only thing that is important for the customer but it is also important that the supplier and customer are able to exchange information regarding technical development such as CAD (computer aided design) drawings, etc. on-line. By setting up links for this purpose the time bonds strengthen.

Time bonds are bonds that are unstable and may change frequently during the relationship. If the lead-times in the production increase then the cooperation could be poorer and the bond could weaken or break. Even though the bond has been broken due to relationship termination the EDI links will remain as residual bonds and can be used in contacts with other suppliers/customers and may be used again the next time cooperation start.

Knowledge bonds

Knowledge bonds can also be latent that is to say they can be present before the supplier is contacted for cooperation. In the case with a company supplying the truck producing industry it can be argued that that supplier has knowledge regarding the truck producing industry and has therefore an advantage over a supplier that has never supplied the truck producing industry before.

If the supplying company is delivering to five other customers in for instance the truck producing industry it is easier to start delivering products to a sixth customer compared to a potential supplier that has never supplied the truck producing industry before. The supplier has an understanding for the truck producing industry since they had been

delivering to the industry before. The company has latent or potential knowledge bonds regarding for instance how to handle administration, problems, etc. in the truck producing industry.

Knowledge bonds usually start to develop in the absolute beginning of the relationship. The supplier may be invited to take part in the development of the product at an early stage of the production. Then the customer get to know what the supplier is able to do in the relationship and the supplier get to know the requirements that the customer has. How early the supplier is allowed to take part in the cooperation regarding development of products affect the knowledge bond. This is a fact since the earlier the supplier is allowed to take part in the cooperation the earlier both counterparts can find out what is possible to do in order to solve problems.

Knowledge bonds may change over time when for instance personnel in cooperating companies change. This is a fact since a change in personnel decreases the total amount of knowledge that the personnel at the supplier or buyer have regarding the counterpart. Decreases regarding the mutual knowledge regarding routines also weaken the knowledge bond. The knowledge bonds are also affected when the number of interfaces in the cooperation increase or decrease. An increase in the number of interfaces weaken the knowledge bonds since it becomes more difficult to get hand of the right people with the correct information and a decrease in interfaces in the cooperation have the opposite effect. The spoken language affects the knowledge bond similarly since language problems make it difficult to exchange knowledge and hence weakens the bond while a similar spoken language makes the exchange of information easier and hence strengthens the bond.

The knowledge bond usually strengthens over time when the two cooperating companies learn more and more about each other. The learning curve is positive. When the relationship is terminated then the knowledge bond weakens over time.

Legal bonds

Legal bonds do fluctuate in stability during the life span of the relationship. The legal bonds are usually renewed on a yearly basis and sometimes at intervals on up to three years. The legal agreements usually however have clause's that allow the contract to be renegotiated if the price on raw material on the world market, etc. should change.

The legal bonds may grow stronger if there are requirements for quality or environmental standards as for instance quality standards such as ISO 9001, QS 9000 or the new equivalent TS 16949 that the company can fulfill. The relative weight of the importance of the quality standards is however lower than that of a written contract. Quality standards may be a prerequisite for doing business in some relationships and audits made according to stringent military or civil standards may be a demand by the end customer. An environmental standard as for instance ISO 14001 have become more important due to image reasons, that is how the end customer perceives the image of the product. The legal bonds may often be weak since cooperation can be built on gentlemen's agreements but even where written specific contracts exist it can be argued

that a contract per se cannot stop a relationship from ending if for instance the technical quality of the product is poor.

Economic bonds

Economic bonds are of an unstable nature. For some buyers the price on the product is of high importance and if there is a supplier that can supply the product to a lower price taken in to consideration that the products on the market are of homogenous nature then the bond will break. Better terms of payment such as 90 days net instead of 30 days also affect the economic bonds in a positive way.

The economic bonds may grow stronger during the relationship due to that the cooperation increases and the supplier sells more and more of its products to one single buyer that is the share of products delivered also affects the economic bond. The larger the share of products delivered to one single buyer or the larger the share of products bought from a single supplier the more the economic bond is strengthened. The size of the series delivered also affects bond strength, that is the larger the series the stronger the bonds and vice versa. By selling larger quantities to one single customer the supplier usually gives a lower price to the customer and both parties prosper. This may be due to lower opportunity costs when the series delivered grow and the production flows smoother. Strive for larger series and decreased costs have been the case when several major truck producers have striven to decrease its number of suppliers in the past years and started to use single source suppliers.

The economic bonds may be weak if the profit margins are low and if products are causing bottlenecks and are therefore expensive to produce as well as buy. There is an indirect effect of that what is uneconomical for the buyer becomes uneconomical for the supplier in the long run since the supplier is forced to raise its prices. It becomes expensive for the supplier and then someone that is more profitable to buy from than the current supplier is chosen. High opportunity costs are connected to products or services causing bottlenecks in the production since these products or services would be more profitable to buy from alternative suppliers whose process would be more adapted for the buyer. From the suppliers point of view the fact would be the opposite, that is to only deliver to alternative buyers whose products or service processes does not cause bottlenecks in the production. If the supplier is supplying products at a loss then it might consider terminating the relationship and focusing its capacity on more profitable buyers.

The bond can break easily if the supplier raises the prices or if the customer find a supplier with much lower prices, given that the products are homogenous.

Geographical bonds

Geographical bonds are connected to how suitably located the supplier is from a customer point of view. The view of how suitably located the supplier is can vary over time in the relationship. Depending on the industry the location of the supplier is of different importance. How valuable the products are and how much they weigh plays

part of the importance. In the truck producing industry the location of the supplier used to play a bigger importance than it does at present. If the delivery precision is good then the problems due to geographical distance will decrease. With more and more producers using terms as “single global source” and “single European source” the importance of how far away the supplier is situated play a smaller importance. In the beginning of the relationship the customer look at issues as the supplier lead-time, geographical distance, costs for transportation of the goods, etc.

When the relationship develop and the geographical bond grows stronger then it is usually due to a improvement in lead times in the suppliers production for instance by reducing the lead-time from 22 days to 7 days or from improved modes of transportation. Warehouses at the buyer’s plant can also affect the geographical bond positively since they help in bridging the geographical gap that a long distance between buyer and supplier can create. Geographical distance could lead to problems regarding technical cooperation when a large distance combined with distance in time barriers makes cooperation more difficult. Problems with distance regarding technical cooperation or similar issues could be solved by for instance using residential engineers.

If a supplier get problems in the production process as for instance longer lead times or if the transport prices increases heavily then the geographical bond usually becomes weaker and thus affect the relationship negatively or may cause termination of the relationship.

Social bonds

There may be latent social bonds between the customer and the supplier before the cooperation starts (Järvinen 1997). These bonds develop over time when people in the companies start to know each other during the cooperation. People that interact with each other often for instance from the selling/buying sides in the company and from logistics, product development and quality assurance tend to have the strongest social bonds to each other. Conducting business together and learning to know each other also in the spare time strengthen social bonds. These bonds grow stronger through for instance “wining and dining”. Social bonds are hence developed when people interact both professionally as well as in their spare time. Social qualifications are important in order to form social bonds and to cooperate with other people. The more similarities there are between cooperating persons the easier it is for them to get along. Social bonds can also be due to family ties or to common school backgrounds, etc.

The social bonds weaken when people with good social contacts move to another company sometimes taking the customer with them which could lead to that the relationship ends and leads to that all the other bonds with the customer/supplier end. A high turnover of personnel in the cooperating companies hence affect the social bonds negatively weakening the social bonds while a low turnover of personnel affect the social bonds positively strengthening them.

By being committed, attracted to or if one trusts the other counterpart in the cooperation it is possible to for instance complement legal agreements with gentlemen's agreements and the cooperation becomes smoother.

Before a relationship end the social bonds between key persons may be inflamed since some negative critical incident may have taken place with some persons putting the blame on other persons trying to avoid to be blamed themselves. After the relationship between two companies has ended the social bonds may however still be intact with people from the two organizations still keeping in touch. This may particularly be the case on the buying and selling departments from the two companies, or between personnel where personal relationships has started. Due to this social bonds between the buying and the supplying company the companies may result in that the companies might continue to do business in the future regarding for instance a new model series of trucks.

Cultural bonds

Cultural bonds are usually stable in the relationship. The language spoken, the religion or other cultural elements such as which country the supplier is situated in are not easily changed. Some of the cultural bonds are latent that means that they exist before the relationship starts and that people have understanding for certain cultures, languages or religions or are biased against them.

Cultural bonds are also affected by the level of similarity regarding the cooperating companies company cultures, the cultures regarding exchange of information, the manner in which business is conducted and decisions are made, quality audits are made and the level of similarity between the generations of the cooperating personnel. Gaps in generations can for instance lead to a weakening of the cultural bond between the cooperating counterparts.

Cultural bonds can develop during the relationship. Cultural bonds can increase or decrease in strength as the people in the organizations for instance learn to speak other languages, etc. and when biases disappear. The same facts take place when the company cultures are developed in the same direction etc. The bias may on the other hand strengthen when problems occur in the cooperation. The cultural bonds may stay unchanged since cooperation does not usually start with companies from cultures the company is biased towards.

Ideological bonds

Regarding ideological bonds there are two different ways to look at the development of ideological bonds in the relationship. There are two kinds of ideological bonds, *rigid* and *adaptive* ideological bonds.

Rigid ideological bonds

Ideological bonds that does not increase or decrease in strength during the life span of the relationship can be perceived as rigid ideological bonds. Such bonds are for instance the will to have business with a certain firm because of the nationality of the firm. Some truck producers may have a wish to buy from as many domestic suppliers as possible to be able to sell their truck as a truck with a high domestic content. The patriotism usually stays the same during the life span of the relationship.

Adaptive ideological bonds

Dynamic ideological bonds in relationships usually develop over time all after the requests for environmental awareness grows stronger. Ten years ago there was no demand for water-based paint, low emissions, environmental audits such as ISO 14001, etc. in the auto industry. The ideological bonds in that respect was at that time nonexistent. In later years the importance of environmental aspects has grown stronger due to legislation and the demand that customers have. The situation in the truck producing industry is that the real importance of environmental awareness is still low but is according to major players forecasted to have a bigger importance in the future.

During the relationship the ideological bonds grows stronger when the supplier strive to improve its environmental awareness. This by for instance manufacturing products that are recyclable to a higher grade, using non toxic paints and striving for the ISO 14001 audit by taking care of limiting the waste it produces, etc.

If the relationship ends and most of the bonds are broken then the ideological bonds also disappear.

Psychological bonds

Psychological bonds usually stay the same during the whole relationship. Perceived superiority or inferiority of products, processes, systems or services can affect the perceived strength of the psychological bonds. A patented process or a product innovation may affect the perception of the psychological bond positively.

Psychological bonds can for instance be related to that someone prefers buying a piston made in Germany instead of one made in Japan, due to the perceived difference of the image of the product stemming from the country of production. Psychological bonds are usually very weak or very strong they are seldom of medium strength. Individual perceptions of different issues such as brand or quality can be difficult to alter. The brand name or the image of the brand can affect the psychological bond positively strengthening it or vice versa. Also in cases were there have been misfortune with for instance the quality of a product a person that favors that certain brand on the product is more likely to continue buying that brand in the future. The same person may be biased toward another brand of stabilizer even if this brand could be a much better stabilizer. The bias could have to do with brand or country of origin.

It was found that the possibility to use the buyer as reference due to the buyer's brand name or image was considered to be very important.

Reputation is also an issue that can affect the psychological bond. In one of the cases presented the buyer had a perception of the supplier, as a supplier from the deep forests of the far North that had a mystical reputation for being able to solve problems and develop new products and the buyer's perception of the reputation was very positive. Having the possibility to give reference to well known buyers on the world market also strengthened the reputation of the supplier.

Strategic bonds

A strategic bond is generally affected by strategic decisions regarding cooperation, the strategic importance of the buyer or the supplier from an economic and/or technical view, it can also be connected to the strategic importance of the product and development activities. Strategic bonds are a finding of the analysis. Strategic bonds are on a different level than the other bonds mentioned and can contain all the other types of bonds.

Strategic bonds are bonds that emerge when the companies have it in their strategy and make a strategic decision to cooperate. The strategic importance of the supplier or the buyer might be important due to for instance economic, technical, geographical, and psychological or reasons connected to production capacity. The strategy may be when for instance a supplier such as Suspension-Supply keeps a customer such as TeraTruck even if there are problems with the manufacture of that customer's product. This may be due to the effect that having a customer such as TeraTruck in the list of references will have the company's reputation and image and how this will affect potential new buyers and further business. Strategic bonds could be due to the strategic importance of the product that the buyer purchases. This could be the fact when a buyer such as TeraTruck wants to keep the supplier Suspension-Supply on the supplier list due to the strategic importance of that supplier's product to the end product of the buyer. For instance a tubular stabilizer weighing approximately 20 kilos less and increasing the payload or amount of fuel the truck can carry.

Companies could chose strategically to have cooperation with companies whose products are smooth to produce and make strategic decisions to end cooperation with buyers whose products are not as efficient to produce and where the opportunity costs are higher.

Termination due to strategic issues are for instance when the cooperation with a supplier is terminated due to that the buyer has made a strategic decision to decrease its number of suppliers from 10 to 5 suppliers or has started with a strategy of single sourcing. There may not be big differences in price, quality, etc. between the different suppliers and the buyer may for instance use a strict system with ratings and the relationships with slightly lower points are terminated.

7.1.3 Bond stability

Bond stability is marked with ++ for stable bonds, + for bonds of medium stability and 0 for unstable/fragile bonds.

Table 61. Stability of bonds in industrial relationships

Bonds between companies in a dyad	Bond stability
Technical	0
Time	0
Knowledge	+
Legal	+
Economic	0
Geographical	+
Social	+
Cultural	++
Ideological	+
Psychological	++
Strategic	0

I define stability of bonds with bonds tendency to increase or decrease in strength during the relationship. The fact that a bond is stable does not mean that the bond is stable in a positive way. Stability in this sense could well mean that the particular bond is extremely weak and continues to be so. Unstable or fragile bonds such as technical, time, economic and strategic bonds are bonds that are the most likely to affect relationship termination if that occurs.

