

“The impact of culturally determined differences
on the Supply Chain Management of
French and German companies”

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in cooperation with



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Preface

This work is written as part of the seminar "International negotiation and communication", which was held by Prof. Jan Ulijn at the Technical University of Darmstadt. For their friendly support in our empirical study we thank Prof. R. Calvi (INPG), Prof. Dr. H. Stadtler (TU Darmstadt) and Prof. S. Santema (TU Eindhoven). We would also like to thank Marc Reunis for his efforts in contacting Dutch companies for us, even though we could not use the Dutch sample in our work.

As a start, a contribution from a Materials Management Vice President is given. He explains in an ostensive manner his own experiences with Supply Chain Management (SCM).

"Supply chain management is one of the most emotional experiences I've ever witnessed. There have been so many mythologies that have developed over the years, people blaming other people for their problems, based on some incident that may or may not have occurred sometime in the past. Once you get everyone together into the same room, you begin to realize the number of false perceptions that exist. People are still very reluctant to let someone else make decisions within their area. It becomes especially tricky when you show people how "sub-optimizing" their functional area can "optimise" the entire supply chain."

Materials Management Vice President, Fortune 500 manufacturer¹

¹ see Handfield, Nichols (1999), p.67

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1. Introduction

With the ever-increasing lack of intercontinental barriers, items are produced in the location that offers the best advantages in cost or access to research and markets. Often, products are supplied through complex production and distribution systems. In a global marketplace, where the same product is sold around the world, products become the object of global competition and companies strive for market shares and profit. Hence, Supply Chain Management has an enormous impact on the success of a company nowadays.

In this situation, it is essential to find strategic partners with whom a closer cooperation leads to a win-win situation for all the participants. The dominant purpose of this collaboration is to provide a service to the final customer, to deliver products reliably, as rapidly and with as much variety as possible.² There is a global trend towards closer relationships with fewer suppliers.³ Nevertheless, many organizations continue to view suppliers (and even customers) as adversaries, who are not to be trusted and with whom long-term relationships should be avoided.⁴ The success of a company in a Supply Chain partnership is interdependent on the success of the chain of partners as a whole. Hence, the integration process and relationship building between the Supply Chain partners in an integrated Supply Chain is of utmost importance.

Chapter 2 offers an overview of Supply Chain Management and the different influential factors which affect the success of a Supply Chain partnership. The goal of the work is to identify the impact of culturally determined differences on Supply Chain Management of French and German companies. This is achieved by a questionnaire based empirical study. The findings are presented in Chapter 3. Chapter 4 summarizes the findings and a conclusion is drawn in chapter 5.

2. Supply Chain Management

Supply Chain Management is the management of the product, materials, information and financial flows, which connect companies. The task of the supply chain manager is to integrate the entire set of operations and processes into a single supra-organization, crossing organizational and, in some cases, national boundaries.⁵ Supply Chain Management supports the reorganization and optimization of product, material, information and financial flows inside an integrated Supply Chain. Hence, Supply Chain Management includes all methods and resources for the organization and coordination of logistical networks. The managerial activities take place inside an integrated Supply Chain, which is presented below. For further information in Supply Chain strategies, instruments and controlling aspects we can recommend the work of Werner (2002).

² see Schary, Skjott-Larsen (1995), p.19

³ see Schary, Skjott-Larsen (1995), p.170

⁴ see Handfield, Nichols (1999), p.10

⁵ see Schary, Skjott-Larsen (1995), p.19

2.1. Supply Chain

The fundamental idea of Supply Chain is Collaboration. Collaboration is a process to reach goals that cannot be achieved by acting singly. Collaboration includes all of the following elements: jointly developing and agreeing to a set of common goals and directions, sharing responsibility for obtaining those goals and working together to achieve those goals using the expertise of each collaborator. The Supply Chain identifies all the steps in the complete process of providing goods and services to the final user. The primary objective of Supply Chain is service to customers. This must be balanced against costs and assets. Figure 1 shows the link between customer satisfaction, assets and costs and the Return on Assets.

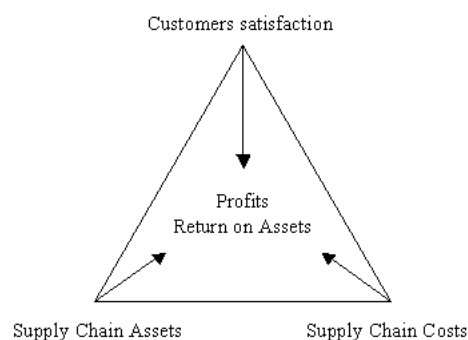


Figure 1: The Supply Chain Triangle⁶

The Supply Chain includes all parties and logistical operations from supplier to customer within a single system. A Supply Chain will include procurement, production and distribution operations. This allows the members of the chain to share their information with their partners in order to optimize their production. The supply chain encompasses all activities associated with the flow and transformation of goods from the raw material stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain.⁷ In contrast to logistics, the Supply Chain extends across organizational boundaries and is coordinated through an information system accessible to all members.

The objectives of individual Supply Chain members are achieved through the performance of the chain of partners. The Supply Chain must respond with flexibility to changes in both markets and suppliers. Supply chain management is the integration of these activities through improved supply chain relationships, to achieve a sustainable competitive advantage.⁸ A high degree of supply chain integration leads to increased levels of performance. Weak links between suppliers and customers actually hurt performance.⁹

Handfield and Nichols (1999) identified three primary activities of Supply Chain Management. Figure 2 gives an overview of the elements of Supply Chain.

⁶ see Christopher (1998) p.286; Schary, Skjott-Larsen (1995) p.20

⁷ see Handfield, Nichols (1999), p.2

⁸ see Handfield, Nichols (1999), p.2

⁹ see Frohlich, Westbrook (2001), p.195 for an empirical proof

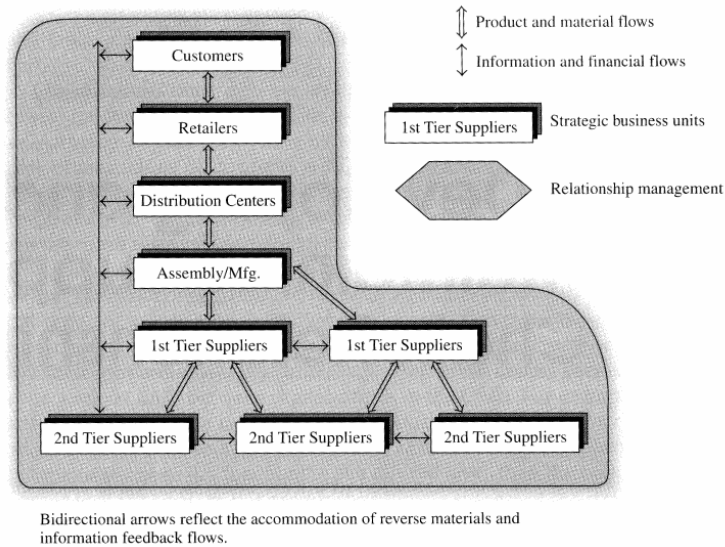


Figure 2: Integrated Supply Chain¹⁰

First is the development of an information system, which helps to connect the information flows of the Supply Chain partners. The second goal is cycle-time reduction inside the Supply Chain to satisfy cost and time aspects. Both elements are relatively well understood and continue to evolve in practice. The third goal is the creation and maintenance of Supply Chain relations between the partners. This is the most fragile and tenuous challenge, which is most susceptible to breaking down. Hence, we focus in our work on the Relationship management. The next part provides a brief overview of the model and its components.

2.2. Information Systems and Technology Management

In the past, information flows between functional units and other Supply Chain members were paper-based. Their communications were slow, unreliable and prone to error. Nowadays, it is of paramount importance to have fast and reliable information channels within the Supply Chain. The sharing of information among supply chain members is a fundamental requirement for effective supply chain management.¹¹

Organizations are moving towards a concept known as Electronic Commerce, where transactions are completed via a variety of electronic media, including Electronic Data Interchange (EDI)¹², electronic funds transfer (EFT), Data Warehousing, the Internet etc.. This allows decision makers quick and cost-effective access to information in all supply member organizations. The range of technologies available to support Supply Chain Management is vast and ever changing. Unfortunately, there is not a single "right" IT solution to Supply Chain Management.

To find the "right" IT infrastructure, which adapts to the heterogeneous requirements of the information channel members, various options need to be explored. Supply Chain Management initiatives are unlikely to succeed without the appropriate information systems and the technology required to support them.¹³

¹⁰ see Handfield, Nichols (1999), p.5

¹¹ see Handfield, Nichols (1999), p.38

¹² For design and advantages of external process chain-linking with EDI see Schulte-Zurhausen (2002).

¹³ see Handfield, Nichols (1999), p.39

In our empirical work we focus on the different types of exchanged information instead of analysing different IT infrastructures, which can differ enormously between different industries. Figure 3 shows the different information flows in an integrated Supply Chain. It becomes evident that the “free” and efficient exchange of information in a Supply Chain is of crucial importance.

