

Core and Support Bonds in Industrial Business Relationship Cases from the Truck Producing Industry

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ABSTRACT

The main finding in this paper is that bonds can be divided into core and support bonds. The definition of bonds has also been developed. 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. The 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. The relative weight of the core bonds is thus higher for the relationship than the support bonds.

Introduction

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). 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.

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, 2004). A focus on cooperative industrial business relationships has become more important. As a result the bonds between companies become more important. 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).

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 and may thus function as exit barriers 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.

How do bonds change before termination of a relationship and are some bonds more prone to changes than others? It was 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.

The findings are based on six case studies between a supplier of suspension components to the truck producing industry and six truck producing customers of whom four are regarded to be major players in the business. All cases have confirmed the findings of the study as have the validating case with a major producer of trucks and its cases to suppliers. Interviews have been conducted with personnel from logistics, quality assurance, product development, sales, buyers and other people involved in the cooperation between the companies.

Bonds

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). These six bonds do however not give a picture that would cover industrial relationships completely (Wendelin 2000a, 2004). Additional bonds have been recognized in the past years in service marketing. Bonds such as cultural, ideological, geographical and psychological bonds have been added to the technical, time, knowledge, social, legal, and economic bonds. (Liljander & Strandvik 1995) By combining the bonds that the IMP group has found with those from the service marketing perspective a more complete model have been found. Geographical, cultural, ideological and psychological bonds are also important from an industrial perspective. Wendelin (2000a, 2000b) and 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. One additional bond, namely strategic bonds have been found to complete the structure with 10 bonds (Wendelin 2004).

The model structure containing 11 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 have existed 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 model for my purpose.

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

I have focused on the 11 bonds mentioned above in the study since these seem to describe a business relationship best (Wendelin 2000b, 2002a, 2004). The model with 11 bonds is easy to use both from a theoretical viewpoint and also in order to help companies improve their performance. Short examples of the bonds studied in this paper follow below.

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, 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 2002a). 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, 1998, 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 a buyer point of view. The view of how suitably located the supplier is can vary over time in the relationship. Wendelin (2002b) 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). **Strategic bonds** Strategic bonds are bonds that emerge when the companies have it in their strategy and make a strategic decision to cooperate (Wendelin 2004). 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 (Wendelin 2004).

I perceive bonds to be the building stones of relationships. A relationship is built up of several different types of bonds. By managing the bonds it is possible to strengthen or weaken the relationship. My definition of bonds is as follow:

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.

Findings

These are the findings based on the case studies.

Bonds abstraction levels

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.

A new model that makes bonds easier to grasp follow were bonds is organized into **abstraction levels of concrete and abstract** bonds. See Figure 1.

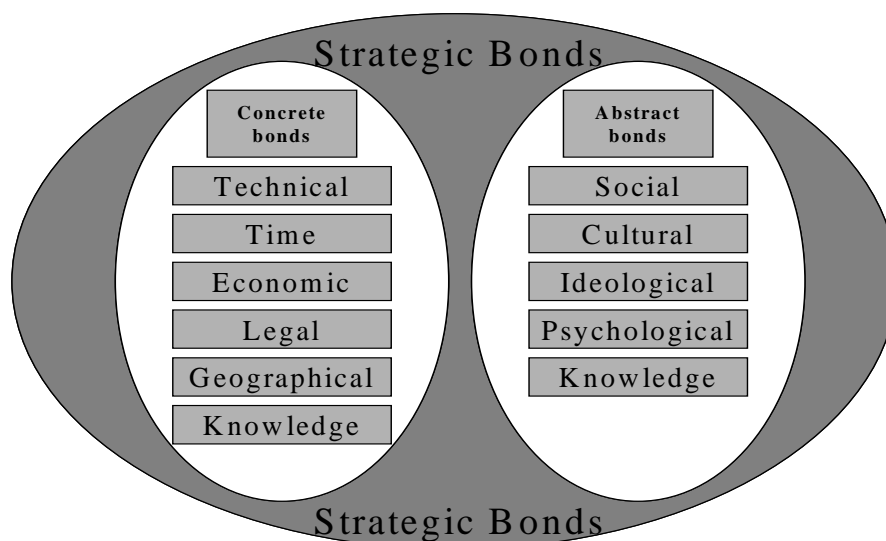


Figure 1. Abstraction level of bonds

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 other's 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 in figure 1.

Bond stability

Bond stability is marked with ++ for stable bonds, + for bonds of medium stability and 0 for unstable/fragile bonds.

Table 1. 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.

Core and support bonds

The main finding of this paper 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.

Depending on the nature of the relationship the core and support bonds can vary and may for instance be different in customer relationships in service business regarding consumers.

For a model illustrating the core and support bonds see Figure 2 below.