Based on how episodes affect the strengthening and weakening of bonds leading to the termination or continuation of the relationship it is possible to draw the following conclusions. Bonds are usually stronger and more stable if somebody is supplying engine parts or high tech products or products used in difficult modules. There is then less chance that the bonds will be affected negatively by negative critical episodes and lead to termination than if simpler products such as wheels, exhaust pipes etc. are supplied. This has to do with the fact that the buyer in the case with “difficult” products with strong technical bonds would have to redesign the whole module were the product should be used and that would take time and be very expensive.

These different bonds bond tie the customer to the supplier and make it more difficult for the cooperating companies to terminate the relationship and break the existing bonds. This is among other things due to the fact that it would be expensive to build up new relationships with other suppliers or customers. The money and time invested in the relationship would also be lost.

7.1.4 Core and support bonds

One of the main findings of the study is that bonds can be divided into core and support bonds. Core bonds are the technical, time, economic and strategic bonds while the support bonds are the knowledge, legal, geographical, social, cultural, ideological and psychological bonds. Core bonds are very important bonds that have an immense importance for the relationship and for the continuation of the relationship. The core bonds are bonds that have such an importance for the relationship that if one of these bonds is drastically weakened or put under pressure it can cause the termination of the whole relationship. On the other hand the core bonds may strengthen the whole relationship when they are strengthened.

The idea behind the core and support bonds was created when analyzing the cases and noticing what usually was the cause of termination or considerations of termination in the cases. The validating case also showed different reasons for termination of the relationship and the interviewees stated that the core bonds was the most important reason for termination of business relationships. The relative weight of the core bonds is thus higher for the relationship than the support bonds.

Termination may take place if for instance the product supplied is replaced on the market with a new product or solution that is a technical breakthrough and the supplied product becomes obsolete then there is a risk that the technical bond will break and cause the termination of the whole relationship.

Time bonds can weaken if the delivery precision decreases and vice versa. The economic bonds can also be affected by changes in price and can lead to termination of the relationship due to that.

If the strategies change in the manner that one single source supplier is chosen from eight different suppliers then the relationship will be broken for seven of the suppliers and the strategic bonds will strengthen between the remaining single source supplier and the buyer that made the strategic decision.

The legal, social or other support bonds does rarely cause the termination of a relationship single-handedly but they can cause the termination of the relationship in the long run when their effect is accumulated. These support bonds are however affecting the relationship, thus strengthening or weakening the relationship. In cases where a core bond has broken the relationship support bonds may still exist under the surface as residual bonds and the relationship may start again thanks to residual social, cultural, knowledge, geographical, ideological or psychological bonds.

Termination of the relationship is usually not due to only one reason as in extreme cases but is usually due to a combination of several core and support bonds. Deliveries might be late affecting weakening the time bonds and the reasons for late deliveries is that the geographical bonds are weak due to a vast distance between supplier and buyer. The economic bonds may be affected and weakened by the late deliveries both in the supplier's case that have to pay for airfreight of products and in the buyer's case where

the production line is stopping and production is delayed. This leads to a weakening of the strategic bonds and a strategic decision may be taken to end the relationship.

For a model illustrating the core and support bonds see Figure 41 below.

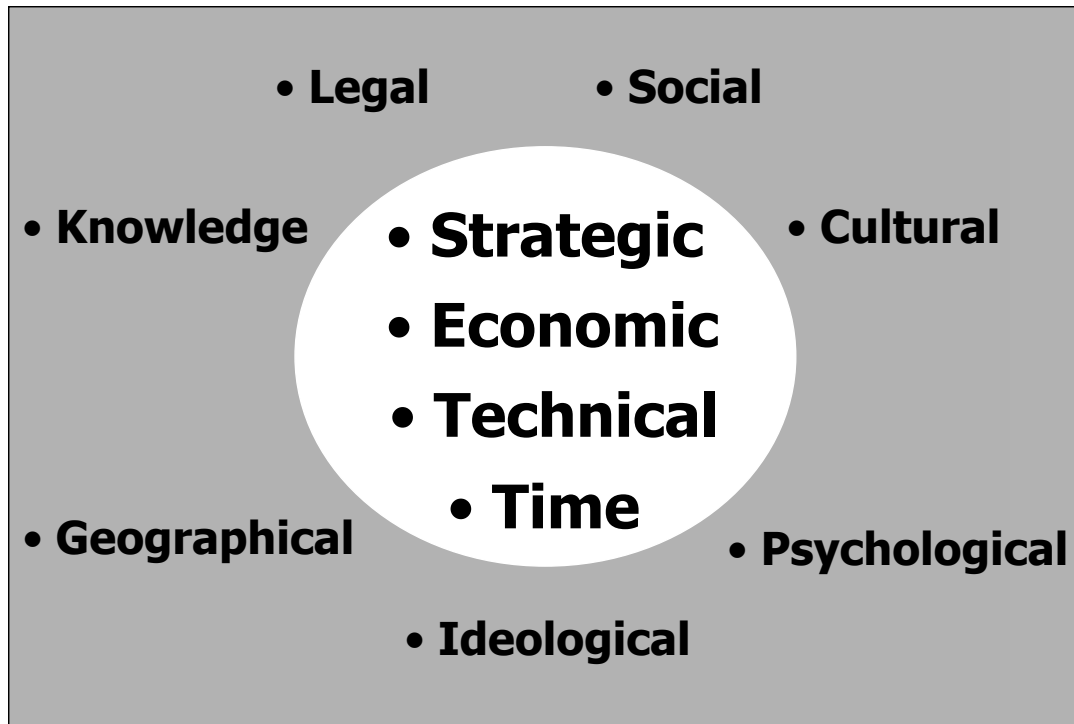


Figure 41. Core and support bonds

7.1.5 Definitions on bonds on a lower level of abstraction

The tactic with the presentation of the definitions of bonds was to present the definitions on a higher level of abstraction before the analysis was made and on a lower level of abstraction after the analysis. In this manner it was possible to show the reader how the definitions have developed and deepened through the analysis of the case. The definitions were left on a higher abstraction level on the basis of the literature study. I was however forced to take into account issues connected to the definitions on a lower abstraction level when analyzing the material in order to be able to classify it. The outcome is that I have created a tool that is not only usable on a theoretically high level of abstraction but also on a lower operational level. Analyzing the material created the tool. I analyzed the material and categorized everything that was elements of every single type of bond. This was done after specifying all elements that was part of the theoretical specifications on the different bonds. I structured the theoretical elements for every bond on post it notes with a post it note for every bond. The list for elements of bonds that stemmed from the literature was then checked against the empirical material and the list and the literature were then further developed. I noticed subcategories such

as the fact that warehouses are connected to adaptation of logistic functions in time bonds. This has not been mentioned earlier and a warehouse affects the time bond positively strengthening them since if a warehouse exist at the buyer's plant then it is possible to deliver against a warehouse and that affects the delivery precision since they can have a buffer against disturbances in the flow of material.

In some cases only one of the subcategories to the elements grounded in the theory was found but most subcategories was found in at least two of the cases. The definitions on a lower abstraction level are presented below.

The different bonds tie the customer to the supplier and vice versa and make it more difficult for the cooperating companies to terminate the relationship and break the existing bonds. This is among other things due to the fact that it would be expensive to build up new relationships with other suppliers or customers. The money and time invested in the relationship would also be lost. The cultural, geographical, ideological and psychological bonds that was imported to the industrial setting from a service setting was found in the industrial setting as well. A new bond that I have branded strategic bonds was also found.

Some may argue that the time bonds and geographical bonds are similar but they are differences. Time bonds are more focused on the logistic functions of the companies where as geographical bonds has more to do with the direct distance between the supplier and the customer. Geographical bonds can for instance lead to a different choice of supplier because of a great distance between the customer and the supplying company when the choice of supplier is made. This could be done due to a greater cost for transportation or other problems linked to the distance between supplier and customer.

Cultural bonds also exist in industrial settings and differ from the social bonds that exist in the IMP approach. The cultural bonds that exist between people in companies are strong and affect the relationship and the process when choosing a supplier strongly. It is perceived as positive to be able to speak the same language, have the same religion or come from a specific country.

Ideological bonds are not found in the IMP framework but are however important in an industrial setting as well as in a service setting. How green the products that the supplier supplies are can in some heavy industries affect decisions of choice. Environmental awareness can give advantages in the fierce competition with other supplier's, as the industry becomes more and more environmentally aware.

Psychological bonds are also used in a service-marketing framework but could be used in an industrial framework as well. In the IMP framework nothing really covers the psychological bonds. Wilson and Mummalaneni 1986 use attachment and psychological bonds interchangeably but attachment can however not be said to cover the big frame of psychological bonds fully. Psychological bonds can affect buyers on the industrial side as much as consumers. If a buyer is convinced that the products supplied by a certain supplier are superior to those of another supplier then the buyer will choose the products that are thought to be superior.

The definitions on the 11 different bonds in my model are described below. The different definitions of the bonds on a lower abstraction level are as follow.

A technical bond is a bond that generally includes technical adaptation in either process or product, cooperation regarding technical development and product or technical quality. It may require investment as investments in equipment. A technical advantage as for instance a patented product or process can also result in a technical bond. A bond due to a brand can also constitute a technical bond.

My definition for **technical** bonds include the following elements:

- Technical adaptation to the counterpart in the cooperation
 - Product adaptation
 - Process adaptation
 - Outsourcing of production
- Cooperation regarding technical development
 - Development activity
 - Cooperation regarding design
 - Outsourcing of development
 - Use of 3-D models in development of products
- Investments
 - Investments in equipment
- Technical lead as a patented product or process
- Quality matters
 - Product and technical quality
- Bond due to brand in order to get spare parts or service

A time bond is a bond that generally includes logistic functions, require flexibility in the flow of information or is affected by delivery precision and issues connected to delivery precision.

My definition for **time** bonds include the following elements:

- Adaptation of logistic functions
 - Size of production series
 - Warehouses
- Delivery precision and issues connected to delivery precision
 - Delivery precision
 - Lead-time
 - Line stops
 - Flexibility of production (bottlenecks affects negatively)
 - Deliveries to alternative buyers (affects negatively)

- Flexibility of flow of information (e.g. EDI systems etc.)
 - Time of notice when orders are placed
 - EDI system for daily delivery information
 - Electronic shipping message
 - On-line invoicing
 - Exchange of CAD drawings
 - Number of interfaces (small positive, large negative)
 - Agents used
 - Communication systems, E-mail etc.

A knowledge bond generally requires familiarity of the strength and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation. It may require cooperation regarding development of products, a mutual knowledge regarding rules and routines and issues affecting the knowledge regarding the rules and routines of the counterpart and it is based on personal experience.

My definition for **knowledge** bonds include the following elements:

- Familiarity of the strength and weaknesses, opportunities, possibilities and problems of the counterpart in the cooperation
- Cooperation regarding development of products
 - Stage where involvement begins
 - Testing of novel products
 - Knowledge sharing
 - Use of 3-D models
- Mutual knowledge regarding rules and routines
 - Language (similar positive, different negative)
 - Number of interfaces (small positive, large negative)
 - Turnover of personnel (low positive, high negative)
- Based on personal experience

A legal bond generally requires written contracts regarding different matters, quality certifications or environmental certifications.

My definition for **legal** bonds include the following elements:

- Written contracts
 - Purchase agreements
 - Contracts regarding prices, volumes, development of products
 - Contracts regarding deliveries
 - Contracts regarding customized orders
 - Quality agreements
 - Extended warranties
 - Duration of contracts (short negative, long positive)
 - Rigidity of contract (very rigid, difficult to terminate and vice versa)
- Culture demanding written contracts

- Quality certifications as for instance QS 9000
- Environmental certificates as for instance ISO 14001

An economic bond is generally affected by credit arrangements, payment times, price, profit margins, share of products, existence of bottleneck products and opportunity costs.

My definition for **economic** bonds include the following elements:

- Credit arrangements such as discounts
- Payment times
- Price (low for buyer/high for supplier)
 - Possible opportunity costs
- Profit margin (high positive, low negative)
- Share of supplied or bought products
 - Size of series produced (large positive, small negative)
 - Single source agreements
 - Production efficiency
 - Bottleneck products
 - Products that are smooth to produce
- Additional costs or revenues that stems from the cooperation
 - Airfreights (negative costs)

The distance to the counterpart in the cooperation, delivery precision, warehouses and technical cooperation generally affects the geographical bond.

My definition for **geographical** bonds include the following elements:

- Geographical distance to buyer/supplier
 - Delivery precision (good positive, poor negative)
 - Lead-times (short positive, long negative)
 - Line stops
 - Airfreights (need for airfreights in times with poor delivery precision is considered to be negative)
 - Deliveries to alternative buyer
 - Warehouses at buyers plant
- Technical cooperation
 - Residential staff such as residential engineers etc.
 - Agents

A social bond is generally affected by turnover of personnel, contacts between personnel, personal relationships, unofficial contacts between personnel, commitment and trust.

My definition for **social** bonds include the following elements:

- Turnover of personnel (contact persons) in the cooperating companies (low positive, high negative)
- Contacts between personnel
 - Frequency of contacts
 - Management cooperation
 - Team spirit
 - Agents functioning as connecting elements
 - Avoidance of contacts
 - In order to avoid social bonds
 - In order to avoid corruption allegations
- Personal relationships
 - Unofficial contacts between personnel
- Commitment
- Trust
- Attraction

Cultural background of the counterparts in the cooperation, company culture, the generation of the personnel cooperating, religion or language generally affects the cultural bond.

My definition for **cultural** bonds include the following elements:

- Cultural background
 - Agent as cultural interpreter (positive)
- Company culture
 - Decision making
 - Borders concerning responsibility (few interfaces positive, several interfaces negative)
 - Channels for communication (few interfaces positive, several interfaces negative)
 - Production philosophies (similar positive, different negative)
 - Handling of technical issues
 - Manner of handling quality audits (similar positive, different negative)
 - Similarities/differences in obedience to norms, guidelines and rules
 - Agent as cultural interpreter (positive)
 - Computerization
 - Transfer of delivery plans

- Similarities or differences regarding generations of personnel (similar positive, gaps negative)
- Religion
- Language (common positive, language problems negative)
 - Agent as actual interpreter (positive)
 - Language courses in order to bridge language gap

Issues regarding environmental awareness, green product or process or the domestic content of the product generally affects the ideological bond.

