The influence of the control dynamics on the operational performance

A study of contract dynamic elements of production outsourcing in the high tech sector

Lily Janssen-Shen

Student number 837252647

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Abstract

Many companies choose to concentrate on their core-business and outsource part of their production to specialized suppliers. Some of them are successful, others are not. Since these suppliers become part of the supply chain, their performance is of direct influence to the success of the company. Lots of studies have been done in the outsourcing field, but:

1. Most of them were about the relation between the formal contractual control and the inter-firm relationship
2. Many of these studies were done in service outsourcing, like IT and call-centers.
3. Furthermore, there is no clear integral picture of contract elements which could have impact on the supplier’s performance.

This study investigates the impact of the contract dynamic elements on the supplier’s performance at production outsourcing in the high-tech sector. The emphasis here lies on the relation between the formal contractual control and the supplier’s operational performance:

1. The contract dynamic elements, which enable to cope with the market dynamics and stimulate the supplier’s continuous improvement and cooperation.
2. The inter-firm cooperation conditions, such as transaction size, buyer’s exposure, transaction complexity and culture, have been taken into account.
3. Besides, the possible negative effect of a detail specified contract on the inter-firm relationship has been investigated.

The study is done in four phases:

1. In the first, a literature review is done to collect the contract dynamic elements and inter-firm cooperation conditions, which could have an impact on the supplier’s performance. At the conclusion of the literature study six contract elements and three inter-firm cooperation conditions are selected as independent and modulating variables for the expected relations, and have been used for the build-up of the conceptual model.
2. In the second phase an empirical study has been defined and carried out by means of a case-study. All expected relations were tested at the Case-company.
3. In the third phase, the data has been analyzed.
4. And in the final phase, based on the results of the case-study, the conclusions have been drawn and the conceptual model has been adjusted accordingly.

The key findings of the study:

1. Firstly, a detail specified contract won’t harm the inter-firm relationship. On the contrary, it forms the foundation for a good cooperation.
2. Secondly, the inter-firm cooperation conditions (transaction size, buyer’s exposure, transaction complexity and culture) play a more important role than the modulating variables. Based on the results found at the Case-company, they should be considered as the starting conditions for a contract design.
3. Finally, there is an optimal set of contract dynamic elements for each inter-firm condition. (see graph below)
Since the case-study is done solely at a Dutch multinational company operating in the high-tech sector and all interviewed participants are located in the Netherlands, more research performed at other companies, in different sectors, and at different locations is highly desired to cross-check, adjust and generalize the model.
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1 Introduction

1.1 Reason for the study

More and more companies choose for outsourcing to lower the operational cost, improve delivery performance and get access to supplier competence and technology, and by doing so improve their competitive position in the market (Applegate, Robert, et al, 2007). This new concept of the “Original Equipment Manufacturer” (OEM) and the fab-less company raises the topics concerning inter-firm collaboration. The dynamics of this outsourcing cooperating relation can be represented by three realms (Vosselman, E., Verstegen, B, et al, 2009). These are the contractual, the relational and the operational realm (see Figure 1).

Figure 1 Three realms of Vosselman

According to Vosselman, the **contractual realm** is a governance structure and formal process that is meant to safeguard against foreseeable risks and opportunistic behavior. However, when the parties are inexperienced in handling contracting issues, or in case of unforeseeable circumstances, the contractual realm plays a less substantial role. Vosselman’s field study shows the importance of the relational realm in such case. Trust and commitment compensate for the “gaps” in the contract. He therefore concludes that the contractual realm not only proves to be related to the relational realm (B2 in Figure 1), but it even proves to be subordinated to it (B1 in Figure 1). Trust precedes formal control. On the other hand, formal control might have a negative influence on trust (relational realm).

The **relational realm** is therefore crucial for the development of the relationship and the contractual realm of inter-firm cooperation.
The operational realm is the important source for stimulating the relational realm (A2 in Figure 1) by for example empowering, which might be transported to future inter-firm relationships, and possibly become an element in the contractual realm (C2 in Figure 1).

In the article, all three realms are interacting and moving in a certain direction. As the research case is about two companies starting to work together, everything still needs to be defined in all three realms. The relational realm, as it fuels both the development of the relationship and the contractual realm, is the most crucial among the three during the starting-phase of the cooperation.

Nooteboom has also mentioned that trust, as one of the elements in the relational realm, can be considered as a control governance device at the beginning of the cooperation (Nooteboom, B. 2000).

In short, during the starting-phase of the cooperation, the relational realm helps to create control in the inter-firm relationship. Once the control is created, it might be transported to the contractual realm. This would mean that control would exist in a more formal way: there could be more emphasis on the contractual realm and less on the relational realm. This leads to the theme of this study:

When the official contract is signed and the cooperation moves to the operating phase, will the contractual realm play a more important role? Will the contractual realm impact the operational performance? (C1 in Figure 1)

Control becomes different when outsourcing (Langfield-Smith, K., Smith, D., 2001). It might seem as if a firm will lose control to the outsourcer. But, on the other hand, the control can be strengthened if the systems become stricter. Outsourcing entails transferring the control of major organizational functions to a legal entity separate from the firm. When the control becomes formal, it might be easier to enforce control over an outsourcer based on a written contract and remedies against non-compliance. In the work of Langfield-Smith, a few elements are suggested to be included in the contract. For example: the specifications, performance measures and incentives, commitment to the vision and values of the company. But the intention of her study was to manage a good and long lasting relationship (contractual realm → relational realm, B2 in Figure 1).

When looking at the contractual realm, as shown later in the literature study, most studies explore, describe or explain the effect of the formal inter-firm control on the inter-firm relationship (contractual realm → relational realm, B2 in Figure 1), while hardly any literature is to be found about its relation towards the operational performance (contractual realm → operational realm, C1 in Figure 1). Besides, most of the studies were done in service outsourcing, like IT and call centers. Moreover, there is no clear, integral picture of contract elements which could have impact on the supplier’s performance.

Many companies choose to concentrate on their core-businesses and outsource part of their production to specialized suppliers, intended to achieve a better competitive position. Since these suppliers become part of the supply chain, their performance becomes crucial to the success of the company. A contract is an agreed formal control between the parties involved in the outsourcing. It could or should be able to cope with the market dynamics, define and safeguard the desired operational performance. It would therefore be of interest to have a better understanding of the impact of a contract. This leads to the scope of the study.
1.2 Research objectives

1.2.1 Research purpose

The purpose of this study is to investigate the impact of the formal contractual control on the operational performance at production outsourcing in the high-tech sector. This is done by investigating the impact and constraints of individual contract dynamic elements and inter-firm cooperation conditions which may play a role in this context.

Outsourcing can vary from payroll to retail outsourcing, each of which will have different characteristics and therefore require different ways of control (Anderson, Shannon W., et al, 2005). This study is limited to production outsourcing in the high-tech sector.

There are many groups of contract elements, like foundation, change and governance elements (Goo, 2008); the study focuses on the contract dynamic elements, which enable to cope with possibly new situations of market dynamics to ensure continuity and improvement.

1.2.2 Research questions

Central research questions:

Which contract dynamic elements have the most impact on the supplier’s operational performance at production outsourcing in the high tech sector? What are the inter-firm cooperation conditions and constraints?

Figure 2 Contractual elements and conditions

The sub-questions are:

1. What are the contract dynamic elements? What are their impacts on the supplier’s operational performance?
2. Contract elements can be chosen; while inter-firm cooperation conditions, such as transaction size and culture, are simply there and are hard to be changed. What are the inter-firm cooperation conditions? What are their influences to the relation between contract dynamic elements and supplier’s operational performance?
3. Will a detail contract with all these elements specified have a negative effect on the inter-firm relationship, which in turn hampers the supplier’s performance?
4. Is there an optimal set of contract dynamic elements for production outsourcing?

1.3 Research model

1.3.1 Research method

As the purpose of the research is to find, explain and rank the possible relations between contract dynamic elements, inter-firm cooperation conditions and operational performance, it can be considered as an explanatory study (Saunders, M., Lewis, P., et al, 2007).

It is a deductive approach: first to generate the expected relations from theory, then empirically test, and finally, based on the findings, come to a conclusion.

![Research model diagram]

**Figure 3 Research model**

The entire study is to be conducted in four phases (see Figure 3):
(a) Critical review of relevant parts from literature and generate a research perspective in the form of a conceptual model.
(b) Empirical review by means of an outsourcing case at a multinational in the high-tech sector.
(c) Analyze results of empirical test
(d) Conclusions and discussions
1.3.2 The Case-company

The company at which the case-study is conducted is located in the Netherlands and has more than 50 years of experience in the high tech sector. The company has approximately 28,000 employees working in more than 25 countries and posted sales of 3.8 billion USD in 2009.

An outsourcing contract contains sensitive information. For company secrecy reasons, the case-study company is mentioned as the Case-company in this report.

1.4 Chapter overview

The rest of this report is organized as follows: First, the literature review and the conceptual model (chapter 2) are generated. Next, the empirical research approach and motivations (chapter 3) are presented. It is followed by the research results (chapter 4), conclusions and recommendations (chapter 5). The report is finalized by discussions on product and process reflections (chapter 6).

2 Literature study

As mentioned earlier there aren’t many studies done investigating this relationship, therefore it can be considered as a “theory development” project. The research perspective is to find the existing concepts in the available literature. This approach is chosen as the guideline for the study.

2.1 Central questions in the literature study

Which contract dynamic elements have the most impact on the supplier’s operational performance at production outsourcing in the high tech sector? What are the inter-firm cooperation conditions and constraints?

The literature study targets to define the contract dynamic elements, which can influence the operational performance; and the inter-firm cooperation conditions, which can modulate this relation (see Figure 2).

Hence, the central question can be divided into the following sub-questions for the literature review (the terms in italic are further defined in section 2.3; an overview of the definitions can be found in Table 4 in Appendix 8.1):

1. What are the dynamic elements in the contract, which can influence the operational performance?
2. What are the inter-firm cooperation conditions modulating the relation between the contract dynamic elements and the operational performance?
3. Will a detail specified contract have a negative effect on the inter-firm relationship, which in turn hampers the supplier’s performance?
4. How will the operational performance be measured?
2.2 Search strategy

The literature-study process is based on the system approach of Y. Levy and T. Ellis (2006). Three stages are defined:
1. Literature gathering and screening.
2. Processing following Bloom’s Taxonomy.
3. Writing the literature review.

The literature search is focused on leading, peer-reviewed proceedings, journals and books in quality scholarly literature databases:

<table>
<thead>
<tr>
<th>Time interval:</th>
<th>Year 2000 – 2010</th>
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<tr>
<td>Language:</td>
<td>English</td>
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<tr>
<td>Search Area:</td>
<td>Management science</td>
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<tr>
<td>Business Sector:</td>
<td>High technology multinationals</td>
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<tr>
<td>Type literature:</td>
<td>Journal, books, proceedings</td>
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<tr>
<td>Databases:</td>
<td>Business source premier, Google scholar, Picarta</td>
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</table>

Table 1 Search strategy

At first keyword searching was conducted (Levy, Y., Ellis, T., 2006). This search originally focused only on articles published after the year 2000. 47 articles were selected based on their abstracts. After reviewing a total of 25 were found applicable to the study. The overview of the dynamic elements and inter-firm cooperation conditions’ definition and existing relations in the literature can be found in Table 5 (in Appendix 8.2).

The work of Goo (2008) was chosen as the starting point of the study. From this article, both backward and forward searches were applied. Finally, 4 articles which were published before 2000 were added, which brings the total to 29 articles used.

2.3 Literature review

2.3.1 What are the dynamic elements in the contract, which can influence the operational performance?

Dynamic elements

A contract is an official written agreement. It is liable for all the parties involved. The contractual elements, such as performance standards (Applegate, L., Robert, O., 2007), the baseline level of service/specifications, performance measures, commitment to the vision and values of the company (Langfield-Smith, Smith, 2001) are norms/specifications. These define the boundaries of the performance. If the contract has to allow control adjustment to cope with possibly new situations of market dynamics to ensure continuity and improvement, it should contain dynamic elements, which define changes in control.

Stone L. (2001) states that besides terms and conditions, there are four major areas that should be included in the contract, which are: defining the deal parameters, incorporating changes, relationship management and transformations and terminations. Incorporating changes can be considered as a dynamic element, as it facilitates the dynamic control in the
course of the cooperation. Goo (2008) has a similar approach. In this study, the model of Goo was chosen, because it contains more detailed descriptions.