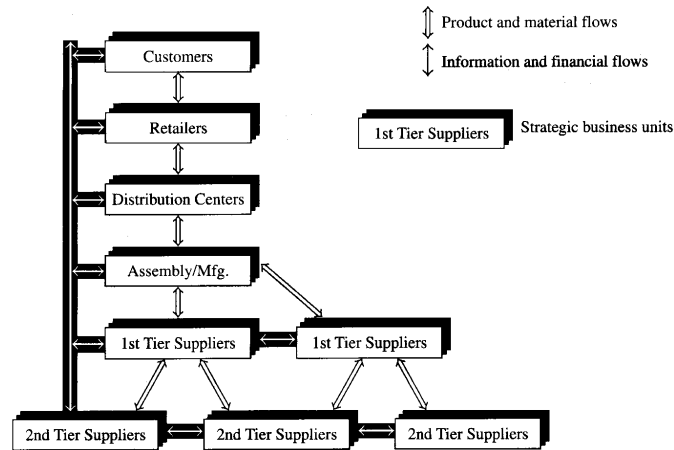


Figure 3: Information and financial flows in an integrated Supply Chain¹⁴

2.3. Product and Materials Management

In an increasingly competitive environment, in which high-quality goods and services are demanded often in short period, companies have to adapt to new situations and find new solutions to stay competitive. Collaboration between companies offers these rationalization potentials, which would otherwise not be accessible. In principle, Supply Chain Management has the purpose to release rationalization potentials by coordinating the activities of each company with those of the other players in the logistical chain.¹⁵ The implementation of this strategy is fulfilled by Logistics. Logistics are of crucial importance when exploiting these potentials, especially if it involves crossing organizational borders. Ultimately, this means implementing a Supply Chain structure in which all Supply Chain partners can optimise their internal logistical activities. In a well-managed, integrated Supply Chain, the amount of inventory held within the chain decreases, so that inventory is now “flowing” between parties in the chain with only minor delays.¹⁶ Advanced Planning Systems and especially Collaborative Planning are the key to shrinking stocks, reducing lead-times and decreasing uncertainty between the Supply Chain members.¹⁷ Figure 4 offers an overview of the flows of material and products inside an integrated Supply Chain.

¹⁴ see Handfield, Nichols (1999), p.15

¹⁵ see Steinaecker, Kühner (2001) p.41

¹⁶ see Handfield, Nichols (1999), p.9

¹⁷ for more details we refer to Stadtler, Kilger (2002)

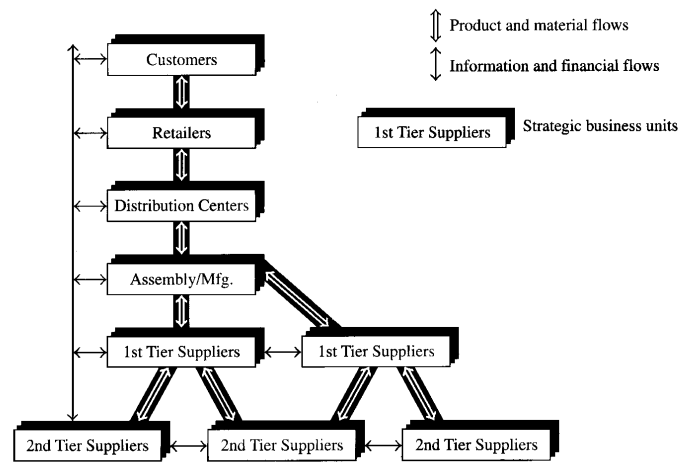


Figure 4: Product and material flows in an integrated Supply Chain¹⁸

2.4. Supply Relationship Management

The management of interpersonal relationships between different members of the organization is often the most difficult part of the Supply Chain Management initiative.¹⁹ Supply Relationship Management has the purpose of creating closer relationships between the companies involved in the Supply Chain.

The interacting companies have an interest in mutual orientation. They are all interested in creating a closer relationship by joining efforts in common activities. One practical example is Collaborative Planning, which requires an initial collaborative relationship with the intent of establishing a mid-term relationship. This encourages joint planning activities and the exchange of expertise based partner information, of additional value to all parties concerned (Bonds to sustain a relationship).²⁰ Thus, the collaboration is not a „one-transactional-relationship“ with spot market character. Companies have to abandon some of their freedom when working with partners. Tasks, which were once accomplished by their own functional units, may now be completed by another partner (Interdependence). Figure 5 reveals that Relationship Management has to integrate all Supply Chain partners to improve Supply Chain performance.

Joint investments committed to a specific relationship help to establish trust²¹ between the partners. A Common atmosphere helps to promote understanding between the partners.

To improve Supply Chain Relationships a great deal of communication and problem-solving activities between organizations, including joint improvement projects, training seminars, workshops sharing corporate philosophies and meetings between the respective organizations' top management are needed. A key element of improved supplier relationships is the presence of

¹⁸ see Handfield, Nichols (1999), p.41

¹⁹ see Handfield, Nichols (1999), p.67

²⁰ see Kilger, Reuter (2002), p.225

²¹ see chapter 2.4.3

an objective performance measurement system, which is used to ensure that both parties are operating according to expectations and are meeting stated objectives.²²

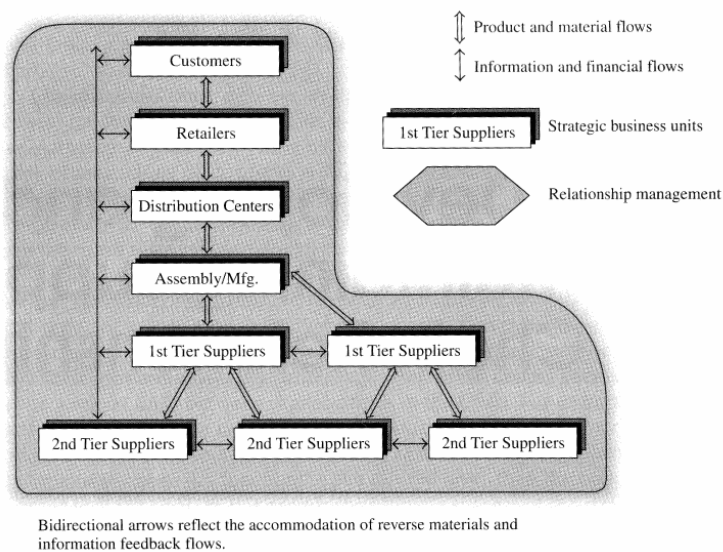


Figure 5: Relationship management in an integrated Supply Chain

Due to the conflict of interests, it is intelligible that negotiation is very important, in fact, vital to Relationship Management. All participating parties have targets and objectives, which they aim to fulfill. Most of these objectives tend to be contradictory like those of purchasing and pricing. Also, delivery conditions and many other parameters might cause disputes. Furthermore, there can be cultural differences, which make it even more difficult to create a trustworthy relationship. In the following we will discuss the important factors for creating trustworthy and long-term oriented relationships in business.

2.4.1. Negotiation in SRM

Ulijn and Strother²³ define negotiation as "a process in which two or more entities discuss common and (apparently) different interests and objectives in order to reach an agreement or a compromise (contract) in mutual dependence because they see benefits in doing so." Related to Supply Chain Management this means that at least one supplier agrees to deliver goods for certain prices and under specified delivery conditions. Similarly, one buyer agrees to receive the goods and pay the settled price. Alternatively, the parties can agree on a counter trade instead of or in addition to a price.²⁴

Monczka et al. describe negotiation as "a process of formal communication, either face to face or via electronic means, where two or more people come together to seek mutual agreement about an issue or issues."²⁵ According to their work, a primary reason for negotiation is "to get two or more parties together to achieve a firm's objectives and when possible create value where none existed previously."

²² see Handfield, Nichols (1999), p.11

²³ see Ulijn, Strother (1995), p. 250

²⁴ For further information on counter trade please see Monczka p. 400.

²⁵ see Monczka, Trent, Handfield (1997), p. 487

Further, negotiation becomes more and more a team activity rather than an individual one.²⁶ Due to this, and because of the high importance of most negotiations, in Supply Chain Management a sensible preparation is absolutely vital. To tackle this challenge a framework to effectively conduct a negotiation exists.²⁷

2.4.2. Win-Win Negotiation

Unlike, for example, buying a car, in Supply Chain Management buyers and sellers are much more interested in building long-term relationships. There are kinds of supplies, which do not need to be acquired from partners. These might be purchased on an anonymous market. Typical examples are standardized items or items of low value. Usually, for these goods the price is the only important aspect for choosing the best supplier. A negotiation is, therefore, not appropriate because the benefit is largely exceeded by the costs. In these cases a competitive bidding is the most useful approach.²⁸

However, if the buyers' needs are other than just low prices, a competitive bidding will not be convenient anymore. In this case, a buyer must find partners who can satisfy his special needs and with whom he has to enter into negotiation.

For non-standard items, like entire components, it is common that buyers and sellers are eager to cooperate on a longer term basis. To enable long-term partnerships it is vital not to fleece the other partner. Otherwise cooperation is doomed to fail because the mistreated side will no longer be interested in continuing that partnership. They will cooperate for as long as it might be necessary and constantly seek alternatives. This destroys the trust between partners and, thus, the partnership cannot be continued. A win-win approach is only feasible with a high level of trust between the negotiating parties.²⁹

A win-win situation and a long-term relationship are a big success when striving for sustainable competitive advantage.³⁰ In such a relationship it is very easy to create synergy effects from which both parties can benefit. However, advantages such as better planning abilities³¹ through information exchange and joint development are liable to several disadvantages such as being dependent on buyers and sellers or mismatched long-term objectives.³² Another trade-off that has to be made is the amount of effort put into coordination compared to the benefits that can be yielded. That means each company is only able to keep up close relationships with a certain number of partners. Above a certain number it becomes unfeasible to control the Supply Chain.

²⁶ see Monczka, Trent, Handfield (1997), p. 487

²⁷ see Monczka, Trent, Handfield (1997), p. 488

²⁸ see Monczka, Trent, Handfield (1997), p. 489

²⁹ see Monczka, Trent, Handfield (1997), p. 510

³⁰ see Ulijn, Strother (1995), p. 250

³¹ Better planning abilities derive from concepts like collaborative planning described in Stadtler, Kilger (2002).

³² see Monczka, Trent, Handfield (1997), p. 261

2.4.3. Trust as success factor for SRM

"The most important ingredient for successful Supply Chain Management may well be a trusting relationship between partners in the Supply Chain, where each party in the chain has mutual confidence in the other members' capabilities and actions.³³ The problem hereby is that trust is hard to be measured or identified. Trust is a multidimensional concept and occurs through the actions of both parties within the Supply Chain. There are five major facets of trust, which are presented in the following.³⁴

Reliability

Reliability is based on experience of prior contact, integrity and honesty. The rule of thumb is to follow through on commitments, and act in a predictable manner.