My definition for **ideological** bonds include the following elements:

- Environmental awareness
 - Possibility to recycle product
 - Waste management
 - Actual importance of environmental friendliness
- Green product or process, e.g. ISO 14001 certified process etc.
- Domestic content of product

A psychological bond is generally affected by a perceived superiority, equality or inferiority of the product, process or service, the brand name, reputation of the company or the image.

My definition for **psychological** bonds include the following elements:

- Perceived superiority, equality or inferiority of product, process or service
 - Patented product, process or service
 - Perceived superiority, equality or inferiority of raw material
 - Level of innovation connected to the product, process or service
- Brand name (strong positive, weak negative)
- Image (good positive, poor negative)
- Reputation of the counterpart in the cooperation (good positive, poor negative)

A strategic bond is generally affected by strategic decisions regarding cooperation, the strategic importance of the product and development activities. Strategic bonds are a finding of the analysis. Strategic bonds are on a different level than the other bonds mentioned and can contain all the other types of bonds.

My definition for **strategic** bonds include the following elements:

- Strategic decision to cooperate or terminate the cooperation
- Strategic importance of buyer or supplier (economic view and/or technical view)
 - Share of products delivered, share of products bought

- Size of production series
 - Number of product numbers
 - Competing suppliers or buyers
- Allocated production capacity
- Geographical distance to supplier or buyer
- Decisions for single source

- Development activities
 - Focus of development activities

- Strategic importance of product
 - Possible entry product

The different bonds in an industrial business relationship as presented in Figure 42 below shows that the strategic bonds are on a different level and can contain all the other types of bonds. The strategic decision to cooperate can for instance be due to even the psychological belief that the supplier is superior to other suppliers and hence due to a psychological bond to the supplier.

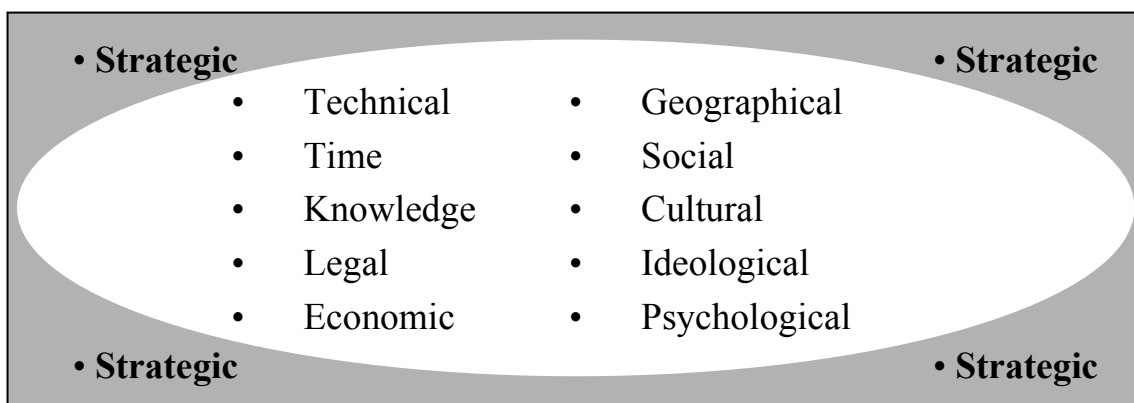


Figure 42. Bonds in an industrial business relationship

I define bonds in the following manner based on my cumulative process. *Bonds are the concrete or abstract technical, time, knowledge, legal, economic, geographical, social, cultural, ideological, psychological and strategic value creating, neutral or value reducing factors that form the building stones of the industrial business relationship. Bonds can be mutually or one-sidedly value creating or value reducing. The sum of the total package of bonds in a relationship equals to the total value of the relationship.*

Bonds are value reducing if they are causing negative effects in the relationship functioning as exit barriers or if they are weakened and lead to negative effects weakening the relationship. By managing the bonds using bond management it is possible to affect the relationship.

7.1.6 Framework for understanding the nature and change of bonds

A new framework for understanding the nature and change of bonds in business relationships was developed. This framework is presented in Figure 46 below.

The first time the cases were analyzed it was done with the help of the theoretical framework searching for different kinds of episodes and bonds in the material. Different types of termination of relationships and partial termination of relationships were also analyzed. With the help of the findings the framework presented in Figure 46 was found and used in the second analysis of the empirical material.

The structure of the analysis was made in the manner that the **cooperation** between a supplier to the truck producing industry and five of its buyers were studied. A validating case for the findings in the first five cases was also focusing on the cooperation between a truck producing buyer and 8 short cases from its supplier relationships. The **bond dynamics**, with three possible episode paths that are negative critical, routine and positive critical episodes and the reasons that resulted in these episodes were analyzed. The weakening and the strengthening of the bonds due to the episodes were also analyzed in the bond dynamics part. In this study episodes were proven to function as a catalyst for the weakening and strengthening of bonds.

In the **strength** part of the model I analyzed if the relationships were terminated or partially terminated or if the relationships continued and what the strength of the bonds were in the case of continuation in time 2 and if residual bonds were present after termination or partial termination. This was the outcome of the relationship.

Antecedents to bond dynamics

Antecedents to bond dynamics as described in the figure were ongoing interactions and investments that lead to adaptations made between the counterparts in the cooperation. When viewed from a dynamic perspective the dynamics of bonds in the relationship is viewed, that is when the bonds in a relationship develop and possibly vanish over time. I have noticed the dynamics of bonds and the weakening and strengthening of bonds in my analysis of the empirical material and found a dynamic perspective of bonds.

Bond dynamics

Bond dynamics is when the change of bonds is viewed, thus seeing bonds change in strength and character over time. That is the reason why bonds at time 1 and time 2 is used in the figure in order to illustrate that bonds do change in strength and in character over time hence affecting the outcome of the relationship. The dynamic is thus showed by comparing bonds at time 1 with the same bonds at time 2 or by focusing on the residual bonds that are left after termination or partial termination has occurred.

Negative critical episodes

Negative critical episodes are episodes where a negative critical incident takes place and lead to a weakening of bonds. The negative critical episode should be of such a magnitude that it is remembered and it should affect the relationship through the weakening of bonds.

Routine episodes

According to Holmlund (1997), Järvelin (2001) and Gidhagen (2001) the critical episodes may have more influence on how the relationship is perceived while routine episodes does not affect the relationship. In this study it was shown that not only critical but also routine episodes may affect the bonds and thereby the relationship. Routine episodes are small issues that take place in the daily cooperation between the counterparts that will either strengthen or weaken the bonds in the cooperation or not affect the bonds at all. It might be improvements or deterioration that happen slowly just as when water is penetrating a stone. Drop by drop it makes the hole bigger. If we take a business relationship several small mistakes may weaken some bonds be it social, technical etc. as well as several improvements may strengthen them.

Negative routine episodes are an accumulation of negative issues that in the long run lead to a weakening of bonds and a possible weakening or termination of the relationship. Many small routine episodes such as small mistakes happening may weaken some bonds be it social, technical or other bonds in the long run.

Positive routine episodes may be an accumulation of positive issues that in the long run lead to a strengthening of the bonds and a strengthening of the whole relationship. Several improvements may thus strengthen the bonds between the cooperating companies in the long run.

There may also be routine episodes that have a neutral connotation and they do not affect the bonds or the relationship, the bonds remain in status quo.

Positive critical episodes

Positive critical episodes are episodes where a positive critical incident takes place and lead to a strengthening of the bonds. The positive critical episode should be of such a magnitude that it is remembered and it should affect the relationship through the strengthening of bonds.

Differences between critical episodes and routine episodes

The difference between critical and routine episodes is that for instance a positive routine episode and positive critical episode differ from each other in the manner that the positive routine episodes require accumulation of positive issues to lead to the strengthening of bonds. This means that several positive routine episodes can in the long run lead to a strengthening of the bonds and a strengthening of the whole relationship. Only one positive critical episode can on the other hand strengthen the bonds and affect the relationship.

Negative routine episodes require accumulation of negative issues to lead to the weakening of bonds. This means that several negative routine episodes can in the long run lead to a weakening of bonds and a possible weakening or termination of the relationship. Only one negative critical episode can on the other hand weaken the bonds and affect the relationship even leading to relationship termination or partial termination.

For a division into routine and critical episodes see Figure 43 below. A more thorough presentation of routine and critical episodes can be found in chapter 4.1.2.6.

	Positive		Negative
Routine episodes	Strengthens bonds	Routine Bonds remain at status quo	Weakens bonds
Critical episodes	Strengthens bonds		Weakens bonds

Figure 43. Routine and critical episodes

Figure 44 below illustrates how different episodes affect the strength of bonds over time.

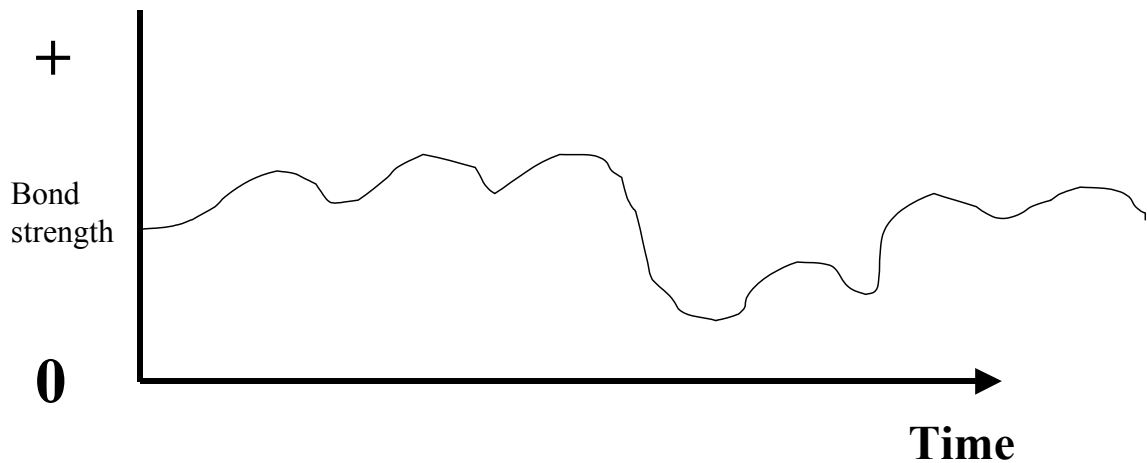


Figure 44. Bond strength affected by episodes over time

Weakening of bonds

The weakening of bonds due to episodes was analyzed in the bond dynamics part of the figure.

Strengthening of bonds

Strengthening of bonds due to episodes was also analyzed in the bond dynamics part of the figure.

Routine episodes affecting the bonds neutrally

Routine episodes can also have a neutral connotation and then they do not affect the bonds or the relationship, the bonds remain in status quo. That means that the bonds remain at status quo in Figure 46.

Method for analyzing bond strength

The method used for analyzing bond strength trying to grasp the nature and change of bonds was invented by systematically following the elements of the definitions on 11 different bonds. The findings of each case were analyzed and structured in the manner that one bond at a time was analyzed. In order to find out if the bond was weak, of medium strength or strong a system with tables was drawn up. The elements of the definitions were put into tables. An element of a definition could be for instance delivery precision as an element of time bonds. Parts of the element of delivery precision could be lead times, line stops or the size of the production series.

The elements taken from the theoretical definition were then checked separately in every case of empirical material for every bond and if the delivery precision is good it gets a plus, +, in the table, which means that it affects the time bond positively strengthening the time bond. If the delivery precision is poor then it gets a minus, -, in the table, which means that it affects the time bond negatively thus weakening the time bond. And if the delivery precision is neither good nor poor but in the vicinity between good and poor then it gets a neutral, +-, mark in the table thus having a neutral effect on the bond.

By systematically categorizing the bonds in order to see which elements of the definition that existed in the cooperation and how the elements were perceived it was possible to find out how strong the bonds had been and how the bonds had changed in strength during the relationship. This was possible to make at a low level of abstraction.

The relative weight of the pluses and minuses in the tables for the total affect on the bond strength are connected to the importance of the issues. This can be exemplified with an example regarding time bonds. A plus, +, mark for a minor issue regarding the flexibility of flow of information as for instance an EDI system for exchange of drawings does not strengthen the total weight of the time bond if the delivery precision at the same time is poor leading to a minus, -, mark for delivery precision. Thus a minor issue has less weight on the effect on the total strength of a bond than an issue that is central for the bond strength and thus has more weight on the total bond strength.

The strength of bonds and the possibility to measure the strength of bonds is one of the contributions of this study. The facts regarding the bonds as well as the perceptions affected the bond strength. Easton (1992 p. 10) argued that “the strength of a bond is a difficult parameter to measure”. Arantola (2002) argued that bond strength was dependent on the perceptions that the parties have as well as the influence of all the other bonds in the relationship. These authors did however not measure the strength of bonds.

Relationship strength

In the **strength** part of the model I analyzed what the outcomes of the relationships were. Had the relationships been terminated or partially terminated or did they continue as before? Did residual bonds remain in the cases where termination or partial termination had taken place and if so what types of residual bonds? What types of bonds were the bonds in time 2 in the case of continuation of the relationships? Relationship strength was considered to be zero after relationship termination occurred.

Termination

It was found that the most common reasons for relationship termination was due to reasons connected to the technical, time, economic and strategic bonds. Technical reasons for termination was seen as one of the most important issues and was regarded to be for instance due to quality problems. Time bonds and weakening of the time bonds due to poor delivery precision was another important reason for relationship termination as was economic issues such as the price or strategic issues such as changes in for instance purchase strategies or changes in product strategies.