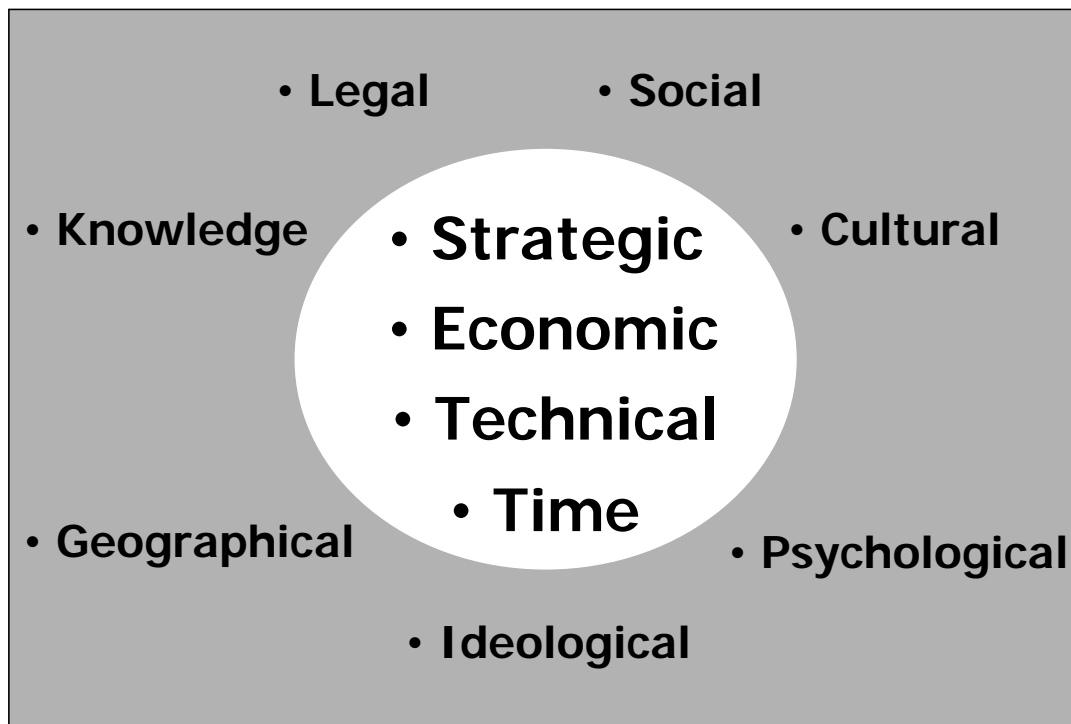


Figure 2. Core and support bonds

Definitions of bonds on a lower level of abstraction

The definitions of bonds 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. 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.

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 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 3 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.

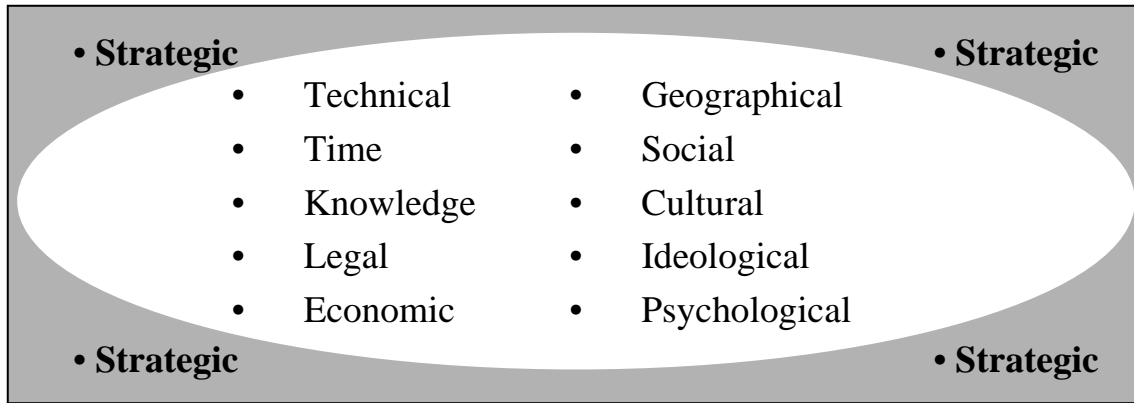


Figure 3. Bonds in an industrial business relationship

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.

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 is 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. It is possible to manage bonds both one-sidedly or 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.

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.

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 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 mentioned 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 buyer's 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.

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.

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.

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.

Conclusions

The main finding in this paper is that bonds can be divided into core and support bonds. Additionally the definition of bonds has been developed. Core bonds in this study 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 relative weight of the core bonds is thus higher for the relationship than the support bonds.

The 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.

Further research questions

One avenue for further research would be 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.

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