Goo (2008) defines three groups of elements in the contract: foundation, change and governance elements. Foundation elements are the standards of conduct by defining roles and responsibilities of the parties, which are involved in the outsourcing arrangement. Change elements provide general processes for adjusting the terms of the agreement to align with the changing goals of the cooperation. Governance elements provide key inter-organizational management mechanisms such as communication protocols, reporting policies and administrative procedures for dispute resolution, outcome assessment, information disclosure, incentives and penalties and even termination options.

In change elements the “future demand management”, such as “forecast versus actual demand” and “anticipated change management” (in particular: changes enabling performance improvements, shorter lead time and cost reduction), are further investigated in this study. The elements of “feedback” and “innovation management”, which are also mentioned in Goo’s (2008) article, are not included here as dynamic elements because they can be included in the “anticipated change management” as well.

The “enforcement” was classified as governance elements in Goo’s article. The definitions are incentives, carrot-and stick approach and sharing of benefits and burdens. Because “incentives” vary on the basis of actual performance, they can be considered as a dynamic element.

In short, a) future demand management, b) anticipated change management and c) incentives are chosen as contract dynamic elements in the study.

In Goo’s later work he states that:

“While detailed written clauses as part of change characteristics in an agreement may increase relational attributes of relational norms, harmonious conflict resolution, and mutual dependence, such detailed clauses may actually have a negative, detrimental effect on trust and commitment in combination with those high relational attributes. This would suggest that the parties concerned should not have all the contingencies, processes, and methods for contract changes pre-specified in the SLA because these clauses may ultimately hamper the development of trust and commitment in the relationship.” (Goo, J., Rao, H. R., et al, 2009: 139-140).

This could imply that a detail specified contract might have a negative effect on future performance. However, there are other articles stating just the opposite, which will be shown in the next paragraphs, where all dynamic elements are discussed and expected relations are mentioned after each section.

a) Future demand management: Quantity flexible contract

One big risk threatening the business is the uncertainty of market demand. To mitigate this risk, a risk-sharing approach is frequently used in production outsourcing. The quantity flexible contract, where the buyer commits to order a minimum percentage of the forecasted demand and in return gets a price discount, while at the same time, the supplier commits to at least deliver a certain percentage coverage of the forecasted demand (Tsay, A., Lovejoy, W., 1999, Tsay, A., 1999; Plambeck, E., Taylor, T., 2004, 2007). In the case of the
supplier serving more customers, quantity flexible contracts can be even more attractive. The study of Plambeck and Taylor (2004) considers a setting in which two buyers invest in innovation (product development and marketing) and obtain their supplies from a single manufacturer through quantity flexible contracts, which specify the minimum quantity the manufacturer must supply and the minimum quantity the buyer must purchase. They also indicate that the potential for renegotiation within the supply contracts has important implications for the firms’ investments in innovation and capacity, the allocation of capacity, and the resulting profits. The optimal share of demand is dependent on the prices of the products (Yang, Y., Chang, S., 2008). It is worth to mention that in their study the demand is mentioned as “yield”. The demand risk sharing can also manifest itself in the form of buffer-stock, which is committed and kept at the supplier side. In this way, the supplier can quickly react to an unexpected upturn; And in the mean time, the buyer doesn’t need to maintain too much stock to cover for the market fluctuation. Considering this the following relation can be expected:

Expected relation 1: The quantity flexible contract can improve the delivery performance in market fluctuation.

b) Anticipated change management: Regular business review and price renegotiation

In addition to setting up the definitions, roles and responsibilities, a regular business review plan is generally agreed upon. A business review is an official meeting between the firm and its outsourcing supplier. Both parties will share the business outlook, review the business in the past, discuss and define actions on current and foreseeable problems. The business review can also include renegotiation (Goo, J., Huang, C. D., Hart, P., 2008), in particular, the product price renegotiation (Musshoff, O., Hirschauer, N., 2008). The product price determines the profit for the supplier. By lowering the product price, the supplier could be stimulated to improve production efficiency and bring down the processing cost. However, if the supplier is unsatisfied with the agreement, it could lead to grievance and shading (Hart, O., Moore, J., 2007), which means that it could have a negative effect on the performance. Therefore the following relations can be expected:

Expected relation 2: Regular business reviews will improve the operational performance.

Expected relation 3: Price renegotiation can improve the efficiency of the operational performance, but when the price is lower than the suppliers’ satisfaction level, it could work counterproductive.

c) Incentives

Incentive elements, like the performance bonus, can stimulate improvements in operational performance (Tarakci, H., Tang, K., et al, 2006). Based on the empirical research concerning a maintenance-task outsourcing, it was demonstrated that an incentive contract, based on a combination of a performance target and a bonus, always leads to the desired win-win situation, and provides flexibility in allocating the extra profit generated from coordination and, importantly, an incentive to the supplier to improve the efficiency of the maintenance operations. As said, the relation was tested in a maintenance-task outsourcing situation. Will production outsourcing profit in a similar way?

Expected relation 4: Incentives based on good performance will stimulate a better operational performance in production outsourcing.
Room for freedom

Contracts are inherently incomplete. To cope with uncertainty and related forms of unforeseeable opportunism, the firms will have to act upon non-contractual decisions. Such actions occur in both the relational and the operational realm (Vosselman, E., Verstegen, B, et al, 2009). The open space in the contract can offer extra room for dynamic control.

The meaning of the “incomplete contract” can be quite different in literature. In some of the cases it refers to unforeseeable circumstances, which are either forgotten, or impossible to specify ex ante. In other cases it means that the specific item is not firmly defined, but renegotiable in the course of the cooperation. The latter definition is similar to the “dynamic elements” in this report, which has been discussed in the previous section. What we consider room for freedom here is an independent variable in the contract, which is deliberately left open and will never be firmly defined in the course of the cooperation. The inter-firm arrangement will only be based on “goodwill” and “best effort”. In practice, the demand quantity could be such an example. In contrast to the quantity flexible contract, there is no minimum commitment defined. Meeting the demand is based on “best effort”. The buyer will give the most accurate forecast to the supplier and the supplier will do its best to meet the actual demand.

One can argue that in this case the relationship will take over the formal control and influence the operational performance; hence it should be taken out of the scope of the study. But because one allows for this freedom and this freedom is secured within the contract, it is kept in as an independent element in the contract. Therefore the following relation can be expected:

Expected relation 5: The room for freedom in the contract will open up renegotiation possibilities in case of unforeseeable circumstances and result in an improved operational performance of the supplier.

Control models: integration level

The control models are the structures of control. In the context of supply contract design, the more powerful party usually has the ability to appropriate the leadership position. Traditionally, the supplier (e.g., manufacturer) has always been more powerful. However, in recent years the power has shifted towards the buyer. In case of production outsourcing, the supplier is often required to produce specific products for the buyer. Hence it is more buyer-driven than supplier-driven. The buyer-driven model is proven to be more efficient (Liu, X., Çetinkaya, S., 2009). However, Hart (1988) has a different point of view. He points out that the (re)negotiation is strongly influenced by the asset owner, as he has the residual rights of control. The supplier doesn’t necessarily have to be the asset owner; the buyer can own the asset or the production capacity as well. This brings up an interesting topic concerning the level of integration.

Outsourcing-related planning, execution and management risks can be mitigated by increasing the integration level (Amaral, Billington, et al, 2004). In practice, turnkey, buy-sell and consignment agreements are commonly used. It is important to balance the ownership and the benefits to achieve ex post efficiency. When the share of total business increases, it could be beneficial to increase the integration level. Particularly in the case of price renegotiation, non-integration is typically inefficient. There always is a tendency for a party
in a contract to feel its outcome is not optimal, thus either no deal, or there will be shading (Hart, 1988). Therefore:

   Expected relation 6: The increase of the integration level of control by owning asset or production capacity can improve the operational performance.

2.3.2 What are the inter-firm cooperation conditions modulating the relation between the contract dynamic elements and the operational performance?

   Conditions are the given factors, like transaction size, transaction complexity and culture, which are there and are hard to be changed. Inter-firm characteristics, such as market commonality, competitive positions, diverse resource profiles and reputation, will define cooperation conditions, like collective strengths, inter-partner conflicts and interdependencies. This will influence the progress of the alliance, meaning: stabilization, reformation, declination or termination (Das, T. K., Teng, B. S., 2002). The contractual control is excluded in their study, but it does suggest that the inter-firm cooperation conditions can have a strong influence on the operational performance. Although the article of Das and Teng is about alliances (acquisitions, joint ventures) in a similar market rather than production outsourcing, the inter-firm cooperation conditions are worth to be examined.

Transaction size, buyer’s exposure and transaction complexity
   The governance and control should be aligned with the conditions of the cooperation. The conditions like transaction size, buyer’s exposure to supplier failure and transaction complexity are positively related to contract extensiveness (Anderson, E., Dekker, H., 2005). A good alignment will result in better response to specific anticipated hazards. This suggests that the cooperation characteristic will modulate the effect of both governance and control. When the control suits the characteristic, it will enhance or otherwise dampen the effect. Therefore:

   Expected relation 7: The transaction size will modulate the relation of the contractual control and the operational performance.

   Expected relation 8: The buyer’s exposure and transaction complexity will modulate the relation of the contractual control and the operational performance.

Culture
   There are certainly differences between the western and eastern culture. These culture differences may cause differences in decision making and the way of pursuing mutual agreements (Samaddar, S., Kadiyala, S., 2006). In Samaddar and Kadiyala’s Korean case-study, it is observed that outsourcing success is achieved by maximizing reliability and relationships in the Korean context rather than by maximizing flexibility and control, as was observed in the Western context. Therefore:

   Expected relation 9: The cultural background of the supplier will modulate the relation of the contractual control and the operational performance.

2.3.3 Will a detailed specified contract have a negative effect on the inter-firm relationship, which in turn hampers the supplier’s performance?

   It is almost impossible to discuss the effects of a mere contract, without mentioning the inter-firm relationship. “The relationship issue can be affected by the structure of the SLA, and the workability of the SLA can be affected by a psychological relationship that evolves
"over time" (Goo, J., 2008: 202). In his later study, Goo supports the proposition that the formal contract and relational governance are complementary, which means they can be replaced by each other. Well-developed SLA’s not only provide a way to measure the supplier’s performance, but also enable effective management of outsourcing engagement. As mentioned earlier, the “change characteristics” may dampen the level of trust and commitment, because it might have a negative and detrimental effect on the inter-firm relationship (Goo, J., Rao, H. R., et al, 2009). In contrast, Poppo L. and Zenger T. (2002) empirically found that increases in contractual complexity will increase the level of relational governance. “Contracts that shift from merely specifying deliverable outcomes to providing frameworks for bilateral adjustments may facilitate the evolution of highly cooperative exchange relations.” (Poppo, L., Zenger, T., 2002: 713). These works indicate that the effect of the contractual control on the operational performance will be modulated by its effect on the inter-firm relationship. The modulation can be either stimulative or inhibitive. Therefore:

Expected relation 10: The contractual control will influence the inter-firm relationship, which in turn will modulate its relation with the operational performance.

It is to exam if a detailed contract will have negative effects on inter-firm relations, in a way where the supplier would be de-motivated for improvement.

2.3.4 How will the operational performance be measured?
Extensive studies are done in this area. Hence this study is limited to the supplier’s operation performance, as it is corresponding to the contract dynamic elements discussed earlier. The operational performances are referred to as the supplier’s operational performances, like delivery performance, quality and process efficiency, which will be examined in the empirical study.

2.4 Conceptual model
Based on literature study, a conceptual model can be presented as the following:
To summarize, a relation is expected between the contract dynamic elements and the supplier’s operational performance. Six independent and three modulating variables are found in literature; see Table 5 (in Appendix 8.2) for details. Some of the relations mentioned in literature are maintained in a different context, others contradict each other. Therefore the expected relations are to be tested in the empirical research. All expected relations and the definitions of the variables are summarized in Table 6 (in Appendix 8.3). The inter-firm relationship is considered as a modulator. Here only the portion of the relationship, which is directly influenced by the contract dynamic elements, is considered. This is shown as a dotted line in the conceptual model.