Partial termination

Alajoutsijärvi & Tähtinen (1997) and Alajoutsijärvi, Möller & Tähtinen (2000) argue that there may be partial withdrawal from relationships with buyers that have been seen as less profitable. I would also argue that partial termination could also be made in order to phase out a product line that a competing supplier for instance can manufacture more efficiently, that is cheaper or with better technical features. It was found that partial termination also could be due to strategic reasons when for instance choices of single source suppliers are made.

The buyer may terminate only a part of the relationship. Some products as for instance springs may be terminated from the buyer's list of supplies supplied by a certain supplier while the buyer still might continue to buy stabilizers from the same supplier. It may however mean much for the supplier, which may lose a buyer for 20% of its production for instance. The personnel selling springs does not have any contact with the buyers of springs any more, there is no economic bonds for springs any more, the knowledge bonds regarding springs starts to deteriorate since the supplier does not develop springs together with the buyer any more. At the same time the relationship regarding stabilizers is however continuing as usual. There are development of stabilizers taking place increasing the technical and knowledge bonds regarding stabilizers etc.

Continuation

When continuation is showed in Figure 46 it is the continuation of the relationship after the strengthening of bonds or possibly the weakening of bonds and it is the antecedents of bonds at time 2 in Figure 46.

Residual bonds

Residual bonds were found to exist in the analyzed companies. Technological, knowledge as well as social bonds and what Havila (2000) calls administrative routines and what I would call time bonds are found to remain after the trading has stopped in

the cases where termination and partial termination took place. Additional findings of the study suggested that geographical and economic residual bonds existed as well.

Bonds at time 2

Timeframes with time 1 and time 2 etc. were the timeframes put out in the tables in order to be able to see how the bonds had changed between the timeframes t1 and t2 as seen in Figure 46. If the bonds remained unchanged no timeframes were mentioned.

In order to show explicitly how bonds have changed over time in the relationship I have created a system of grids where I have illustrated explicitly how the strength of bonds have changed during different times in the relationship see Figure 66 below. Bonds may have been seen as something positive and strong and later on their character changes to something being perceived as negative and weak or vice versa. As an example can be seen the fact that social relationships, technical attributes or economic attributes may change over time from being seen as positive or neutral to negative and vice versa. The grid shows a different perspective from the supplier's point of view and a different perspective from the buyer's point of view. A higher margin due to a price increase on a delivered product may for instance be perceived as positive and strengthen the economic bond from the supplier's point of view but may be seen as negative and weaken the economic bond from the buyer's point of view.

The nature of the character of bonds is that bonds may be viewed or perceived differently when they move in the frame of perception as illustrated in Figure 45 below.

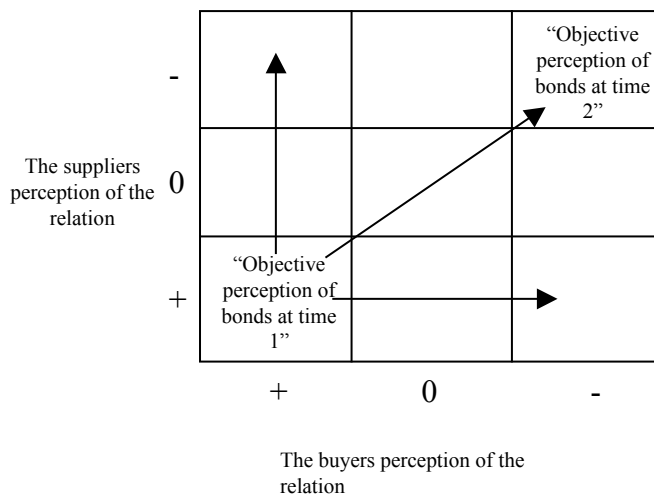


Figure 45. The objective perception of bonds in a relationship

The arrows in the figure characterize some possible pathways for the development of the frame of perception of bonds in relationships. The different episodes may affect the bonds in the relationship strengthening or weakening the bonds in the relationship or preserving status quo.

Easton and Araujo (1986, 1989) argued that the length of a relationship does not affect bond strength since bonds go through different phases during the relationship. I have

however developed their perspective by presenting a solution where it is possible to focus on the change of bonds that has been presented in this study. The process depicted in the framework is dynamic.

The framework for understanding the change of bonds in this study is presented in Figure 46 below.

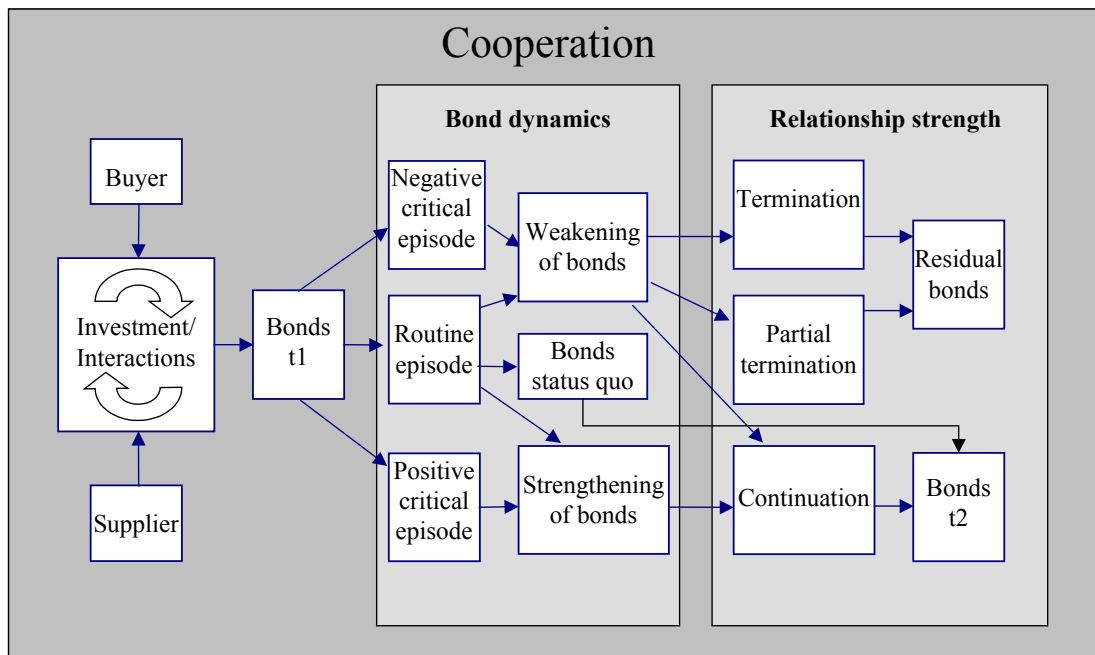


Figure 46. The framework for understanding the nature and change of bonds in industrial business relationships

One of the contributions of this study is that I have divided bonds into a static and a dynamic perspective on bonds. I have come to the conclusion of developing the concept of bonds with a static and a dynamic perspective by using systematic combining that has allowed me to go back and forth between analysis and theory. I have noticed the dynamics of bonds and the weakening and strengthening of bonds in my analysis of the empirical material and found a dynamic perspective of bonds. The division of bonds into a static and dynamic perspective is a new view of bonds.

I have presented a new notion by organizing bonds in abstraction levels of **abstract** and **concrete** bonds. Concrete bonds are tangible bonds and are developed when companies cooperate and hence adapt to each other and invest in the cooperation. There are also abstract bonds that build up in the minds of people when companies cooperate or when people are using a company's products or services.

7.2 Managerial implications

It can be very difficult for a supplier who has lost a customer in the truck producing industry to start a new business relationship with another truck producing company. The truck producing companies have good information about their suppliers and about the suppliers that supplies other truck producing companies. Many of the suppliers supply parts to all major truck producing companies. If a supplier has had big problems with for instance quality in their deliveries to one of the major companies and the relationship is terminated due to that the competing truck-producing company will know the situation. If at the same time one of the other major companies in the industry is considering to start doing business with that same supplier then it will affect the supplier's chances of supplying the other large truck producing company negatively. The same notion is applicable on most large industrial companies and their suppliers.

7.2.1 Bond management

One of the findings of the study is that in cases where relationship termination is desired bond management can be used in order to end the relationship. Bond management is when the bonds between the cooperating firms are managed in order to strengthen or weaken the cooperation. If for instance the buyer or supplier is trying to phase out the cooperation and terminate the relationship managing the bonds in a manner striving for termination could have the result that the relationship is terminated. By for instance raising the prices a supplier could aim to terminate the relationship with the buyer and vice versa by paying lower prices for the product in the buyers case.

It is fully possible that only one of the counterparts in the cooperation can manage the bonds in order to strengthen or weaken the relationship. But it is also possible that both counterparts in the cooperation cooperate in order to strengthen the bonds in order to improve the relationship or weaken the bonds in order to end the relationship in a controlled manner. Some of the types bonds are easier to affect by bond management than other types of bonds.

It was earlier shown in the subchapter regarding bond stability that the core bonds i.e. technical, time, economic and strategic bonds were the bonds that were unstable and thus had the biggest tendency to increase or decrease in strength during the relationship. The rest of the bonds were support bonds such as the knowledge, legal, geographical, social and ideological bonds that were of medium tendency to increase or decrease in strength and psychological and cultural bonds that were stable and thus had a low tendency to increase or decrease in strength.

Almost the same idea is behind the manageability of the bonds. Technical bonds can be strengthened by for instance increasing adaptation of products or weakened by decreasing adaptation of products. Time bonds can be strengthened by improving delivery precision or weakened by decreasing delivery precision. Economic bonds can be weakened or strengthened by increasing prices. Allocating more production capacity for the buyer or when the buyer takes a decision to use the supplier as a single source supplier can strengthen strategic bonds. These bonds are fairly easy to affect by using

bond management. One other characteristic for these bonds is that they do not have to be managed mutually by both counterparts in the cooperation but the management can be one-sided as well.

Bonds that had a medium tendency to increase or decrease in strength are not as easy to manage as the unstable bonds. The exception is knowledge and legal bonds that are easier to manage. Knowledge bonds can for instance be strengthened by increasing the mutual knowledge regarding rules and routines and weakened by decreasing knowledge regarding rules and routines. This is possible to do both mutually and one-sidedly. Legal bonds can be weakened by decreasing the number of contracts and make them less specified and strengthened by doing the opposite. Cooperation regarding contracts does however demand a mutual orientation. The exception from the rule is quality and environmental certifications that can affect the bonds one-sidedly.

Geographical, social and ideological bonds are however not as easy to manage as the bonds mention previously. Geographical bonds can be managed indirectly by for instance decreasing lead-times and thereby affect the delivery times in comparison with supplier's situated closer to the buyer with higher lead times. When geographical bonds are managed directly factories can be relocated to the area where the buyer is situated. From a buyers point of view it is possible to use residential engineers to place at the supplier's plants in order to cooperate regarding the technical issues. These are affecting the geographical bonds one-sidedly. Mutually it may be possible to use technical cooperation in order to increase process flow and thus lead-times. Social bonds can be affected one-sidedly by decreasing the turnover of personnel to strengthen the social bonds and vice versa in order to weaken them. Increased management cooperation in order to increase the bond is done mutually. Ideological bonds were of two types, thus rigid and adaptive ideological bonds. The adaptive ideological bonds can be affected and strengthened by for instance increasing the environmental awareness of the product or process and this is possible to do mutually or one-sidedly. The rigid ideological bonds are not easy to affect with bond management and usually stays the same during the relationship. These can for instance be connected to patriotism and demands for high domestic demands of the products or services etc.

Cultural and psychological bonds are bonds that had a low tendency to fluctuate in strength. Cultural bonds do however have a larger tendency to fluctuate since even if the religion, language and cultural backgrounds rarely fluctuate it is possible to for instance use language courses in order to strengthen the cultural bonds. This can be done mutually or one-sidedly. It is also possible to affect the company cultures. Psychological bonds are however very stable and can only be strengthened or weakened one-sidedly. In order to strengthen psychological bonds the company must build up a brand name, its image or reputation and thus create a perception of superiority perceived by the buyer or supplier. It is faster to weaken the bond and that can be done by problems affecting the company that for instance decreases the image or reputation of the company.

Only one department in one of the cooperating companies may for instance want to terminate the relationship with the supplier/buyer while other departments want to continue the cooperation.

There may be friction in the cooperation between the buying department at the buyers company and between the sales department at the suppliers company. This may be due to that the prices for the supplier's products are perceived as too high or that the supplier perceives the prices as he gets for the products as too low. The cooperation between the same departments in the cooperating firms that is to say cooperation between buyers buying department and suppliers sales department, logistics, etc. may be stronger than between the different departments in the same company, especially in large corporations. In a large corporation there is usually close cooperation between the buying and logistics departments. Quality assurance takes contact with the buying department as soon as there is some problems with the quality on the products and the buying department usually takes contact with the suppliers sales department to set things straight. Departments such as logistics and product development seldom have contact in large corporations. Quality assurance as a department may exist only in one place in the corporation and may be located thousands of kilometers from where the buying department is located.

In cases such as this it is certain that one department may find the cooperation to be on a different level than another department. The quality assurance department on the buyer's side may be very satisfied with the cooperation with the supplier and the supplier's response to problems. The product development departments may be very satisfied with the cooperation and the products may be of high quality but the buyers may perceive the price as too high and try to terminate the relationship. Only one department may want to terminate the cooperation even though the other departments want to continue cooperating.

By using bond management it is possible to strategically strengthen or weaken the bonds between the cooperating companies in order to strengthen the cooperation and tie the customer or supplier to the company or to terminate the relationship. Bonds could for instance be weakened by increasing the product prices regarding economic bonds from the supplier's side or by lowering the prices from the buyer's side. Launching patented concepts such as for instance Patented® (a tubular stabilizer for trucks) that gives the customer advantages at the same time, as it is a new idea could strengthen technical bonds between the companies.

7.2.2 Bond audit

The instrument for the management of bonds is to use a bond audit in order to know which bonds resources should be focused on in order to increase or decrease their strength. Managerial implications were that a bond audit is easier to perform and also more covering using the model with 11 bonds. From a managerial point of view it is possible to use a bond audit in order to grasp the bonds better and then strengthen or weaken them with bond management to achieve the wanted position in the conceptual framework created.