Competence

Competence is very important when working with people. It is based on business sense, individual experience, wisdom, and common sense. Competence is a powerful integrating mechanism between two parties in a Supply Chain. A rule of thumb here is to choose a supply partner with a documented record of experience in the related technology. Also, it should be ensured that the partner is assigning reliable, knowledgeable, and experienced people to manage the relationship.

Affect-based trust (Goodwill)

"The importance of interpersonal relationships is recognized as a vital element in developing trust between organizations."³⁵ He further states that openness with the other party and benevolence are valuable approaches to gain the trust of your counterpart.

Vulnerability

Vulnerability must be kept in mind. It derives from adverse selection³⁶, an inability to evaluate accurately the quality of the assets of the partner or from different commitments of the participating parties. Information sharing is a means to reduce vulnerability. It assures that both partners are protected.

Loyalty

Loyalty occurs after a period of reliable performance. It can be observed in accordance to the statement: "You find out who your true friends are when you are really in trouble."

³³ see Handfield/Nichols (1999), p.67

³⁴ This part is based on the comments of Handfield/Nichols (1999), p.67-93

³⁵ see McAllister (1995)

³⁶ Adverse selection means choosing a new partner for a new project even though a partnership exists that would suit the project.

2.4.4. Cultural Aspects of SRM

Negotiation becomes more and more a team activity rather than an individual one.³⁷ Thus, culture does not only play a role between the negotiating companies but also within the teams of each party.

Within a team, an extremely critical relationship is that of purchasing and engineering.³⁸ The need to develop quality products in short time made a closer purchasing and engineering relationships inevitable. Table 1 presents a study, which ascertained problems between engineering and purchasing.³⁹ Table 2 mentions problems between engineers and marketer.⁴⁰

Complaints that purchaser have about engineers	Complaints that engineers have about purchaser
<ul style="list-style-type: none"> - Providing short lead-time notice - Requesting specifications that are too restrictive - Requesting frequent engineering change notice - An unwillingness to listen to purchasing suggestions - Requesting customized parts when standard parts are available 	<ul style="list-style-type: none"> - A lack of product knowledge - Buying strictly based on price - Poor follow-up and feedback - Buyer inflexibility - An unwillingness to try new suppliers

table 1: Mutual complaints of purchasers and engineers

What marketers think of engineers	What engineers think of marketers
<ul style="list-style-type: none"> - Have no sense of time, service or competitive advantage - No worry about or underestimate costs - Hide in the lab - The client should adapt - Standardisation and technology are sacrosanct - Continue developing a product without planning 	<ul style="list-style-type: none"> - Want everything always NOW, want to deliver the product before it is ready, are always in a hurry and impatient or cannot decide what they want - Are aggressive, demanding and unrealistic - Promise more than they can guarantee with the product specifications - Have no sense of technology, no trust in engineers and are not interested in their problems - Focus on unrealistic profit targets

table 2: Mutual perception of marketers and engineers

As well as within the team, these discrepancies might also occur between the negotiating parties. Although, it is less likely that a buyer's purchaser negotiates directly with a seller's engineer. Usually, team members will be matched to their direct counterpart (or closest equivalent.) Although this short excursus on team composition shall enlighten the reader on the complexity of cultural aspects of negotiation, it is not meant to give concrete recommendations. In relation to this study, cultural differences whilst negotiating with a counterpart from another country are of particularly high interest.

There are countless books, papers and articles dealing with cultural differences and their impact on international business negotiations. Just listing them would surely exceed the pages of this study. However, most of them are very similar. Many of them contain the "dos and don'ts" and

³⁷ see Monczka, Trent, Handfield (1997), p. 487

³⁸ see Monczka, Trent, Handfield (1997), p. 139

³⁹ see Monczka, Trent, Handfield (1997), p. 140

⁴⁰ see Ulijn, Nagel, Tan (2001)

the “golden rules” of intercultural communication like: “Japanese do not say no if they mean so.” Or they show empirical studies that quantify the cultural differences like Hofstede and Trompenaars.⁴¹ Thus, this report mentions the most important aspects covered in the books cited so far.

Cultural differences are a major barrier to international negotiation. A study on barriers to effective international negotiation shows that

- miscommunication due to language,
- time limitations,
- cultural differences,
- limited authority of the international negotiator,
- dishonesty of the international supplier,
- geographical separation and
- differences in conflict handling styles

are some of the most serious problems. Further evident problems can be the role of a negotiator and his level of expertise in a technological and/or commercial regard. The same study specifies

- patience,
- knowledge of contract agreement,
- an honest and polite attitude,
- familiarity with foreign culture/custom,
- assertiveness and
- foreign language competency

as personal attributes supporting effective international negotiation.⁴²

Negotiators from different cultures use different approaches to reach the goal of a negotiation. Whereas Anglo-American negotiators are very linear, focused and direct without digressions, the Romance approach allows for digression. In contrast to the latter, Slavic negotiators also tend to digress but their digression seems to be irrelevant to the central topic. The German approach is a combination of the Slavic and the Romance. In Oriental cultures the approach operates indirectly in a circular pattern around the goal.⁴³ Possible sources of misunderstanding are:⁴⁴

- **Staging:** Preparation is much more intense in Latin and Oriental cultures.
- **Listening:** In some cultures (e.g. Japanese) nonverbal communication plays a bigger role than in others and listening and observing the counterpart is very important.
- **Time:** The use of time in negotiations is very diverse in different cultures. As stated above, American negotiators are rather direct compared to negotiators from other cultures. Also, their tolerance of silence is very different, which also affects the perception of time spent in a negotiation. Not being able to wait for a silent counterpart might lead to rash concessions that undermine the credibility of your position.

⁴¹ see Hofstede (1983, 1991) and Trompenaar (1998)

⁴² see Monczka, Trent, Handfield (1997), p. 511

⁴³ see Ulijn, Strother (1995), p. 259

⁴⁴ see Ulijn, Strother (1995), p. 263

- **Questions:** Direct questions are not accepted in every culture. In these cases questions can be embarrassing, which might lead to avoiding the other negotiators.
- **Negatives:** Saying "no" directly to a negotiator from a different (e.g. Oriental) culture can be interpreted as a complete rejection of the other party. This situation can usually be avoided by using positive, even non-specific language. For example, instead of direct conflict over unsuitable demands, suggest a viable compromise or simply agree in the short term that it would be a "possible" solution. This allows both parties to explore the flexibility of their counterparts without directly accepting their exact terms. Naturally, it is also important as a negotiator to be able to recognize such tactics.

Consequently, the behavior of skilled negotiators that fits well to the above-mentioned personal attributes supporting effective international negotiation is to

- study proposals carefully,
- listen carefully,
- summarize and ask questions,
- avoid disagreement and
- avoid irritations or attacking the counterpart.

Altogether, it can be summarized that respect, understanding and tolerance towards the negotiating counterparts and their cultural backgrounds are the most important traits a negotiator has to possess to successfully conduct international negotiations.

2.4.5. Hofstede's research

Between 1967 and 1973 Hofstede identified some cultural factors, which had an enormous impact on the efficiency of national economies.⁴⁵ The research focused on the multinational company IBM, with its 70000+ employees based in 35 countries. The following five factors were identified as having an impact on economical performance:⁴⁶

- **Power Distance (PDI):** The extent to which the less powerful members of society accept that power is unequally distributed.
- **Individualism (IDV):** In individualistic societies there are few ties beyond those of the nuclear family, whereas in collective societies people belong to strong, cohesive in-groups. A high IDV stands for societies where people look out for themselves whereas a low IDV indicates high group orientation.
- **Masculinity (MAS):** In 'masculine' societies men are assertive, tough, and concerned with material success, whereas women are more modest, tender, and interested in the quality of life. In 'feminine' societies, both are equally concerned with quality of life.
- **Uncertainty Avoidance (UAI):** The extent to which people feel threatened by uncertain or unknown situations. This is expressed in a need for formality, predictability and clear rules.

⁴⁵ see Kummer (2000), p. 129.

⁴⁶ Based on comments of ITIM (2003)

- **Long-Term Orientation (LTO):**⁴⁷ The extent to which people favor a pragmatic, future-oriented perspective - fostering virtues like perseverance and thrift - over short-term thinking.

To derive the hypothesis of this study the power distance index (PDI) and the uncertainty avoidance index (UAI) have to be closer illustrated.⁴⁸ Thus, the implication of a high and a low PDI and UAI are represented in table 3 and table 4. The further dimensions are mentioned to give the complete picture but will not be regarded any further.

high PDI	low PDI
- High dependence needs	- Low dependence needs
- Inequality accepted	- Inequality minimized
- Hierarchy needed	- Hierarchy for convenience
- Superiors often inaccessible	- Superiors accessible
- Power-holders have privileges	- All have equal rights

table 3: High vs. low PDI⁴⁹

high UAI	low UAI
- Anxiety, higher stress	- Relaxed, lower stress
- Inner urge to work hard	- Hard work not a virtue per se
- Showing emotions accepted	- Emotions not shown
- Conflict is threatening	- Conflict and competition seen as fair play
- Need for consensus	- Acceptance of dissent
- Need to avoid failure	- Willingness to take risks
- Need for law and rules	- There should be few rules

table 4: High vs. low UAI⁵⁰

The resulting effects on negotiation and Supply Chain Management might be derived from these implications and will be discussed in chapter 3.2. All these dimensions are measured in values from 0 (low) to 100 (high). The values for France and Germany are shown in table 5.