3 Research method and approach

3.1 Research strategy

Since the purpose of the research is to find the impact and constraints of the contract dynamic elements on the supplier’s performance, it can be considered as an explanatory study (Saunders, M., Lewis, P., et al, 2007). The emphasis here lies on explaining the effects and conditions.

The empirical study has used a “case-study” strategy, which is suitable for the explanatory research. Methods like interviews, observations and documentary analysis have been used. The justification of the methods is explained later in this paragraph. The study has focused on a production-outsourcing case at a multinational company operating in the high tech sector. Thus, it is a “single” and “holistic” case in the discrete dimension of the case-study strategy (Yin, 2003).

The deductive approach has been followed: first generate the possible contract dynamic elements and inter-firm cooperation conditions from the theory, then empirically test, and finally, based on the findings, come to a conclusion (see research model, Figure 3).

From the literature study, six contract dynamic elements and three inter-firm cooperation conditions were identified. The expected relations have been tested during the empirical study. Then the sub-questions were answered based on these results. Finally the central question could be answered, being:

| Which contract dynamic elements have the most impact on the supplier’s operational performance at production outsourcing in the high tech sector? What are the inter-firm cooperation conditions and constraints? |

3.1.1 Sub-question 1

What are the contract dynamic elements? What are their impacts on the supplier’s operational performance?

There are six contract dynamic elements found in the literature study. Their expected relations to the supplier’s operational performance (R1-R6, see Figure 4 Conceptual model in Paragraph 2.4 and Table 6 Expected relation list in Appendix 8.3) have been tested at the Case-company. Both primary data (interviews) and secondary data (production outsourcing contracts and memo’s) have been used. The secondary data have been reviewed upfront. This
was done to identify relevant cases for each specific dynamic element. For example; during the outsourcing contract review it was found that a quantity flexible contract with supplier E exists. At this interview the following questions were asked: How is the delivery performance of supplier E and is this possibly influenced by the quantity flexible contract? Is in your opinion the QFC a good instrument to ensure a reliable delivery, especially when actual demand deviates from the forecast? What are the advantages and disadvantages of the QFC? Which are its conditions and constraints?

The detailed data collection plan per element and its relation can be found in Table 7 Data collection plan (in Appendix 8.4). The outsourcing cases with the relevant contract elements have been examined at the Case-company. The motivation of data collection and data analysis methodology are discussed later in this paragraph. Based on the results of the Case-company, the question of the impacts on the supplier’s operational performance can be answered.

3.1.2 Sub-question 2

What are the inter-firm cooperation conditions? What are their influences to the relation between contract dynamic elements and supplier’s operational performance?

There are three inter-firm cooperation conditions identified in the literature study. Their expected influences on the relations between contract dynamic elements and supplier’s operational performance (R7-R9, see Figure 4 Conceptual model in Paragraph 2.4 and Table 6 Expected relation list in Appendix 8.3) have been tested at the Case-company. Similar to sub-question 1, both primary and secondary data have been used. The secondary data have been reviewed upfront. For example; the transaction size per supplier has been investigated before the interview took place. During the interview, the questions to be asked were: Supplier A’s transaction size with the Case-company is large, did this play a role in “getting things done” from this supplier? Supplier C has a low transaction size, what are the implications there? What are the measures needed to be taken into account in the contract to secure the desired operational performance? Will the earlier discussed relations of contract elements (R1-R3) still be valid?

The detailed data collection plan per condition and its relation can be found in Table 7 Data collection plan (in Appendix 8.4). The differences of the inter-firm cooperation conditions and their influences have been investigated at the Case-company. The motivation of data collection and data analysis methodology are discussed later in this paragraph. Based on the results of the Case-company, the question of the impacts on the relation between contract dynamic elements and supplier’s operational performance can be answered.

3.1.3 Sub-question 3

Will a detail contract with all these elements specified have a negative effect on the inter-firm relationship, which in turn hampers the supplier’s performance?

Based on the literature study, this modulating relation is expected (R10, see Figure 4 Conceptual model in Paragraph 2.4 and Table 6 Expected relation list). It has been tested at the Case-company to see if the relation is a positive or a negative one. Similar to sub-question 1 and 2, both primary and secondary data have been used. The secondary data have been reviewed upfront. For example; supplier E has the most detailed contract with specifications defined explicitly. During the interview, the questions to be asked were: Are there any
negative side-effects observed on the inter-firm relationship with the supplier? Did these lead to a negative impact on supplier E’s operational performance?

The detailed data collection plan and interview questions can be found in Table 7 Data collection plan (in Appendix 8.4). The motivation of data collection and data analysis methodology are discussed later in this paragraph. Based on the results of the Case-company, the question about the influence of a detail specified contract can be answered.

3.1.4 Sub-question 4

Is there an optimal set of contract dynamic elements for production outsourcing?

After answering all previous sub-questions, a list of the most important elements with respect to the operational performance can be made. An optimal set of contract dynamic elements under different inter-firm cooperation conditions can be generated and result in conclusions and recommendations.

3.2 Data collection

The Case-company has a long history of production outsourcing. It does business with several outsourcing suppliers throughout Asia and Europe. Some of the outsourcing relations exist already for many years, others only for a short period. The available resources for this study are: signed contracts, memos of ex post negotiations and responsible people who are willing to participate in interviews. These people are the managers of: the supply chain (SCM), operation (Ope), procurement (Pro) and engineering (Eng). The overview of needed resources and planning can be found in Table 7 Data collection plan (in Appendix 8.4). The justification for the data collection method can be found in the upcoming sections of this paragraph.

The participants were not chosen at random. Rather, they were selected because they possess specific outsourcing experience and knowledge, after reviewing the organization chart of the Case-company:

![Organization chart of Case-company](image-url)

Figure 5 Organization chart of Case-company
Next to the supporting departments Human Resources (HR) and Finance and Accounting (F&A), there are four departments operating at the Case-company. The Development department is responsible for the new product development and qualification. The marketing department is responsible for sales and customers relations. The Operation department, divided into supply chain and engineering, is working with the outsourcing suppliers on in-time delivery, solving delivery and quality issues and driving continuous improvement on a daily basis. The Procurement department is responsible for setting up the contracts and organizing formal negotiations with suppliers from time-to-time. In order to cover all departments which are involved in the production outsourcing at the Case-company, the managers of Operation, Supply-chain, Engineering and Procurement have been chosen for the interview. All chosen participants have more than 10 years of experience in outsourcing.

Due to the nature of the different functional areas, each department has its own interest and responsibility. For instance, the Engineering manager has more insight in the supplier’s production process quality and improvement progress, but less in supplier’s delivery performance; while for the Supply-chain manager just the opposite is the case. Hence, the comments they give on subjects which do not cover their functional area might be inaccurate. To take this inaccuracy into account, a summary was made based on the comments of all participants after all interviews were executed. The summary was sent to all participants for review, so that all of them could read the comments of others and react to them.

It was taken into account that there could be contradictory comments given by different participants. Therefore, during the interview each participant was asked whether he could be contacted in case a comment needed to be clarified at the moment of data analysis. Furthermore, the summary has been reviewed by all participants and they were free to comment on any statement on which they have a different opinion. The final summary has been agreed to by all participants.

The topics were the same for each interview. The participant was free to give more elaborate input on topics he was intimately involved in and less input if little involved. It was done this way to obtain information as comprehensive as possible for the case-study.

### 3.2.1 Access and research ethics

The Case-company has agreed to support this research project.

It is committed that every effort will be made to maintain confidentiality of the information. The information will be used during the study only and will not be shared with anyone else outside the company.

In the report neither the company name nor the outsourcing-manufacturer name has been mentioned. Only the sector where the company is operating and the geographical location of the outsourcing supplier has been described.

The report has been reviewed by the participants to ensure that the interpretation is accurate and there are no ethical concerns. The participant’s names are not mentioned in the report. Only their function titles have been mentioned, which are needed for the validation of the collected data.
All the above mentioned points were emphasized again at the start of the interview. (see Appendix 8.7)

3.2.2 Need for sampling

Due to both time and resource limitations, sampling is needed in this study.

The research objectives are to explain the impacts and constraints. It is about why it happens in a certain way, rather than how often it happens. Therefore it is a qualitative research. Since the statistical interferences are not required, the non-probability sampling method is chosen for the study. This method is frequently used when adopting a case-study strategy (Saunders, M., Lewis, P., ET, 2007).

Since the research time is limited, sampling size can’t be extensive and hence the purposive sampling method is chosen. This means that own judgment has been used to select the best cases to answer the research questions. The outsourcing cases of the Case-company with its different suppliers have been investigated in this study. The samples (outsourcing suppliers) have been chosen based on the relevance of the investigated variables.

3.2.3 Need for primary and secondary data

Concerning the primary data:

- It is not feasible to collect data through observations, because it would take a long time to complete the research and still it might not cover all the cases which need to be studied.

- The questionnaire is not suitable here either. It is difficult to come up with all the questions beforehand. Besides, it is important to know why a participant has a certain opinion. More interactive questions and answers are needed here.

- The semi structured interview has been used. As people from different departments were interviewed, it would be inefficient if the interview questions had to be kept the same. Thus structured interviews are not suitable here. On the other hand, an unstructured interview would also be inefficient, because the conceptual model has been made and specific areas for investigation have already been defined. Therefore the semi structured interview is the best way to go in this case.

Concerning the secondary data:

- Documentation data like signed contracts and memos are used in the study. These give direct relevant information about the contract dynamic elements and performance data. It has the advantage of saving time; and because it has been reviewed and agreed, the data is of high quality as well.

3.2.4 Reliability and validity

To safeguard the credibility of research findings, the research design is checked for two aspects: reliability and validity. As primary and secondary data have their own characteristics, the evaluation of the reliability and validity is further split up in these two kinds of data.
• Primary data

Reliability: Semi-structured interviews can lead to reliability risks such as interviewer and response bias. There are five measures in place to mitigate the risk.
1. There are four interviews conducted in the study. After each interview, the process was evaluated and the improvements were added into the next interviews.
2. The interview themes list with definition of the variables (see Table 6 in Appendix 8.3) was sent to the participants upfront. So the participants could take time to prepare themselves for the discussion. The summary of the secondary data was shared as well.
3. The opening points were covered at the start of each interview (Saunders, M., Lewis, P., et, 2007: p324) to assure that information would be kept confidential and anonymous. (see Appendix 8.7).
4. Four participants from different departments were invited for the interview. This was done to reduce the individual bias of perspective.
5. To reduce the interviewer bias of interpretation, the variable definition list (see Table 6 in Appendix 8.3) was sent before the interview. During the interview the definitions were rephrased in case there was a sign of misinterpretation. Furthermore, the summary of interviews was sent to participants for review and has been corrected based on their feedback (see Appendix 8.10).

Generalisability: This study has investigated a few production-outsourcing cases at the Case-company. The sampling is small and might be non representative. The findings and conclusions might not be applicable to other cases.

• Secondary data

Overall suitability: In the study, the contracts and memos have been used. Because the contracts and memos are officially agreed to and signed, there is no issue with measurement validity. The coverage, however, could be a problem because the memos might not be completely archived. To reduce the chance of missing some important events, a summary of secondary data was made first, and shared with the participants during the interview, so that the missing events could be spotted and added to the study.

Precise suitability: The contracts and memos are officially reviewed and agreed to. They give the direct answers to the questions if a certain contract dynamic element is relevant in an outsourcing case. They can be considered as reliable and valid for the study. The measurement bias can be neglected for the same reason.

3.3 Data analysis

The research purpose is to investigate the impacts and constraints. The cases with relevant contract dynamic elements were selected and the relations between the contract dynamic elements and operational performance were examined. The inter-firm cooperation conditions were discussed as well. It is an explanatory study with case-study strategy. The primary data (semi-structured interviews) as well as the secondary data (contracts and memos) are qualitative data.

After reviewing the contracts and memos, a supplier matrix was made (see Appendix 8.5). The relevant part was used during the interview. For example: the Case-company has a
quantity flexible contract with supplier E. The questions which were asked during the
interviews were: What was the experience there? Do we ever have delivery issues there? Do
you think it is due to the quantity flexible contract? Why? What are the advantages and
disadvantages here? What are the conditions and constraints of such a contract?

All interviews were audio recorded. Only the sections that are pertinent to the study
were transcribed. The interview data has been divided into themes, which are related to the
expected relations (see Appendix 8.8).

The participants were to give an explanation together with supported observations
when making a statement to enhance objectiveness. There were no contradictory statements
observed in the analysis.