By learning more about when risk for relationship termination occurs, companies can prevent that relationships are terminated. In cases where termination is unavoidable the

process of termination can be made as soft as possible both for the supplier and the customer so that no negative memories remain by either part if there is a chance for the cooperation to continue in the future.

Managerial implications of this is that already when I was doing these interviews with the interviewees at the suppliers the suppliers was very interested in strengthening their bonds to their buyers. A bond audit was then made for one of the suppliers in order to increase or decrease bond strength. A bond audit should be twofold. Both interviews and a survey should be done. Interviews are done in order to grasp the industry better and be able to focus on specific questions in the survey part of the audit. In the beginning of the audit was a short presentation of why the audit was done and what it should be used for. In my specific case it should be used for a group inside the company focused on continuous improvements of the cooperation. This group was then striving for the best possible cooperation for the least money. A focus was also to save costs in places where money was spent unnecessarily. The survey part of the audit (a short example of a survey for a bond audit can be seen in appendix E) identifies the bonds in the cooperation and the importance of the bonds for the buyer is given on a 5-grade Likert scale and the same goes for the level of cooperation. An example of this could be delivery precision, it might very important, i.e. a 5 but the level might be poor, i.e. a 2 then one should try to strengthen the time bonds by for instance reducing lead times. The opposite could happen when the company is performing better than required; in that case bonds should be weakened in order to save money. If the performance is better than what the buyer requires then money is lost on the wrong issues or by performing to well. In part B of the survey some open spaces for elements that might be considered as important but are not found on the list can be written on the empty lines. In part C it is then possible to chose the three most important elements and discuss them more thoroughly in writing. It is only possible to choose three elements since otherwise there is a risk that all elements showed will be considered as important and the focus on the really important elements is less. A choice will have to be made and the person answering the survey is forced to find an order of importance. For every element it is then considered to a) answer why the element is important, b) tell the problems that exist in the cooperation regarding this specific element. Problems may also be overwritten with advantages but it is more common that people voice their discontent than their bliss. Then in c) the consequences that the problem results in should be given and finally the person filling in the survey is asked for what measures he should suggest in order to solve the problem.

In part D the surveyed is then asked about his wishes for the cooperation in the future. This part leaves a little more room for writing the answer.

The difference between a bond audit and a normal customer satisfaction survey is that customer satisfaction surveys are usually based on several questions that are not as specific. The bond audit is more specified since an interview has been done before in order to find out what questions to ask. The second difference is that the level of cooperation is measured but at the same time also the importance of the cooperation. This is followed up by a part that allow for more open answers regarding the most specific elements as well as wishes for the future cooperation. The bond audit is more

focused and involves the surveyed person more than due to the more specific and open nature.

The problem with the bond audit is that it is more expensive to make than a normal customer satisfaction survey due to the fact that interviews should be done with the involved departments. It however results in a more specific instrument that is focusing on specific questions that are in line with the surveyed persons daily work. A normal customer satisfaction survey can be done by simply mailing out questions that are connected to the problem but most questions are arbitrary for the result of the study.

An audit is important since when a buyer terminates or partially terminates a relationship as in the case with negative bond episodes then it mostly affect the supplier's profitability negatively. A bond audit followed up by a strategy focusing on strengthening or weakening the bonds to the buyer/supplier would affect the competitive and financial strength of companies positively.

It may indeed be difficult to keep up strong bonds with all counterparts in the cooperation. It usually demands so much of the contact person's time and the company's resources to keep up the intensive cooperation with the "important" buyers or suppliers that some counterparts in the cooperation suffer or are ignored. The company must strategically decide what or which kind of companies it wants to cooperate with and act according to that decision. The decision can be made on monetary profits to be made, is the cooperation profitable for the company, is it good for the reputation to cooperate with the company, good brand, etc., is it good for technical development, logistics development, etceteras.

When the strategic decision has been made then it is time to focus on strengthening the weaker bonds to the preferred companies and on keeping the strong bonds strong through investments and adaptations towards the counterpart in the cooperation.

7.3 Further research questions

There are still many interesting questions left regarding bonds between companies. One issue would be to look at elements that affect the building of bonds between companies in situations when the cooperation starts. Another question could be to focus more specifically on elements that affect bonds to fade away as well as the residual bonds that are left when the cooperation has ended. One issue connected to this would be the awakening of an ended relationship and how residual bonds change in strength when that happens.

Finding out what the reasons for strong bonds and what the different reasons for weak bonds are would be interesting. How are strong bonds different from weak bonds, are weak bonds weaker in every dimension or are they different on a qualitative scale, for instance having only a single dimension such as social instead of a full range of dimensions. (Easton & Araujo 1986, 1989)

The framework created should also be used in other industries than in the manufacturing business-to-business industry. The framework should be tested in business-to-consumer, as well as in the services industries. It could for instance be tested on insurance companies, banks and supermarkets.

One avenue for further research would be more vivid descriptions of the effect that bonds have on each other. The effect that bonds have on each other and each other's strength has only been presented to some extent in this study. A presentation to some extent regarding how time bonds affect the strength of the geographical bonds and how the technical bonds affect the economic bonds has been made. Material however exist for a similar study that would focus mainly on the effect the bonds have on each other and how changes in the strength of one bond affect the strengths of other bonds. By creating more vivid descriptions of the effects bonds have on each other it could be made even more possible to split up the whole concept of bonds and increase the understanding for the research of bonds. The effect that social, psychological or ideological bonds have on economic bonds, knowledge bonds have on technical bonds and vice versa, cultural bonds effect on social bonds and/or knowledge bonds are just some examples of the many possible interactions that exist between different bonds.

Additionally to the effect different bonds have on each other it would be important to study the relative importance of bonds on the relationship. The relative importance of different bonds and the effect that the relative importance has on the strength of the whole business relationship is an issue that would require more research. Some bonds are seen as more important than others and this can vary between relationships. A method of categorizing different relationships and thus different possible bond importance levels in relationships could be of interest for further research.

Partial termination is also a venue that would require more exploration. Partial termination is very important from a business point of view since loosing for instance 20% of the total production as in the case with GigaTruck would hurt most companies severely. Which are the cases were partial termination takes place and what are the reasons? This would be some of the questions to explore further on.

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Appendix A: Strategy for analysis

Strategy for analysis

Based on the theory and the findings in this study a framework for understanding the change of bonds is presented in Figure 47. In the figure there are three episode paths. These paths are negative critical episodes, routine episodes and positive critical episodes. These will be illustrated with examples from the truck producing industry. Since the method used in this study is systematic combining which allows the researcher to go back and forth between empirical material and theoretical framework it is possible to present Figure 47 at this early stage of the analysis.

The first time I analyzed the cases I was doing it with the help of the theoretical framework searching for different kinds of episodes and bonds in the material. Different types of termination of relationships and partial termination of relationships were also analyzed. With the help of the findings the framework presented in Figure 47 was found and used in the second analysis of the empirical material. The structure of the analysis was made in the way that the **cooperation** between the supplier Suspension-Supply and four of its buyers was studied as well as the cooperation between the buyer GreatTruck and the 8 short cases from its supplier relationships. Issues affecting and connected to **bond dynamics**, that is episodes, that is negative critical, routine and positive critical episodes as well as critical incidents and bond strength were analyzed. The weakening and the strengthening of the bonds due to the episodes were also analyzed in the bond dynamics part. The method used for analyzing bond strength thus trying to grasp the nature and change of bonds was made by systematically following the definitions on different bonds as described in chapter 3 in the theoretical framework of the dissertation. The finding of strategic bonds was an exception since strategic bonds are a finding of the analysis that is mentioned due to the method of systematic combining that was used to analyze the empirical material. In the **outcome** part of the model I analyzed if the relationships were terminated or partially terminated or if the relationships continued and how the bonds possibly had changed in the case of continuation in time 2 and if there were residual bonds present after termination or partial termination.

The findings are based on four case studies between a supplier of suspension components to the truck producing industry named Suspension-Supply and four truck producing buyers. The buyers are as follow: TeraTruck is case 1, GigaTruck case 2, BigTruck case 3 and KiloTruck case 4. Three of the buyers are regarded to be major players in the business. A case study with a major producer of trucks named GreatTruck concerning its terminated relationships with suppliers and reasons for the termination has also been done and used as a validating case for findings in the first four cases.

Interviews

Interviews regarding different terminated relationships have also been done with a major producer of trucks. 37 semi structured qualitative interviews have been done, each interview lasting an average of 2 hours. These were personal interviews with key persons from logistics, quality assurance, product development, sales, buyers and with

other people involved in the cooperation between the companies. The study is based on personal interviews.

Key informants are critical for the success of case studies (Yin 1994). That was also the fact in these case studies.

The first set of interviews was made with personnel from Suspension-Supply, case 2 GigaTruck, case 4 KiloTruck and case 3 BigTruck in 1996 and 1997. A second set of interviews was made with personnel from Suspension-Supply in 2001 regarding termination or partial termination of the relationships and the change of the relationships between 1996 and 2001. In the interviews regarding termination of relationships case 1, that is TeraTruck was added but it was not possible to make interviews regarding termination at the buyer in case 1 that is named TeraTruck. It was also not possible to make interviews with the buyer in case 2 with GigaTruck, in case 4 with KiloTruck and in case 5 with BigTruck's factories since Suspension-Supply wished that I should not interview them since interviews regarding termination was seen as very sensitive. I found that interviews regarding termination of relationships with two counterparts answering the questions would be difficult to arrange since there seemed to be a strong wish to avoid situations where both counterparts would take part. There was also a wish on Suspension-Supply's behalf that I should not mention their name when I tried to book interviews with truck producers regarding termination or partial termination of interviews since they saw this as having their name mentioned in a sense that could create negative connotations.

The same happened when I had managed to book interviews at GreatTruck. But the difference was that no names of the suppliers were allowed to be mentioned and no interviews with cases were I could have made interviews with the supplier as well were given.

I however got much of information regarding when there would be a risk that the relationship to the supplier would deteriorate or even break when I made the first set of interviews with Suspension-Supply's buyers in 1996/1997. I also got information regarding what the reasons for the problems could be and which issues that was seen as important for the relationship. The interviewed buyers were as follow: in case 2 GigaTruck, in case 4 KiloTruck and in case 3 BigTruck.

I could then in later interviews with Suspension-Supply find out if the relationships had developed in a way that was mentioned as being positive, as for instance more technical cooperation, better EDI systems, more revenues etc. in the cooperation. The relationship between TeraTruck in case 1 and Suspension-Supply and the development and termination of the relationship was based totally on interviews with informants from Suspension-Supply in 2001. The view of the termination or the partial termination from the supplier's side also gave clues on how the relationship was valued and how for instance the time bonds had developed in times before the termination of the relationship.

I made interviews regarding termination of relationships with informants from the validating case GreatTruck in 2001, in order to get a buyer's view on issues leading to

termination. In these interviews I got several stories regarding episodes that had lead to the termination of relationships and also episodes that were critical but did not lead to termination of the relationships due to strong bonds functioning as exit barriers in the relationships.

The framework for understanding the change of bonds in this study is presented in Figure 47 below.

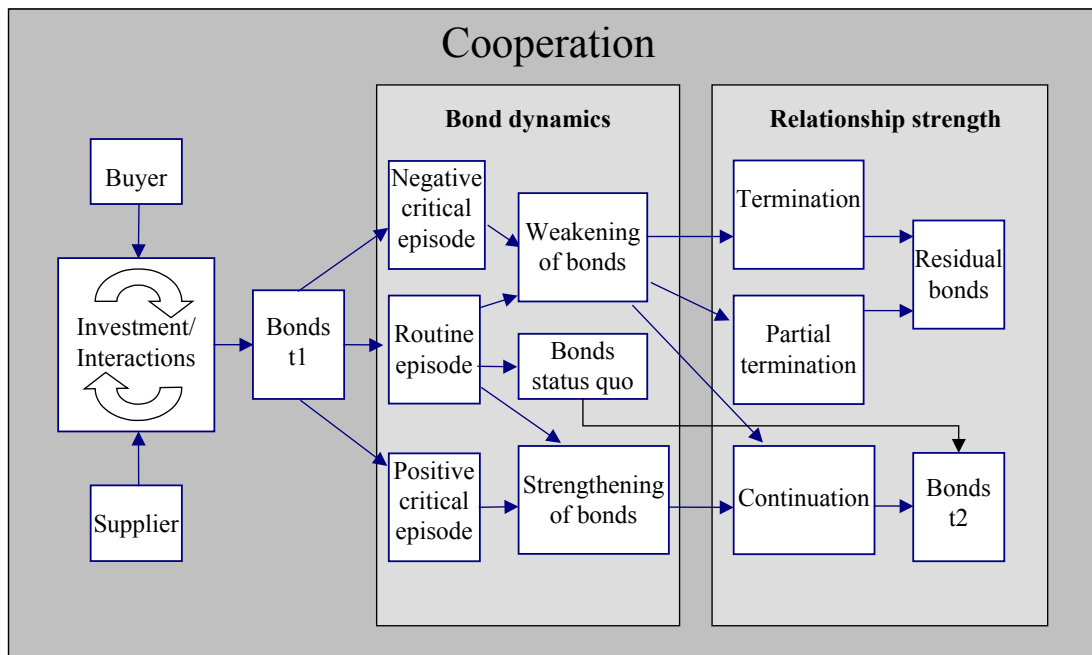


Figure 47. Outcomes of episodes

The structure of the analysis

The structure of the analysis starts in each case with describing the history of the relationship analyzed in the case. This is done in order to grasp the nature of the relationship better. In the cases where the critical incidents have taken place the critical incidents are described. Describing termination follows this and the reasons for termination are identified. The same is done in the case where partial termination has taken place. Residual bonds are also mentioned in the cases where termination and partial termination has taken place in order to see what the most common residual bonds have been. The conclusions regarding bonds and bond dynamics are presented last.

The last case regarding GreatTruck is used as a validating case for the first four cases starts with giving reasons for termination, following that is empirical examples of different episodes, such as routine, negative critical and positive critical episodes and shows how these episodes have affected the bonds. Last is a list of different bonds found at GreatTruck.