	PDI	IDV	MAS	UAI	CDI
France	68	71	43	86	N/A
Germany	35	67	66	65	31

table 5: Hofstede factors for Germany and France⁵¹

⁴⁷ Also called Confusion Dynamism (CDI) in Ulijn (2002)

⁴⁸ see Ulijn, Strother (1995), p. 260; see also Hofstede (1983, 1991)

⁴⁹ see Ulijn (2002), p.149; ITIM (2003)

⁵⁰ see Ulijn (2002), p.149; ITIM (2003)

⁵¹ see Ulijn (2002), p.149; ITIM (2003)

3. Empirical Study

This chapter describes the methodology, research questions and hypotheses of the empirical study, which were used to create a questionnaire⁵². In addition to the standardized questionnaire, two anonymous expert interviews were done.

3.1. Methodology

The aim of this study was to explore the Supply Chain Management and the supply relationships in French, German and Dutch companies.

To this end, a standardized questionnaire was designed, which was sent to companies in these three countries. The contacts were gathered through our supporting professors and through a contact fair, where firms promoted their company profiles to students. The contacts were asked to forward the questionnaire to colleagues involved in Supply Chain Management. All correctly filled out questionnaires were used for the evaluation in order to gain a sufficient sample size. In total, there were 25 French results and 15 from German companies. Unfortunately, there were only 4 replies from the Netherlands. This small turnout is not large enough to allow for the generalization of results required for use in empirical testing. Thus, the Netherlands were excluded from the empirical analysis. However, the results of this survey can still be used as indicator for the researched questions. After evaluating the completed questionnaires, two expert interviews with supply chain managers from different companies were conducted to further clarify the results. For the analysis statistical methods and tests were used.⁵³

3.2. Hypotheses and Research Questions

This study's target is to illustrate if (and, if so, to what extent) Supply Chain Management in the examined countries differ. Previous papers have suggested a marked difference between cultures. It is self-evident that there are differences in the approach to Supply Chain Management, too. Thus, we decided to test the validity of such statements in the present European market.

The first hypothesis is that French companies have significantly different approaches and priorities in Supply Chain Management compared to their German counterparts. According to Hofstede, the power distance indices (PDI) and the uncertainty avoidance indices (UAI) of Germany and France differ significantly. Since the PDI and UAI of France are much higher than those of Germany, the second hypothesis is that French companies put more effort into controlling the Supply Chain. The third hypothesis is that companies in both countries underestimate the importance of Relationship management when planning a Supply Chain initiative.

To test these hypotheses the following research questions are posed:

- Is Supply Chain Management implemented and regarded as important?
- Who is responsible for product development and who is for Supply Chain Management?
- Which cooperative styles exist?
- How do partners communicate?

⁵² see Appendix A for the questions

⁵³ see Lehn, Wegmann (1992) and Bleymüller, Gehlert, Gülicher (2002)

-
- What do suppliers think of buyers?
 - What do buyers think of suppliers?
 - How important is relationship management?
 - What are the key success factors for Supply Chain Management?
 - Should the development of new products be oriented towards the customers' needs rather than towards the proposals of research & development?
 - How do French and German counterparts perceive each other?

The questionnaire was suitably formulated to allow us to address the initial hypotheses and to answer the corresponding research questions.

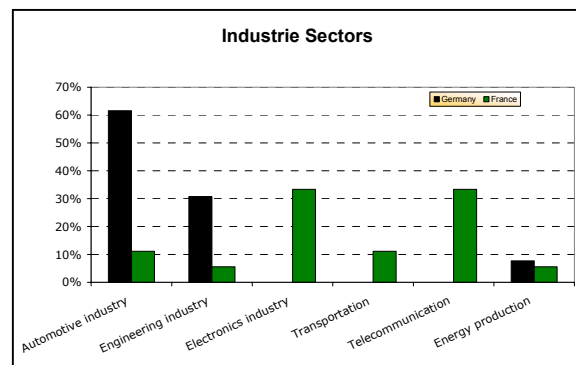
4. Results and discussion

This chapter presents the most significant results of the survey and links them with the expert interviews. The results are presented in a qualitative way. The last subchapter summarizes the results to directly answer the research questions. All argumentation is based on the analysis of the questionnaires and expert interviews. All charts were derived from the results of the survey when not otherwise stated.

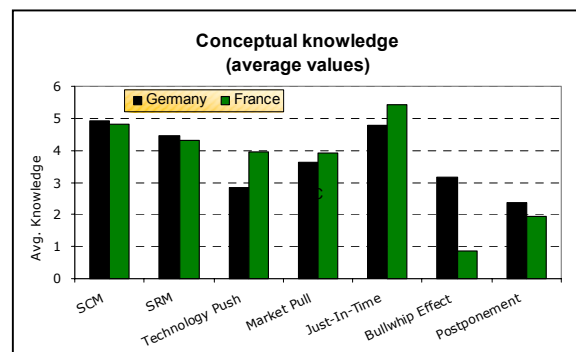
4.1. Results of Survey

The respondents background

The questionnaires were answered from persons from different industry sectors. This is presented in the chart to the right. Whereas the majority of German participants are from the automotive and engineering industries, the French were predominantly working in electronic and telecommunication areas. More than 75% of the interviewees from both countries work either in Supply Chain Management directly or within purchasing departments. The other respondents come from logistics, production and sales divisions. Over two thirds have a university-like degree. Thus, the professional backgrounds of the respondents can be regarded as homogenous.



Another indicator is the level of knowledge the interviewed persons attested themselves as having in the field of Supply Chain Management. As the figure to the right shows, Supply Chain Management, SRM and Just in Time (JIT) are quite well known with values between four and five on a scale from 1 to 6. Technology Push (TP) and Market Pull (MP) are not so well known and Bullwhip Effect and Postponement are relatively unknown.⁵⁴ An interesting trend is that people knowing TP do not necessarily know MP and vice versa.⁵⁵



The companies

As shown in the chart in chapter C.5, 61.5% of German companies have a well-defined strategy versus 81.8% of French companies. 15.4% of the asked German respondents did not know if

⁵⁴ Half of the German participants knew the Bullwhip Effect well whereas the other half did not know it at all.

⁵⁵ Even though the given figure suggests that this is only the case for Germany, it also applies to France. Due to the calculation of averages the effect cannot be seen.

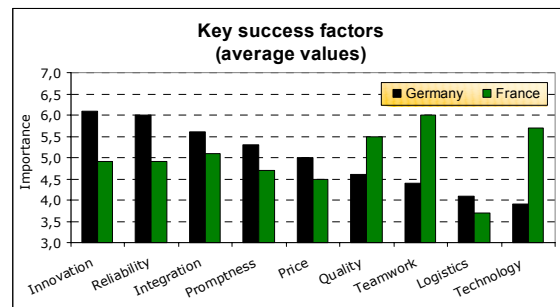
their company had a well-defined strategy.⁵⁶ An excerpt of important goals in a Supply Chain strategy is given in table 6. The number of different targets shows that there are numerous aspects to concentrate on in Supply Chain Management.

Strategic Supply Chain Targets	
-	elimination of transaction costs
-	higher flexibility
-	innovation through cooperation with specific partners
-	higher quality
-	lead time reduction
-	material flow management (steady flow from upstream to downstream)
-	worldwide inventory management
-	faster time to market
-	higher price effectiveness

table 6: Strategic Supply Chain Targets⁵⁷

The worldwide distribution of close business partners is similar for both the French and German companies⁵⁸. The product standardization also does not vary significantly between the firms in question⁵⁹. In both countries, about 45% of the interviewees confirm that their products are partly standardized. Another 45% state that their products are not standardized at all. In contrast, over two-thirds in both countries state that their suppliers' products are partly standardized. This homogeneity indicates that the researched companies are likely to be in the middle of the Supply Chain. That means they have suppliers and customers with whom they have to cooperate to be successful.

The chart to the right offers an insight into key success factors for German and French companies. For German businesses, innovation, reliability and integration are very important. The importance of integration might be caused by the number of responses from the automotive industry, where the products are often of a high complexity. This result corresponds to the higher degree of joint development in the German companies. For French firms, the most important key success factors are teamwork, technology and quality. In Germany technology is the least important factor, whereas in France this is logistics.



The French put more effort into controlling the Supply Chain. 54% of the French interviewees say that there is a detailed analysis of costs, profit and a return on investment calculation within their company. This matches the suggested implications of the high PDI of France. Still, 23 % claim an analysis of costs of Supply Chain Management without calculation of profit. In Germany also, 15% perform an analysis of costs but only 39% perform a detailed analysis with

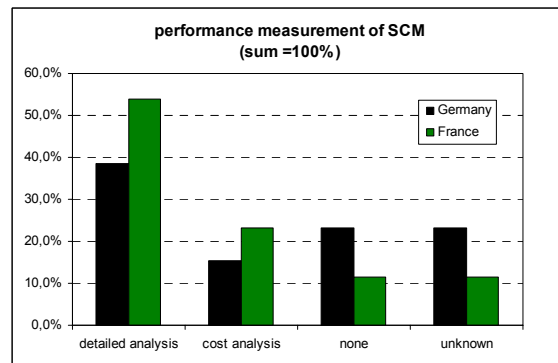
⁵⁶ see Appendix C.5

⁵⁷ The targets were derived from the questionnaires and the expert interviews.