A summary was made after all interviews were done. It has been sent to all
participants for evaluation and has been modified once according to their feedback. The sole
reason for the revision was to add a line in order to make a statement clearer. The final
version in Appendix 8.10 has been approved by all participants.

The expected relations were verified afterwards one by one based on the evaluated
interview summary. See paragraph 4 and 5 for the research results and conclusions.

3.4 Abstraction

The case-study results are further discussed in the light of the expected relations. Can
a conclusion be drawn concerning the impact and constraints of each contract dynamic
element? Why or why not? Does it need to be further verified against other cases?

Purposive sampling is conducted in this study. The selected cases might not be
representative for all the production-outsourcing cases in the high-tech sector. It can’t be
generalized until other cases are tested and have been confirmed to give the same results.

After reviewing the conclusion, the conceptual model has been re-evaluated, which
leads to the recommendations for future research.

4 Research results

The interview summary is divided in ten themes (see Appendix 8.10), which are
based on the ten expected relations. In the summary, between quotes, the transcriptions are to
be found. The background information about contracts and official memos is written in italic.

The results of the case-study are presented hereunder in this paragraph.

4.1 The quantity flexible contract

Expected relation 1: The quantity flexible contract can improve the delivery
performance in case of market fluctuation.
The quantity flexible contract can help maintaining a reliable supply performance. The most important advantage mentioned by the Case-company is that it can secure buyer's demand in an upturn.

However, the quantity flexible contract is not commonly used by the Case-company. The reason is that there is a serious disadvantage for both parties. The supplier needs to commit extra capacity which might not be used and can’t be given to other customers. The customer, on the other hand, needs to commit to a minimum purchase quantity, which might turn out to become overproduction. The high tech market in which the Case-company operates is too dynamic to predict. The difference in production demand between upturn and downturn is huge. Therefore it is difficult for both parties to commit. Hence the quantity flexible contract is not commonly used here.

Thus: the quantity flexible contract has secured demand in an upturn at the Case-company. But since it requires a high level of commitment from both parties, it is seldom used.

4.2 The business review

Expected relation 2: Regular business reviews will improve the operational performance.

The business review is being used throughout the Case-company for many suppliers. It has been considered as a very important tool in formal control. By defining the right set of Key Performance Indicators (KPI’s) it helps the suppliers to implement similar quality systems, so that the firm can guarantee the quality system for the whole supply chain.

The suppliers will be motivated for further improvement when they get positive feedback during the business review. They will be stimulated by benchmark performance of other suppliers in the same branch and work on improvement to become world class.

The critical issues can be addressed at business reviews on high management level. It will attract sufficient management attention to define proper actions and to monitor closely afterwards.

The business review is being used throughout the Case-company for many suppliers. It has proven to be a good approach to review the supplier’s KPI’s and solve operational issues.

Thus: Regular business reviews are widely used at the Case-company. They help secure the alignment of the quality systems, motivate suppliers for improvement and are an opportunity to address critical issues at high management level.

4.3 The price roadmap

Expected relation 3: Price renegotiation can improve the efficiency of the operational performance, but when the price is lower than the suppliers’ satisfaction level, it could work counterproductive.
It became clear during the interview that a distinction should be made between the long term price roadmap and the short term price negotiation.

Since the outsourcing supplier is part of the supply chain, the supplier production cost should be in line with the market price roadmap. It is important to work together with the supplier to reduce the cost. The cost-reduction process does not only require an effort from the supplier but also from the firm itself. This is because some cost-down opportunities will only be possible when the product design or production process is improved. On the other hand, the supplier will be willing to reduce the price by improving the process robustness and reducing production waste, instead of by cutting its margin to make the deal. In this sense, a challenging but realistic price roadmap will stimulate the supplier to improve its long term production efficiency.

Prices negotiation for the short term can create business for both buyer and supplier, especially during the industry up- or down-turn. There are no improvement actions involved since it is normally a business decision for the short term.

The Case-company also experienced the “dark side” of its pricing strategy. When the price is too low to be satisfactory, the supplier could start working in a less productive way or even walk away.

Thus: in the Case-company, both the price roadmap and the price negotiation are used. The short term price negotiation will work to create business, but has no effect on operational improvements. Only the price roadmap can have a positive influence on the supplier’s performance in the long term. However, this roadmap can also have a negative effect in case the price becomes too low to be accepted by the supplier.

### 4.4 Incentives

Expected relation 4: Incentives based on good performance will stimulate a better operational performance in production outsourcing.

Incentives are widely used in the production outsourcing cases at the Case-company. The supplier was highly motivated and worked on improving even more. The incentive can be in the form of a bonus or a yield agreement in case of a good performance. It works better than a penalty.

Thus, the incentives work well in production outsourcing cases at the Case-company. It stimulates the supplier to improve its performance.

### 4.5 Room for freedom

Expected relation 5: The room for freedom in the contract will open up renegotiation possibilities in case of unforeseeable circumstance and result in an improved operational performance of the supplier.

When the penalty clause is not able to cover all the risks, it is an interesting idea to use “room for freedom” to increase flexibility. To leave some aspects open in the contract and work on an ad hoc basis can work well only when one has enough negotiating power. It is also important to know upfront whether the supplier is willing to cooperate and flexible.
enough to react. If the negotiation power and the supplier’s willingness and flexibilities are there, ad hoc control can work even better than a detailed predefined contract. Either way, it is good for both parties to write down expectations in the contract. An open and good communication with the supplier is important.

Thus: at the Case-company, the “room for freedom” does increase flexibility in certain cases. The constraint here is that the buyer should have enough negotiating power and the supplier should have the willingness and flexibility to cope with this.

4.6 The integration level

Expected relation 6: The increase of the integration level of control by owning asset or production capacity can improve the operational performance.

From the case-study, it shows that being the asset owner can help improve delivery performance. But one should at the same time take other aspects into account, like how the costs are being calculated, especially when the asset is used for other customers too. There should be a well defined agreement covering all aspects, like yield, quality and work efficiency; otherwise the supplier would have no interest in their operational improvements, because the cost of the machinery is paid by the buyer.

Thus: to increase integration level by being the asset owner can help to improve supplier’s delivery performance at the Case-company. But the buyer should take into account the aspects like cost calculation, yield and quality, and ensure a clear agreement with the supplier.

4.7 The transaction size

Expected relation 7: The transaction size will modulate the relation of the contractual control and the operational performance.

Not only the buyer’s transaction size, but also the percentage of business at the supplier’s side is important. As was mentioned in the interview, when the supplier was gaining more market share with other customers, the business with the Case-company became less important.

In general, the more business, the more priority one will get from the supplier. The supplier will spend more effort to meet the expectations of their important customers. The influence of the transaction size on the supplier’s operational performance is therefore positive.

When the transaction size is low, one needs to pay more attention in the contract to safeguard pricing and delivery.

At the Case-company the transaction size is assessed and taken into account in the contract.

Thus: at the Case-company, when the transaction size is low, it asks for more effort to achieve a good supplier’s performance than when the transaction size is high. The transaction size is being considered an important input during the contract design.
4.8 **The buyer’s exposure and transaction complexity**

Expected relation 8: The buyer’s exposure and transaction complexity will modulate the relation of the contractual control and the operational performance.

When the process complexity and business exposure both are high, the buyer is highly dependent of the supplier. The buyer will be in a bad position to negotiate as mentioned in the multi-product module at the Case-company. The buyer probably has to pay a higher price to achieve a good and reliable performance from the supplier.

It is also important to investigate the supplier’s dependency from the buyer. If the supplier’s dependency is high as well, this could pave the way towards a strategic partnership.

At the Case-company the buyer’s exposure and transaction complexity are assessed and the remedies to minimize the risks are being integrated in the contract.

Thus: at the Case-company, high buyer’s exposure and transaction complexity will result in a bad negotiation position for the buyer. It is being considered an important input during the contract design.

4.9 **Culture**

Expected relation 9: The cultural background of the supplier will modulate the relation of the contractual control and the operational performance.

People in different cultures will act differently. Culture absolutely has an influence on the operational performance. The culture depends on the geographic positions, different countries, education and different companies. It is also rapidly changing due to the globalization of the economy.

The way of working will be very different in different cultures, and so the contractual control differs too. How firm is an agreement and will the supplier feel responsible and committed to the business? In the case-study, the supplier in the Philippines possesses the “Mediterranean” culture. It doesn’t feel strong responsibility and commitment towards its customers. In such a case, it is very important to specify as much as possible in the contract. Suppliers in China and Taiwan however feel highly responsible for their customers. Things can be arranged, which were not even specified in the contract. In such a case, the contract can be less detailed.

Thus: at the Case-company, the cultural background of the supplier has an impact on the operational performance, especially where customer commitment is concerned. It is therefore taken into account during contract design as well.

4.10 **The inter-firm relationship**

Expected relation 10: The contractual control will influence the inter-firm relationship, which in turn will modulate its relation with the operational performance.
According to the interview participant of the Case-company, a detailed contract is preferred because it indicates expectations from both sides. It specifies what the important factors are and what the targets are. “It is better to be transparent about what is important and about what you expect from each other; than to leave this open, and be unpleasantly surprised at a later stage.”

In the Case-company there is no single case of outsourcing where a well defined contract has a negative influence on the inter-firm relationship. A clearly specified contract is good for a better understanding of each other’s importance and problems. That will help both parties to create awareness and willingness to make it work together.

Thus: at the Case-company no negative impact from a detailed contract is observed. A well defined detailed contract is being seen as a good foundation for a successful inter-firm cooperation.

5 Conclusions and recommendations

In this case-study, the expected relations of the contract dynamic elements and inter-firm cooperation conditions were examined at the Case-company. Therefore all conclusions are limited to the Case-company only. The research questions can be answered as follows:

5.1 Contract dynamic elements and their impacts

Sub-question 1: What are the contract dynamic elements? What are their impacts to the supplier’s operational performance?

The answer to this question is related to the expected relations 1 thru 6:

1. Quantity flexible contract
   At the Case-company, the quantity flexible contract has secured demand in the upturn. The impact on the operational performance is therefore a positive one. Due to the fact that the Quantity flexible contract requires high commitment from both parties, it is not suitable in all cases.

2. Regular business review
   The regular business review is considered as an important tool for formal control at production outsourcing. It is widely used at the Case-company. Its various advantages show that it has a positive impact on the supplier’s operational performance.

3. Price roadmap
   The price negotiation is a short term action to create business and has no influence on the supplier operational performance. The price roadmap can result in a better supplier operational performance when it is well-founded. A joint effort from both parties might be necessary. When the price in the roadmap is too low to be accepted, it will have a negative impact. Thus, the price roadmap can have an either positive or negative impact on the supplier’s operational performance.

4. Incentive
At the Case-company the incentive is widely accepted as a stimulation for the supplier to enhance performance. Therefore, incentive has a positive impact on the supplier’s operational performance.

5. Room for freedom
At the Case-company the room for freedom can open up possibilities for ad hoc control. But it will only work when the company has negotiation power and the supplier is flexible and willing to cope with this. Therefore, under certain conditions the room for freedom can have a positive impact.

6. Integration level
At the Case-company, increasing the integration level by being the asset owner can increase the supplier’s performance. However, the buyer should set up a clear agreement with the supplier on cost calculation, yield and quality to ensure a good performance ex post. Therefore, the integration level can have a positive impact considering certain conditions.

The above mentioned six contract dynamic elements and their impact on the supplier’s performance at the Case-company are summaries in Table 3.

<table>
<thead>
<tr>
<th>Contract dynamic elements</th>
<th>Impact on supplier’s performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity flexible contracts</td>
<td>Can be positive</td>
</tr>
<tr>
<td>Regular business review</td>
<td>Positive</td>
</tr>
<tr>
<td>Price roadmap</td>
<td>Positive or Negative (if the price is too low to be accepted)</td>
</tr>
<tr>
<td>Incentives</td>
<td>Positive</td>
</tr>
<tr>
<td>Room for freedom</td>
<td>Can be positive</td>
</tr>
<tr>
<td>Integration level</td>
<td>Can be positive</td>
</tr>
</tbody>
</table>

Table 3 Dynamic elements and their impact on supplier’s performance

5.2 Inter-firm cooperation conditions and their impacts
Sub-question 2: What are the inter-firm cooperation conditions? What are their influences on the relation between contract dynamic elements and supplier’s operational performance?