Selection of cases

The selection of cases was made based on access and availability. I have crosschecked several different cases of relationships between producers of trucks and suppliers in order to improve my understanding in accordance with the abductive approach. The first four cases were chosen due to access and availability and all cases involved cooperation with the same supplier. All cases used Suspension-Supply as a 1st tier supplier, Suspension-Supply remained as a 2nd tier supplier to GigaTruck for the product group where partial termination occurred and as a 1st tier in the product groups where it was chosen as a single source supplier. For a view of 1st and 2nd tier discussion see e.g., Lambert, Cooper and Pagh (1998). The theoretical motivation for choosing the cases was the cooperativeness between the companies that was due to the industry and the aim to find bonds and the dynamics of bonds in the cases. During discussions with the supplier I discovered four different cases that had different outcomes between the supplier and four of its buyers. In Case 1 involving TeraTruck there was total termination of the relationship. In Case 2 involving GigaTruck there was partial termination of the relationship. In Case 3 involving BigTruck negative routine episodes took place. Finally in Case 4 involving KiloTruck positive critical episodes took place and strengthened the bonds. I chose these cases since I wanted to see if there were differences in the way that the bonds changed in these different cases and also how relationship termination affected bonds.

The last validating case with short cases involving the buyer GreatTruck was chosen due to access to the buyer. The difference with the last case was also that it only took into account the buyer's view on the relationship. These short cases were used in order to reaffirm the findings from the four five cases involving Suspension-Supply and to test if the conceptual framework created could be accepted.

Cases involving Suspension-Supply

The four supply relationship cases involving Suspension-Supply are cases that were analyzed thoroughly in order to find the different paths in the framework. These are illustrated with examples from the truck producing industry. The first four cases included the 1st case with TeraTruck, GigaTruck in the 2nd case, BigTruck in the 3rd case and KiloTruck in the 4th case. All four cases have Suspension-Supply as their supplier of either springs or tubular stabilizers.

The 1st case involving TeraTruck is a case where a **negative critical episode** caused **termination** of the relationship and left residual bonds to Suspension-Supply.

The 2nd case involving GigaTruck is a case where a **negative critical episode** caused **partial termination** of the relationship. GigaTruck terminated the relationship regarding parabolic springs that stood for 20 % of Suspension-Supply's total production when the choice of single source suppliers was made in the end of 1997 the effects of the decision started to show in the beginning of 1998. At the same time GigaTruck chose Suspension-Supply as single source supplier for tubular stabilizers and conventional springs. GigaTruck's new single source supplier SPRING had problems in delivering the amount of parabolic springs that GigaTruck needed so Suspension-Supply had to start acting as a sub-supplier to SPRING for the amount of products, 20 % of the production, that were terminated by GigaTruck.

The 3rd case involving BigTruck is a case where **negative routine episodes** have take place and the relationship to Suspension-Supply has continued.

The 4th case involving KiloTruck is a case where **positive critical episodes** have lead to a continuation of the relationship and to the **strengthening** of bonds between KiloTruck and Suspension-Supply.

All cases were necessary in order to confirm the framework of the study and were also seen as the paths that can be taken in different business relationships whether it is relationships in the truck producing industry, manufacture of jeans etc. The paths are termination, partial termination or continuation of a business relationship.

For an illustration of the cases involving Suspension-Supply see Figure 48 below. The hub of the network is Suspension-Supply.

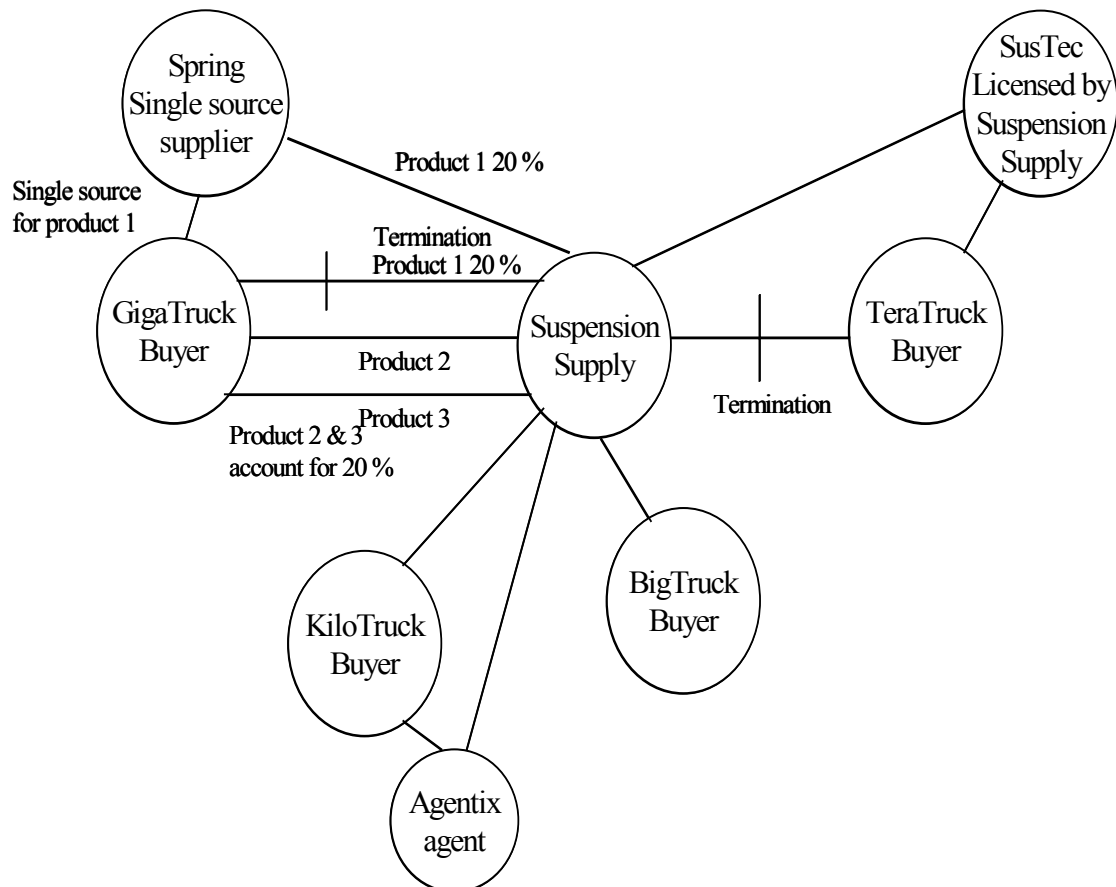


Figure 48. The studied relationships involving supplier Suspension-Supply

Validating case

GreatTruck was used as a validating case. The GreatTruck case views a large producer of trucks and its view on cooperation with its 1st tier suppliers. GreatTruck was used for validating the conceptual framework created in the first four cases.

Case GreatTruck

The short cases involve the buyer GreatTruck that is one of the world's largest producers of trucks. The findings are based on three interviews regarding reasons for relationship termination or partial relationship termination with suppliers to GreatTruck and were made with informants from purchase, quality and logistics at GreatTruck. Short examples in the form of cases are presented that are either reaffirming or contradicting the findings of the first four cases.

The most common reasons for relationship termination are mentioned as well as there are short examples of routine, negative and positive episodes. The cases were analyzed by systematically trying to find all aspects of the framework of this study. The cases were different examples of negative critical episodes, routine episodes and positive critical episodes leading to the weakening or the strengthening of bonds and the continuation of the relationship or relationship termination.

Case 1 and Case 2 were involving two big suppliers to GreatTruck where there was no possibility for GreatTruck to terminate the relationship since there were no available alternatives for the suppliers. The exit barriers trapped GreatTruck in the relationship and the bonds that functioned as exit barriers had negative connotations. Case 3 was a general example of a case where supplier relationships had been terminated due to poor product quality and a weakening of the technical bonds. Case 4 was a case with poor delivery precision towards GreatTruck however not resulting in termination. Case 5 was a case where three out of four supplier relationships were terminated from the relationship for strategic reasons. Case 6 was a termination due to economic reasons and due to the weakening of economic bonds. Case 7 was a termination due to geographical reasons due to the weakening of the time and geographical bonds. Finally, case 8 was termination due to the weakening of the cultural bonds that was due to cultural differences. For a brief picture of the case see Figure 49 below. The hub of the network is GreatTruck.

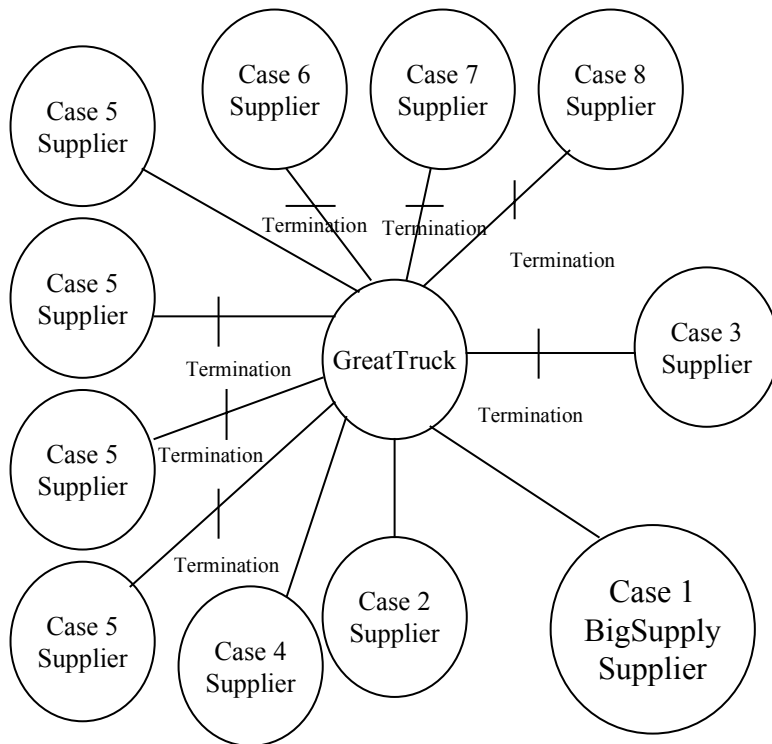


Figure 49. The short cases involving buyer GreatTruck

Method for analyzing bond strength

The method used for analyzing bond strength was made by systematically following the elements of the definitions on different bonds as described in chapter 3.8.1 in the theoretical framework of the dissertation. I then searched for the elements from the definitions that stem from the theory in the empirical material and added elements that were not mentioned in existing theory but that could be derived from the theory and the empirical material. An exception is the strategic bonds that are a finding of the analysis of the empirical material.

The findings of each case were analyzed and structured in the manner that one bond at a time was analyzed. In order to find out if the bond was weak, of medium strength or strong a system with tables was drawn up. Elements of the definitions of each different bond or parts of the elements of the definitions of each different bond were tabulated. An element of a definition could be for instance delivery precision as an element of time bonds. Parts of the element of delivery precision could be lead times, line stops, size of the production series etc.

These elements taken from the theoretical definition are then checked separately in every case of empirical material for every bond and if the delivery precision is good it gets a plus, +, in the Table, which means that it affects the time bond positively strengthening the time bond. If the delivery precision is poor then it gets a minus, -, in the Table, which means that it affects the time bond negatively thus weakening the time bond. And if the delivery precision is neither good nor poor but in the vicinity between good and poor then it gets a neutral, +-, mark in the table thus having a neutral effect on the bond. The same goes for elements as line stops that have happened in negative

critical episodes it would get a minus, -, in the table since it affects the delivery precision negatively and is therefore weakening the time bond. For a short example of a table with some elements of delivery precision see table 62 below.

Table 62. Examples of elements that affect time bond strength

Elements that affect time bond strength	Good	Medium	Poor
Delivery precision and issues connected to that			
Delivery precision	+	+-	-
Lead times	-	+-	-
Line stops			-

Judgment rules for managing the plusses and the minuses

Managing the plusses and minuses is not difficult once rules are drawn up for the manner of putting out the plusses and the minuses. The manner that the definitions of bonds with all their elements stemming from theory are structured makes it fairly easy to find the elements from the definitions. The bonds may in some cases include all of the elements and in some cases not. The researcher should strive to make the interviews in such a manner that the discussions held would contain all the elements of every certain bond. These elements and the manner that these elements affect the strength of the bond are then described both in text and made explicit with tables.

The plusses and minuses are put out and managed in a manner that is based on statements of fact regarding the cooperation as well as perception of the elements affecting the bonds in the cooperation. The interviewees have stated the facts in the interviews and the facts may also stem from internal documents from the companies. For instance a statement of fact by the personnel that an EDI system for transfer of daily delivery information exists between the cooperating companies would render a plus, +, in the table. A statement by the personnel that there is a lack of a system for transfer of daily delivery information would render a minus, -, in the table. As would a statement of fact that snail mail is used for transfer of delivery information, and stories regarding problems connected to that, render a minus, -, in the table.

A negative, -, mark was used when elements affecting a bond negatively thus weakening the bond occur. Elements that affect a bond negatively can be elements that are emphasized when problems develop in the relationship. A bond could for instance be affected negatively by technical or delivery problems. Poor development of systems or other elements connected to the cooperation may also affect a bond negatively weakening it. A negative, -, should be marked out when one or both counterparts in the cooperation perceive an element as negative causing problems in the cooperation and weakening the bond.

A very negative, --, mark was used when elements that affect a bond negatively have deteriorated from weakening the bond to weakening the bond even further. This may happen when some element in the cooperation that is already weak is weakened even further. This can for instance be due to a further decrease of delivery precision.

A positive, +, mark was used when elements affecting a bond positively thus strengthening the bond occur. Elements that affect a bond positively can be issues that are emphasized when the relationship develops in a positive manner. A bond could for instance be affected positively by a breakthrough in technical development or an increased delivery precision. Well-developed systems or other elements connected to the cooperation can also affect a bond positively strengthening it. A positive, +, should be marked out when one or both counterparts in the cooperation perceive an issue as positive strengthening the cooperation.