⁵⁸ see Appendices C.2, C.3

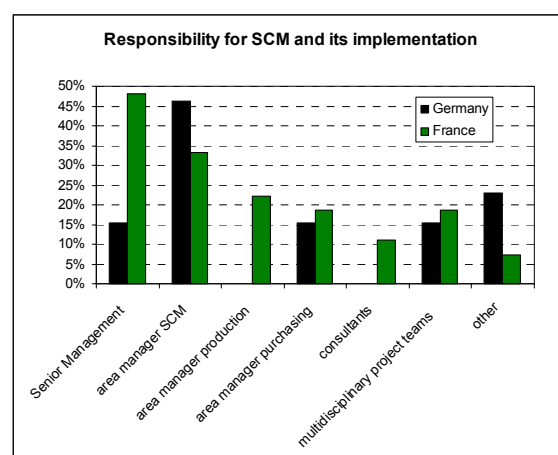
⁵⁹ see Appendix C.4

calculation of profit. 23% state that there has been no analysis of costs to date, or that they do not know about it. In France, 12% of the respondents affirm that there is no analysis or that they do not know about a performance measurement system. The graph to the right summarizes these findings. 48% of the French interviewees think that their Supply Chain Management abilities are better or much better compared to other companies in their sector. In stark contrast, 53% of the Germans interviewed are of the opinion that their approach to Supply Chain Management is equivalent. 15% believe that their companies perform even worse than their competitors. Only 31% believe that their Supply Chain Management abilities are better than those of their rivals.⁶⁰



The method of cooperation with partners is quite similar in French and German companies. The most important practices are regular information exchange and meetings with partners (both around 35%). Joint planning is also used in 23% and 25% of German and French companies respectively.⁶¹ German companies tend to use more electronic communication (EDI) instead of the more classic communication means favored by their French counterparts.⁶² French companies coordinate training with partners more often than German companies. The French seem to be more interdependent and connected with their partners in relation to product development than their German counterparts. German companies are particularly involved in the product development of their suppliers, which is contrary to typical French behavior, where the suppliers are highly involved in the companies' product development.⁶³ Again, this trend may be explained by the German sample of interviewees, who mostly belong to the automotive industry. In the automotive industry, suppliers like Siemens VDO or Bosch are highly integrated into and involved with the product development of new cars.

As the chart to the right shows, the responsibility for Supply Chain Management is spread differently in the researched countries. Whereas German companies prefer to have a specific Supply Chain department, which is responsible for the formation and implementation of the Supply Chain Management-strategy, French companies assign this duty to senior management. Furthermore, there are multidisciplinary project teams and purchasing departments involved. These have similar importance



⁶⁰ see Appendix C.9

⁶¹ see Appendix C.7

⁶² see Appendix C.6

⁶³ see Appendix C.8

within the Supply Chain Management strategies in Germany and France. The relationships with suppliers are judged as good in both countries.⁶⁴ The problems encountered when dealing with suppliers can be grouped into two classes and are presented in table 7.

Operative problems	Relationship
<ul style="list-style-type: none"> - quality of product - single source - degree of integration - poor documentation - on time deliveries - reactivity - express realistic long term objectives - permanent cost pressure 	<ul style="list-style-type: none"> - communication - poor information exchange - language and distance - poor payment record - reliability on delays - poor service level - to share and commit on rules in accordance with Company Policy in Supply Chain Management

table 7: main problems when dealing with suppliers

The relationships with customers are judged slightly better than those with suppliers.⁶⁵ The central problems in relation to customers are quite similar to the problems when dealing with suppliers. Nevertheless, there are some differences as can be seen in table 8. German companies tend to share more information (tactical and strategic data) with their supplier than with their customers. The opposite is true for French companies, which share more information with their customers.⁶⁶ Companies from the German sample seem to have a lack of integration respectively communication with their customers. French companies seem to prefer a more integrated approach to improve customer relationships.⁶⁷

Operative problems	Relationship
<ul style="list-style-type: none"> - Delivery on time - establish sales forecasts - modification of the product - complex specifications - service level - ensuring that expectations are in line with our offer and execution - quality of product - quality of shared data 	<ul style="list-style-type: none"> - communication - to know their technical wishes - unbalanced relationship - flexibility towards new solutions - mutual confidence - language - poor payment record - to be able to provide them with accurate information on their order status

table 8: main problems when dealing with customers

As final questions, the participants were asked if they favor a Market-Pull-strategy or a Technology-Push-strategy for the innovation process and how they judge the current orientation of their companies. In both countries around 40% of the companies questioned pursue a market pull strategy. The rest chose a balanced or technology push strategy for innovation.⁶⁸ Very significant is the preference of the interviewees for market pull orientation of innovation in their companies. In both countries more than two thirds of the respondents prefer a customer orientated innovation process as opposed to a research orientated innovation.⁶⁹

⁶⁴ see Appendix C.10

⁶⁵ see Appendix C.11

⁶⁶ see Appendices C.13 and C.14

⁶⁷ More about different integration strategies can be found in the work of Frohlich, Westbrook (2001), p.187.

⁶⁸ see Appendix B.2

⁶⁹ see Appendix C.15

Statements from the expert interviews also support this. The experts agree on the fact that customers increasingly stimulate innovation.

4.2. Researched Questions

Is Supply Chain Management implemented and regarded as important?

Yes, Supply Chain Management is implemented and regarded as important. As shown in C.5, the percentages of the German and French researched companies having a well-defined strategy for their Supply Chain Management are over 60% and 70% respectively. Nevertheless, important concepts do not seem to be understood well enough. The postponement strategy might not be that important, but even interviewees stating good or very good knowledge of Supply Chain Management did not have knowledge of the Bullwhip Effect. Regarding the importance of that issue, this is surprising. 15.4% of the German interviewees do not even know if there is a Supply Chain Management-strategy implemented. This result indicates that the internal communication of strategies can be improved. The fact that there are special Supply Chain Management departments in Germany and that senior management is responsible for Supply Chain Management in France underlines the high importance of Supply Chain Management and shows a lot of attention is paid to it.

That logistics is the least important key success factor in France is not contradictory to the importance of Supply Chain Management, since logistics is only one part of Supply Chain Management.

Which cooperative styles exist?

All kinds of possible cooperative styles exist in the examined sample. There are companies developing their products independently and those using standardized supplies.⁷⁰ Companies share demand, stock, production and strategic data or they coordinate training efforts. There is no significant difference between German and French companies in the use of different means of cooperation. Sharing information and regular meetings have the highest occurrence (present in about 35% of the companies).⁷¹ In our opinion, the degree of cooperation for this Supply Chain intensive company sample is quite low.

How do partners communicate?

The means used by the partners in a Supply Chain to coordinate and communicate are very diverse. They range from classical and traditional ways, like telephone and mail, to new optimized electronic planning tools that are proposed to increase efficiency. There are significant differences between German and French companies. German companies seem to rely more on electronic means and French prefer a more personal communication.

What do suppliers think of buyers? What do buyers think of suppliers?

The overall satisfaction with buyers and suppliers is good. Nevertheless, there are problems mentioned which still need to be tackled to increase efficiency in the Supply Chain. As the inter-

⁷⁰ see Appendix C.4

⁷¹ see Appendix C.7

views revealed, there are problems with a win-win approach, which causes dissatisfaction with potential partners.

How important is relationship management?

It becomes evident that besides operational problems like heterogeneous infrastructures, inadequate information sharing etc..., there are substantial problems in communication and confidence between partners in a Supply Chain. In the German sample only 30% have a very good or essentially good relationship with their business partners. 70% of those asked state that they have a satisfactory relationship with their suppliers.⁷² Thus, there is great potential for improved Relationship Management.

Many problems originate from insufficiently developed Supply Relationships, which lead to sub-optimal decisions. As mentioned in chapter 2.4.3, trust between partners is the precondition for working efficiently in an interdependent network. Thus, the creation of mutual trust and reliability will help to overcome recriminations and uncertainty and enable increased flexibility and performance.

What are the key success factors for Supply Chain Management?

The results show that for German companies the most important success factors are innovation, reliability and integration. In French companies, teamwork, technology and quality have the highest importance. From the expert interviews, it became evident that the shift from technology orientation to customer orientated innovation was forced by market demand. One expert told us how customer orientation became a critical success factor for his firm in the mid-nineties, when turnover and earnings dropped significantly and the company fell into crisis.

Nowadays, customer orientation plays a central role in this company and is regarded as one of their most important success factors. This reorientation was supported by a strong enlargement of the marketing department. Nowadays, the marketing department plays also an important role in strategy finding due to its proximity to customers' needs. More details about Success factors in Supply Chain Management can be obtained from Veit, Möller (2001).⁷³

Should the development of new products be oriented towards the customers' needs or rather towards the proposals of research & development?

In both countries nearly the same observations can be made. A third of all companies are oriented towards a Technology Push strategy. Nevertheless, the vast majority prefers a market-oriented approach.

How do French and Germans perceive each other?

To answer this, the questionnaire included a question where the interviewees had to rate Germans and French according to Hofstede's factors. The results for Germany and France are shown in Figure 6 and in Figure 7.

⁷² see Appendix C.10

⁷³ In this work the authors make an analysis about different empirical studies that dealt with success factors in Supply Chain Management.

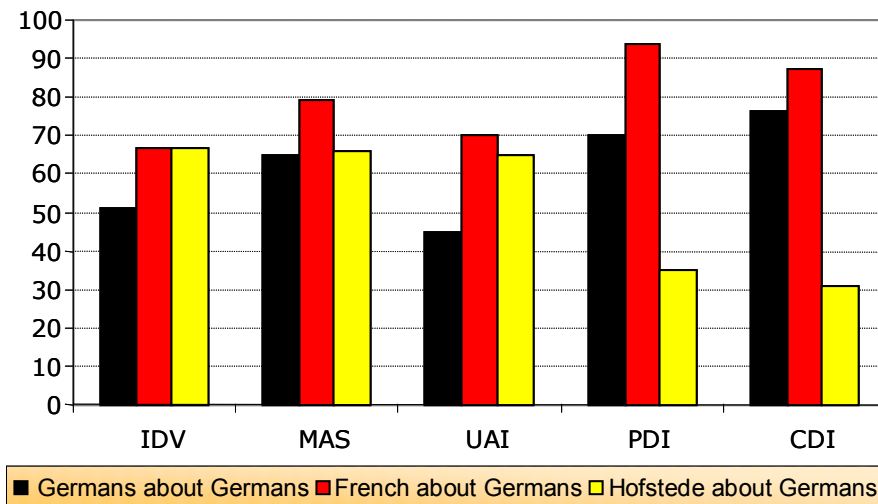


Figure 6: Hofstede factors of Germany

Most important for the focus of this study are PDI and UAI. As can be observed, the PDI values for Germany ascertained by Hofstede differs significantly from the perception of the participants. This might be due to an observed limitation on the authority of negotiators as mentioned in chapter 2.4.4. Another reason might be the common stereotype of Germany as a very hierarchical society combined with lack of contrary experiences. Regarding the UAI Germans think they are more risk-taking than Hofstede's research revealed, whereas the French's estimation fits quite well.