The answer to this question is related to the expected relations 7 thru 9. All three conditions have their influence on the supplier’s performance. It is important to have a good understanding of these conditions for both buyer and supplier and take these into account during the contract design.

7. Transaction size
Based on the case-study, the transaction size can have either a positive (in case of a high transaction size) as well as a negative effect (when the transaction size is low) on the operational performance.

Therefore, it is preferable to concentrate the production at one supplier only. It is recommendable to design the new products in such a way that they can be produced by the preferred supplier.
When the transaction size is relatively small, one should pay more attention to formal contractual control.

8. Buyer’s exposure and transaction complexity

Based on the case-study, when the buyer’s exposure and transaction complexity are high, the buyer will be in a bad position to negotiate. It will be more difficult to obtain the desired performance from the supplier. Thus the Buyer’s exposure and transaction complexity have a negative effect on the operational performance.

It therefore is risky, especially in combination with a low transaction size. Preferably this situation should be avoided by for example designing the new product using a “main stream” process. If not possible, one should look into possible alternatives, for example a second supplier or work closely together with the supplier to mitigate risk. In the latter case, a well defined contract is necessary and optimal relations are of key importance.

The transaction size and buyer’s exposure and transaction complexity require an opposite approach. When a firm transfers its production to a single source, it becomes more important to the supplier. But at the same time, it becomes more dependent from the supplier. It can be risky when an incident happens or a natural disaster strikes the supplier. One should, together with the supplier, work out a contingency plan. Apart from arranging and maintaining a good second source supplier, keeping a safety stock can be one of the alternatives.

9. Culture

Based on the case-study, the cultural background, customer commitment in particular, influences the operational performance.

To understand cultural differences is very important for establishing a successful cooperation. For the less “customer committed” cultures, a detailed contract and close formal control will be necessary.

In section 5.4, contract dynamic elements will be discussed in different combinations of these conditions. Some of the contract dynamic elements are more effective under certain inter-firm cooperation conditions.

5.3 Impact of a detail specified contract on the inter-firm relationship

Sub-question 4: Will a detail specified contract have a negative effect on the inter-firm relationship, which in turn hampers the supplier’s performance?

The answer to this question is related to expected relation 10:

The case-study shows that a detail specified contract will not have any negative impact on the inter-firm relationship. On the contrary, it is a good foundation for long lasting cooperation. To specify and share the critical aspects and expectations will help the suppliers to understand what is important for the firm and will make them focus on continuous improvement in these areas.
How generic is this stimulative effect of contractual control and cooperation relationship in production outsourcing? Further research in other firms, in different sectors and different geographic areas is needed.

5.4 **Optimal set of contract dynamic elements for production outsourcing**

Sub-question 5: Is there an optimal set of contract dynamic elements for production outsourcing?

As with the answers for sub-question one and two, some of the contract dynamic elements will have positive or negative influences in all inter-firm cooperation conditions, while some of the contract dynamic elements will have positive influences under certain inter-firm cooperation conditions.

5.4.1 **Elements applicable to all cases**

The elements of regular business review, the price roadmap and the use of incentives by the Case-company show to have a positive effect on the supplier’s performance. These elements are recommended to be included in the contract. However, the following aspects should be taken into account:

The business review can be a good tool for supplier’s continuous improvement. Key performance indicators, benchmarking and issues in the supply chain should be discussed. It will bring awareness to the supplier’s higher management. However, they should be organized at the right level, to make sure that issues are properly prioritized and addressed and improvement actions are followed up.

The price negotiation is a short term instrument. It should be coping with the price roadmap to achieve process improvement. It is important to work together and go for a win-win situation, so that the supplier is motivated to work on this improvement. The targeted pricing should be challenging, but achievable through improvement actions. One should be aware that when the pricing is too low for the supplier to live with, the cooperation won’t last.

The positive incentive stimulates the improvement of operational performance. The negative penalty works, but not in a motivational way. It is better to use incentives than penalties in the contract agreement.

5.4.2 **Elements applicable under certain inter-firm conditions**

The Quantity Flexible Contract, room for freedom and integration level can have a positive influence under certain conditions. At the Case-company these contract dynamic elements are not commonly used, but they can be useful under certain conditions.

In the most ideal situation, when the business at the supplier is high (meaning the company is a big customer for the supplier) and the dependency is low (meaning there are many other suppliers available), the company will have high negotiation power. The company can minimize the risk of unpredictable factors, like rapid market changes, by leaving these aspects open for ad hoc control. “Room for freedom” could be a good choice. However, the buyer should be sure that the supplier is open and flexible enough to support this.
When both the business and the dependency are high, the company should take measures to reduce supply risks by introducing a second supplier and increasing the integration level (be the asset owner). The buyer should pay more attention to other aspects besides delivery reliability, like quality, work efficiency and yield. That is because the supplier in this case is less interested in its process improvement. It is also recommended to understand the cost model of the supplier when the machinery is shared with other customers.

If the business is low while the dependency is high, this creates the most difficult situation. The buyer’s negotiation position will be weak. The quantity flexible contract might be the best solution. But it certainly asks for a high level of commitment from both parties. The quantity flexible contract would be easier to be accepted when both parties have high expectations for future business. Other ways to ensure the supply are: to push out the orders and pull in later as much as possible and to arrange safety stock on critical material. Also escalation through top-management is often used for real urgent demands.

In the light of the discussion above, there will be an optimal set for each inter-firm cooperation conditions. The optimal sets are summarized as follows:

<table>
<thead>
<tr>
<th>Inter-firm cooperation conditions</th>
<th>Optimal set of contract dynamic elements</th>
</tr>
</thead>
</table>
| Transaction size: Low            | • Regular business review  
Buyer’s exposure and transaction complexity: Low | • Price roadmap  
• Incentives |
| Transaction size: Low            | • Regular business review  
Buyer’s exposure and transaction complexity: High | • Price roadmap  
• Incentives  
• Quantity flexible contract |
| Transaction size: High           | • Regular business review  
Buyer’s exposure and transaction complexity: Low | • Price roadmap  
• Incentives  
• Room for freedom (leave aspects open in contract for ad hoc control) |
| Transaction size: High           | • Regular business review  
Buyer’s exposure and transaction complexity: High | • Price roadmap  
• Incentives  
• Increase integration level (be the asset owner) |

When the supplier culture is less customer committed, the contract should be more detail specified.

The inter-firm cooperation conditions: transaction size, buyer’s exposure and transaction complexity and culture should be, according to the case-study, taken into account during the contract design. It implicates that these conditions are acting more as input for the contract design, rather than modulating variables. Therefore the conceptual model needs to be modified. The new conceptual model:
The inter-firm cooperation conditions are moved to the front as input of the contract dynamic elements selection. There relations towards the contract dynamic elements are marked as “+/−” because they can be favorable or non favorable for the supplier’s operational performance.

The contract dynamic elements are marked according to their positive (+) or negative (-) relations to the operational performance.

Because some of the elements are effective only under certain conditions and others are generally applicable, the contract elements can be presented in an inter-firm cooperation condition matrix (Figure 7).
The three conditions form three axes: transaction size, buyer’s exposure and transaction complexity and culture. The culture axis represents supplier’s customer commitment. The general applicable contract dynamic elements: business review, price roadmap and incentives, are kept in the center of the matrix. The other contract dynamic elements: room for freedom, increase of integration level and the quantity flexible contract, are positioned at the condition which is most applicable. When the supplier’s commitment is high, the contract can be less detail specified; when the commitment is low, a detail specified contract is recommended.

This model is solely based on the investigated Case-company. It still needs to be tested in different cases. Assuming the model is proven to be valid and reliable, it could be used during contract design. An assessment on inter-firm cooperation conditions needs to be done upfront to find out in which quadrant of the cube the cooperation is positioned. The relevant dynamic elements can then be incorporated in the contract.
6 Discussions

6.1 Product reflection

Literature review showed that little research is done on the relation between contractual control and operational performance. Much research is done in service outsourcing, e.g. IT and human resources, but little in production outsourcing. Furthermore, there is much research performed on the impact of a distinct contract element, but there is no clear integral picture of all elements which could have impact on the supplier’s performance.

This paper made an attempt to extend the current knowledge of the impact of the contract dynamic elements on the operational performance at production outsourcing:

Which contract dynamic elements have the most impact on the supplier’s operational performance at production outsourcing in the high tech sector? What are the inter-firm cooperation conditions and constraints?

The key conclusions of the case-study are:

1. A detail specified contract won’t harm the inter-firm relationship. On the contrary, it forms the foundation for a good cooperation.
2. The inter-firm cooperation conditions (transaction size, buyer’s exposure, transaction complexity and culture) play a more important role than the modulating variables. Based on the results found at the Case-company, they should be considered as the starting conditions for a contract design.
3. There is an optimal set of contract dynamic elements to ensure a good supplier’s performance in a dynamic market. This could be of interest to the production outsourcing practices.

The limitations of this study are:

1. Size of the sample: the case-study is done at one firm only.
2. Selection of the interview participants: although they were carefully chosen from different departments, still other participants could have a different point of view. Besides, all the interview participants are located in the Netherlands.
3. Restricted to one industrial sector.
4. The Case-company as well as its production outsourcing suppliers all have a more than ten years’ history. The factor of the level of maturity of the suppliers was not taken into account in the study.
5. The literature study as well as the case-study is to be considered a snapshot only.

Is the model correct for other companies? In other industries? At other locations? Will a newly founded supplier act differently compared to a very experienced one?

It is therefore recommended to further investigate if the model is correct in other cases and if it can be generalized. Both success and failure cases will be worth to look into.
6.2 Process reflection

The starting point of this study is literature review. The contract elements and inter-firm cooperation conditions were obtained from this. The expected relations and conceptual model were further tested at the Case-company. Based on the results of the empirical study at the Case-company, the research questions were answered and recommendations were made for further study.

The Case-company was chosen because of its long history of production outsourcing and its extensive, world-wide supplier base. However, during the research period, reorganization took place at the Case-company. Part of the activities in the Netherlands was planned to be relocated to other countries in a year’s time. Most of the interview participants were planned to leave their current positions. Time was very limited to complete the empirical study before participants’ moving. The same is true for graduation. The years of working experience at the Case-company have helped to quickly set up and finish all interviews in time. But, when looking back, the empirical research strategy was not very well thought through because of the foreknowledge and limited time.

For further study, a more extensive preparation is needed setting up the empirical research strategy.

Some of the lessons learned by this study:

- There are local offices of the supply chain and engineering group located at the suppliers’ sites. Although they report to the Operation manager in Europe, they could very well have a different view. It was the intention to interview a representative from the local office, but this did not take place. It is recommended for future study to select participants from different departments as well as from different locations.

- The empirical study was focused on the themes of the expected relations from literature. During the contract review (secondary data collection), it was not checked if there are other dynamic elements stated in the contract. Also during the interview (primary data collection), the “new elements” were not explicitly asked about.

- The industry is changing continuously. It creates new situations for production outsourcing: for example, many acquisitions nowadays take place due to market consolidation. Which contract element can accommodate for changes like that?

- Nonetheless it is recommended to add “new elements” in the future study.