A very positive, ++, mark was used when elements that affect a bond positively have developed from strengthening the bond to strengthening the bond even further. This may happen when some element in the cooperation that is already strong is strengthened even further. This can be due to for instance further improvement of technical issues.

A neutral, +-, mark was used when one or both counterparts in the cooperation perceive an element as neutral affecting the bond in the relationship neutrally not strengthening nor weakening it. Elements that do not result in problems for the companies in the cooperation are neutral. Systems or other elements that are only developed or exist at a medium level or degree affect bonds neutrally.

Thus, a minus, -, should be read in a fashion that it affects the bond in question negatively weakening it and a double minus, --, should be read as affecting the bond in question very negatively weakening it further. A plus, +, should be read to affect the bond in question positively strengthening it and a double plus, ++, should be read as affecting the bond in question very positively strengthening it further. A neutral +-, mark in the table should be read as affecting the bond neutrally neither strengthening nor weakening it.

If we for instance take a case regarding legal bonds. A minus, -, should be read in the fashion that it affects the legal bond negatively weakening it and a plus, +, should be read to affect the legal bond positively strengthening it. A neutral, +-, mark in the table should be read to affect the legal bond neutrally neither strengthening nor weakening it.

Time 1 and time 2 etc. were the timeframes put out in the tables in order to be able to see how the bonds had changed between the timeframes t1 and t2 as between which the dynamics of bonds were studied. If the bonds remained unchanged no timeframes were mentioned.

Bonds can have both negative and positive aspects. Positive aspects exist if there for instance are positive connotations to the bonds and if the counterpart in the cooperation is not trapped in the relationship due to the bonds. Negative aspects exist if the bonds for instance trap the counterpart in the cooperation. Negative aspects can be seen as exit barriers that forces one of the counterparts to continue the relationship as for instance a binding contract.

Relative weight of the pluses and minuses

The relative weight of the pluses and minuses in the tables for the total affect on the bond strength are connected to the importance of the elements. This can be exemplified with an example regarding time bonds. A plus, +, mark for a minor element regarding the flexibility of flow of information as for instance an EDI system for exchange of drawings does not strengthen the total weight of the time bond if the delivery precision at the same time is poor leading to a minus, -, mark for delivery precision. Thus a minor element has less weight on the effect on the total strength of a bond than an element that is central for the bond strength and thus has more weight on the total bond strength.

Visualization of the strength of different bonds

If bonds would be measured on a Likert scale then **1** would be the poorest grade equaling to a **weak bond**, **3** would be a medium grade equaling a **medium strong bond** and **5** would be an excellent grade equaling a **strong bond**. On a general level regardless of the bond one could argue that a **weak bond** is when problems exist in the cooperation, system do not function as well as they should and the personnel is voicing their irritation. A strong bond on a general level is when the cooperation works well, systems functions well and the personnel are positive to the cooperation and voice it. See Figure 50 below.

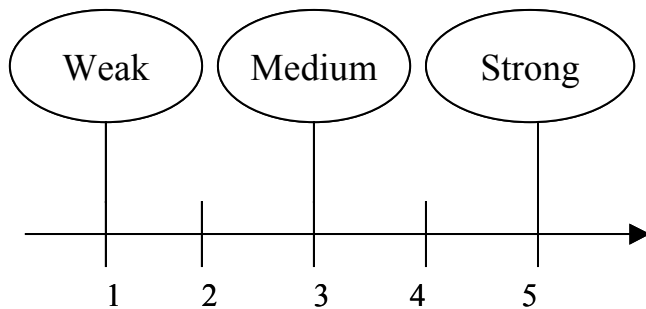


Figure 50. Bond strength visualized on a Likert scale

Technical bonds

A situation that would render a **5** on the scale, thus a **strong** bond would exist when adaptation of either process or product is taking place, the development activities is frequent and the counterparts start to take place in each others development activities at an early stage of the development. Outsourcing of development may take place and there may be resident engineers at the counterpart's offices. There may be a technical lead such as in the form of a patented product or process and the technical quality is high.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when there are common development activities but the supplier/buyer is allowed to take part at a late stage of the development process. The process adaptation may be

poor at the supplier's plant due to lacking product adaptation that may be due to the fact that the supplier is allowed to take part in the development process at such a late stage. The product or technical quality may be at an average level.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when there is poor adaptation of process or product, no common development activities, no use of 3-D models in development, no investments in equipment and problems with product or service quality.

Product adaptation and quality is perceived to carry most weight. If the quality of the products are low and the adaptation of the products is poor and there is a risk that the product will become obsolete on the market due to new technology breakthroughs then there is a large risk for dissolution of the relationship.

Time bonds

A situation that would render a **5** on the scale, thus a **strong** bond would exist when no delivery problems have existed, adaptation of logistic functions have happened, the lead-times have been low, EDI contacts have been in place as for instance exchange of CAD drawings, systems for delivery information have existed and the number of interfaces for communication is small.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when there have been some disturbances in the delivery precision, EDI contacts are in place but they are not updated every night, there are no systems for on-line invoicing that would render a higher grade.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when big disturbances have occurred in the delivery precision, there is bottlenecks in the production, the lead-time is high, the processes are late, no EDI contacts exist and if EDI contacts exist they do not affect the delivery precision positively, no on-line invoicing exists and the number of interfaces in the production is high. The risk for dissolution is high.

Delivery precision is perceived to have the most weight; if the delivery precision is poor and the deliveries are late and line stops may occur then no other element is able to improve the strength of the time bond.

Knowledge

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the counterparts are familiar with each other's strengths and weaknesses. The involvement regarding development of products begins at an early stage. Novel product designs are tested. Knowledge is shared, possibly also through use of 3-D models. There is mutual knowledge regarding rules and routines, and a small number of interfaces, a common language and a low turnover of personnel may increase the mutual knowledge since the knowledge bond is based on personal experience.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when there cooperation regarding development of products may be at a minimal

level, the cooperation regarding development of products starts at a late stage. The familiarity of strengths and weaknesses may however be good and there may be few interfaces thus improving the spreading of knowledge.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when there is poor knowledge regarding strengths and weaknesses of the counterpart in the cooperation, a lack of cooperation regarding development of products, and a poor knowledge regarding mutual rules and routines that may be due to language problems, a large number of interfaces and a high turnover of personnel.

Knowledge regarding strengths and weaknesses as well as cooperation regarding development is perceived to have the most weight, if the cooperation regarding development of products is at a minimal level and the number of interfaces is high and the turnover of personnel is high then no other element is able to improve the strength of the knowledge bond.

Legal

A situation that would render a **5** on the scale, thus a **strong** bond would exist when highly specified contracts that make it difficult to terminate the relationship exist. Contracts regarding development of products, deliveries, quality etc. are used. The culture requires contracts and the contracts have a long duration. Quality certificates as QS 9000 or equivalent exist as well as environmental certificates as ISO 14001.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when contracts stipulating some parts of the cooperation exist but these are however not binding and there are clauses that allows for termination of the cooperation. Quality or environmental certificates such as QS 9000 or ISO 14001 may exist.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when no written contracts exist, there is no culture demanding written contracts and no quality or environmental certificates exist.

Written contracts that are difficult to terminate are perceived to have the most weight. If no specified written contracts exist then no other element will improve the bond strength making the legal bond strong.

Economic

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the share of supplied and purchased products is high, the profit margins are high, the production is efficient, no bottlenecks exist, the opportunity costs are low and additional revenues are to be found from the cooperation.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when the share of supplied products is at a medium level and when one of the counterparts in the cooperation perceives that the price is high or low. Opportunity costs may be at a medium level, the production efficiency is not at a top level and occasional bottlenecks may take place in the production.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when the share of supplied or purchased products is low, the profit margins are low, produced series are small, the production is inefficient with bottlenecks in the production, the opportunity costs are high and there are additional costs that stem from the cooperation.

The share of supplied or purchased products is perceived to have the most weight. If the share of supplied or purchased products is low then no other element will improve the bond strength having an affect that will make the economic bond strong.

Geographical

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the geographical distance to the buyer is short and when the delivery precision is good, warehouses exists at the buyers plants and the technical cooperation is improved through residential staff or agents.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when the geographical distance is not perceived as neither short nor vast, or when the delivery precision and lead-times bridges the problems that a vast geographical distance creates and the technical cooperation works but no residential staff or agents exist.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when geographical distance is vast, the lead-times are high, the delivery precision is poor, line stops may occur due to poor delivery precision and the supplier may be forced to use airfreights to solve the worst problems that the vast geographical distance creates. The technical cooperation may be non-existent or minimal due to the vast geographical distance.

The geographical distance and how it affects delivery precision is perceived to have the most weight. A good technical cooperation does make the geographical bond strong if the deliveries are constantly late due to a vast geographical distance then the risk for dissolution of the relationship is high.

Social

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the turnover of personnel is low, there are frequent contact between the personnel, management cooperation is good, a team spirit exists and there may even exist unofficial contacts between the personnel and the levels of commitment and trust is high.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when the turnover of personnel is high at some departments, and there is lacks in elements such as commitment, trust, team spirit, and personal relationships.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when the turnover of personnel is high, there are infrequent contacts between personnel,

management cooperation is poor, no team spirit exists and the levels of commitment and trust is low.

The turnover of personnel is perceived to carry most weight. A frequent communication and meetings between personnel does not make the social bonds strong if the personnel between whom the social bonds are created switches with close intervals. It is also difficult to build up personal relationships as well as commitment and trust under such circumstances.

Cultural

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the cultural background is similar, the religion is the same, many elements of the company culture is similar, the generations of personnel are similar and a common language is spoken.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when some elements are strong and some are weak in the company culture. The language skills are on a mediate level and some cultural differences between national cultures exist.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when the cultural background is different, the company cultures are different, the generations of personnel in the cooperating companies are different, the religions are different and the languages are different and language problems exist.

The company culture is seen to carry most weight. A similar religion does not make the cultural bonds strong if at the same time there are problems in the company culture such as different views on borders concerning responsibility, differences in the channels for communication or differences in handling of technical issues.

Ideological

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the supplier reaches or exceeds the buyers demands for environmental awareness, green product or process such as ISO 14001 certified product or process and a demand for a high domestic content of the product, process or service.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when the supplier does not fully reach up to the buyers demand for environmental awareness, green process or product or domestic content.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when there is a demand for environmental awareness, green product or process or a domestic content of the product, process or service and the supplier fail to meet these demands.

All issues are seen to carry equal weight and the demand for what is seen as important be it domestic content or environmental awareness affect the strength of the ideological bond. If a possibility to recycle is important then the ideological bond is strong if the products are recyclable.

Psychological

A situation that would render a **5** on the scale, thus a **strong** bond would exist when the product, process or service is perceived as superior to that of the competition, the brand name is strong, the image is good and the reputation of the counterpart in the cooperation is good.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist when some of the company's products are perceived as superior while others are perceived as equal, the brand name or image is on a medium level and the reputation of the counterpart in the cooperation is neither perceived as good nor negative.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when the product, process or service is seen as inferior or equal to that of the competition, the brand name is weak, the image is poor and the reputation of the counterpart in the cooperation is poor.

The perceived superiority, equality or inferiority of product, process or service is perceived to carry the most weight. A good brand name image or reputation does not make the psychological bond strong if the product is perceived as inferior.

Strategic

A situation that would render a **5** on the scale, thus a **strong** bond would exist when a strategic decision has been made to cooperate, the strategic importance of the supplier/buyer is high from an economic or a technical view, there is a focus on development activities and the strategic importance of the product is high.

A situation that would render a **3** on the scale, thus a bond of **medium** strength would exist for instance when strategic decisions to terminate one product group while strategic decisions to chose other product groups as single source for the is made. The strategic importance of the supplier or buyer may average, as is the strategic importance of the product.

A situation that would render a **1** on the scale, thus a **weak** bond would exist when a strategic decision to terminate the relationship has been made, the strategic importance of the supplier/buyer is low from an economic or technical view, there is no common focus on development activities and the strategic importance of the product is low.

The strategic decision to cooperate or terminate the relationship is perceived to carry the most weight. If however the strategic importance of the buyer or supplier is high or the strategic importance of the product is high then the risk that a strategic decision to terminate is done is lower thereby strengthening the bond.

Use of grids to specify bond change

In order to show explicitly how bonds have changed over time in a certain relationship I have used grids where I have illustrated explicitly how the strength of bonds has changed during different times in the relationship as illustrated in Figure 33 below.

Bonds may have been seen as something positive and strong and later on their character changes to something being perceived as negative and weak or vice versa. The grid shows both the supplier's point of view and the buyer's point of view. A higher margin due to a price increase on a delivered product may for instance be perceived as positive and strengthen the economic bond from the supplier's point of view but may be seen as negative and weaken the economic bond from the buyer's point of view.

The nature of bonds is that bonds may be viewed or perceived differently when they move in the frame of perception as illustrated in Figure 33 below. The original idea regarding a dyadic perspective and movement of perception in a matrix was presented by Holmlund and Strandvik (1999a) in a study regarding critical incidents.

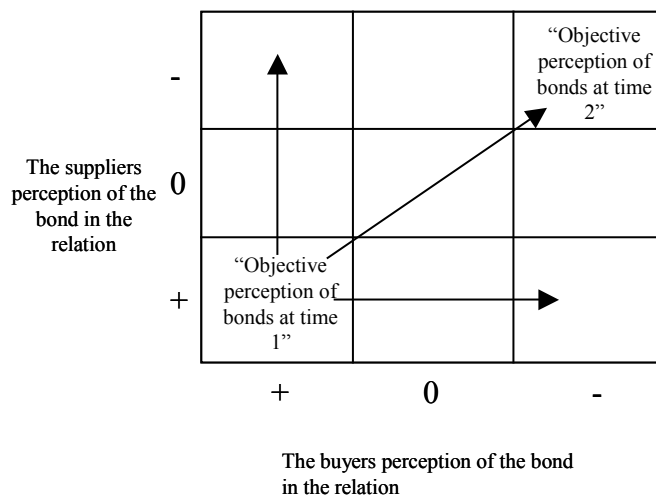


Figure 33. The objective perception of bonds in the relationship

The arrows in the figure characterize some possible pathways for the development of the frame of perception of bonds in relationships. The different critical episodes may affect the bonds in the relationship strengthening or weakening the bonds in the relationship or preserving status quo. Routine or critical episodes may lead to the strengthening or weakening of bonds as well as to the preservation of status quo.