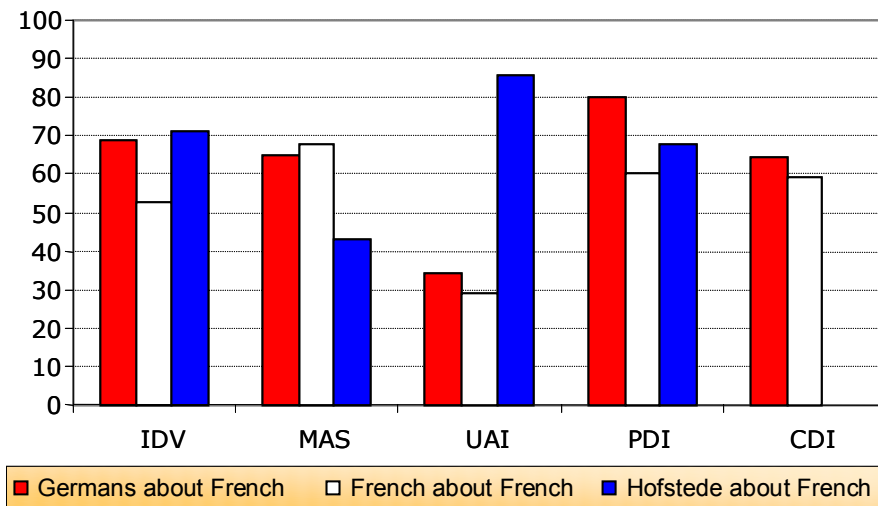


Figure 7: Hofstede factors of France

Overall, the French are regarded as much more risk-taking than Hofstede's research would suggest. The questionnaire may not reveal the reasons for that situation but the low UAI correlates to the importance of teamwork as a key success factor.

Note: Interestingly, for IDV French and Germans have a better fit with Hofstede's empirical results in mutual perception than in self-assessment.

5. Theoretical conclusions and managerial implications

From the empirical analysis it can be assumed that there are significant differences between the Supply Chain Management of French and German companies. Firstly, regarding the Supply Chain Management approach, French assign significantly more responsibility to senior management, whereas German companies delegate that responsibility to a special Supply Chain Management department (functional approach). It can be asserted that French companies are more customer-oriented than their German counterparts, who place higher priority on their supplier relations. This is supported by the fact that French companies have better relations with their customers than with their suppliers. They also share more tactical company data with customers than German companies. French customers have greater influence on product development than those in Germany. German companies are highly involved in their supplier's product development. Thus, it can be suggested that French companies prefer customer integration in contrast to German companies who prefer supplier integration. The analyzed German companies have a significantly higher integration level than their French counterparts. This is reflected by the high degree of cooperative product development and sharing of strategic company data. French companies seem to prefer personal communication, using classical means more intensely than Germans who prefer more electronic communication, like e-mail and EDI.

According to these priorities, the resulting critical success factors differ significantly, as stated above. On the one hand, the rating of teamwork in the French sample fits well to the higher dependency needs associated to a high PDI. On the other hand, it conflicts with the high PDI because teamwork in conjunction with project groups leads to flat hierarchies and lower power differences. The second hypothesis is confirmed by the finding that more than 70% of the French interviewees attribute their company with a clearly defined Supply Chain Management-strategy in contrast to only 60% of the German interviewees. In Germany a high number of companies have no Supply Chain strategy or the employees are unaware if there is a Supply Chain strategy. Especially, the results that French prefer personal communication and have a higher degree of detailed cost and profit analyses show that they put more effort in controlling activities. Personal instructions have a strong hierarchical character which fits well with the high PDI of France.⁷⁴ As noted in chapter 2.4 the presence of clear Supply Chain goals and an objective performance measurement system is of utmost importance for creating improved supplier relationships. Thus, it can be interpreted that the French are putting more effort into controlling their anticipated Supply Chain goals.

Independently from the functional differences examined in this survey, it has to be stated that the Relationships of French and German companies with their strategic partners is improvable.⁷⁵ The amount of shared data and joint-planning activities is low for integrated Supply Chain partners. Only a high degree of Supply Chain integration leads to higher levels of performance.⁷⁶

⁷⁴ see Welge, Holtbrügge (2001), p.170

⁷⁵ see Appendices C.10 and C.11

⁷⁶ see Frohlich, Westbrook (2001), p.195

Hence, it should be an aim to improve supplier relations by greater use of cooperative means and by stronger integration of partners in the production process. The introduction of an objective performance measurement system helps to introduce trust between partners. This is of importance because a higher degree of integration denotes a higher degree of interdependence. A company will only accept this uncertainty if the company can have confidence in their partner. To summarize, with higher degrees of cooperation and communication (which must be controlled), companies can improve their level of Supply Chain integration, which leads to an improved overall performance. The results show that Relationship Management is improvable in French and German companies. There is an observed tendency of the interviewees to focus on technical and organizational aspects of a Supply Chain. In consequence, the relationship aspects are under evaluated because of their intangible character. Thus, the third hypothesis can be confirmed by the survey and the expert interviews.

The study shows that Supply Chain Management is a far-reaching field, which cannot be entirely tackled with a four pages questionnaire. This work focuses on an analysis of the cultural differences in Supply Chain Management between France and Germany. Further research is needed to investigate the implications on cross-cultural relationships. Nevertheless, it became apparent that a deep understanding and domain-related training is viable to conduct successful Supply Chain Management. Beyond the technical aspect, the authors of this work want to stress the importance of an culturally open-minded attitude, which is of particular value when working in an international Supply Chain.

Appendices

A. The questionnaire

1. Which Sector does your Company belong to?
2. Which area are you assigned to and what training do you have?
3. Which country do you work in?
4. Which description best describes your company?
5. Which are the key success factors of your company?
6. How high is the added value of your supplier's components in relation to your sales prices?
7. Please rate your knowledge of the following concepts on a scale from 0 (unknown) to 6 (in depth).
8. From which region do your suppliers and customers originate? (Only those with which you have close business relationships)
9. To what extent are your products standardized?
10. To what extent are the products of your suppliers standardized?
11. Does your company have a well-defined Supply Chain Management strategy?
12. If yes: What are the objectives of your company's SC Management strategy?
13. Who has the main responsibility for Supply Chain Management and its implementation?
14. How and to what extent does your company measure its success in Supply Chain Management?
15. How do you judge your Supply Chain Management abilities compared to other companies in your sector?
16. For what period do you supply the following information to suppliers/customers with close business relationships?
17. How do you cooperate further with your partners?
18. How do you communicate with your partners?
19. To what extent are your suppliers/customers with close business relationships involved in your product development?
20. To what extent is your company involved in the product development of your suppliers/customers with close business relationships?
21. How often do you coordinate training with your suppliers or customers?
22. Who influences product development?
23. If you have contact partners in the mentioned countries, please rate your experiences regarding collaboration with them. (France, Germany, Holland)
24. How do you judge the relationship with your customers?
25. What are your main problems when working with customers?
26. How do you judge your relationship with suppliers?
27. What are your main problems when working with suppliers?
28. How should innovation be prioritized, in your opinion?
29. Accordingly, how do you judge the current orientation of your company?

B. Definitions

As the answers of the questionnaire showed, the knowledge about certain concepts and technological terms are unknown in practice.⁷⁷ Thus, this appendix gives a short overview on the most important concepts referred to in the questionnaire.

B.1. Bullwhip Effect

The Bullwhip Effect is a phenomenon that occurs in the Supply Chain. A constant demand gets more and more chaotic the more the supplier's end of the Supply Chain is observed. The reasons are located in the ordering behavior of the clients, price models (including rebates), demand planning cycles and priorities in case of shortage.⁷⁸

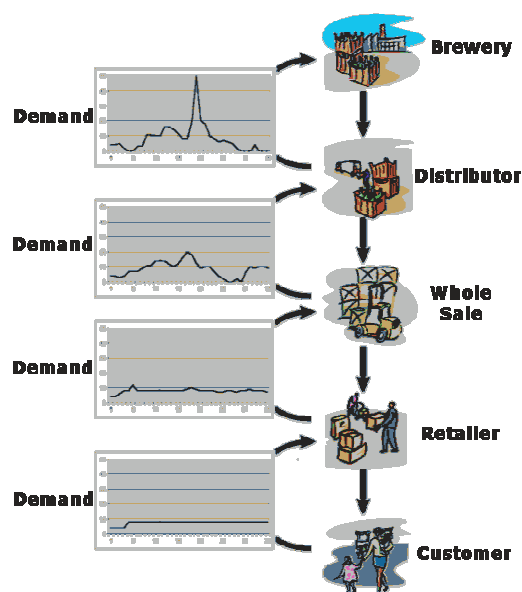


Figure 8: The Bullwhip Effect illustrated⁷⁹

B.2. Technology Push vs. Market Pull

Technology Push and Market Pull determine which side of the Supply Chain stimulates innovation processes. A Technology Push means that engineering and research departments develop new products, which are then pushed toward the clients. This often happens with a considerable amount of marketing. In contrast, a Market Pull indicates that customers request new products, which then have to be provided by engineering. Here accurate market research is of major importance.

In a Technology Push environment, the flow of information is from the suppliers' end of the Supply Chain to the customer. In a Market Pull environment the situation is vice-versa.⁸⁰

⁷⁷ A very good German glossary can be found on the web page of Universität Klagenfurt (2003).