- Finally, in order to be able to generalize the model, more outsourcing cases should be investigated. A quantitative research might be a good approach.
7 Literature references


8 Appendix

8.1 The overview of definitions

<table>
<thead>
<tr>
<th>Terms</th>
<th>Definition in this report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract</td>
<td>A contract is an official written agreement. It is liable for all the parties involved.</td>
</tr>
<tr>
<td>Contract dynamic element</td>
<td>Contract dynamic element is contract element, which defines changes in control, to allow control adjustment to cope with possibly new situations of market dynamics to ensure continuity and improvement.</td>
</tr>
<tr>
<td>Detail specified contract</td>
<td>A contract with all the contingencies, processes and methods for contract dynamic elements pre-specified.</td>
</tr>
<tr>
<td>Inter-firm cooperation conditions</td>
<td>Inter-firm cooperation conditions are the given factors, like transaction size, transaction complexity and culture, which are there and hard to be changed.</td>
</tr>
<tr>
<td>Operational performance</td>
<td>The operational performances are referred to as the supplier’s operational performances, like delivery performance, quality and process efficiency.</td>
</tr>
</tbody>
</table>

Table 4 Overview of definitions
### 8.2 The overview of the dynamic elements and existing relations in the literature

<table>
<thead>
<tr>
<th>Chosen variables</th>
<th>Variable- references in the literature</th>
<th>Impact of the variables stated in the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incentives</td>
<td>Hart (1988): control power of the asset owner</td>
<td>Hart (1988): the asset owner has the power of control. Non-integration is typically inefficient.</td>
</tr>
<tr>
<td>Room for freedom</td>
<td>Amaral (2004): procurement models</td>
<td>Amaral (2004): planning execution and management risks can be mitigated by increasing the integration level.</td>
</tr>
<tr>
<td>Integration level</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Chosen variables

<table>
<thead>
<tr>
<th>Modulating variables</th>
<th>Chosen variables</th>
<th>Variable- references in the literature</th>
<th>Impact of the variables stated in the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-firm cooperation conditions:</td>
<td>• Transaction size</td>
<td>Anderson (2005): transaction and supplier characteristics</td>
<td>Anderson (2005): a good alignment of transaction and supplier characteristics and control structure produces fewer and less severe problems than misalignment.</td>
</tr>
<tr>
<td></td>
<td>• Buyer’s exposure and transaction complexity</td>
<td>Samaddar (2006): Korean versus western culture</td>
<td>Samaddar (2006): it is observed that outsourcing success is achieved by maximizing reliability and relationship in the Korean context rather than by maximizing flexibility and control, as was observed in the Western context.</td>
</tr>
<tr>
<td></td>
<td>• Culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter-firm relationship</td>
<td>Vosselman (2009): three realms</td>
<td>Goo (2008, 2009): the contract and relational governance are complementary and can be replaced by each other → suggests an inhibitive effect.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poppo (2002): increase of contractual complexity will increase the level of relational governance. → suggests a simulative effect.</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 Variables in literature
### 8.3 Expected relations

<table>
<thead>
<tr>
<th>Expected relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 Quantity flexible contract can improve the delivery performance in market fluctuation.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
</tr>
<tr>
<td><em>Quantity flexible contract</em> is a contract where the buyer commits to order a minimum percentage of the forecasted demand; while in the meantime, the supplier commits to deliver a certain percentage of (in most cases above) the forecasted demand when the orders are there.</td>
</tr>
<tr>
<td><em>Delivery performance</em> is the amount of in-time delivery from the supplier with respect to the amount of actual order. In an ideal situation, this figure is 100%. In reality it is sometime hard to achieve, especially when the actual order deviates too much from the forecast due to market fluctuation.</td>
</tr>
<tr>
<td>R2 Regular business reviews will improve the operational performance.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
</tr>
<tr>
<td><em>Business review</em> is a formal meeting with outsourcing suppliers. The supplier’s performance review, business outlook, issue resolution, renegotiation are often on the agenda.</td>
</tr>
<tr>
<td><em>Operational performance</em> here is referred to the supplier’s operational performances, like delivery performance, quality and process efficiency.</td>
</tr>
<tr>
<td>R3 Price renegotiation can improve the efficiency of the operational performance, but when the price is lower than the suppliers’ satisfaction level, it could work counterproductive.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
</tr>
<tr>
<td><em>Price renegotiation</em> takes place in the course of outsourcing cooperation; it can either be regular renegotiation (e.g. yearly) or ad hoc under a certain circumstance (e.g. market downturn).</td>
</tr>
<tr>
<td>R4 Incentives based on good performance will stimulate a better operational performance in production outsourcing.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
</tr>
<tr>
<td><em>Incentive</em> is the award the supplier will receive for its good performance.</td>
</tr>
<tr>
<td>R5 The room for freedom in the contract will open up renegotiation possibilities in case of unforeseeable circumstance and result in an improved operational performance of the supplier.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
</tr>
<tr>
<td><em>Room for freedom</em> here refers to parts in a contract which are left open on purpose, in order to cope with uncertainty and related forms of unforeseeable opportunism.</td>
</tr>
<tr>
<td>R6 The increase of the integration level of control by owning asset or production capacity can improve the operational performance.</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
</tr>
</tbody>
</table>
Integration level here refers to taking over part of the supplier’s production control by owning part of supplier’s equipment or production capacity.

R7 The transaction size will modulate the relation of the contractual control and the operational performance.

**Definition:**
Transaction size here means the amount of business which is outsourced to a supplier.

R8 The buyer’s exposure and transaction complexity will modulate the relation of the contractual control and the operational performance.

**Definition:**
Buyer’s exposure is the potential buyer’s business damage when the supplier fails to meet the agreed operational performance, e.g. not able to deliver in time, bad quality. Normally the damage exceeds the purchase price of the products.
Transaction complexity in this study means the complexity of the production process. Generally when the production process is complex, there are fewer suppliers available.

R9 The cultural background of the supplier will modulate the relation of the contractual control and the operational performance.

**Definition:**
According to Cambridge dictionary, culture is the way of life, especially the general customs and beliefs, of a particular group of people at a particular time. As the study is focused on the contractual control, the culture here is limited to the level of commitment of a business partner.

R10 The contractual control will influence the inter-firm relationship, which in turn will modulate its relation with the operational performance.

**Definition:**
Here only the portion of the relationship, which is directly influenced by the dynamic of contractual control, is considered.
It is to exam if a detailed contract will have negative side-effects on inter-firm relations, in a way where the supplier would be de-motivated for improvement.

**Table 6 Expected relation list**
### 8.4 Data collection plan

<table>
<thead>
<tr>
<th>Expected relations</th>
<th>Information needed</th>
<th>Resources needed</th>
<th>Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Quantity flexible contract (QFC) can improve the delivery performance.</td>
<td>1) Which outsourcing cases are QFC relevant? How was the delivery performance there? Was the because of QFC? 2) Is QFC a good instrument to ensure a reliable delivery, especially when actual demand deviates from the forecast? 3) What are the advantages and disadvantages of QFC? 4) What are the conditions and constraints?</td>
<td>1) Contract and memos 2) Interview Ope, SCM, Eng, Pro</td>
</tr>
<tr>
<td>R2</td>
<td>Regular business reviews will improve the operational performance.</td>
<td>1) For which supplier do we have a business review? 2) What are the topics in the agenda during the review? 3) Does it help to address and solve the problems and thereby improve the supplier’s performance? 4) What are the conditions and constraints?</td>
<td>1) Contract and memos 2) Interview Ope, SCM, Eng, Pro</td>
</tr>
<tr>
<td>R3</td>
<td>Price renegotiation can improve the efficiency of the operational performance, but when the price is lower than the suppliers’ satisfaction level, it could work counterproductive.</td>
<td>1) For which supplier do we use price renegotiation? 2) Is that a good instrument to drive cost-down, quality and efficiency improvements at supplier? 3) What are the advantages and disadvantages of price renegotiation? 4) What are the conditions and constraints?</td>
<td>1) Contract and memos 2) Interview Ope, SCM, Eng, Pro</td>
</tr>
<tr>
<td>Expected relations</td>
<td>Information needed</td>
<td>Resources needed</td>
<td>Planning</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>R4</td>
<td>Incentives based on good performance will stimulate a better operational performance in production outsourcing.</td>
<td>1) Contract and memos&lt;br&gt;2) Interview Ope, SCM, Eng, Pro</td>
<td>First review contract and memos, make list of relevant cases. Interview afterwards</td>
</tr>
<tr>
<td></td>
<td>1) Which outsourcing cases are relevant? 2) What are the effects in these cases? 3) What are the advantages and disadvantages?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4) What are the conditions and constraints</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R5</td>
<td>The room for freedom in the contract will make renegotiation in case of unforeseeable circumstances possible and result a more preferable operational performance of the supplier.</td>
<td>1) Contract and memos&lt;br&gt;2) Interview Ope, SCM, Eng, Pro</td>
<td>First review contract and memos, make list of relevant cases. Interview afterwards</td>
</tr>
<tr>
<td></td>
<td>1) Which outsourcing cases are relevant? 2) How are these “open” aspects managed in the course of cooperation? 3) What are the advantages and disadvantages? 4) What are the conditions and constraints?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R6</td>
<td>The increase of the integration level of control by owning asset or production capacity can improve the operational performance.</td>
<td>1) Contract and memos&lt;br&gt;2) Interview Ope, SCM, Eng, Pro</td>
<td>First review contract, memos and BBSC, make list of rated cases (no, partly, completely integrated) Interview afterwards</td>
</tr>
<tr>
<td></td>
<td>1) What’s the integration level for each case? 2) Will the motivation to improve performance increase if a customer owns supplier’s production assets or capacity? 3) Can a customer get higher priority by owning supplier assets? 4) What are the advantages and disadvantages? 5) What are the conditions and constraints?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### The Influence of the Control Dynamics on the Operational Performance

**A Study of Contract Elements of Production Outsourcing in High Tech Sector**

<table>
<thead>
<tr>
<th>Expected relations</th>
<th>Information needed</th>
<th>Resources needed</th>
<th>Planning</th>
</tr>
</thead>
</table>
| R7                 | The transaction size will modulate the relation of the contractual control and the operational performance. | 1) What is the transaction size of each case?  
2) What is the impact on the power to “get things done” at the supplier?  
3) What are the implications when the transaction size is small? What are the measures needed to be taken into account in the contract to secure the desired operational performance? Will the earlier discussed relations (R1-R3) still be valid? | 1) Contract and memos  
2) Interview Ope, SCM, Eng, Pro | First review contract and memos, make rated list based on annual transactions.  
Interview afterwards |
| R8                 | The buyer’s exposure and transaction complexity will modulate the relation of the contractual control and the operational performance. | 1) What is the buyer’s exposure and transaction complexity in each case?  
2) What are the implications when the buyer’s exposure and transaction complexity are both high? What are the measures needed to be taken into account in the contract to secure the desired operational performance? Will the earlier discussed relations (R1-R3) still be valid? | 1) Contract and memos  
2) Interview Ope, SCM, Eng, Pro | First review contract and memos, make rated list.  
Interview afterwards |
| R9                 | The culture of the supplier will modulate the relation of the contractual control and the operational performance. | 1) Is there any culture difference?  
2) What are the influences in contractual control and operational performance? | Interview Ope, SCM, Eng, Pro | Interview |
| R10                | The contractual control will influence the inter-firm relationship, which in turn will modulate its relation with the operational performance. | 1) Will formal control have negative side-effects on the inter-firm relationship?  
2) Will that lead to a negative impact on the supplier’s operational performance? | Interview Ope, SCM, Eng, Pro | First review contract and memos.  
Prepare a few cases based on own experience.  
Interview afterwards. The prepared cases are used as reference only. New cases can be added during the interview. |

**Table 7 Data collection plan**
### 8.5 Summary list of secondary data

<table>
<thead>
<tr>
<th>Location / Culture</th>
<th>Outsourcing supplier A</th>
<th>Outsourcing supplier B</th>
<th>Outsourcing supplier C</th>
<th>Outsourcing supplier D</th>
<th>Outsourcing supplier E</th>
</tr>
</thead>
<tbody>
<tr>
<td>QFC contract</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Regular business review</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Price renegotiation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Incentives</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Room for freedom</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Integration level</td>
<td>Partly integrated</td>
<td>No</td>
<td>No</td>
<td>Highly integrated</td>
<td>No</td>
</tr>
<tr>
<td>Transaction size</td>
<td>High</td>
<td>Was high, recently low</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Buyer’s exposure transaction complexity</td>
<td>Median</td>
<td>Low</td>
<td>Median</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Culture</td>
<td>Median commitment</td>
<td>High commitment</td>
<td>Low commitment</td>
<td>Low commitment</td>
<td>High commitment</td>
</tr>
<tr>
<td>Inter-firm relationship</td>
<td>Good</td>
<td>Was good, recently fair</td>
<td>Poor</td>
<td>Fair</td>
<td>Was good, but didn’t last long</td>
</tr>
</tbody>
</table>

Table 8 Summary of secondary data
8.6 Data collection and analysis flow

![Diagram of data collection and analysis flow]

Figure 8 Data collection and analysis flow

8.7 Interview opening points
The following points from Saunders and Lewis (2007) will be covered at the start of the interview:
1. Thank the participant for granting the interview
2. Outline the purpose of the research and its progress to date.
3. Reiterate the confidentiality and anonymity.
4. Participant can stop the interview or decide not to answer a question if he or she wishes.
5. Inform participants that the data will be used solely for study purposes.
6. The summary of interviews will be shared and evaluated by the participants.
7. Ask for permission for using a voice recorder. Where agreed, it will be used subsequently.