Appendix B: Conducted interviews

Company	Position of informants or department	Date, time, place
Suspension-Supply	Production planner	7.8.1997, 14.00-14.45 28.2.1997, 12.20-13.20, 21.3.2001, 10.30-12.10, Northern Europe
Suspension-Supply	Technical Customer Service	7.8.1997, 9.10-10.10. Northern Europe
Suspension-Supply	Manager A, Leafsprings	22.10.1996, 10.00-11.45, 28.2.1997, 8.00-9.30, 14.8.1997, 9.30-11.00, Northern Europe
Suspension-Supply	Manager, Support Systems and quality assurance	14.8.1997, 12.08-14.18, 7.3.1997, 8.30-11.00, 13.3.2001, 12.20-14.50, Northern Europe
Suspension-Supply	Designer, Construction	21.3.1997, 10.00-11.50, 7.8.1997, 12.00-13.13, 21.3.2001, 8.30-10.11 Northern Europe
Suspension-Supply	Manager, Managing Director in the second interview	28.2.1997, 9.40-11.25, 13.3.2001, 9.00-10.30, Northern Europe
BigTruck	Purchaser	2.9.1997, 10.08-11.10, Northern Europe
BigTruck	Designer	2.9.1997, 12.55-14.00, Northern Europe
BigTruck	Quality assurance	3.9.1997, 10.00-10.45, Northern Europe
BigTruck	Logistics	3.9.1997, 9.00-9.35, Northern Europe
BigTruck's sales division	After Sales Director	4.9.1997, 14.00-15.10, Northern Europe
KiloTruck	Department manager for quality assurance	12.3.1997, 7.30-8.30, Central Europe
KiloTruck	Purchase Director	11.3.1997,13.40-15.30, Central Europe
KiloTruck	Director for materials management for Truck assembly and parts	12.3.1997, 10.45-10.55, Central Europe
KiloTruck	Materials management for truck assembly and parts	12.3.1997, 9.45-10.25, Central Europe
KiloTruck	Technics, chassis and suspension	12.3.1997, 11.00-13.30, Central Europe
Agentix	Agent X	11.3.1997-12.3.1997, Free discussions, Central Europe
GigaTruck	Material Supply	27.3.1997, 10.00-11.00, Northern Europe
GigaTruck	Manager, Material Supply	27.3.1997, 11.05-11.50, Northern Europe
GigaTruck	Constructor	26.3.1997, 13.10-14.35, Northern Europe
GigaTruck	Purchase Manager	27.3.1997, 7.45-9.10, Northern Europe

GigaTruck	Manager, Material Supply	13.3.1997, 10.15-11.15, Central Europe
GigaTruck	Supplier Quality Assurance	14.3.1997, 9.30-10.30, Central Europe
GigaTruck	Material Supply	14.3.1997, 8.00-9.00, Central Europe
GigaTruck	Constructor	14.3.1997, 10.55-11.50, Central Europe
GigaTruck	Construction	13.3.1997, 13.30-14.30, Central Europe
GreatTruck	Purchasing manager, Purchasing, Chassis and Cabs	24.4.2001, 9.30-11.15, Northern Europe
GreatTruck	Quality manager, Purchasing, Chassis and Cabs	24.4.2001, 8.15-9.05, Northern Europe
GreatTruck	Logistics preparation manager, Chassis assembly plants	24.4.2001, 11.15-12.30, Northern Europe

Appendix C: Interviews questions

Interviews with buyers regarding the stable relationships in the four cases

1. How many suppliers of springs and stabilizers does your company have?
2. How large part of these products are supplied by A?
3. Are there any other potential suppliers of springs and stabilizers?
4. What kind of agreements concerning cooperation does exist between the companies?
5. What kind of agreements would you like?
6. How difficult is it to end the cooperation?
7. What kind of critical incidents have arisen between your companies?
8. How have these incidents been handled?
9. Have any relationships ended?
10. How early is supplier A contacted when it comes to development of new products?
11. Is the throughput time in accordance with your needs?
12. What kind of agreements concerning co-operative research and development exist between your companies?
13. How well does the information exchange system work between your companies?
14. Does any similar computer systems or technical standards exist between your companies?
15. What kind of EDI systems do you have between your companies?
16. Do you have an ISO 9000 agreement ?
17. What kind of co-operation do you have when it comes to design?
18. How good does the supplier A adapt their products for your needs?
19. How easy is it to contact the supplier when you need them?

- Through telephone, fax or e-mail/EDI?

20. How does the supplier A succeed in delivering in the time frames you require?
21. How good does the supplier follow up the deliveries?
22. How good is the supplier in solving your problems?
23. How positive/negative is the suppliers personnel's attitude towards you?
25. Does a team spirit exist between your companies?
26. How often does people from your companies meet?
27. Are there any unofficial contacts between people in your companies/ personal relationships?
28. What kind of systems do you have for discounts and credits?
29. How suitably located is your supplier A when it comes to distance?
31. What kind of cultural differences/similarities exist between your companies?
32. Does the cultural differences/similarities result in any problems/advantages?
33. How do you perceive quality from A:s country of origin?
34. How much does environmental awareness mean to you when it comes to choosing supplier?
35. How much resources have you invested in the co-operation with your supplier?
36. How do you perceive the quality you get from the relationship?
37. In what ways does the companies complement each other?
38. What kind of advantages have you realized when you have been co-operating?
39. What kind of draw backs have you realized when you have been co-operating?
40. What kind of expectations do you have on the co-operation?
41. What differences are there between springs and stabilizers manufactured by A, compared with springs and stabilizers manufactured by other companies?
42. Are springs and stabilizers manufactured by A superior/inferior to springs and stabilizers of different brands?

Appendix D: Questionnaire for interviews for the ended relationships

Buyer:

1. How many suppliers of X does your company have?
 - Have you had more suppliers?
 - Why did you decrease the number of suppliers?
 - Single source?
2. How large was the share of products delivered by supplier X?
3. How old was the relationship?
4. Why was the relationship ended?
5. Which were the reasons?
6. When did the thoughts regarding ending the relationship begin?
7. What has happened during the process?
8. Were some departments keener than other departments to end the relationship?
9. Was the counterpart in the cooperation aware that the process of terminating the relationship had begun?
 - Did you inform them?
10. Did the ending of the relationship come as a surprise?
11. Why was the relationship ended?
 - Social reasons?
 - Technical reasons?
 - Quality reasons?
 - Monetary reasons?
 - Delivery times?
 - Strategic reasons?
 - Other alternatives on the market? Better?
12. Did you actively try to end or run down the relationship?
 - By demanding lower prices?
 - Etc.
13. How was the price of the product?
 - Price increases?
14. What kind of systems did you have for discounts and credits?
15. What kind of agreements did exist between the companies?
16. Were the agreements easy to break??
17. How difficult was it to terminate the cooperation?
 - Barriers to termination?
 - Investments that could no longer be used?
18. Did you encounter any problems in the cooperation? (Critical incidents)
19. How often did problems occur?
20. How were the incidents handled?
21. Did you complain to the supplier's personnel?
22. How were the complaints handled?
23. Did the counterpart in the cooperation keep its promises?
 - In what kind of situations did the counterpart not fulfill its promises?
24. Have you thought of ending the relationship earlier due to problems?

- In what kind of situations would you end the relationship?
- 25. Have other relationships been terminated?
- 26. At which stage (how early) was the supplier X contacted regarding development of products?
- 27. How did the lead-times suit you?
- 28. Did you have any agreements regarding research and development?
- 29. How did the exchange of information between the companies work?
- 30. Common computer systems or technical standards?
- 31. What kind of EDI systems or equivalent existed between the companies?
- 32. Did you require the supplier to work according to the ISO 9000, QS 9000 or ISO 14001 standard?
- 33. Did you cooperate regarding design?
- 34. How did the supplier adapt its products according to your needs?
- 35. Was it easy to contact the supplier when you needed them?
 - By telephone, fax or E-mail/EDI?
- 36. What was the supplier's delivery precision?
- 37. How did the supplier follow up the delivery?
- 38. How well did the supplier succeed in solving your problems?
 - Did they react if you messaged that you had problems?
- 39. What was the supplier's attitude towards you?
- 40. Did a team spirit exist between your companies?
- 41. How often did personnel from your companies meet?
- 42. How often were contact personnel changed?
- 43. Are there any unofficial contacts/social relationships between the personnel at the cooperating companies?
- 44. How suitably was the supplier x situated when it comes to geographical distance?
- 47. Did any kind of cultural differences exist between your companies? (National culture)
- 48. Were there any differences between the company cultures?
- 49. If differences in culture occurred did they result in any problems or advantages?
- 50. Did the country of origin of the company affect quality?
- 51. How much did the environmental awareness mean when the choice of supplier was made?
 - Did any problems exist regarding the environmental awareness?
- 52. How much resources (time and money) were invested in the cooperation with the supplier?
- 53. In which manners did the companies complete each other?
- 54. What kind of pros and cons did you notice in the cooperation?
- 55. What kind of expectations did you have on the cooperation?
- 56. Where there any differences between products produced by company x in comparison with products produced by other suppliers?
 - Technical problems?
 - Too many unnecessary and expensive technical solutions?
 - Problems with painting, etc.
- 57. Would you consider using the same supplier again?
- 58. Is there anything left from the cooperation?
 - Investments?
 - Social contacts?

Supplier:

1. How many buyers of X does your company have?
 - Have you had more buyers?
 - Why did the number of buyers decrease?
 - Single source?
2. How large was the share of products bought by buyer X?
3. How old was the relationship?
4. Why was the relationship ended?
5. Which were the reasons?
6. When did the thoughts regarding ending the relationship begin?
7. What has happened during the process?
8. Did the ending of the relationship come as a surprise?
9. Why was the relationship ended?
 - Social reasons?
 - Technical reasons?
 - Quality reasons?
 - Monetary reasons?
 - Delivery times?
 - Strategic reasons?
 - Other alternatives on the market? Better?
10. Did you actively try to end or run down the relationship?
 - By demanding higher prices?
 - Etc.
11. How was the price of the product?
 - Price increases?
12. What kind of systems did you have for discounts and credits?
13. How has the payments been handled?
14. What kind of agreements did exist between the companies?
15. Were the agreements easy to break?
16. How difficult was it to terminate the cooperation?
 - Barriers to termination?
 - Investments that could no longer be used?
17. Did you encounter any problems in the cooperation? (Critical incidents)
18. How often did problems occur?
19. How were the incidents handled?
20. Did you complain to the buyer's personnel?
21. How were the complaints handled?
22. Did the counterpart in the cooperation keep its promises?
 - In what kind of situations did the counterpart not fulfill its promises?
23. Have you thought of ending the relationship earlier due to problems?
 - In what kind of situations would you end the relationship?
23. Have other relationships been terminated?
24. At which stage did the supplier X contact you regarding development of products?
25. How did the lead-times suit you?
26. How satisfied were you with the manner in which the buyer ordered the products?
 - Were the products ordered in time?
27. Did you have any agreements regarding research and development?

28. How did the exchange of information between the companies work?
29. Common computer systems or technical standards?
30. What kind of EDI systems or equivalent existed between the companies?
31. Did the buyer require that you work according to the ISO 9000, QS 9000 or ISO 14001 standard?
32. Did you cooperate regarding design?
33. Problems regarding design?
34. How did the buyer's products fit your production?
35. Was it easy to contact the buyer when you needed them?
 - By telephone, fax or E-mail/EDI?
36. What was your delivery precision against the buyer?
37. How well did the supplier succeed in solving your problems?
38. Did they react if you messaged that you had problems?
39. What was the buyer's attitude towards you?
40. Did a team spirit exist between your companies?
41. How often did personnel from your companies meet?
42. How often were contact personnel changed?
43. Are there any unofficial contacts/social relationships between the personnel at the cooperating companies?
44. How suitably was the buyer x situated when it comes to geographical distance?
45. Did any kind of cultural differences exist between your companies? (National culture)
46. Were there any differences in company culture?
47. If differences in culture occurred did they result in any problems or advantages?
48. How important was it that the buyer manufactured products of a certain quality? (As for instance for reference)
49. Did the country of origin of the company affect quality?
50. How much did the environmental awareness mean when the choice of buyer was made?
 - Did any problems exist regarding the environmental awareness?
51. How much resources (time and money) were invested in the cooperation with the buyer?
52. In which manners did the companies complete each other?
53. What kind of pros and cons did you notice in the cooperation?
54. What kind of expectations did you have on the cooperation?
55. Where there any differences between products produced by company x in comparison with products produced by other buyers?
56. Would you consider conducting business with the same buyer again?
57. Is there anything left from the cooperation?
58. Investments?
Social contacts?

Appendix E: Example of questionnaire for bond audit

Importance; what do you consider to be important in the cooperation with X?

(On a scale between 1-5, 1= Totally unimportant, 2= Unimportant, 3=Neutral, 4=Important, 5= Very important)

Level; How would you regard the level of cooperation with X at current time?

(On a scale between 1-5, 1=Very poor, 2=Poor, 3=Neutral , 4=Good, 5=Excellent)

A

	Importance	Level
1. Handling of claims	<input type="checkbox"/>	<input type="checkbox"/>
2. Language skills	<input type="checkbox"/>	<input type="checkbox"/>
3. X:s delivery precision	<input type="checkbox"/>	<input type="checkbox"/>
4. X:s environmental awareness	<input type="checkbox"/>	<input type="checkbox"/>
5. Cooperation regarding development	<input type="checkbox"/>	<input type="checkbox"/>
6. Surface treatment of products	<input type="checkbox"/>	<input type="checkbox"/>
B 7. Other product features	<input type="checkbox"/>	<input type="checkbox"/>

What other elements do you consider to be of importance in the cooperation with X?

19. _____

20. _____

21. _____

22. _____

23. _____

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