⁷⁸ see Haehling von Lanzanauer, Glombik (2000) p. 101-116 and Pollitt (1998) p. 181-200

⁷⁹ Universität Klagenfurt (2003)

⁸⁰ see Ulijn, Nagel, Tan (2001)

B.3. Just in Time

Just in Time production means producing on demand. The maxim is to purchase, produce or distribute only as much as is absolutely needed on all levels of purchasing, production and distribution. Some of the aims are

- lowering cost by reducing stock, transportation, personnel and administration costs,
- increasing flexibility,
- raising liquidity by reducing fixed capital and
- minimizing risk by transferring it to suppliers

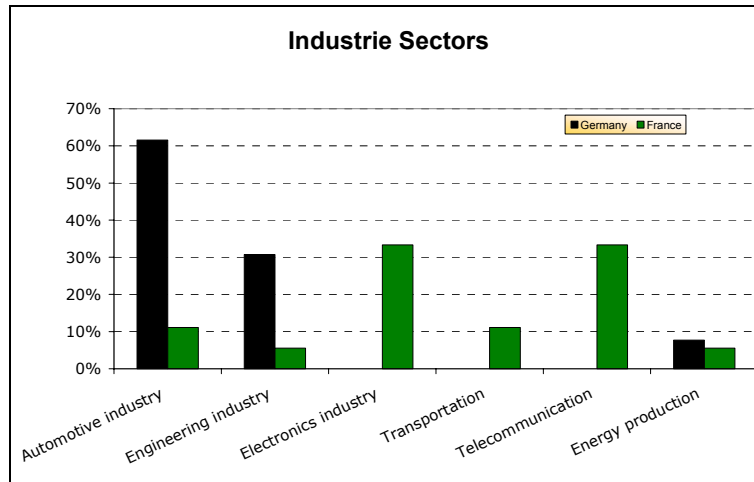
B.4. Postponement

Postponement is a strategy that reduces delivery times and increases flexibility simultaneously by postponing building, packaging or assembling until a concrete order comes in from a client.⁸¹ Another good work on this topic was written by Kanbach and Schäfer (2003).

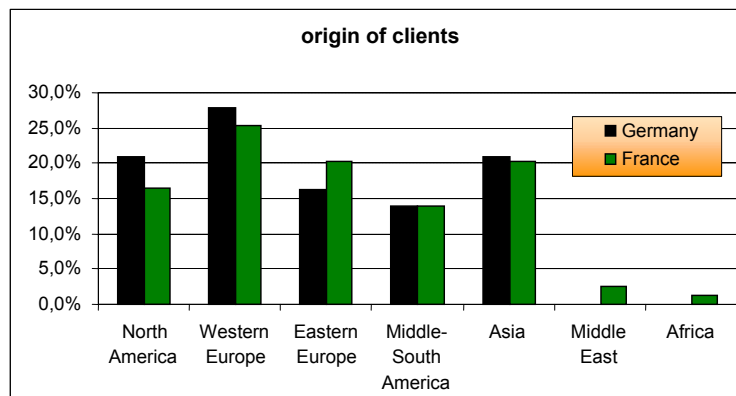
⁸¹ see Chopra, Meindl (2001), p. 205-207

C. Survey results illustrated

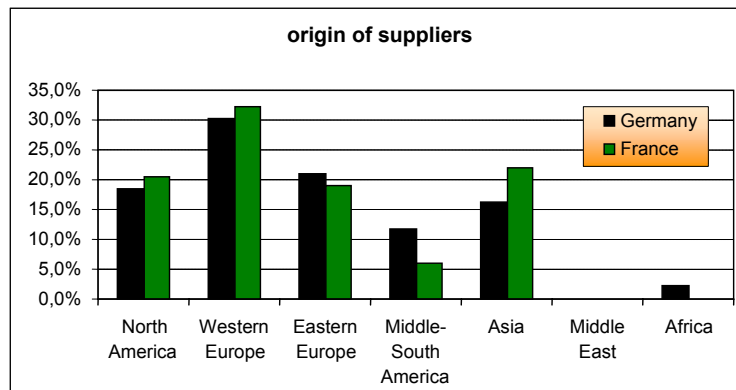
C.1. Analyzed Industry Sectors



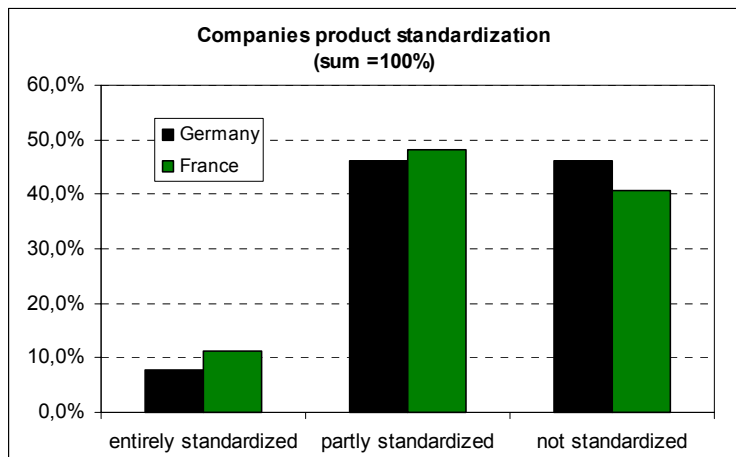
C.2. Origin of Clients



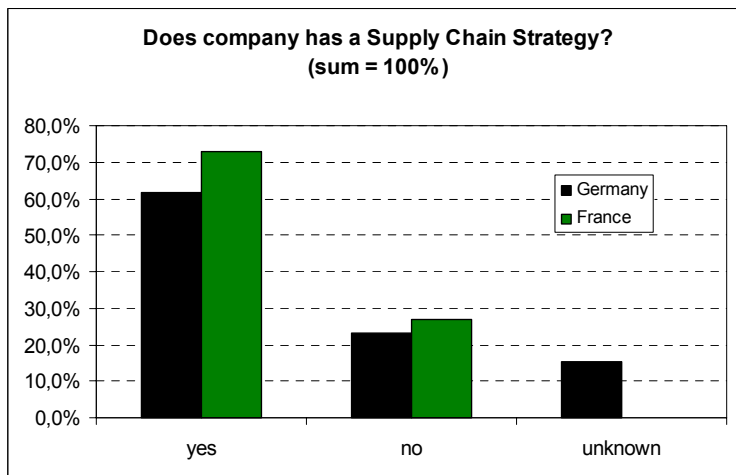
C.3. Origin of Suppliers



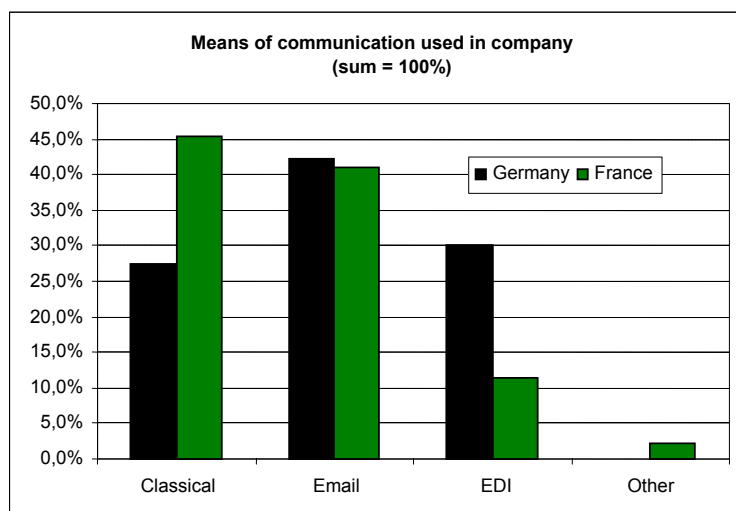
C.4. Companies' product standardization



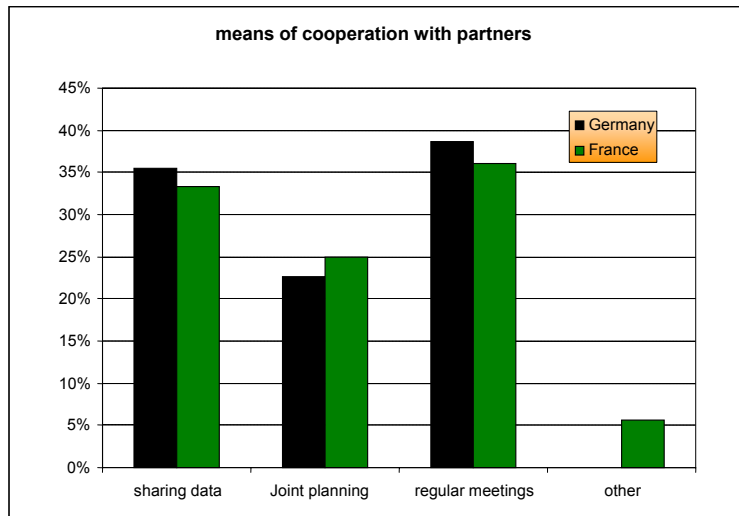
C.5. Does company have Supply Chain strategy?