8.8 Interview theme list
1. Quantity flexible contract (QFC) vs. operational performance.
2. Regular business review vs. operational performance.
4. Incentives vs. operational performance.

5. The room for freedom in the contract vs. operational performance.

6. Integration level of control vs. the operational performance.

7. The transaction size vs. contractual control and the operational performance.

8. The buyer’s exposure and transaction complexity vs. contractual control and the operational performance.

9. Culture vs. contractual control and operational performance

10. Inter-firm relationship vs. contractual control and operational performance.

8.9 Interview transcription form

Date:
Participant (function):

<table>
<thead>
<tr>
<th>Theme</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>QFC contract</td>
<td></td>
</tr>
<tr>
<td>Regular business review</td>
<td></td>
</tr>
<tr>
<td>Price renegotiation</td>
<td></td>
</tr>
<tr>
<td>Incentives</td>
<td></td>
</tr>
<tr>
<td>Room for freedom</td>
<td></td>
</tr>
<tr>
<td>Integration level</td>
<td></td>
</tr>
<tr>
<td>Transaction size</td>
<td></td>
</tr>
<tr>
<td>Buyer’s exposure</td>
<td></td>
</tr>
<tr>
<td>transaction complexity</td>
<td></td>
</tr>
<tr>
<td>Inter-firm relationship</td>
<td></td>
</tr>
<tr>
<td>Culture</td>
<td></td>
</tr>
</tbody>
</table>
8.10 Interview summary

8.10.1 The quantity flexible contract (QFC)

Due to a constantly fluctuating market, the actual demand at a certain moment in time can deviate significantly from what has been forecasted. How to ensure a reliable delivery? Will the supplier be able to increase the production capacity to accommodate the extra demand during an upturn? And, on the other hand, can a customer buy less than forecasted when the market suddenly slows down? Is the QFC a good solution to accommodate for this? The interview participants mentioned the following:

“Generally; the bigger the volume, the better the delivery performance will be. Stability in volume will result in a better delivery performance. When the demand is stable and in line with the forecast, it will be easier for the supplier to plan its production and deliver the product in time. If the forecast is inaccurate and demand varies over time, it will harm the supplier’s delivery performance. However, in the current market, it is difficult to forecast accurately. The demand can vary in a rather unpredictable way. The QFC can be one of the solutions.”

“The most advantage of the QFC is expected to be seen during a market upturn, when the factories are running at maximum capacity. The other customers are ordering more as well. So, if we do have a QFC with the supplier, we are certain that more capacity will be allocated to satisfy our extra needs.”

However, when going through the contracts of the company with its outsourcing suppliers, only one such contract could be found. This QFC was signed with an outsourcing supplier in Germany. It consisted of the following agreements: within the first three months of the production lead-time the forecast is fixed. In the forth month the ordered quantity can vary (become either higher or lower) up to a maximum of 25% of the original forecast. In the fifth and the sixth month this percentage becomes 40%. In this way, the company has ensured up to 40% of flexibility in its forecast.

“In fact there was only one contract between us and for two products only. This German supplier was eager to do business with us. The agreement was very formal and precise. The delivery performance turned out to be very reliable. Unfortunately, although the intention of the contract was to start a long-term business relation, the cooperation didn’t last long. It was terminated at the point where this supplier got into financial problems. The items being made there were part of a set of products for the consumer market. This package was expected to become big business. We couldn’t take any risk there. We therefore transferred the production to another supplier.”

So, what are the disadvantages or constraints of a QFC? Why it isn’t implemented at other outsourcing suppliers? What are the alternatives?

“It seems that other outsourcing suppliers prefer different solutions. For example, an outsourcing supplier in Taiwan will shift the extra orders to the succeeding month, with the option to pull in. In this way, the customer’s orders are still fulfilled and this supplier has a 100% certainty in production orders. And we have the advantage of 0% liability in the forecast. So, when in a downturn, we can just stop ordering from this supplier and load our own factory first.”
“Besides the production capacity which will influence the delivery, the production of raw material can be another aspect. We have one supplier for which a specific raw material has a very long order lead-time. When production suddenly has to increase, it is too late for them to order additional raw material. Since the price of this material is not high in comparison to the total production cost, we have asked the supplier to keep a safety stock of the raw material at our cost. We are liable for the raw material stock. It works fine! It is always worthwhile to understand the supplier’s process and seek for the best solution.”

“A serious disadvantage of the QFC shows for both parties. The supplier doesn’t want to firmly commit to the possible extra orders above forecast, because he doesn’t want to take the risk of leaving equipment idle or loose the opportunity to serve other, maybe even more important customers. In fact, most suppliers will accept a forecast which takes up more than 100% of their actual capacity, because they expect that part of the forecast will never materialize. From our side, we don’t want to be liable for (part of) the forecast, because this actually guarantees a minimum amount of orders. We don’t want to take the risk to in a downturn build stock or leave our own production facility under-loaded.”

“The “take or pay” agreement implies a similar approach. It works like this: we either pay for the actual products made, or we compensate for 30-40% of the product’s value when it turns out we don’t need them. We have done this once after the upturn of 1999 / 2000. When in 2001 we needed much less because of the market slowing down, the supplier sent us a big bill to compensate for their overproduction. The claim was justified based on the contract. But we warned them that in case they insisted and proceeded with their claim, we would stop the cooperation. That would surely cost them many opportunities in the future… The claim never materialized. This was the only case; we have never signed any “take or pay” contract from then on. It is not common in our business to sign such an agreement. Because of the huge difference in orders between upturn and downturn, both parties will be hurt. There will never be a winner, but only losers. We can never build a good cooperation based on this.”

What will happen to the really urgent demands which were not forecasted and there is also no QFC?

“These issues will be escalated to board-level to get them fixed. Of-course, solutions like this are only possible a few times a year. It won’t work if these escalations happen too often. Normally, the suppliers will do their best to support you. It is in their interest to maintain a good relation with their customers and sell more.”

8.10.2 The business review

Regular business reviews with outsourcing suppliers are conducted. What are the agenda’s? Are these reviews useful for the suppliers to improve their performance?

“It is important to define some key parameters like yield, order lead-time, CLIP (Confirmed Line Item Performance), etc. It is difficult to include everything in a specification. But by means of key parameters, one can see the improvements in the production process. We use it to gain confidence in the supplier’s process, and they use it to monitor their process and take corrective actions in time.”
“Using KPI’s (Key Performance Indicator) is also a way of working and is directly related to the quality system. Suppliers that are operating in the same branch will have a similar quality system as we do. But suppliers which operate in other branches most likely use a very different system. We have to guarantee the quality system for the whole supply chain as well as for the entire product. That means that all our suppliers should work according to our quality system.”

“That is why we review the KPI’s in the business review. It is also important to review when everything is going well. By being given positive feedback, the supplier will be proud and try his best to do even better. The performance measurement can be done by us (as the customer) and by the supplier himself. Measurement by the supplier is preferred because he will notice problems earlier, and take initiative to correct them in time. When the control is less formal, the business review is even more important. The purpose then is to increase the confidence level concerning continuous in-time delivery, good quality and quantity.”

“Besides the supplier’s own KPI’s, also the KPI’s of other suppliers are shared (with names hidden). Most suppliers are curious about how the competition performs and in which aspect they can improve to be the best in class.”

“In the business review, issues are discussed and improvement actions are defined for the coming months. For example; one of our outsourcing suppliers in China had a single production tool in the process flow, which would be a bottleneck for the production ramping up. The issue was discussed in the business review, and improvement actions were defined. Because of awareness at the highest level, the problem got managed in such a way that impact was minimized.”

The quarterly business review is introduced to all outsourcing suppliers. Due to the changes in the organization in the Case-company, the current business reviews are organized by the central sourcing team.

“The management of our suppliers got centralized in the past years. This central organization has taken over the control from the individual business units. Centralization makes the interest of the company as a whole the highest priority, which is a big advantage. The disadvantage is that the individual business units are losing their direct control and contact with their suppliers. Often we (the business unit) feel that we only provide input, but never get good feedback. There are too many organizational layers between suppliers and us. Issues less critical to the supplier, but which could be critical to us, will not be handled. Many improvement opportunities are not followed up.”

8.10.3 The price roadmap

During the interview, it becomes clear that a distinction should be made between the long term price roadmap and the short term price negotiation. Are suppliers willing to improve their process efficiency to meet the company’s price roadmap? How to motivate the suppliers to do so?

“The supplier is part of our supply chain. To be successful and competitive in the market, we need to cooperate with the supplier to improve the process efficiency. The market price roadmap should be shared with the supplier. In order to reduce the production cost we must investigate many solutions, like design changes, production process changes, test method improvements and more. The design changes and test method improvement should
be done by us, while the supplier can work on production process improvement. It should be a joint effort. A short term price negotiation only will not work. The price roadmap efforts are part of a long term process. A generic product price can be annually negotiated. For a high volume product, we come up with a roadmap with an expected production volume and an estimated cost price for a three year term. This gives the supplier time to work on opportunities to meet those requirements. As mentioned before it is a joint effort. In many cases we help the supplier to improve yield by redesigning the product to be more robust in their process. We work together to meet the defined price roadmap.”

“The supplier needs to be profitable just like us. If we both can gain a proper margin and be satisfied, then we have established a healthy situation. The relationship won’t last when we as the customer have a good margin while the supplier has to deliver against cost price. It may work in a market downturn, but it is not sustainable. We will at some point lose that supplier. Let’s take our supplier in Singapore as an example; we negotiated a 30% price reduction 3 years ago. We were paying less than their other customers. Since the beginning of this year this supplier’s production facility is running full capacity to satisfy demand. Now they want to stop doing business with us in 2011. It still is possible for us to do business with them, but we’ll have to start paying a much higher price.”

“Price negotiation can be an instrument for the short term. During a market upturn, we often pay more just to get more products out. And during a downturn, we can discuss with our supplier how to lower the margin to gain extra selling opportunity. So that we both can cover the cost, and win extra sales.”

8.10.4 Incentives

The incentives are used in combination with the standard pricing at the Case-company. When the supplier’s performance is exceeding a certain target, the supplier gets rewarded. When the supplier’s performance is lower than the target, the supplier gets a penalty. During the interview, the participants mentioned the following:

“We had agreed upon both a minimum and a bonus yield with one of our outsourcing suppliers in China. So when the yield turns out to be higher than the planned yield, there will be a bonus. It worked great! It cost us relatively little, but the supplier was highly motivated by this and worked on improving even more. The bonus they received was used for a celebration party. It was great to see the huge yield improvement after we had introduced this.”

“With one of our outsourcing suppliers in the Philippines we had no incentive agreement at all. We simply paid the cost, also the cost of the failures. The operational performance was only monitored by KPI’s where theirs were much worse than those of their peers. The poor performance was mainly due to the fact that manufacturing and development were separated. Manufacturing got insufficient support from their development team. This supplier lacked the financial stimulation to improve their performance. When we pointed out that their KPI’s were worse than that of their peers, they kept on arguing that this was caused by the lack of development’s support.”

“The yield agreement can be seen as some sort of incentive. We set a yield agreement with the suppliers. It stimulates the improvements. When the actual yield is better than the agreement, the supplier gets more money for his products. We normally propose a yield agreement in such a way that the extra yield above the target in the first year is a 100%
benefit for the supplier, in the second year 50% and in the third year it becomes a 100% benefit for us as the customer. This arrangement stimulates continuous improvement. It is often seen as a bonus for a good performance.”

“An incentive works better than a penalty. With one supplier we had an artificial 105% yield agreement. The reason was that the supplier didn’t want to agree on a low generic product price. They were afraid that it would cause prices for other products in the similar production process to drop. With this artificial high yield agreement, they would still be able to offer a good price for a certain product. However, in this particular case, the supplier also worked hard to close the yield gap as much as possible, but they had to pay us a reimbursement every single time. It worked, but it was not contributing to a positive atmosphere.”

8.10.5 Room for freedom

It often happens that some parts of the contract are left open on purpose. Those open parts are left to be arranged by “good will” and “best effort” for both parties during the course of the cooperation. How does it work? Are there any risks? What are the precautions?