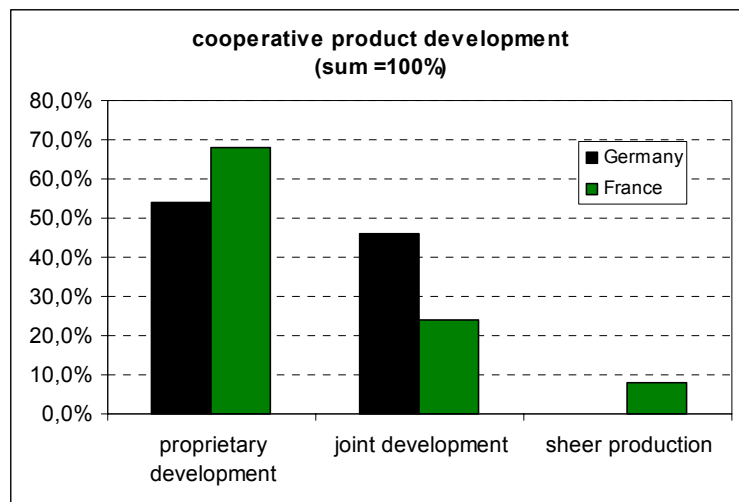
C.6. Means of communication with partners



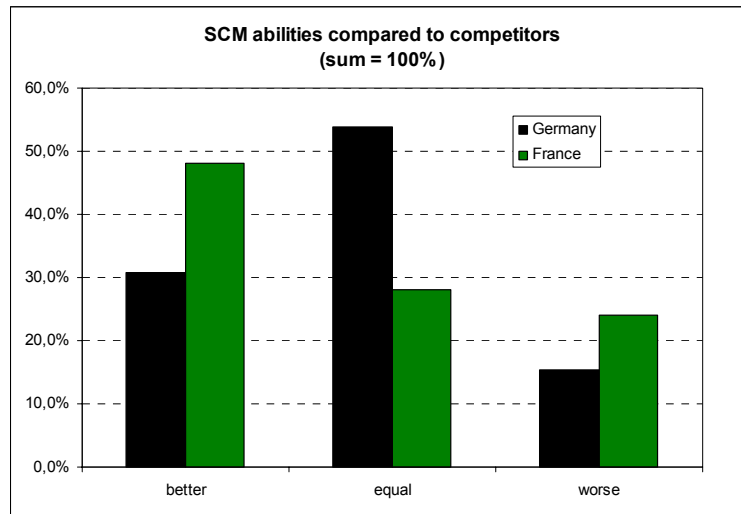
C.7. Means of cooperation with partners



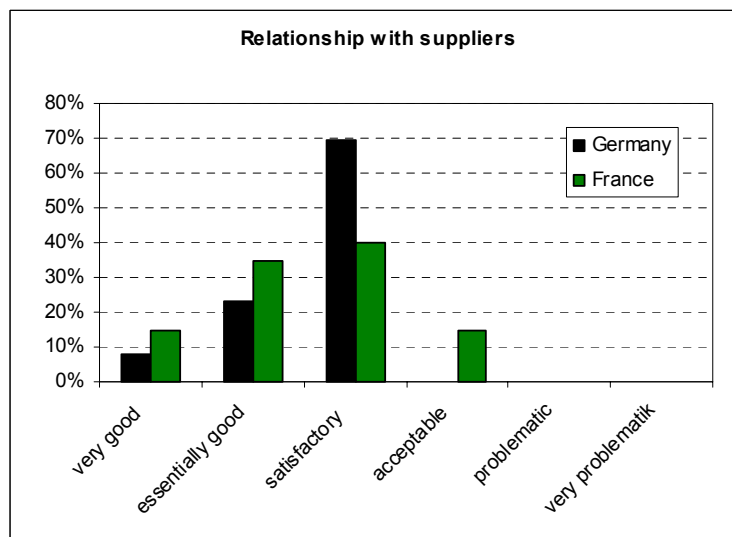
C.8. Cooperative product development



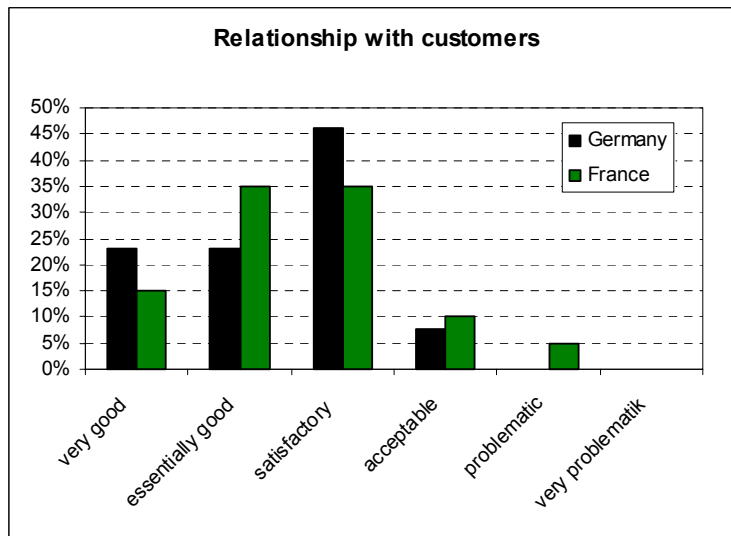
C.9. Supply Chain Management abilities compared to competitors



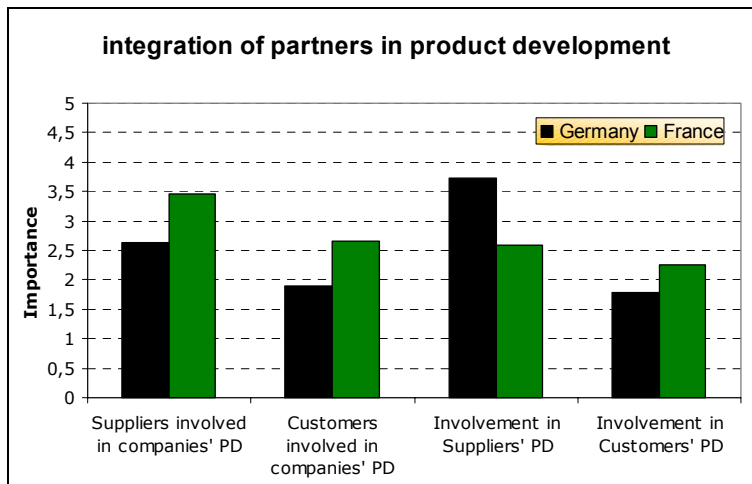
C.10. Relationship with suppliers



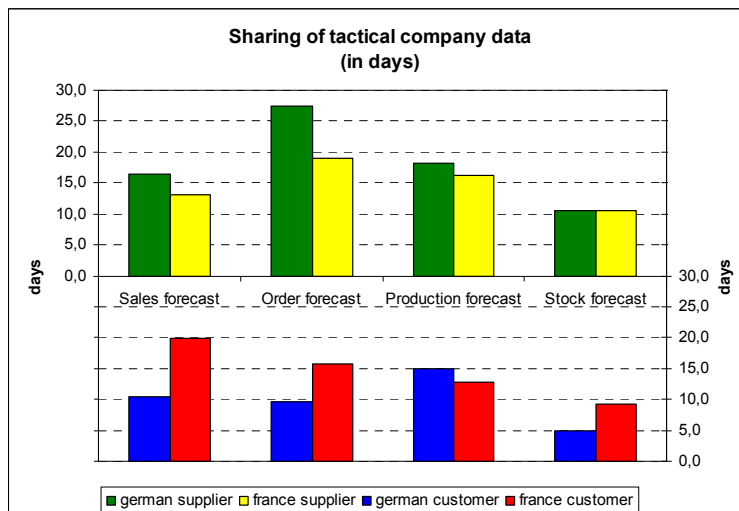
C.11. Relationship with customers



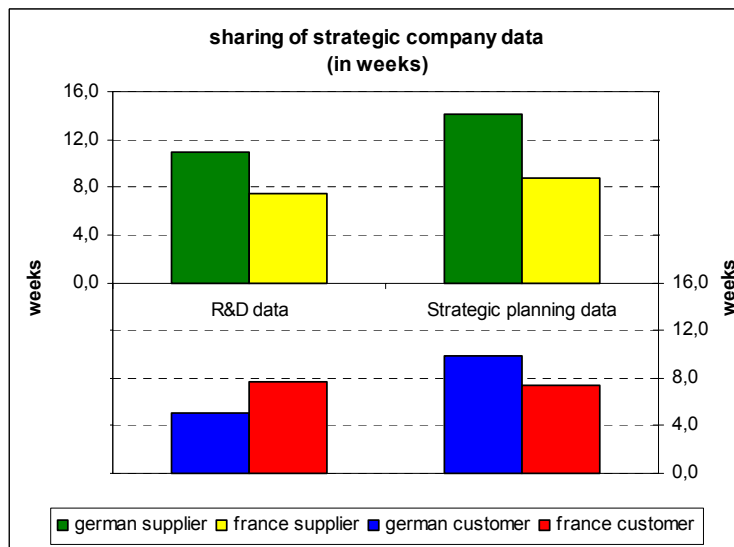
C.12. Integration of partner in product development



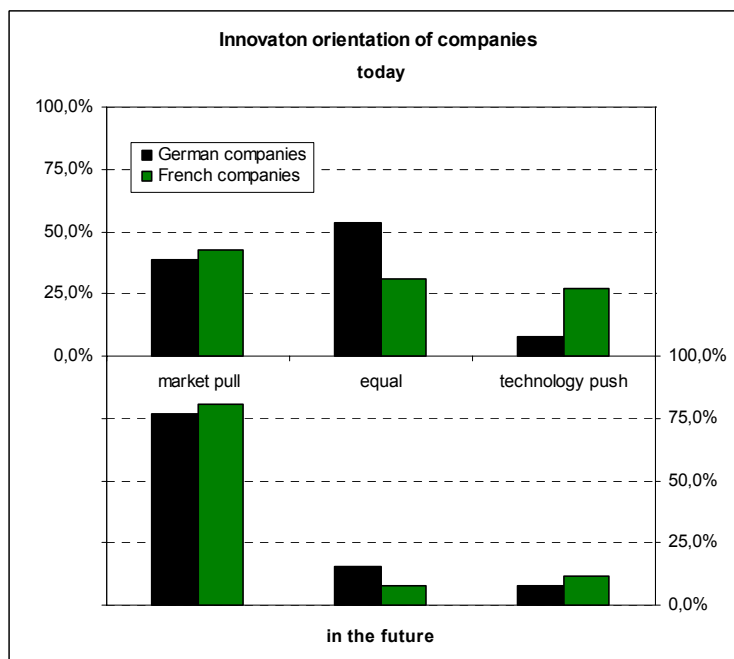
C.13. Sharing of tactical company data with partners



C.14. Sharing of strategic company data with partners



C.15. Innovation orientation of companies



D. Literature

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