“We had an outsourcing supplier in China. This supplier was very open to us, because we had a long history of cooperation. In case of issues, we sent product experts to the supplier to solve their problems. During the power-dip incident in 2007, many products had to be scrapped. For this supplier it caused a huge delivery issue. The recovery of the backlog required an enormous amount of work and coordination. All important customers were invited for one big discussion session. That was quite unique, as normally the supplier would approach his customers individually. This approach had a positive effect to solving the problem. We hadn’t chosen for putting a delivery shortage penalty in the clause, because:

1. It is difficult to foresee all potential problems.
2. The supplier will try his best to show that the cause of the problem is an external one, thus out of his control.
3. The damage to our business is much bigger than the cost of their not delivered products; the penalty will not compensate for the damage we experience. Therefore we can better work together to solve the problems.”

“The ad hoc control can be seen at higher levels as well. It has become standard practice that we as the customer sometimes are at the supplier’s site to get maximum involvement. During the integration of our two business units, there was a product shortage at our outsourcing supplier in Taiwan. This supplier did accept our visit to discuss how to solve the problem. We only were in contact with the commercial department. The way of working was quite different. The production department never gets exposed to the customer. Although the discussion took place at a high level and details from the production floor were not shared with us, it was found useful. The supplier helped us to fulfill the demand of our most important customers.”

“Because many of our products are customer specific or even application-model specific, it is difficult to give an accurate forecast per product. To work with a non-binding forecast for actual demand is favorable to us. What is important here is the sharing of information with each other. This should be carefully managed, so that the other party can make its decisions based on the received information. We communicate to the suppliers about the market development and trends and the suppliers share with us their information about capacity allocation. It requires good quality information and should explain where it is based upon. If we simply demand from a supplier to meet their agreed capacity planning during an
upturn, they will probably come back to us and say that we should meet our demand planning during a downturn. We should understand each other.”

“We need to be sure that the outsourcing supplier will open their doors for ad hoc control and be flexible in their operation and supply chain. We had an outsourcing supplier in the Philippines that was difficult to access. Besides, their supply chain was inflexible. They work with big batch runs and do not have much room for adjustment. Because of the long lead-time, we had to place our orders based on forecast, and if we realized within the lead-time that we needed only half of the estimated amount, the supplier would still produce the original forecasted amount and put the not needed products in stock. They could not cope with the dynamics of our market.”

Furthermore, it is important to be sure that the negotiation power is there for ad hoc control. The situation can change over time. “We had a long cooperation history with an outsourcing supplier in Taiwan. At the beginning of the cooperation, this supplier was relatively small and dependent on us. We could put much pressure on them during negotiations. In an upturn, we often asked them to fulfill our extra demand at the cost of their other customers. They did this because we were their biggest customer. Now the situation is quite the opposite; we are relatively small and not even in the top 25 of their customers anymore. It is not difficult for them to give priority to the other customers. They even pointed out that our business is not important to them. This goes to show that with aspects left open, one maybe can get more things done than by contractual agreements, but only as long as you have negotiating power.”

“The open aspects can work in a negative direction. Because it is not stated in the contract, the supplier can behave not according to ones expectation. For example, we have a long history of cooperation with one supplier. In the past, we were a very important customer, we used up 60% of their production capacity and they were quite dependent on us. We always got what we asked for. We more or less got used to this situation and therefore we left many things open in the contract. The supplier had served us well for quite a long time, even at the time where they had other and bigger customers than us. But since the moment we sold our share in this supplier, we became less and less important. We noticed that we could not get everything we asked for as before. It is important to understand each other’s position and have the right expectations. If we are important enough to a supplier, it will be a big advantage to not fix the conditions in the contract, and get maximum flexibility without taking any risks, since the supplier will do it’s best to meet our requirements. But in any case, it is always good to write down in the contract what we expect from each other about quantity, quality, capacity etc. Because, things that are not part of the contract can work against us.”

8.10.6 The integration level

There are several cases in which the Case-company partially owned production capacity at the outsourcing supplier side. How does it work?

“We owned the key equipment as consignment at one of our suppliers in China. We therefore could decide how the equipment had to be allocated. This way we could ensure the availability of capacity we need. In another case a piece of equipment was specific to our process. Here the supplier asked us to co-invest.”
“We work with the integration model at a supplier in the Philippines. We are the owner of part of their equipment. We pay for this equipment’s depreciation cost in any case. Considering the performance, it looks like this business model is less favorable. Because for this supplier there is no big drive to improve yield and quality. In the aspect of cost, it is difficult to judge since it is not transparent to us and hence difficult to control. Another problem here is that we can not own the complete production line since the same equipment is used for other customers as well. The loading conditions for other customers are confidential to us. It is difficult to know how the depreciation cost is distributed, especially during the time when our demand is low. Is our equipment idle or is it used for other customers? We are therefore not sure if we pay too much or not.”

“The big disadvantage is that we have to pay a relatively high price per product when the demand is low. It is in favor of the supplier, because the depreciation cost will be covered by us.”

“Owning capacity at a supplier site can improve the supply reliability, but not necessarily improve the operational performance. We had reserved test equipment at one of our suppliers. But later it appeared to be insufficient. The reason was the low working efficiency there. The equipment was completely switched off simply to replace just one test-pin. Shortly after this incident other pins turned out to be worn and the equipment had to be switched off again! The reason for this; the supplier is focusing only on the cost of the consumable parts, because the cost of the downtime is paid by the customer….”

8.10.7 The inter-firm relationship
All participants feel the inter-firm relationship is important and should be as carefully managed as the formal contract. Does a detailed formal contract harm this inter-firm relationship and maybe hamper the possible performance improvements?

“The relation depends on how we do business together. Sometimes the interpersonal relation between the top managers plays a big role. The contract absolutely has an impact on this relation. In the case of a very important contract, I would choose to specify as much as possible in that contract. That is a lot of work, because it needs to specify many different cases. And it is very difficult too because it is nearly impossible to foresee what will happen in the future. The environment needs to be predictable, because what is specified in the contract will still have to be valid a few years down the road. To my opinion, specifying as much as possible in the contract and measuring the supplier’s performance both have a positive influence on the relation. It is better to be transparent about what is important and what you expect from each other; than to leave this open, and get surprised at a later stage. It is not only to specify what we want to measure, but also to make clear what we expect of the measurement results. For example, if in-time-delivery is important to us, we should ask the supplier to measure the delivery performance and we should communicate to them what we expect as a target. It then automatically will get extra attention from the supplier. That helps to guarantee a reliable delivery. I think that in most cases formal control has a positive impact on the relation. Naturally, the way in which we specify and the way in which we organize the control will also be important factors. In a good relationship, the supplier will in turn also measure the customer’s performance and will check his forecast accuracy and his payment reliability. It is important to know what is important for the other party. If we complain to our supplier about his unreliable delivery, we would probably get complaints from them about our forecast being inaccurate. It is important that we are both aware of each others problems and possibilities and make it work.”
8.10.8 The transaction size

The amount of business to be done with a supplier is a given fact. It needs to be taken into account. How will it influence the suppliers’ behavior?

“For our suppliers in Taiwan, it is very clear that their priorities strongly depend on the business we have there. Of course, a small and less important customer can become an important one at a later stage and all suppliers will at first try to fulfill each customer’s requirements. But when resources are limited, these suppliers will first serve the most important customers. We will have more power if we are a big customer. If we are less important to their total business, it becomes important for us to get things formally arranged. We need to pay more attention to the pricing and delivery performance of these suppliers.”

“People tend to only look at how much of their business they delegate to a certain supplier, but if they would look at how much business they represent for that supplier, it would create a whole new perspective. When our business with a Taiwanese supplier stays more or less unchanged, but this supplier has grown rapidly in the past few years, we become less and less important to him. It is vital to take this into account while managing our supply chain.”

“The volume we have at a supplier does have influence on the performance. If we have more business there, we will get more focus. It will result in a better yield performance for instance. If one product makes up for a high percentage of the total production, the supplier will work on improving that specific product. By doing so he will also improve the rest of the production.”

8.10.9 The buyer’s exposure transaction complexity

Similar to the transaction size, the buyer’s exposure and transaction complexity should also be taken into account while managing the suppliers. What points of attention are to be considered when the buyer’s exposure and transaction complexity are both high?

“If the production process is very complex, when there is only one supplier that can make it and when the product is very important for our business, we are highly dependent on the supplier. When this dependency is high, we will want to identify and try to cover all the risks in the contract. But the supplier could disagree with that. Suppliers will not accept that all responsibility rests on their shoulders. They may refuse the deal or raise the price. The more dependent we are on the supplier, the less we are in a position to negotiate. Take for instance the case we had three years ago. Our new product required a special process for which we only had one specific supplier, and the volume was low. It was part of a multi-product module belonging to our new strategic product platform. Our dependence towards the supplier was high. To mitigate the risk, we had proposed very detailed requirements in the contract, like a price roadmap, penalties in case of insufficient supply, quality guarantees, safety stocks, discontinuation conditions etc, but we couldn’t come to an agreement without a minimum order guarantee. We should avoid such a situation. It is therefore the guideline for our development department to have a product designed which can be produced in a standard process at multiple suppliers, so that we are less dependent.”

“If the uniqueness of the product is so high that special processes or equipment need to be purchased, the supplier will ask us to share the cost of the investment or to guarantee a minimum order quantity. We had one case in which the supplier asked us to co-invest when we placed our production order. It was a big surprise to us, because they hadn’t mentioned
this during the negotiations. We had put quite a lot of effort in qualifying their process. We placed our production order and expected products to be delivered shortly after. It was very bad news to us, as we didn’t foresee this situation and we didn’t have the time to look for alternatives. We had no choice but to accept the investment. In this example the supplier clearly took advantage of our dependency. We should learn from this and mitigate risks beforehand, especially when in combination with a low transaction size. To avoid this situation in the first place clearly is the best way. When however it cannot be avoided, for example in the case of an innovative new technology, we should try to arrange a second supplier as soon as possible."

“It should be looked at from both sides: the buyer’s as well as the supplier’s level of exposure. In the beginning a Taiwanese supplier was for 60% dependant on us, which made us their very important customer. This gave us high negotiation power. We should however avoid being dependant on one supplier. In the beginning we probably don’t have much choice, but soon afterwards we should go for the differentiated portfolio or customer area. When both customer and supplier have a high exposure towards one another, it becomes a partnership instead of a customer / supplier relationship. Then the contract is not negotiated by the purchasing department anymore but by the CFO’s (Chief financial officer) of both companies.

Running low volume, low risk; we usually focus on the process. In case of high volume, low risk, we will leverage to improve the efficiency. If both risk and volume are high, we are dealing with a critical supplier. It then is considered a traditional partnership. The most difficult cases are those where the volume is low and the risk is high. A well defined formal contract is necessary. As it is difficult to specify and cover all possible risks, the cooperation will highly depend on a good relation. For very complex transactions, it is very important that the supplier understands the requirements of the customer. The specifications will be dynamically defined. Consequently multiple interactions will be necessary during the course of the cooperation.”

8.10.10 Culture

The differences in culture should be taken into account. What are the differences between western and eastern companies?

“There surely are differences between western and eastern companies. American companies for instance are more formal. The agreements are mostly stated in the contract. Asia is much less formal. And then there are also differences between Asian countries as well. The Chinese are mainly focused on a long lasting relationship. Respecting each other is very important. Singapore has a more Western, almost American culture. Many people have had their education in America and are not traditional Asian anymore. They focus more on the formal business to business agreement than on working on relations. Korean people are more focused on their own nation. They consider the interest of the nation even more important than the interest of the company. When I did business with a Korean company, I noticed that they were interested in transferring a larger part of the supply chain and business to Korea, so that Korea as a nation could benefit more. During the meeting, a Korean colleague from our local office was present to support me. We were all able to speak English, but from time to time my Korean colleague spoke Korean with the representatives of the Korean company. This made me lose control over the conversation. Honestly I couldn’t trust my Korean colleague at that moment. I wonder if the company’s interest had to make way for the Korean interest. In Taiwan you’ll experience a mixture of the Chinese and American
culture. One of our suppliers there has many American customers. The majority of people working there have studied in America.”

“Nowadays there are many Western companies in China and many Western companies are doing business there. This will change the culture gradually.”

“Besides, different companies create their own culture as well. One of our suppliers in Taiwan operates almost as if it was a military organization and shows a high standard in operational performance. A supplier in the Philippines is just the opposite. There is no sense of urgency, everything has its time. They never say no to the customer, which is causing problems to surface at a very late stage. We need to take these factors into account.”